



# The impending globalization of ADHD: Notes on the expansion and growth of a medicalized disorder

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## ARTICLE INFO

### Article history:

Received 21 January 2014

Received in revised form

6 October 2014

Accepted 7 October 2014

Available online 8 October 2014

### Keywords:

ADHD

Globalization

Medicalization

Diagnosis

ICD

DSM

## ABSTRACT

Attention Deficit Hyperactivity Disorder (ADHD) has been medicalized in the United States since the 1960s. Primarily used in North America until the 1990s, ADHD diagnosis and treatment have increasingly been applied internationally. After documenting the expansion of ADHD in a global context, this paper presents five brief international examples examining ADHD usage and expansion: the United Kingdom, Germany, France, Italy and Brazil. We then identify and describe several vehicles that facilitate the migration of the ADHD diagnosis: the transnational pharmaceutical industry; the influence of western psychiatry; moving from ICD to DSM diagnostic criteria; the role of the Internet including the related advent of easily accessible online screening checklists; and advocacy groups. Finally, we discuss what this globalization of a diagnosis reflects about the potential global medicalization of other conditions.

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Attention Deficit Hyperactivity Disorder (ADHD) is a classic example in the study of medicalization. The first sociological study of the medicalization of deviance focused on hyperactive children (Conrad, 1975, 1976) and a key paper the rise of Adult ADHD is an exemplar of how diagnostic expansion contributes to the growth of medicalization (Conrad and Potter, 2000). While in recent years there have been important writings on the changes in medicalization (Clarke et al., 2003, 2010; Conrad, 2005; Conrad, 2007), these have mostly focused on the American context. But in the past two decades it has become apparent that medicalization is becoming an increasingly global phenomena and that this globalization is a significant change that needed sociological attention. Thus there is a gap in the sociological literature on how a medicalized diagnosis is able to migrate from the U.S. to other countries. In line with previous studies we focus on ADHD as an exemplary case of medicalization, in this instance by examining the reception of ADHD in several countries, to provide fresh insights into impending globalized medicalization.

For the past forty years, ADHD has been among the most commonly diagnosed psychiatric conditions for children in the U.S. (Conrad, 1975; Kessler et al., 2006). With the rise of Adult ADHD the

prevalence of ADHD continues to grow as it becomes seen as more of a lifespan condition than just a disorder for children. Recent studies suggest that up to 9% of U.S. children ages 4–17, and approximately 4.4% of U.S. adults have ADHD (Kessler et al., 2006). Until two decades ago, the ADHD diagnosis was primarily used in North America and a few other countries (e.g. Australia and Canada.) (Mayes et al., 2009; Conrad, 2010). Growing evidence suggests that this is changing and that ADHD is now diagnosed in various countries across the globe (Polanczyk et al., 2007).

Analysts of medicalization see the forces behind medicalization as changing. Conrad (2005) has suggested that the engines of medicalization are shifting from the medical profession and social movements to biotechnology (e.g. the drug industry), consumers, and the insurance industry – with medical professionals increasingly taking more of a secondary role as gatekeepers. In a different frame, Clarke et al. (2003) suggest there is a greater impact of technoscience in what they call “biomedicalization.” Both agree that medicalization is expanding and changing. Increased usage of pharmaceutical and drug interventions for various human issues, what Abraham (2010) and others refer to as the “pharmaceuticalization” of medicine, may also contribute to increased medicalization (Conrad, 2013).

One other important way medicalization is changing is that it is becoming more global. While most of the analysis of medicalization thus far has been limited to the U.S., there is a paucity of research examining how medicalization may be expanding in the

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there was published research related to ADHD available for each, a review of that literature suggested that each of these countries experienced some change in ADHD diagnosis and treatment, and the cases present somewhat different experiences related to ADHD. For some countries we also supplemented this with key informants. While this is clearly an opportunity sample, together they can shed light on wider changes in ADHD diagnosis and treatment.

Overall ADHD diagnosis and treatment appear to be increasing in the countries we explored. We briefly describe the ADHD growth for each and identify specific differences among the selected cases. We then use these examples to point to vehicles for the globalization of ADHD. Owing to a paucity of systematic data on ADHD prevalence and migration in general and to a degree in our case countries as well, we are limited to using the best data available. Thus we rely on what data are available to reflect changes in the identification and treatment of ADHD: data on increases in diagnosis; on changes in prescription of medications; increases in prevalence, or some combination of these. We recognize that there are differences among these measures, but together they give us the best picture currently available on the changes in ADHD.

## 2.1. The United Kingdom

The case of ADHD in the U.K. points to the role different diagnostic criteria can play in shaping ADHD prevalence. The WHO's *International Classification of Mental and Behavioral Disorders* (ICD) was generally adopted in the U.K. after its release as the ICD-9 in 1979 and the ICD-10 in 1998. The ICD denotes a condition called hyperkinetic disorder (HKD), which provides a higher threshold to achieve a diagnosis than the DSM (see section below comparing ICD and DSM diagnostic criteria for details). Mostly severe or extreme symptomatology is classified as a disorder under the ICD (NICE, 2009), denoting a less prevalent and more severe condition than the DSM (Thapar et al., 1999). According to the National Institute for Health and Clinical Excellence (NICE, 2009), HKD thus refers to a "severe sub-group of the DSM-IV-TR combined subtype of ADHD." The prevailing use of the ICD criteria may account for the historically lower rates of ADHD in the U.K. than in the U.S. Research suggests that <1% of U.K. children were diagnosed with ADHD in the 1990s (Hinshaw, 1994; Prendergast et al., 1988; Taylor, 1994) and it was more difficult to receive an ADHD diagnosis in the U.K. than in the U.S. (Malacrida, 2003). Holowenko and Pashute (2000) suggest that use of ICD criteria likely under-represents the prevalence of ADHD in the U.K. population.

ADHD is now, however, the most prevalent behavioral disorder in the U.K. with an estimated 2–5% of school-aged children and young people having the condition (<http://www.nhs.uk/conditions/attention-deficit-hyperactivity-disorder/Pages/Introduction.aspx>). Stimulant-treatment for ADHD has also been on the rise since the 1990s (e.g. Bramble, 2003; Goldman et al., 1998; Orford, 1998; Robison et al., 1999), with an estimated increase from 183,000 prescriptions in 1991 to 1.58 million in 1995 (Parliamentary Office of Science and Technology, 1997). NICE (2009) notes a large rise in ADHD recognition and treatment, with approximately 0.5 per 1000 children diagnosed 30 years ago (Taylor, 1986), and 3 per 1000 receiving medication for ADHD in the late 1990s (NICE, 2006). The U.K. Department of Health estimates a 35-fold increase in Ritalin prescriptions between 1992 and 1997 and recent research suggests ADHD prescriptions approximately doubled from 2003 to 2008 for children, adolescents, and adults ages 45 years or older; results indicated an approximate 4-fold increase for adults 18–24 and 24–45 years old (McCarthy et al., 2012). Moreover, child psychiatrists in the early 2000s were twice as likely to use methylphenidate as a treatment option for ADHD, than in the mid 1990s (Bramble, 2003). A recent Care Quality

Commission (2013) report suggests that methylphenidate prescriptions rose by 11% in primary care practices, and by 24% in private practices from 2011 to 2012, suggesting both increased ADHD diagnosis and treatment in the U.K.

Changes in diagnostic practice, with greater use of the DSM criteria, may contribute to these observed increases. Based on the ICD-10's narrower criteria, the prevalence of HKD is estimated to be between 1 and 2% of children and young people in the U.K. (Green et al., 2005; NICE, 2008). Using the broader DSM-IV criteria, ADHD prevalence in school-aged children and adolescents is estimated to be between 3 and 9% (NICE, 2008). NICE (2008) notes that the terminology in Europe has changed and 'ADHD' has become the diagnostic term most often used in clinical practice, even if more restrictive criteria are utilized. It is also important to note that, similar to the U.S., both specialists and general practitioners in the U.K. may prescribe and monitor treatment for ADHD (Frances et al., 2004). As discussed in more detail below, this is not the case for countries such as France and Italy, where specialists perform such tasks (Debroise, 2004; Panei et al., 2008).

## 2.2. Germany

When discussing ADHD in Germany the conversation often begins with the description of "Fidgety Phillip," an overactive "naughty boy" in the 1845 children's book by Heinrich Hoffman (Smith, 2010). In 1932 Franz Kramer and Hans Pollnow described behaviors in children that are similar to ADHD when they described Kramer–Pollnow Syndrome – a neurological disorder with hyperactivity and mental retardation. Their research did not, however, engender widespread diagnoses and treatment (Neumarker, 2005). There was some attention to the motor – as opposed to the attention – side of children's behavior problems in Germany, but there is no evidence of any connection to Bradley's 1937 discovery about the 'paradoxical effect' of stimulants on children's behavior problems which so influenced ADHD research (Conrad, 1975). While there was some interest in the concept of 'minimal brain dysfunction' (a diagnostic precursor to ADHD) in Central Europe in the 1950s, it is unclear how widely used the diagnosis was (Fegert, personal communication, 2011).

The development of the ICD-9 criteria (1979–98) for "hyperkinetic disorder", generally adopted in Germany, presented European guidelines for diagnosing a hyperactive behavior disorder. In the 1980s, Ritalin was prescribed to many who were diagnosed with HKD in Germany, although insurance-covered behavioral training programs (e.g., "Ergotherapie," or Occupational Therapy) were also utilized. Some concern arose amongst parents and even some psychiatrists about the impact of 'labelling' children with a mental disorder, and there was a relatively critical public debate over the use of medications for these children (Fegert, personal communication, 2011).

Research suggests that an increase in diagnosis and prescription rates occurred in the 1990s (Ferber et al., 2001, 2003; Schubert et al., 2001). Drug reports suggest that from 1997, the volume of methylphenidate prescriptions increased approximately 10-fold; moreover, between 1999 and 2008, prescriptions for drugs to treat ADHD rose from 10 million defined daily doses to 53 million defined daily doses (Lohse et al., 2008; Lohse and Müller-Oerlinghausen, 2009). Up until the 1990s amphetamines played no role in Germany, as there were no approved formulations for children. Now, however, with federal drug agency (Das Bundesinstitut für Arzneimittel und Medizinprodukte) approval, and the availability and promotion of slow release compounds, treatment numbers have continued to rise (Fegert, personal communication, 2011). Consistent with European guidelines, the German Society for Child and Adolescent Psychiatry and Psychotherapy recommends

psychologists' and psychiatrists' assessments of behaviors characteristic of ADHD. Italian professionals tended to diagnose 'learning disability' or 'personality disorder' where Americans denoted 'behavioral disorder' or 'hyperactivity' (Frazzetto et al., 2007). Until recently, many Italian clinicians had limited knowledge of ADHD as it is defined in the DSM and ICD – utilizing instead a predominantly psychodynamic–psychoanalytic approach and tending to use a fairly generic label of "problem child" or "developmental difficulties" (Bonati, 2005; Gallucci et al., 1993). In a 2001 study, approximately 60% of the primary care pediatricians were cognizant that ADHD existed but were unfamiliar with how to diagnose it; only 10% were following up ADHD cases directly (Bonati et al., 2001b; Marchini et al., 2000).

ADHD's history in Italy is intricately tied to that of Ritalin (methylphenidate). Ritalin first appeared on the Italian market in the late 1950s (similar to many other European countries). However, limited use of the ADHD diagnosis, preferences for less organic or drug-based psychiatry, and strict drug policies contributed to low clinical use of pharmacotherapy. Ritalin was restricted in 1989, due to increased illegal use among college students (Frazzetto et al., 2007) and Ciba-Geigy removed it from the market (Bonati, 2005; Panei et al., 2008). For well over a decade it was illegal to obtain.

This has since changed, due in large part to the efforts of patient and provider organizations (e.g. the Associazione Italiana Famiglie (AIFA) ([www.aifaonline.it](http://www.aifaonline.it)) and the Italian Association of Paediatricians) that worked to raise awareness about ADHD and lobby for methylphenidate's reintroduction into the Italian market (Bonati et al., 2001a; Bonati, 2005; Frazzetto et al., 2007). Such efforts garnered further support in 2002 when the Società Italiana di Neuropsichiatria dell'Infanzia e dell'Adolescenza (SINPIA) published national guidelines for child and adolescent neuropsychiatry (see [www.aifa.it/documenti/LGAdhdSINPIA02-doc](http://www.aifa.it/documenti/LGAdhdSINPIA02-doc)), in an effort to synthesize and adapt existing ADHD research to the Italian context (Panei et al., 2008). The publication aligned with the American Academy of Pediatrics' international guidelines, introduced in 2000 and 2001, and was intended to facilitate systematic and rigorous diagnosis in Italy (Frazzetto et al., 2007). A National Consensus Conference also formed, producing a statement that accepted and brought recognition to ADHD as a pathology of childhood, explained the diagnostic process, and justified pharmacotherapy as a possible treatment option (Maturio, 2012; personal communication; Zuddas and Bonati, 2003; Frazzetto et al., 2007).

In 2002, Italy's Drug Agency shifted methylphenidate to the less restrictive list of drugs (Bonati, 2005), and recognized it as a possible treatment option for children  $\geq 6$  years old. Ritalin and Strattera became available in 2007 (Panei et al., 2008) – the same year that a national drug registry was formed to collect and monitor diagnostic and management data on individuals receiving pharmacological treatment (Gazzetta Ufficiale, 2003; Bonati, 2005; Frazzetto et al., 2007). This registry determines the risk/benefit ratio of ADHD drugs and their safety in clinical practice (Germinario et al., 2013).

Pharmacologic treatment in Italy is not, however, the norm, and prescription rates for mental disorders are relatively low (Clavenna et al., 2007). Research suggests that five times as many children receive psychotherapeutic interventions as pharmacologic interventions (Agency for Public Health, 2002) and 0.80% of individuals with ADHD are treated pharmacologically, compared to 57%, 11%, and 9% in the U.S., U.K., and France, respectively (Panei et al., 2008). Italy's lower rates have been attributed to the country's stricter treatment plans and the introduction of the National Register (Panei et al., 2008). The data also suggest a downward trend in psychotropic drug consumption in children from 2001 to 2006.

ADHD diagnosis and treatment therefore occur in Italy, though the country's history of ADHD points to a critical psychiatry legacy (Basaglia, 1982) coupled with a more psycho-dynamic orientation and a history of strong drug regulations. Several advocacy groups have also taken critical stances toward pharmacologic treatment for ADHD, such as the Associazione Italiana Disturbi di Attenzione/Iperattività (AIDAI) ([www.aidai.org](http://www.aidai.org)) (Bonati, 2005).

## 2.5. Brazil

As in many South American countries, ADHD is called TDAH (Transtorno do déficit de atenção/hiperatividade) in Brazil. While published articles on ADHD in Brazil can be traced back as far as the early 1990s, acceptance of the notion of ADHD as a biomedical condition and the idea of medications as a primary treatment option has been slow (Hinshaw et al., 2011). Hinshaw et al. (2011) suggest that a strong clinical preference for psychoanalysis, and a dominant preference for "constructivism" in the education system, may contribute to a disinclination toward biomedical perspectives and medications in Brazil. Behavioral problems in Brazil tend not to be considered to be associated with clinical manifestations of disorders or syndromes (Hinshaw et al., 2011). Brazil's period as a military dictatorship also led to discourse regarding connections between medical treatment for behavioral problems and political depression, which may have contributed further toward a disinclination toward biomedical views and treatments related to ADHD (Hinshaw et al., 2011).

By the beginning of the 21st century, however, Brazil was home to several internationally-known ADHD researchers (e.g. Guilherme Polanczyk and Luis Augusto Rohde). ADHD is now considered a highly prevalent disorder in Brazil and interest in the diagnosis has been growing dramatically in past decades (De Souza et al., 2008). Estimates of prevalence range from 0.9 to  $>6\%$ , depending on the diagnostic criteria and the population studied. As one prominent researcher pointed out, there is a scarcity of studies using DSM-IV criteria (often considered the new diagnostic gold standard) in cultures from developing countries (Rohde, 2002). But there is no doubt there is "growing salience of DSM-IV derived categories" in Brazil (Behague, 2009, 461). This includes a 2004 study using DSM-IV criteria which found a prevalence of 4% in children (Goodman et al., 2005). ADHD is also increasingly seen as a lifelong disorder in Brazil; a recent household study of adults using a self-report screen reported a prevalence of 5.8% (Polanczyk et al., 2010).

As in developed countries, many children are identified in school by potential "sickness brokers for ADHD" (Phillips, 2006). A large scale Brazilian study showed that teacher suspicions of ADHD were important in identification (Ponde & Freire, 2007). A recent study revealed heterogeneous beliefs regarding ADHD among many Brazilian professionals including teachers – beliefs which were not based on scientific evidence; the authors noted that "it is urgent that these professional groups be trained and the information programs on ADHD be established for parents and schools" (Gomes et al., 2007). As in other countries, the first line of treatment for ADHD tends now to be stimulant medications (<http://www.psiqweb.med.br/site/?area=NO/LerNoticia&idNoticia=277>) though there has been some concern in Brazil around both under (Hinshaw et al., 2011) and overtreatment with such medications (Ortega et al., 2010).

There are a number of active groups promoting ADHD in Brazil, including a well-established information and advocacy website Associação Brasil DTA ([www.tdah.org.br](http://www.tdah.org.br)), which is connected with kindred American groups. Ortega et al. (2010) notes that the media, especially large circulation newspapers, has a significant impact on disseminating information about ADHD. There has, however, been

2010). Treatment of ADHD primarily with psychoactive medications (stimulants) has always been a biopsychiatric approach and may be viewed as a biological treatment harbinger for minor psychiatric disorders. While there are still countries where psychoanalytical approaches dominate (e.g. France, Italy), biological psychiatry appears to be extending its reach beyond the U.S.

There are a number of ways this may affect the globalization of ADHD diagnosis and treatment. Some recent observers have suggested that psychiatric training, foreign and U.S.-based, is becoming more similar (Zisook et al., 2007). Training opportunities in child psychiatry, are also often limited in many countries. The WHO *Psychiatric Training Atlas* (WHO, 2005), which gathered information from >100 countries, reported that only 29 reported having child psychiatric training programs in their country. Twenty-eight of 74 countries had some agreement to send students to another country for specialized training. Gogiani et al. (2010) state that, "Historically, IMGs have played a critical role in filling positions in child psychiatry," in the U.S. though "the IMGs selected for training in child psychiatry decreased from 250 in 2006 to 226 in 2009." Thirty-five countries reported <500 psychiatrists were residing in the country while 11 countries reported that >30 psychiatrists had trained abroad ([http://www.who.int/mental\\_health/evidence/Atlas\\_training\\_final.pdf](http://www.who.int/mental_health/evidence/Atlas_training_final.pdf)).

International medical graduates (IMGs) come to the U.S. from 140 different countries and constitute 1/3 of the current residency positions (AMA, 2008). Some graduates remain in the U.S.; nearly 30% of practicing psychiatrists in the U.S. are IMGs (AMA, 2008). While it is unclear how many IMGs who are trained in psychiatry return to their original country, such psychiatric 'exchange' may influence whether psychiatric norms regarding diagnosis and treatment utilized in U.S. psychiatry migrate elsewhere.

In the past decade several jointly authored self-ascribed "international consensus statements" appeared in the psychiatric and medical literature. These statements may serve to supply professional support and promotion for the diagnosis. Most originated from North America with a global audience in mind. These documents recognized some controversies around ADHD and claimed some type of consensus in resolving them. The first one, released in 2002 as the "International Consensus Statement on ADHD" under the auspices of the prominent American ADHD researcher, Russell Barkley, expressed concern about the "periodic inaccurate portrayal of ADHD in media reports" and complained about the views of a "handful of nonexpert doctors" who declare that "ADHD does not exist." The statement declares that the scientific evidence available overwhelmingly supports "ADHD as a valid disorder," a view which the report claims has been supported by half a dozen of psychiatry and psychology's most important professional organizations (Barkley et al., 2002). Elsewhere Barkley noted that the consensus statement has been "translated into several foreign languages" and "is being distributed internationally...." (Barkley, 2002). It is interesting to note that while the report appears to reflect an international consensus, of the 86 co-signers of the statement 88% were from North America, barely an international representation.

In the next few years, several other purported consensus statements appeared in the psychiatric literature (e.g. Kutcher et al., 2004; Remschmidt et al., 2005; Kooij et al., 2010). These mostly attempted to justify and encourage ADHD diagnosis and treatment. For example, Remschmidt et al. (2005: 127) state, "This statement aims to re-affirm ADHD as a valid disorder that exists across different cultures, has a significant global impact, and should be diagnosed and treated where it occurs." Such statements have not gone unopposed. For example, Timimi and thirty-three co-endorsers (2004) challenged Barkley et al.'s (2002) assumption that ADHD identifies conclusively "a group of children who suffer from a

common and specific neurobiological disorder." They contend that, "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."

One point upon which the consensus statements did generally agree was the notion that the proper diagnosis of ADHD was based on the DSM-IV criteria. For example, as stated previously, an influential statement in Italy emanated from APA recommendations which were based upon DSM criteria. How much direct influence these specific statements had is difficult to say, but as the following section describes, the use of the DSM-based diagnostic criteria appears to have grown in global influence.

### 3.3. Moving from ICD to DSM

Related to the increasing influence of American Psychiatry is the growing usage of the DSM, as opposed to ICD criteria, for diagnosing attention and hyperactivity-related behaviors. Physicians throughout Europe have traditionally used the World Health Organization's ICD. A review of the global research literature, however, suggests that diagnostic criteria in the APA's DSM, now in its 5th edition, are increasingly being adopted to diagnose and treat ADHD. Table 2 illustrates several of the key differences between the two approaches. As stated previously, the ICD denotes a condition called hyperkinetic disorder (HKD), which in many ways is similar to ADHD, but provides a somewhat different and higher threshold for diagnosing ADHD-like symptoms.

For example, the ICD-10 diagnosis requires inattention, impulsivity and overactivity to be present for HKD while the DSM-IV requires only two dimensions of these behaviors (Lee et al., 2008). The DSM-IV also counts a greater number of behaviors as indicators of overactivity/hyperactivity than does the ICD-10. Both criteria ascribe motor restlessness, excessive fidgeting, "off-task activity" and difficulty staying seated as part of their diagnosis (WHO 190; APA 79). The DSM-IV (79), however, also counts "blurting out answers," "talking excessively," "difficulty playing or engaging quietly," "difficulty awaiting one's turn" and "frequently interrupting or intruding on others". The two manuals also differ with respect to what qualifies as "inattentiveness." The DSM-IV stipulates more behaviors as indicators of inattention (e.g. carelessness, disobedience, forgetfulness, and trouble organizing activities). The ICD requires that diagnosable behaviors appear in  $\geq 2$  settings (e.g. home and school) while the DSM prefers symptoms in two settings, but allows a diagnosis in a single setting (e.g. school). In addition, the ICD-10 prohibits the diagnosis of HKD when the patient has certain comorbidities (e.g. anxiety disorders, mood disorders, pervasive developmental disorders or schizophrenia); the DSM-IV does not prohibit the diagnosis of ADHD in such cases. Considering the differences in diagnostic definitions described above, it is perhaps not surprising that Jensen (1999) reports far lower diagnostic rates for a disorder when the ICD-10 is used instead of the DSM-IV (~1% vs. 5%). When compared, it is easy to see

**Table 2**  
Criteria for ADHD and hyperkinetic syndrome.

DSM-IV	ICD-10
- ADHD	- Hyperkinetic Syndrome
- Symptoms in 2 Dimensions*	- Symptoms in all 3 dimensions*
- Can do a diagnosis with symptoms in 1 dimension	- Requires all criteria in at least 2 situational contexts
- Requires some impairment in more than 1 setting	- Mood, anxiety, developmental disorders are exclusion diagnoses
- Comorbid conditions permissible	

\*Inattention, overactivity, and impulsivity.

interpreted by parents, children, or even professionals as indicating the validity of a diagnosis. Without a proper understanding of the context in which the behavior occurs, however, it is sometimes difficult to discern its meaning.

In still other cases, sites provide information regarding how ADHD is diagnosed, providing a list of symptoms and criteria, which often align with a diagnostic manual. ADDISS's site (<http://www.addiss.co.uk/adhd.htm>), for example, provides background, diagnostic criteria, and symptom lists under their ADHD "Information centre." The page refers to both the DSM-IV and ICD-10. "ADHS Deutschland e.v." ([http://www.adhs-deutschland.de/desktopdefault.aspx/tabid-12/69\\_read-65/](http://www.adhs-deutschland.de/desktopdefault.aspx/tabid-12/69_read-65/)) in German provides a similar list under their "Diagnose" page.

These checklists, both formal and less formal, may facilitate pre and/or self-diagnosing. In a sense they are ADHD made simple, a do-it-yourself diagnosis. The origins of these checklists are in the U.S. and they often serve as a way of popularizing the DSM-IV criteria.

### 3.5. Advocacy groups

Advocacy groups play an important role in spreading awareness about, and shaping policy around ADHD diagnosis and treatment. The non-profit patient organization Associação Brasileira Do Deficit De Atenção (Brazilian Association Attention Deficit/ABDA) in Brazil, for example, provides support group services, information about diagnosis and treatment, and telephone and email support to individuals with ADHD and their families. Their webpage – which they note receives an average of 200,000 monthly visits – also provides detail about ADHD-related policy in Brazil (<http://www.tdah.org.br/br/a-abda/quem-somos.html>). They describe legal protections for individuals with disabilities, and the organization's support of policy efforts to secure educational resources in school for individuals with ADHD.

This group and others like it are often funded in part by pharmaceutical companies like Novartis, Janssen-Cilag and Shire (Barbarini, forthcoming). Many such groups are also connected to the U.S.-based organization Ch.A.D.D. (Children and Adults with Attention Deficit/Hyperactivity Disorder), which provides education and support about ADHD diagnosis and treatment and advocates for legal protections (e.g. at work and in school) for individuals with ADHD. The group holds conferences that bring together lay and professional groups around topics related to ADHD diagnosis and treatment and they are often listed as a resource on other groups' sites.

Such advocacy groups—online or face-to-face—are common in the U.S. and increasingly common in many other countries. Groups exist at the local (Ch.A.D.D.'s chapter in dozens of U.S. locales; ADHD Support Group Cornwall, and other cities in the UK), national (e.g. French Adult ADHD Association; Center for ADD/ADHD Advocacy, Canada (CADDAC)) and even international level (e.g. ADHD Europe, and the World Federation of ADHD), and they tend to bring together stakeholders from various backgrounds. As noted previously, AIFA collaborated with the Italian Association of Paediatricians to raise awareness about ADHD and its treatment with methylphenidate, and was influential in bringing methylphenidate back to the Italian market (Bonati et al., 2001a; Bonati, 2005; Frazzetto et al., 2007). Groups are often comprised of individuals with backgrounds in various fields, including education, psychiatry, neurology, and psychology, as well as individuals diagnosed with ADHD and their family members (ADHD Information Services [ADDISS] in the UK; HyperSupers TDAH in France; ADHS Deutschland e.v. in Germany).

Similar to online checklists, the online presence of many advocacy groups may facilitate pre and/or self-diagnosing, thus

increasing the likelihood to seek or obtain a medical diagnosis and treatment. Group pages often provide information about diagnostic criteria and the online checklists. Various sites provide information about treatment as well, even providing contact information for local professionals (e.g. psychiatrists, psychologists, ADHD coaches, etc.). The U.K.-based site AADD-UK, for example, provides a "Help & Support" page with information on how to find an ADHD provider. The aforementioned ABDA site provides information about medical approaches to ADHD and includes a registry of ADHD specialists. For well established organizations like Ch.A.D.D. an online presence provides a way to reach audiences beyond their country of origin. For newer country-based organizations it creates links to exchange information and strategies for supporting ADHD diagnoses and treatments.

### 4. Points of resistance

While it seems evident that ADHD diagnosis and treatment are spreading in a wide range of countries, and that several key vehicles may facilitate that migration, this is an uneven process. In some countries the growth of ADHD diagnosis has been rapid, while in other countries we see much less use of the diagnosis. An examination of these points of "resistance" is beyond the scope of this paper but we briefly note several main points here.

In countries where the ICD remains the diagnostic touchstone, fewer people are likely to be diagnosed and treated as having ADHD. In some of these countries there is also a concern that an ADHD diagnosis is a label that carries with it a stigma an individual must manage (Mueller et al., 2012). In countries such as France, where psychoanalytic psychiatry remains strong or dominant (Misès et al., 2002), there is a resistance to adopting an ADHD diagnosis and an even greater reticence to prescribing psychoactive medications (Vallee, 2011). Forms of psychotherapy or parent engagement are much more likely responses to behavioral troubles. Psychoactive medications are often the treatment choice of last resort (Bursztejn and Goise, 2006; Le Heuzey et al., 2006; Vallee, 2011).

In several countries including Italy and France, only specialists like child psychiatrists could historically diagnose and prescribe psychoactive medications (Debroise, 2004; Panei et al. 2010). And in many countries the number of child psychiatrists is very small. When only specialists can diagnose and treat ADHD, fewer people are likely to be diagnosed. The availability of medications can also limit treatment. In some countries few psychoactive drugs are approved for children and in many countries Ritalin and other stimulants are considered a controlled substance. As noted previously, until recently, it was illegal to prescribe Ritalin in Italy—thus restricting pharmaceutical treatment and perhaps, to a degree, diagnosis as well. Even when a diagnosis is made, psychoactive medications are also often expensive and beyond many people's reach, particularly in low-income areas or countries.

Concerns about the safety of ADHD medication may also limit treatment in certain countries. A recent safety review of methylphenidate from the European Medicines Agency, which restricts its recommendations to children >6 years of age and adolescents and does not mention use in adults, has led methylphenidate to no longer be licensed for use in countries like Norway (Kooij et al., 2010: 3). In other countries like the U.K., only some of the numerous drugs used to treat ADHD are available.

Finally, in some countries like Italy there remains a cultural skepticism toward treating behavioral problems with psychoactive drugs. This type of organized popular opposition exists in many countries (e.g. Brazil) but often appears to be limited to the Internet or to some modest protests – which are usually focused on stimulant medication rather than the diagnosis.

health agenda" may divert attention from important social and structural approaches to global health (Clark, 2014). We hope the ADHD case will inspire other researchers to examine further how other medicalized conditions become global diagnoses.

## Acknowledgments

Our thanks to Phil Brown, Allen Horwitz and Ilina Singh for comments on an earlier version of this paper.

## References

- Abraham, John, 2010. The sociological concomitants of the pharmaceutical industry and medications. In: Bird, C.E., Conrad, P., Freeman, A.M., Timmermans, S. (Eds.), *The Handbook of Medical Sociology*. Vanderbilt University Press, Nashville TN.
- ADHS Deutschland e.v., 2011. ADHS bei Kindern und Jugendlichen (Aufmerksamkeits-Defizit-Hyperaktivitäts-Störung). <http://www.ag-adhs.de> (accessed September 2012).
- Agence Nationale de Sécurité du Médicament et des Produits de Santé, 2013. Methylphenidate: données d'utilisation et de sécurité d'emploi en France. [http://ansm.sante.fr/var/ansm\\_site/storage/original/application/8d1277a3867155547b4dce58f0db00.pdf](http://ansm.sante.fr/var/ansm_site/storage/original/application/8d1277a3867155547b4dce58f0db00.pdf).
- Agency for Public Health, 2002. Document from Agenzia di Sanità Pubblica, Lazio regarding mental health interventions. [http://www.asplazio.it/asp\\_online/tut\\_soggetti\\_deb/files/files\\_sal\\_ment/TSMREE\\_2002.PDF](http://www.asplazio.it/asp_online/tut_soggetti_deb/files/files_sal_ment/TSMREE_2002.PDF) (accessed August 2012).
- Akatsu, H., Kuffner, J., 1998. Medicine and the Internet. *West. J. Med.* 169, 311–317.
- American Medical Association, 2008. Physicians Characteristics and Distribution in the U.S., 2008 ed. American Medical Association, Chicago.
- American Psychiatric Association, 1994. Diagnostic and Statistical Manual of Mental Disorders (IV). American Psychiatric Association, Washington.
- Anderson, J.C., 1996. Is childhood hyperactivity a product of western culture. *Lancet* 348, 73–74.
- Associazione Italiana Disturbi di Attenzione/Iperattività (AIDAI). [www.aidai.org](http://www.aidai.org).
- Associazione Italiana Famiglie (AIFA). [www.aifaonlini.it](http://www.aifaonlini.it).
- Ayers, S.L., Kronenfeld, J.J., 2007. Chronic illness and health seeking information on the Internet. *Health: Interdiscip. J. Soc. Study Health Illn. Med.* 11 (3), 327–347.
- Barbarini, Tatiana de Andrade, July 2014. Medicalization Through ADHD: Support and Resistance Groups in Brazil. Paper prepared for the meetings of the International Sociological Association (forthcoming).
- Barker, K., 2008. Electronic support groups, patient-consumers, and medicalization: the case of contested illness. *J. Health Soc. Behav.* 49, 20–36.
- Barkley, R.A., 2002. International consensus statement on ADHD. *J. Am. Acad. Child Adolesc. Psychiatry* 41 (12), 1389.
- Barkley, R.A., et al., 2002. International consensus statement on ADHD. *Clin. Child Fam. Psychol. Rev.* 5 (2), 89–111.
- Basaglia, F., 1982. Conversazione: a proposito della nuova legge 180. In: Basaglia, F. (Ed.), *Franco Basaglia, Scritti, dall'apertura del manicomio alla nuova legge sull'assistenza psichiatrica*, vol. 2. Turin, Einaudi, pp. 1968–1980.
- Behague, D.P., 2009. Psychiatry and politics in Pelotas, Brazil: equivocal quality of conduct disorder and related diagnoses. *Med. Anthropol. Q.* 2 (4), 455–482.
- Besoli, G., Venier, D., 2003. Il disturbo di attenzione con iperattività: indagine conoscitiva tra i pediatri di famiglia in Friuli-Venezia Giulia, vol. X. *Quaderni ACP*, pp. 8–9.
- Bianchini, R., Postorino, V., Grasso, R., Santoro, B., Migliore, S., Burlo, C., Tata, C., Mazzone, L., 2013. Prevalence of ADHD in a sample of Italian students: a population-based study. *Res. Dev. Disabil.* 34 (9), 2543–2550.
- Bonati, M., 2005. The Italian Saga of ADHD and its treatment. In: Lloyd, G., Cohen, D., Stead, J. (Eds.), *New Critical Perspectives on ADHD*. Routledge, London.
- Bonati, M., Impicciatore, P., Pandolfi, C., 2001a. Reintroduction of methylphenidate in Italy needs careful monitoring. *Br. Med. J.* 322 (7285), 555.
- Bonati, M., Impicciatore, P., Pandolfi, C., 2001b. Evidence and belief in attention deficit hyperactivity disorder: reintroduction of methylphenidate in Italy needs careful monitoring. *Br. Med. J.* 322, 556.
- Bramble, D., 2003. Annotation: the use of psychotropic medications in children: a British view. *J. Child Psychol. Psychiatry* 44 (2), 169–179.
- Bursztein, C., Golse, B., 2005. L'hyperactivité avec troubles de l'attention: questions cliniques et épistémologiques. In: *Neuropsychiatrie de l'enfance et l'adolescence*, vol. 54, pp. 29–37.
- Camino, G., Alegria, M., 2008. Psychiatric diagnosis – is it universal or relative to culture? *J. Child Psychol. Psychiatry* 49 (3), 237–250.
- Camerini, G.B., Coccia, M., Caffo, E., 1996. Il disturbo da deficit dell'attenzione-iperattività: analisi della frequenza in una popolazione scolastica attraverso questionari agli insegnanti. In: *Psichiatria dell'infanzia e dell'adolescenza*, vol. 63, pp. 587–594.
- Care Quality Commission, 2013. The Safer Management of Controlled Drugs. Annual Report (2012). [http://www.cqc.org.uk/sites/default/files/media/documents/cdar\\_2012.pdf](http://www.cqc.org.uk/sites/default/files/media/documents/cdar_2012.pdf).
- Carlat, D.J., 2010. *Unhinged: The Trouble with Psychiatry – a Doctor's Revelations about a Profession in Crisis*. Free Press, New York.
- Chambry, J., 2006. Trouble déficit de l'attention-hyperactivité de l'enfant et l'adolescent: du diagnostic à la prise en charge. *Ann. Med. Psychol.* 164, 613–619.
- Clark, J., 2014. Medicalization of global health 2: the medicalization of global mental health. *Glob. Health Action* 7, 24000.
- Clarke, A.E., Shim, J.K., Mamo, L., et al., 2003. Biomedicalization: technoscientific transformations of health, illness and U.S. Biomedicine. *Am. Sociol. Rev.* 68 (2), 161–194.
- Clarke, A.E., Mamo, L., Fosket, J.R., et al. (Eds.), 2010. *Biomedicalization: Technoscience, Health and Illness in the U.S.* Duke University Press, Durham, NC.
- Clavenna, A., Rossi, E., Derosa, M., Bonati, M., 2007. Use of psychotropic medications in Italian children and adolescents. *Eur. J. Pediatr.* 166, 339–347.
- Cohen, R.A., Sussman, B., 2010. Health Information Technology Use Among Men and Women Aged 18–64: Early Release of Estimates From the National Health Interview Survey, January–June 2009. <http://www.cdc.gov/nchs/data/hestat/healthinfo2009/healthinfo2009.pdf> (accessed January 2014).
- Conrad, P., 1975. The discovery of hyperkinesis: notes on the medicalization of deviant behavior. *Soc. Probl.* Oct. 12–21.
- Conrad, P., 1976. Identifying Hyperactive Children: the Medicalization of Deviant Behavior. DC Heath, Lexington, MA.
- Conrad, P., 2005. The shifting engines of medicalization. *J. Health Soc. Behav.* 46 (March), 3–14.
- Conrad, P., 2007. The Medicalization of Society: On the Transformation of Human Conditions into Treatable Disorders. Johns Hopkins University Press, Baltimore.
- Conrad, P., 2010. The changing social reality of ADHD. *Contemp. Sociol.* 39, 525–527.
- Conrad, P., 2013. Medicalization: changing contours, characteristics and contexts. In: Cockerham, William (Ed.), *Health Sociology on the Move: New Directions in Theory*. Blackwell, Oxford.
- Conrad, P., Potter, D., 2000. From hyperactive children to ADHD adults: observations on the expansion of medical categories. *Soc. Probl.* 47, 59–82.
- Conrad, P., Stults, C., 2010. The Internet and the experience of illness. In: Bird, C., et al. (Eds.), *The Handbook of Medical Sociology*, sixth ed. Vanderbilt University Press, Nashville TN, pp. 179–191.
- Corbo, S., Marolla, F., Sarno, V., Torrioli, M.G., Vernacotola, S., 2003. Prevalenza dell'ADHD in bambini seguiti dal Pediatra di Famiglia. *Med. Bambino* 1, 22–25.
- De Souza, I., Mattos, P., Pina, C., Fortes, D., 2008. ADHD: the impact when it is not diagnosed. *J. Braz. Psychiatry* 57 (2), 139–141.
- Debroise, A., 2004. Ritaline: Un Feuilleton à la Française. *La Recherche* 16, 34–36.
- Diller, L., 1997. *Running on Ritalin*. Bantam Books, New York.
- Döpfner, M., Frolich, J., Lehmkuhl, G., 2000. Hyperkinetische Störungen. In: *Leitfaden Kinder- und Jugendpsychotherapie*, Bd 1. Hogrefe, Göttingen.
- Ebeling, M., 2011. "Get with the program": pharmaceutical marketing, symptom checklists and self-diagnosis. *Soc. Sci. Med.* 73, 825–832.
- Einarsdottir, J., 2008. Teaching children with ADHD: Icelandic early childhood teachers perspectives. *Early Child Dev. Care* 178 (4), 375–397.
- Eysenbach, G., Powell, J., Englesakis, M., et al., 2004. Health related communities and electronic support groups. *Br. Med. J.* 328, 1166–1170.
- Faraone, S.V., Seargeant, J., Gillberg, C., Biederman, J., 2003. The worldwide prevalence of ADHD: is it an American condition? *World Psychiatry* 2, 104–113.
- Fayyad, J., De Graaf, R., Kessler, J., et al., 2007. Cross-national prevalence and correlates of adult attention-deficit hyperactivity disorder. *BJP* 190, 402–409.
- Ferber, I., Schubert, L., Lehmkuhl, G., Spengler, A., Döpfner, M., 2001. Methylphenidat bei hyperkinetischen Störungen: Verordnungen in den 90er-Jahren. *Dtsch. Arztebl.* 98 (9), A-541–A-544.
- Ferber, I., Lehmkuhl, G., Koster, I., Döpfner, M., Schubert, L., Frolich, J., Ihle, P., 2003. Methylphenidatgebrauch in Deutschland: Versichertenbezogene epidemiologische Studie über die Entwicklung von 1995 bis 2000. *Dtsch. Arztebl.* 100 (1–2), A-41–46.
- Fox, S., 2005. Health Information Online. Pew Internet and American Life Project. [http://www.pewinternet.org/~media/Files/Reports/2005/PIP\\_Healthtopics\\_May05.pdf](http://www.pewinternet.org/~media/Files/Reports/2005/PIP_Healthtopics_May05.pdf). [http://www.pewinternet.org/~media/Files/Reports/2005/PIP\\_Healthtopics\\_May05.pdf](http://www.pewinternet.org/~media/Files/Reports/2005/PIP_Healthtopics_May05.pdf) (accessed January 2014).
- Fox, S., Fallows, D., 2003. Internet Health Resources. Pew Internet and American Life Project. Retrieved September 5, 2012. [http://www.pewinternet.org/~media/Files/Reports/2003/PIP\\_Health\\_Report\\_July\\_2003.pdf](http://www.pewinternet.org/~media/Files/Reports/2003/PIP_Health_Report_July_2003.pdf).
- Frances, C., Hoizey, G., Millart, H., Trenque, T., 2004. Paediatric methylphenidate (Ritalin) restrictive conditions of prescription in France. *Br. J. Clin. Pharmacol.* 57 (1), 115–116.
- Frazzetto, G., Keenan, S., Singh, I., 2007. 'I Bambini e le Droghe': the Right to Ritalin vs the Right to Childhood in Italy. *BioSocieties* 2, 393–412.
- Friedman, T., 2005. *The World is Flat: a Brief History of the Twenty-first Century*. Farrar, Straus and Giroux, New York.
- Gallucci, F., Bird, H.R., Berardi, C., et al., 1993. Symptoms of attention-deficit hyperactivity disorder in an Italian school sample: findings of a pilot study. *J. Am. Acad. Child Adolesc. Psychiatry* 32, 1051–1058.
- Gazzetta Ufficiale della Repubblica Italiana, No. 230, 3 October 2003.
- Germinario, E.A.P., Arcieri, R., Bonati, M., Zuddas, A., Masi, G., Vella, S., Chiarotti, F., Panai, P., The Italian ADHD Regional Reference Centers, 2013. Attention-Deficit/Hyperactivity Disorder Drugs and Growth: An Italian Prospective Observational Study. *Journal of Child and Adolescent Psychopharmacology* 23 (7), 440–447.
- Gogineni, R.R., Fallon, A.E., Rao, N.R., 2010. International medical graduates in child and adolescent psychiatry: adaptation, training, and contributions. *Child Adolesc. Psychiatr. Clin. N. Am.* 19, 833–853.



- Schubert, I., Lehmkuhl, G., Spengler, A., Dopfner, M., Ferber, L., 2001. Methylphenidat bei hyperkinetischen Störungen. Verordnungen in den 90er-Jahren. *Dtsch. Arztebl.* 98, 541–544.
- Schubert, I., Koster, I., Lehmkuhl, G., 2010. The changing prevalence of attention-deficit/hyperactivity disorder and methylphenidate prescriptions. *Dtsch. Arztebl. Int.* 107 (36), 615–621.
- Schwarz, A., December 14 2013. The Selling of Attention Deficit Disorder. *New York Times*, p. 1.
- Schwarz, A., May 16 2014. Thousands of Toddlers are Medicated for A.D.H.D.. Report Finds, Raising Worries *New York Times*. p. A11.
- Sechter, D., 1995. Enquête sur l'utilisation des classifications internationales (DSM III-R – CIM-10) en France, en psychiatrie libérale et publique. *L'Encéphale*, Vol. Spéc. 35–38.
- Skounti, M., Phialitis, A., Galanakis, E., 2007. Variations in prevalence of attention deficit disorder worldwide. *Eur. J. Pediatr.* 166, 127–133.
- Smith, M., 2010. The uses and abuses of the history of hyperactivity. In: Graham, I.J. (Ed.), *(De)constructing ADHD*. Peter Lang, New York, pp. 21–40.
- Squillante, M., 2014. Classifications in child and adolescent psychiatry. *Arch. Psychiatr. Psychother.* 1, 15–19.
- Swanson, J.M., Sergeant, J.A., Taylor, E., et al., 1998. Attention-deficit hyperactivity disorder and hyperkinetic disorder. *Lancet* 351, 429–433.
- Taylor, E., 1986. Overactivity, hyperactivity and hyperkinesis: problems and prevalence. In: Taylor, E. (Ed.), *The Overactive Child: Clinics in Developmental Medicine*. No. 97. Blackwell, Oxford.
- Taylor, E., 1994. Syndromes of attention deficit and hyperactivity. In: Rutter, M., Taylor, E., Hersov, L. (Eds.), *Child and Adolescent Psychiatry: Modern Approaches*, third ed. Blackwell Scientific Publications, Oxford, pp. 285–302.
- Taylor, E., Sergeant, J., Dopfner, M., Gunning, B., Overmeyer, S., Mobius, H., Eisert, H.G., 1998. Clinical guidelines for hyperkinetic disorder. *Eur. Child Adolesc. Psychiatry* 7, 184–200.
- Thapar, A., Holmes, J., Poulton, K., Harrington, R., 1999. Genetic basis of attention deficit and hyperactivity. *Br. J. Psychiatry* 174, 105–111.
- Thomas, K., 2012. Drug Makers Growth is Linked to Emerging Markets. *New York Times* July 12.
- Timimi, S., Maitra, B., 2009. ADHD and Globalization. In: Timimi, S., Leo, J. (Eds.), *Rethinking ADHD: From Brain to Culture*. Palgrave Macmillan, New York, pp. 198–217.
- Timimi, S., et al., 2004. A critique of the international consensus statement on ADHD. *Clin. Child Fam. Psychol. Rev.* 7 (1), 59–63.
- Vallee, M., 2009. Deconstructing America's Ritalin Epidemic: Contrasting US-France Ritalin Usage (Ph.D. dissertation). University of California, Berkeley, p. 265, 3410842.
- Vallee, M., 2011. Resisting American psychiatry: French opposition to DSM-III, biological reductionism, and the pharmaceutical ethos. *Adv. Med. Sociol.* 12, 85–110.
- Watters, E., 2010. *Crazy like Us: the Globalization of the American Psyche*. Free Press, New York.
- Winterstein, A.G., Gerhard, T., Shuster, J., Zito, J., Johnson, M., Liu, H., Sidi, A., 2008. Utilization of pharmacologic treatment in youth with attention/deficit/hyperactivity disorder in medicare database. *Ann. Pharmacother.* 42 (1), 24–31.
- Wittchen, H.U., Jacobi, F., Rehm, J., Gustavsson, A., Svensson, M., Jonsson, B., Olesen, J., Allgulander, C., Alonso, J., Faravelli, C., Fratiglioni, L., Jennum, P., Lieb, R., Maercker, A., van Os, J., Preisig, M., Salvador-Carulla, L., Simon, R., Steinhausen, H.C., 2011. The size and burden of mental disorders and other disorders of the brain in Europe 2010. *European Neuropsychopharmacology* 21, 655–679.
- World Health Organization, 2005. *Atlas of Psychiatric Education and Training across the World*. [http://www.who.int/mental\\_health/evidence/Atlas\\_training\\_final.pdf](http://www.who.int/mental_health/evidence/Atlas_training_final.pdf) (accessed September 2012).
- Zisook, S., Balon, R., Bjorksten, K., et al., 2007. Psychiatry residency training around the world. *Acad. Psychiatry* 31, 309–325.
- Zuddas, A., Bonati, M., 2003. Conferenza Nazionale di Consenso. Indicazioni e strategie terapeutiche per i bambini e gli adolescenti con disturbo da deficit attentivo e iperattività. <http://www.aidaiassociazione.com/documents/ConsensoCaglRelaz.pdf> (URL accessed September 2012).