Rethinking ADHD: Fixed Disorder or Context-Dependent Continuum? By Simone Kurian

Abstract

Attention-deficit/hyperactivity disorder, also known as ADHD, is one of the most commonly diagnosed neurodevelopmental disorders in children, often continuing into adulthood. In the past, ADHD has been viewed as a fixed condition, where you either have it or you don't. However, researchers have begun to explore the idea of ADHD existing on a continuum, with symptoms manifesting on a spectrum of varying intensities. Evidence from research supports the idea that ADHD symptoms appear differently across individuals and can fluctuate with time and context. Additionally, ADHD has no single, clear biomarker, further supporting the dimensional view of this condition. Therefore, examining ADHD through a dimensional lens can provide new insights, helping clinicians better understand the unique ways the condition presents in each individual and enabling more comprehensive and individualized interventions. While there are clear benefits to this approach, concerns exist regarding insurance coverage, clinical implementation, and diagnostic thresholds, all of which can pose barriers to its application. This paper proposes an integration of both categorical and dimensional frameworks, where a categorical structure can be used for access to services, while a dimensional approach can be utilized in further understanding and personalizing interventions. This combined approach will allow for more accuracy and effectiveness during diagnosis and treatment, creating better overall care for individuals with ADHD.

Keywords: Attention Deficit Hyperactivity Disorder (ADHD), dimensional diagnostic approaches, categorical diagnostic approaches, children & adolescents

Introduction

Approximately 6 million U.S. children have been diagnosed with ADHD, yet no two cases are identical (Attention Deficit Disorder Association, 2015). Attention-deficit/hyperactivity disorder, also known as ADHD, is one of the most commonly diagnosed neurodevelopmental disorders in children, often continuing into adulthood. Additionally, the number of ADHD cases has risen worldwide in the past decades, especially in children (National Institute of Mental Health, 2024). This occurrence has begun to make experts question whether this is an actual increase or reflective of the changes needed in how we understand and define ADHD.

In the past, ADHD has been viewed as a fixed condition, where you either have it or you do not. However, researchers have begun to explore the idea of ADHD existing on a continuum instead of being a uniform disorder. Experts who study ADHD are beginning to agree with this idea, such as Edmund Sonuga-Barke, who states in the *New York Times* (Tough, 2025) that "There literally is no natural cutting point where you could say, 'This person has got A.D.H.D., and this person hasn't got it... That doesn't mean that the suffering associated with A.D.H.D. is imaginary; it just means it's on a continuum." Recent evidence supports that ADHD encompasses a spectrum of traits and behaviors that vary among different individuals.

This review explores the current research on ADHD, analyzing whether it should be viewed from a categorical perspective or on a more dimensional level, considering varying degrees of behaviors.

Furthermore, this paper explores how these differing perspectives can influence the way we diagnose and treat ADHD. It will explore why a **dimensional perspective**, which involves understanding psychological disorders by viewing them on a spectrum rather than in categories, is likely more accurate.

What is Attention Deficit Hyperactivity Disorder?

Attention Deficit Hyperactivity Disorder, also known as ADHD, is a neurodevelopmental disorder that primarily affects attention, impulse control, and hyperactivity. According to the Diagnostic Statistical Manual, Fifth Edition (DSM-5), a reference book on mental health and brain-related conditions and disorders, ADHD is defined as a 'persistent pattern of inattention and/or hyperactive impulsivity that interferes with functioning or development (American Psychiatric Association, 2013). The main symptoms fall into two categories: inattention and hyperactivity-impulsivity. Inattention includes behaviors such as trouble focusing, forgetfulness, and being easily distracted. Hyperactivity-impulsivity refers to symptoms such as fidgeting, trouble staying seated, and excessive talking. There must be at least 6 symptoms present before the age of 12; they must last for at least six months, and they must be present in two or more settings to be diagnosed as ADHD (National Institute of Mental Health, 2024).

There are three subtypes of ADHD, primarily based on the symptoms shown in an individual. The first subtype is predominantly an inattentive type, characterized mainly by symptoms of inattention. The predominantly hyperactive-impulsive type consists of hyperactivity and impulsivity-related symptoms. Finally, the combined type includes symptoms from both categories. These subtypes show the different combinations and types of symptoms that an individual can show, presenting diverse profiles and supporting the idea of ADHD existing on a continuum (National Institute of Mental Health, 2024).

ADHD is currently diagnosed in childhood, specifically before the age of 12. The diagnosis involves many clinical interviews, behavioral checklists, and observations of the individual in different settings. Instead of a single test, ADHD is diagnosed through assessing the behavioral patterns and symptoms of an individual that have been present for six months or more (National Institute of Mental Health, 2024).

ADHD does not have a single determinant or cause; instead, it is much more complex and includes both genetic and environmental factors. For genetic factors, genetic variations, brain differences, and neurotransmitter balances have all been linked to ADHD. Studies have shown that specific genes play a role in symptoms of ADHD, such as dopamine regulation. Additionally, research has shown that family history plays a role, as individuals with a parent or sibling who has ADHD are significantly more likely to develop the condition themselves (Luo, 2019). However, these biological differences are not identical in every individual, due to differing brains and genetic issues. Certain environmental factors can also increase the risk for ADHD, which include early exposure to tobacco smoke, low birth weight, and lead exposure (Luo, 2019). While parenting does not cause ADHD, certain parenting styles can either manage or worsen symptoms by creating a mismatch between the child's needs and the caregiver's approach. Similarly, school environments can affect how ADHD symptoms manifest, such as strict academic structures that lack individual support. However, these factors are not the sole cause of ADHD, but rather contribute to its likelihood and expression.

ADHD as a dimensional construct

Given the wide range of risk factors and the variability in how ADHD symptoms can present across individuals, it may be more accurate to conceptualize ADHD as a dimensional condition rather than a strictly categorical one (Lahey, 2022). A dimensional approach defines ADHD symptoms on a continuum, with multiple forms and distinct characteristics; this is in contrast to a categorical view, which treats ADHD as requiring a minimum of (i.e., six) specific symptoms to be present. Instead of classifying ADHD as a discrete, all-or-nothing diagnosis, a dimensional approach views symptoms—such as inattention, hyperactivity, and impulsivity—as existing on continuous scales, with individuals differing in severity and combination of symptoms. Looking at ADHD through a dimensional lens can provide new insights, helping clinicians better understand the unique ways that the condition is presented in each individual and enabling more comprehensive and individualized interventions.

For instance, according to the current framework (categorical diagnosis), a 7-year-old child with 6 inattentive symptoms and five hyperactive-impulsive symptoms, alongside clear functional impairment at school and home, meets DSM-5 criteria for ADHD and receives a formal diagnosis. However, another child with nearly identical struggles, but lacking the full symptom threshold, does not meet diagnostic criteria and is not diagnosed, despite experiencing difficulties. What is the consequence of this? The child may miss out on essential services, therapies, and accommodations simply because they are missing one symptom.

A plethora of clinical observations and research suggest that ADHD is a heterogeneous condition, varying in both severity and symptom presentation across individuals. Indeed, the current diagnostic framework (derived from the DSM-5 and described in detail in the above section) describes ADHD as a wide range of behaviors, including inattention, hyperactivity, and impulsivity (Heidbreder, 2015). Some clinicians and researchers argue that the inattentive and combined subtypes of ADHD may represent fundamentally different disorders or pathologies, given that the inattentive presentation does not include hyperactivity or impulsivity (Heidbreder, 2015). Moreover, these symptoms do not appear identically in each person or for each person in each context of their lives. For instance, a young child diagnosed with ADHD might demonstrate restlessness and challenges remaining still during circle time in school, yet shows sustained focus and engagement when building with Legos at home. Another child with ADHD might seem inattentive during unstructured activities, but thrives in highly structured environments with clear expectations. Additionally, ADHD symptoms often overlap with other conditions, such as oppositional defiant disorder, anxiety, and trauma-related responses (Heidbreder, 2015). This overlap can make diagnosis subjective and challenging, as clinicians must distinguish ADHD from behaviors or difficulties that may be better explained by other underlying disorders or even environmental factors.

Furthermore, ADHD symptoms are not fixed, and there is an abundance of evidence that ADHD can change and fluctuate with time within an individual and across environments. For instance, a child who displays hyperactivity may appear less restless and fidgety (i.e., more in control of his/her body) with age, but difficulties with attention and organization may worsen as academic and work demands increase (Tough, 2025). Additionally, ADHD symptoms have also been shown to be context-dependent, meaning that specific settings and atmospheres can either improve or worsen symptoms (Luo, 2019). This variability suggests that ADHD may represent a dynamic pattern of traits that can shift with age and

environment rather than being a single static condition, further evidence that ADHD might be better conceptualized as a dimensional condition.

In addition, research has failed to identify a single biomarker or gene for ADHD. Neurobiological studies have linked ADHD to variations in neurotransmitters and to structural and functional differences in specific brain regions. In particular, dysregulation of dopamine and norepinephrine has been strongly implicated in ADHD. Brain imaging studies have also shown abnormalities in regions such as the prefrontal cortex, basal ganglia, and cerebellum (Heidbreder, 2015). However, these findings are not consistent across all individuals, and the neurobiological mechanisms remain complex and not fully understood, highlighting that ADHD is not associated with any single genetic signature. This further supports the view that ADHD is better understood as a continuum and collection of features rather than a single condition.

Another example of ADHD's dimensional nature is the variability in treatment outcomes. While stimulant medication may be highly effective for many individuals, some people benefit more from behavioral therapy and lifestyle modifications. In some cases, the most effective approach is combining multiple interventions that are tailored to the person's needs. Again, the fact that no single treatment works for everyone suggests that ADHD is not a single condition with a uniform cause but rather a complex combination of varying symptoms and underlying factors (Tough, 2025).

Challenges To a Dimensional Approach

While considering ADHD as a dimensional construct may be beneficial, it is essential to address the challenges this approach presents. Observing ADHD on a spectrum indeed offers valuable insight. However, it is important to question the practicality of implementing such a model into our current diagnostic and treatment systems.

One significant concern is how access to services could be affected by the implementation of this new approach. The current educational and healthcare systems are built on categorical diagnoses based on specific qualifying conditions, which allows insurance providers to rely on diagnostic codes to provide coverage for medications or therapy (Heidbreder, 2015). If ADHD were approached as a dimensional condition, it would become increasingly complex to determine how and when to initiate treatment or provide accommodations. If ADHD exists on a continuum, where exactly would we draw the line for diagnosis and treatment? In other words, without a clear label or diagnostic cut-off for ADHD, individuals may struggle to receive educational accommodations, medical treatment, or insurance coverage. This ambiguity also raises concerns about potentially increasing the number of individuals diagnosed with ADHD (i.e., leading to possible misdiagnosis and unnecessary treatment). Additionally, ADHD encompasses multiple symptom domains, including impulsivity, hyperactivity, and inattention, each with distinct characteristics and potential subdomains. Identifying which aspects to measure and how to quantify severity across these domains remains complex. Achieving consistency across providers and institutions could also be particularly challenging (at least in the short term). Shifting to a dimensional model would clearly require a systemic transformation and would need to include educational, medical, and insurance systems. Adapting to a new framework and structural changes would be challenging,

especially in the short term. This lack of clarity can create significant barriers for individuals seeking the support and interventions they need.

However, these challenges do not mean that a dimensional approach should be dismissed, but rather, it can be integrated into our current system. For example, a categorical system could be used for more practical purposes, such as insurance coverage. Dimensional assessments can be used to create a deeper understanding of an individual's specific symptoms and challenges. A comparable approach is already used in Autism Spectrum Disorder (ASD), where there are distinct severity levels that correspond to the degree of support an individual requires (American Psychiatric Association, 2013). While ADHD has levels like mild, moderate, and severe, these categories currently lack the structured linkage to levels of support that the ASD framework provides. Integrating such an approach into ADHD diagnoses could create more individualized and accurate understandings of an individual's needs.

To address these challenges, more research is necessary to determine how a dimensional approach can be implemented without limiting access to care (Hengartner & Lehmann, 2017). Rethinking how we diagnose ADHD can also positively impact other disorders with a wide range of symptoms. With further studies and updates, a mix of both categorical and dimensional approaches could provide a more tailored understanding of individuals' needs.

Conclusion

ADHD affects millions of people worldwide, and it is recognized as a heterogeneous condition, meaning its symptoms can vary widely among individuals. The current diagnostic system uses a categorical approach, where individuals are either diagnosed with ADHD or not. While this system provides a standardized way to diagnose ADHD, it does not take into consideration the fact that symptoms of ADHD can exist on a spectrum, varying both in intensity and even presence across individuals. Many researchers argue that implementing a dimensional framework for diagnosing ADHD would create a better understanding of it as a condition that exists on a spectrum with different symptoms of varying severity. The movement towards a dimensional framework has been supported by growing evidence. Research has shown that ADHD does not have a single biological indicator, but is instead linked to dysregulation in neurotransmitters and structural differences in brain regions. A dimensional approach could reflect these differences more accurately and help create treatments to match each person's individual needs.

Importantly, research indicates that racial and gender disparities exist in the diagnosis and treatment of ADHD in children. Clinicians and researchers must begin addressing this issue through a thorough assessment of current practices and systemic factors contributing to these inequities. Currently, studies show that white children are more likely to receive treatment for ADHD (Shi, 2021), while black children are more likely to be diagnosed with ADHD (American Psychiatric Association, 2020). Clearly, racial inequity is present in our system today, highlighting the need for diagnostic and treatment practices to reduce bias and promote more equitable psychiatric evaluations and care. A dimensional perspective has the potential to address these inequalities by assessing ADHD traits on a spectrum, allowing clinicians to rely more on structured symptom ratings and impairment assessments than on subjective judgment. This approach can potentially reduce bias in who is recognized as needing support. Additionally,

evaluating traits dimensionally allows clinicians to interpret behaviors relative to developmental expectations and environmental context, improving diagnostic equity across diverse cultural and socioeconomic backgrounds.

Further research is necessary to determine how a dimensional approach could be effectively implemented in clinical settings. Studies should explore how tools like the Research Domain Criteria (RDoC), a system developed by the National Institute of Mental Health, can be used in research and adapted for real-world use. The RDoC is a research framework designed to study mental disorders by examining dimensions of behavior and brain function instead of focusing solely on diagnostic categories. Unlike the DSM, which identifies whether someone meets certain diagnostic criteria for a disorder, the RDoC focuses on underlying processes like attention, arousal, and reward sensitivity, all of which exist on a spectrum. In relation to ADHD, the RDoC doesn't ask whether a person has the disorder or not, but rather looks at specific mechanisms, such as reward processing or executive functioning, that may be impaired in different ways across individuals. The RDoC is not currently used for formal diagnosis in clinical settings. Its primary role is in research, where it helps scientists to better understand the behavior and biology behind mental health symptoms. However, in the future, it could transform diagnosis and interventions in clinical settings by allowing for more personalized treatment, by allowing clinicians to target specific impairments, instead of simply fitting people into categories. This can be especially useful for patients who present with overlapping symptoms that don't fit into a single distinct disorder. Dimensional approaches aren't just for ADHD—they can be used for lots of mental health conditions. For example, with depression or anxiety, you can look at how strong or frequent the symptoms are instead of just saying someone has it or not. The same goes for personality issues, psychosis, autism, substance use, and eating problems—people can have different levels of symptoms. This way of looking at things helps doctors catch problems earlier, give better treatment, and make sure everyone gets fair care. This approach is especially important because it moves towards a more individualized approach to understanding mental health, potentially bridging gaps where current diagnostic systems fall short.

Looking at ADHD on a spectrum helps us see all the ways it can show up, not just the most obvious cases. This approach can make sure kids who are often overlooked—like girls, Black children, or those from low-income families—get the help they need. Psychologists, clinicians, and teachers all have a role to play in using these tools, reducing bias, and giving every child a fair chance to succeed. Ultimately, rethinking the current diagnostic system to improve care and treatment could transform how we help people with ADHD.

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