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## Attention-deficit hyperactivity disorder: a critique of the concept

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Attention-deficit hyperactivity disorder (ADHD) is a fact of culture rather than a fact of nature. For a diagnosis like ADHD to be scientifically useful you need to show that the concept leads to advancement of knowledge around causes. For it to be clinically useful, you need to show that use of the concept leads to improved clinical outcomes. As neither can be convincingly demonstrated, ADHD is unlikely to be either scientifically or clinically useful and the concept is well past its use-by date.

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### Does the concept of attention-deficit hyperactivity disorder (ADHD) help advance scientific knowledge?

In psychiatry (apart from the dementias and a few other known organically based conditions), there is no

such thing as diagnosis. In medicine diagnosis is the process of determining which disease or condition *explains* a person's symptoms and signs. Pseudo-diagnoses like ADHD cannot explain behaviours and there are no signs; only symptoms that are descriptions (not explanations) of behaviours. Consider the following example: If I were to ask the question 'what is ADHD?' then it is not possible for me to answer that question by reference to a particular known pathological abnormality. Instead I will have to provide a description, in other words ADHD is the presence of the behaviours of hyperactivity, impulsivity and poor attention (plus a few extra qualifiers such as age of onset). Contrast this with asking the question 'what is diabetes?' if I were to answer this question in the same manner by just describing symptoms such as needing to urinate excessively, thirst and fatigue, I could be in deep trouble as a medical practitioner as there are plenty of other conditions that may initially present with a similar picture and diabetes itself may not present with these symptoms in a recognizable way. In order to answer the question 'what is diabetes?' I have to refer to its pathology involving abnormalities of sugar metabolism. I would then get independent (to my subjective opinion) empirical data to support or otherwise my hypothesis about what may be 'causing' the patient's described experiences (such as testing the urine and/or blood for levels of glucose). In the rest of medicine therefore, my diagnosis *explains* and has some causal connection with the behaviours/symptoms that are described. In psychiatry what we are calling diagnosis (such as ADHD) will only describe but is unable to explain.

This means that in psychiatry we are mostly working with a system for classification that is descriptive, but not diagnostic. As a classification it can have its uses such as recognizing and validating people's struggles, administrative, communication, and other uses such as aiding decisions around educational support. The problem of using a classification like ADHD to *explain* an observed set of behaviours (i.e. as a diagnosis) can be illustrated by asking another set of questions. If I was to ask 'why' a particular child can't concentrate, is hyperactive and shows impulsivity and I were to answer that these behaviours are *caused* by ADHD, then a legitimate question to ask me is 'how do you know that they are caused by ADHD?' The only answer I can give to that question is that I know it's ADHD because the child is presenting with hyperactivity, impulsivity and poor attention. In other words if we try to use a classification that can only describe in order to explain, we end up with what philosophically is known as a 'tautology' where we are trapped in circularity.

As ADHD is not a medical diagnosis, but a descriptive classification, we have no empirical method for defining 'caseness'. The definition of what qualifies as a case is thus arbitrary and depends on the standards employed by the diagnoser, influenced by whatever the prevailing ideology concerning diagnosis they have been exposed to. As a result we cannot eliminate wide variation in 'diagnostic' practice or come to any valid conclusion about what percentage of the population is 'over' or 'under' diagnosed.

As ADHD is not a medical diagnosis it is not surprising that there has been a failure to find any specific and/or characteristic biological abnormality such as characteristic neuroanatomical, genetic or neurotransmitter abnormalities (Campo *et al.* 2013; Timimi & Timimi, 2015; Whitely, 2015).

### Does the concept of ADHD help improve clinical outcomes?

The evidence on outcomes in mental health in general finds little clinically significant impact on outcomes comes from matching treatment models to diagnosis (Timimi *et al.* 2013), a finding that extends to ADHD (Miller *et al.* 2008). Instead extra-therapeutic factors and the therapeutic alliance are the biggest contributing factors to variance in outcome from treatment.

Most of the controversy in ADHD treatments revolves around the use of stimulant medication. The evidence does not favour the continual increases in stimulant prescribing that has been occurring in the last couple of decades in most Western societies. Reviews of ADHD pharmacotherapy studies note widespread poor methodology, publication bias, limited reliability of results, inadequate data regarding adverse events, and lack of evidence of long-term benefit (e.g. Storebø *et al.* 2015). The most commonly cited reference in support of using stimulant medication is an American study, which concluded that in a 14 month randomised controlled trial, patients receiving medication had better outcomes compared with those receiving behaviour therapy only (MTA Cooperative Group, 1999). Follow up at 36 months of the same patients, could not find support for continuing beneficial effects of medication over behaviour therapy, regardless of initial severity (Jensen *et al.* 2007). In addition, those who used more medication during those 3 years were more likely to experience a deterioration in ADHD symptoms and had higher rates of delinquency, were significantly shorter (by an average of 4cm) and lighter (by 3kg) than those who had not taken medication (Molina *et al.* 2007; Swanson *et al.* 2007). Other naturalistic studies have come to similar conclusions finding that medication offers little prospect of improving long-term outcomes (e.g. Government of

Western Australia, Department of Health, 2010; Currie *et al.* 2013).

### Conclusion

ADHD is a cultural construct. It has not enabled any advancement of knowledge on the causes or the biology of the behaviours that make up the diagnosis and has failed to act as a clinically useful basis for improved outcomes. It has spurred on liberal use of stimulant medication, despite the lack of evidence for improved long-term outcomes resulting from this. ADHD is an example of the 'MacDonaldisation' of children's mental health where marketing and commodification of our anxieties about failure (as parents, teachers and individuals) has triumphed over science and good ethics (Timimi, 2017). The concept is well past its use-by date and should be discarded.

### Conflicts of Interest

None.

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### Ethical Standards

The authors assert that all procedures contributing to this work comply with the ethical standards of the relevant national and institutional committee on human experimentation with the Helsinki Declaration of 1975, as revised in 2008.

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