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BJPsych Editorial

May we have your attention, please? Adult-onset attention-deficit hyperactivity disorder

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Summary

Attention-deficit hyperactivity disorder (ADHD) is commonly considered a neurodevelopmental disorder, with symptoms present before 12 years of age. Increasingly, adults who have no evidence of impairment in childhood are seeking treatment for ADHD. In this Editorial, we propose that psychiatry considers conceptual changes to better understand impairment and distress caused by inattention and disorganisation in adulthood.

Keywords

Clinical psychiatry; attention-deficit hyperactivity disorder; psychostimulant.

Adult-onset ADHD

In their landmark review, Polanczyk et al[1] concluded that (a) neither the prevalence nor the incidence of attention-deficit hyperactivity disorder (ADHD) had increased between 1985 and 2012; (b) geographical location was not associated with differences in ADHD prevalence rates; and (c) the increased rates seen in clinical samples were probably due to increased awareness of the condition and improved access to treatment.[1] While deservingly influential in how we think about this topic, the review was published over 10 years ago and was limited in focus to people aged 18 years or younger. Since its publication in 2013, the fifth edition of the Diagnostic and Statistical Manual (DSM-5) and its subsequent text revision have broadened the criteria for a retrospective diagnosis of ADHD. These have now been changed to (a) increase the age of onset criterion from 7 to 12 years; (b) reduce the minimum number of symptoms required for older adolescents and adults; and (c) provide examples to demonstrate how symptoms may manifest for older adolescents and adults. Prophetic concerns were raised about these diagnostic criteria changes. For instance, Thomas et al[2] warned in 2013 that the broadened criteria would lead to overdiagnosis and scepticism associated with the diagnosis, resulting in those with severe symptoms of ADHD suffering the most damaging consequences. The authors argued that the diagnostic changes would make differentiating ADHD from normal developmental processes more difficult. They also foresaw the increasing commercial influence of drug companies on doctors, patients and other health professions, and the provision of funding for patient advocacy groups. The authors predicted that increased overdiagnosis of ADHD might lead to many potential harms, including increased healthcare costs.[2] A recent systematic review by Song et al[3] examined the global prevalence of ADHD among adults to find that, while the prevalence of persistent adult ADHD (i.e. those diagnosed with ADHD in childhood who continue to experience significant symptoms into adulthood) remained comparable to previous studies, at 2.6%, prevalence more than doubled to 6.8% if the childhood-onset criterion was excluded.[3] In other words, most adults with current ADHD symptoms do not have symptom onset in childhood. Adult-onset ADHD is not a new idea. Asherson and Agnew-Blais[4] identified three prospective studies that examined ADHD diagnosis in adulthood beyond age 20 years without apparent childhood symptoms; the prevalence of adult-onset ADHD in these cohorts ranged from 0.8 to 5.1%. The authors postulated several possible pathways for the symptoms emerging for the first time beyond the DSM age threshold, including (a) change of informant reporting from parents to self-report; (b) symptoms presenting as a result of other mental health conditions (e.g. substance use); (c) subthreshold/childhood ADHD symptoms not detected in childhood identified in adulthood; and (d) childhood ADHD masked through family environment and/or higher premorbid cognitive function.[4]

ADHD in different settings

In contrast to the conclusion drawn by Polanczyk et al,[1] there is an emerging body of evidence suggesting possible geographical variations in ADHD prevalence. A recent multinational cross-sectional study conducted in Kenya, Indonesia and Vietnam found significant differences among the three countries examined.[5] In Kenya, the prevalence rate of ADHD among young people was comparable, albeit lower, to that in developed countries, at 3.5%; the rates, however, were much lower in Indonesia (0.5%) and Vietnam (0.5%). The authors suggested that cultural differences may partially explain the lower rates seen in the latter two countries. The current diagnostic conceptualisation of ADHD is largely based on behaviours and symptoms that cause distress in developed countries, and may not adequately capture executive dysfunction in settings that have different societal norms and expectations.[5] Similarly, examining data from 64 countries, Chan et al[6] found that ADHD medication consumption rates differ significantly among various regions globally. Higher gross domestic product per capita was found to be associated with a higher rate of ADHD medication consumption, with North America, Oceania and Western and Northern Europe making up 85% of global ADHD medication consumption. The USA and Canada, in particular, had disproportionally higher rates of ADHD medication consumption compared with other countries, each exceeding 100 defined daily doses per 1000 child and adolescent inhabitants per day in 2019.[6]

Although it is probable that the developed countries have increased awareness of the condition and improved access to treatment, particularly pharmacotherapy, one may also wonder whether the medicalisation of problems, such as a lower-than-expected performance at work or difficulties within relationships, leads to help-seeking behaviours in Western societies. Contemporary developed countries bring environmental demands that require concurrent attention to multiple sources of information. We further postulate that such demands may exhaust attentional resources, not only in children but also among adults. Do the increased cognitive demands in our lives that persist over time with an ever-increasing

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need for greater productivity cause adults to be more vulnerable to developing de novo symptoms of ADHD? Thus, it is not difficult to conceptualise two distinct types of ADHD: one with its onset in childhood and another with its onset in adulthood. Just as the environmental exposure to highly processed food has led to the epidemic of adult-onset diabetes, could the rising incidence of executive dysfunction in adults be attributable to living in a society where a persistent cognitive task, often experienced in relative isolation, has largely replaced relational activities?

Reconceptualising ADHD

Much of our current academic understanding of ADHD relies on research evidence based on childhood ADHD. For example, in their umbrella review, Kim et al[7] identified eight environmental risk factors for ADHD, with the evidence base being either convincing or highly suggestive. Of these, they found six pregnancy-related factors (pre-pregnancy maternal overweightness, or obesity, pre-eclampsia, hypertensive disorder during pregnancy, maternal acetaminophen exposure and smoking during pregnancy), and two childhood atopic disorders (eczema and asthma). Of note, those risk factors related to the parenting environment (e.g. low education levels for parents and single-parent families) showed only a weak level of evidence. As the authors point out, caution is required to interpret some of these findings, because they are based on observational studies. For instance, some potential risk factors, such as maternal smoking and pre-pregnancy weight, are insignificant in studies that adjust for familial and genetic confounding.[7] Nevertheless, the relevance of these potential risk factors for adults with ADHD-like symptoms remains unknown.

If, on the other hand, we have a different starting point in our research – that is, with a hypothesis that adult-onset ADHD may be a distinct condition with similar phenotype but different aetiologies to childhood ADHD – then our understanding of ADHD may be enhanced. For example, one potential modifiable risk factor for ADHD subject to increasing popular discourse is the use of social media among children and youth. The concerns related to excessive social media use leading to adverse mental health outcomes in young people have accumulated to the point where the Australian government recently proposed a ban on social media for those younger than 16 years of age. While it is important to keep in mind that there remains inadequate evidence to demonstrate a clear link between social media use and mental health problems in youth in general,[8] and ADHD in particular, given the near-universal exposure of social media use and access in society, its possible causative role in psychopathology in both children and adults requires further exploration. High-frequency cell phone use during pregnancy was identified as a possible environmental risk factor for ADHD among offspring in an umbrella review,[7] but it may also be contributing to ADHD symptoms arising in adults. Understanding the role of these environmental exposures can inform policies and recommendations to reduce the risk of ADHD onset in adulthood.

Clinical implications

The way in which we diagnostically conceptualise ADHD is important, because of the potential clinical and societal implications on how we manage adult-onset ADHD symptoms. While there remains a debate about overdiagnosing ADHD in adulthood, the evidence suggests that we are not overmedicating adults with ADHD, with the current rate of ADHD medication use among adults aged 25 years in Australia reported at 4.6 and 3.0 per 1000 persons for males and females, respectively, much lower than the accepted ADHD prevalence among adults of 2.5%.[9] Because adults who have ADHD symptoms without a history of problems in childhood will not meet the diagnostic threshold, is it possible that adherence by clinicians to criteria requiring childhood onset prevents access to a trial of pharmacotherapy that may alleviate distress and impairment?

To better assess and manage individuals seeking treatment for adult-onset ADHD-like symptoms, we urgently need to investigate the possibility that this is a syndrome like others in psychiatry that causes impairment and is deserving of management. It has already been observed that there is much less gender imbalance and greater prominence of inattentive symptoms among adults presenting with adult-onset ADHD symptoms. Potentially modifiable risk factors at the population level for adult-onset ADHD need to be investigated, and the long-term effectiveness and safety of pharmacotherapy requires examination. This paradigm shift is becoming increasingly important as the demand for care by adults for the treatment of ADHD is ever increasing.

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