

## EVOLUTION OF THE ADHD CONCEPT AND ITS RELATION TO THE HYPERKINETIC DISORDERS: NARRATIVE REVIEW

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### ABSTRACT

Attention Deficit Hyperactivity Disorder (ADHD) is a unique disorder. It usually develops in early childhood and, in 50% of cases, continues to be a lifelong disorder, which poses significant challenges for researchers and clinicians. The new criteria set by the World Health Organization merged the category of Hyperkinetic Disorders and the ADHD category.

This narrative review aims to explore and ease the adoption of the ADHD concept for clinicians and researchers who were used to working with Hyperkinetic Disorders by (1) analyzing the evolution of the ADHD concept from its establishment in the Diagnostic and Statistical Manual of Mental Disorders, 3rd edition (DSM-III) until DSM-5; (2) comparing the contemporary concepts of ADHD in DSM-5 and Hyperkinetic Disorders in International Statistical Classification of Diseases and Related Health Problems (ICD-10); and (3) describing some new challenges the ADHD concept will face in the future. The structure and the dimensions of the concept are explored, including some possible new core symptoms such as emotional dysregulation and

mind wandering. Adult presentations of symptoms of hyperactivity, impulsivity, and inattention are presented. The recent challenges of the global pandemic of covid-19 are also addressed. In conclusion, the concept of ADHD has been dramatically improved since its establishment. However, the bio-psycho-social perspective needs to be better balanced in ADHD-related science.

*key words:*

ADHD,  
adulthood,  
the evolution of the concept,  
DSM,  
ICD

*klíčová slova:*

ADHD,  
dospělost,  
vývoj konceptu,  
DSM,  
MKN

### Introduction

The oldest scientific mention of ADHD-related symptoms has appeared in a medical textbook written by the German doctor Melchior Adam Weikard in 1775 (Barkley & Peters, 2012). In his book, in the chapter entitled Lack of Attention (Attention Volubilis), Weikard described behaviors (inattentiveness, distraction, and overactivity) that closely match our current understanding of ADHD symptoms and behaviors in adults and children. Weikard saw the cause of lack of attention in cerebral fibers movement or excessive stimulation during learning. Over the years, these behaviors have been studied and discussed in the scientific literature (Chess, 1960; Still, 2006; Warnke & Riederer, 2013) and today are considered the three primary symptoms of ADHD: inattention, impulsivity, and hyperactivity.

Nowadays, it is nearly impossible to arrive at a global understanding of what ADHD is, as there are different names for the disorder itself and various diagnostic criteria.

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For example, while in most of Europe and the rest of the world, the disorder is called Hyperkinetic Disorder (per the ICD-10), in Scandinavian countries, the disorder is called Deficits in Attention, Motor Control, and Perception, or DAMP (Landgren et al., 2000). Furthermore, publications and practitioners still use older names for this disorder (e.g., Novak, 2012; Hallowel & Ratey, 2011), such as Minimal Brain Dysfunction (MBD) or Attention Deficit Disorder (ADD). Whether one considers health care professionals, the clients they treat, or the families and friends of those afflicted with this disorder, we believe that the current worldwide differences in ADHD terminology, symptomatology, diagnostic criteria, treatments, and overall understanding of the disorder are harmful to all involved.

This work focuses on examining the current concept of ADHD, its evolution, strengths, and weaknesses. There are several reasons why researchers should continue to study all three primary ADHD symptoms, especially in adults. Firstly, there are international differences in the general concepts of ADHD-like disorders. Secondly, significant differences in opinions currently exist as to which symptoms are more important in diagnosing and treating adults with ADHD. Additionally, there is an overall need for finding objective measures for assessment and diagnosis. Lastly, researchers and practitioners should work together to determine how best to transfer new ADHD-related scientific discoveries into practical use.

In this narrative review, we aim to fulfill three goals: (1) To analyze the evolution of the ADHD concept since its establishment in the DSM-III up until DSM-5; (2) to compare the contemporary concepts of ADHD in DSM-5 and Hyperkinetic Disorders in ICD-10 and to point out the differences between them; and (3) to discuss the issues this concept faces going forward and some of the newly emerging challenges. The ICD-11 ADHD concept is almost identical to the DSM-5 ADHD concept. We decided to use the DSM-5 ADHD concept because it is more established and detailed and therefore better suited for the comparison. We will only touch briefly on the history of this concept. We recommend recent comprehensive work by Ptáček et al. (2020) and an illustrated brochure by Warnke & Riederer (2013) for more information on this topic.

### **Evolution of the ADHD concept from DSM-III to DSM-5**

In examining the modern concept of ADHD, there have been two significant shifts in the last quarter of a century. The whole concept shifted from DSM-III-R to DSM-IV in 1994; the second shift occurred when DSM-5 was introduced in 2013, replacing the DSM-IV as the current diagnostic manual. Each conceptual change was accompanied by a critique comparing the strengths and weaknesses of the newly introduced concept and a discussion regarding the entire validity of the shift itself.

Biederman et al. (1997) claimed that the concept of ADHD has improved its validity and reliability ever since DSM-II. His research team compared the DSM-III-R concept (ADD and ADHD) with the newly emerged DSM-IV one (ADHD with three subtypes). Their focus was on determining whether the two concepts are similar enough that the previously gained knowledge about ADHD using the DSM-III-R criteria could be applied to ADHD, as defined by the DSM-IV. The results showed a 93% agreement between the two concepts. The authors concluded that the changes in case identification were minimal, and therefore there was evidence for diagnostic continuity from DSM-III-R to DSM-IV (Biederman et al., 1997).

However, some researchers questioned the validity of the DSM-IV concept or the validity of the three subtypes. For example, Lahey et al. (1998) examined the validity of DSM-IV as it pertained to younger children (age 4-6), especially the newly added hyperactive-impulsive subtype. The authors suspected that younger children

who are more active might be misdiagnosed. However, their findings from clinical interviews and four independent informants confirmed the validity of all three subtypes in younger children. They also revealed an impairment in academic achievements, social perception by peers and teachers, and the children's assessment of their difficulties with friends.

Faraone et al. (2000) used proxy diagnoses for data obtained using the DSM-III-R diagnoses to ascertain the probable subtypes their subjects had. They found a robust familial incidence of ADHD among relatives of ADHD children. However, they concluded that the subtypes had little familial dependence and were probably caused by the environment. A later study conducted by Graetz et al. (2001) on a nationally representative sample in Australia concluded that the three subtypes were clinically distinct.

Other researchers believed that a clear definition of ADHD was lacking and argued that even the three subtypes were not enough to make ADHD more clinically homogenous. Some argued that there was a need for more than just the two-dimensional structure focused solely on inattention and hyperactivity-impulsivity. Others suggested that the two dimensions themselves needed to be more precise. For example, Barkley (2015b) and Kooij et al. (2019) suggested adding emotional dysregulation (defined as deficiency in control and inhibition of emotion, especially frustration, impatience, anger, and emotional impulsivity) to the core symptoms of ADHD. Others (e.g., Mowlem et al., 2019) advocated for including excessive mind wandering (i.e., constant mental activity, thoughts involuntarily shifting in task with high demand on attention) to the core symptoms.

Much research and subsequent discussion have been focused on the two dimensions of ADHD: inattention and hyperactivity-impulsivity. For example, regarding the hyperactivity-impulsivity dimension, some researchers suggested that there should be a distinction between motor hyperactivity-impulsivity and verbal hyperactivity-impulsivity (Stanton et al., 2018). Additionally, Kooij et al. (2005) questioned whether hyperactivity and impulsivity in adults form two separate dimensions instead of one. Similarly, researchers have attempted to further distinguish and categorize specific symptoms or behaviors in the inattention dimension. One such example, although controversial, is the Sluggish Cognitive Tempo (SCT) syndrome (Barkley, 2015a). The SCT is expressed mainly by sluggishness, drowsiness, and daydreaming. This term has been adopted to describe one form of attentional deficit observed in some individuals who had the primarily inattentive subtype with little to no hyperactive symptoms. Some researchers argued that it was most likely comorbidity rather than an alternative expression of attention in some individuals with ADHD (Barkley, 2015a). At the same time, Capdevila-Brophy et al. (2014) explored the neuropsychological and behavioral profiles of children with high SCT and predominantly inattentive subtype compared to children with predominantly inattentive subtype with low SCT and a combined subtype. They found that those with high SCT have fewer problems with sustained attention and suffer more internalizing problems. The authors concluded that ADHD with high SCT might constitute a separate clinical entity (Capdevila-Brophy et al., 2014). The SCT and the discussion around it show that the dimension of inattention might also be more divided.

Analysis of symptom groupings is a technique used in ADHD research to identify the disorder's underlying structure. This technique is also frequently used to discover clinical subgroups (such as the three ADHD subtypes). The structure can either be a continuum or a category. There is a debate whether ADHD should be defined as a continuum rather than a category or some combination of both (e.g., Bell, 2010). For continuum models, some form of factor analysis is usually used, as this type of analysis supports the multidimensional construct of ADHD. For categorical models,

the latent class analysis seems to be favored. This technique compiles subjects from multivariate data into groups with similar, unobservable membership.

The diagnostic and conceptual changes introduced in the DSM-5 may have been influenced by ADHD studies that used the latent class structure analysis (LCA) technique. We, therefore, focus on some of these studies to demonstrate how they may relate to the current ADHD concept. For example, Todd et al. (2004) were researching whether the addition of Sluggish Cognitive Tempo would impact the latent class structure of ADHD. They found that the SCT had a limited impact on the latent class structure of ADHD, but it did make a difference when used in factor analysis. However, the difference was not significant enough to warrant the inclusion of SCT in the diagnosis of ADHD, as it did not significantly improve the discrimination into subgroups. Elia et al. (2009) focused on LCA in relation to comorbidity in children. They identified six statistically significant clinical subgroups, or latent classes, a finding that was consistent with the results of other researchers (e.g., Volk et al., 2005). Some of the latent classes corresponded with the DSM-IV subtypes but differed in the severity of the symptoms; others better reflected the presence of a comorbid disorder. Thus, the latent class ADHD phenotypes have been created and included: mild inattentive, severe inattentive, talkative-impulsive, mild combined, severe combined, hyperactive, and a phenotype with a few symptoms (Volk et al., 2005). It is worth noting that some of these phenotypes might also fit well within some of the conceptual changes discussed above (see Fig. 1, Fig. 2, and Fig. 3)

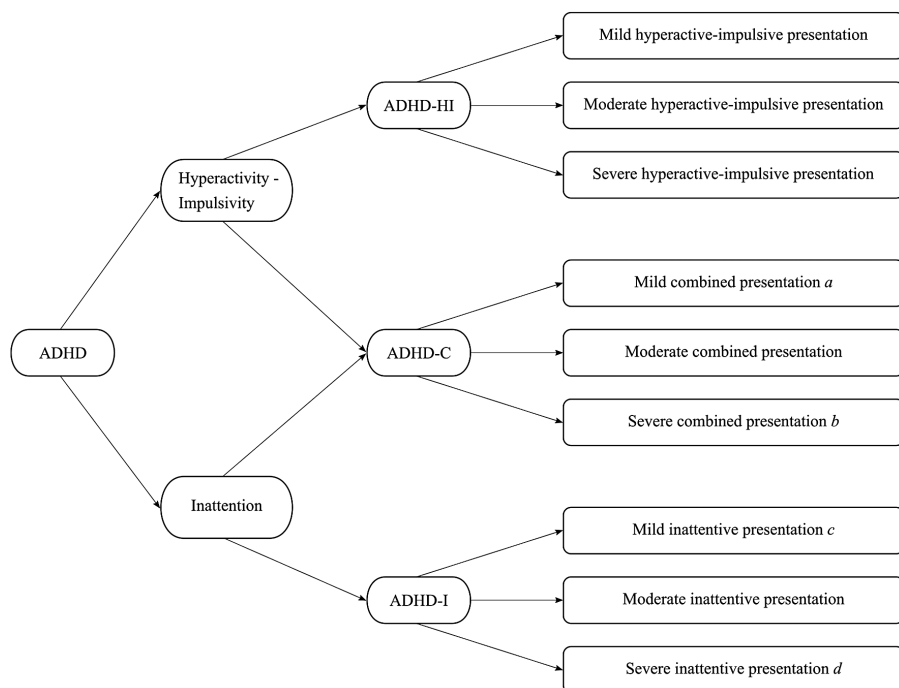


Figure 1 Current model of ADHD and it's possible relation to the latent class phenotypes

Note. ADHD-HI hyperactive-impulsive presentation; ADHD-C combined presentation; ADHD-I inattentive presentation; Possible latent class phenotypes: a latent class phenotype: mild inattentive, b latent class phenotype: severe inattentive, c latent class phenotype: mild combined, d latent class phenotype: severe combined.

We have attempted to find the middle ground between the continuum and categorical models and imagine how they relate. In Figure 1, we present a graphical model of the current ADHD concept and the nine diagnostic subgroups that are currently recognized. We believe that four of those correspond to the latent class phenotypes. Figure 2 shows how the two other phenotypes might fit into the current two-dimensional model if its manifestation would separate the hyperactive-impulsive dimension into either verbal or motor component, as suggested by Stanton et al. (2018) and others.

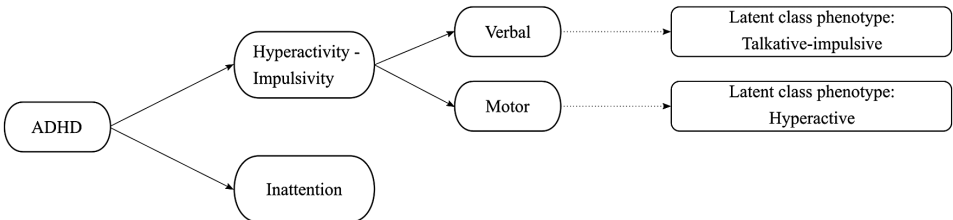


Figure 2 Alternative ADHD model with possible relation to the latent class phenotypes

Figure 3 attempted to explore how the ADHD model would change if we accepted the three-dimensional version proposed by Kooij et al. (2005) while incorporating some of the changes to the core symptoms suggested by other authors (Barkley, 2015a, 2015b). This model is the most complex one yet, and it may be difficult to foresee its impact on clinical diagnosis if accepted. However, further investigation of current core symptoms appears to be a viable direction of research, especially with the adult form of ADHD.

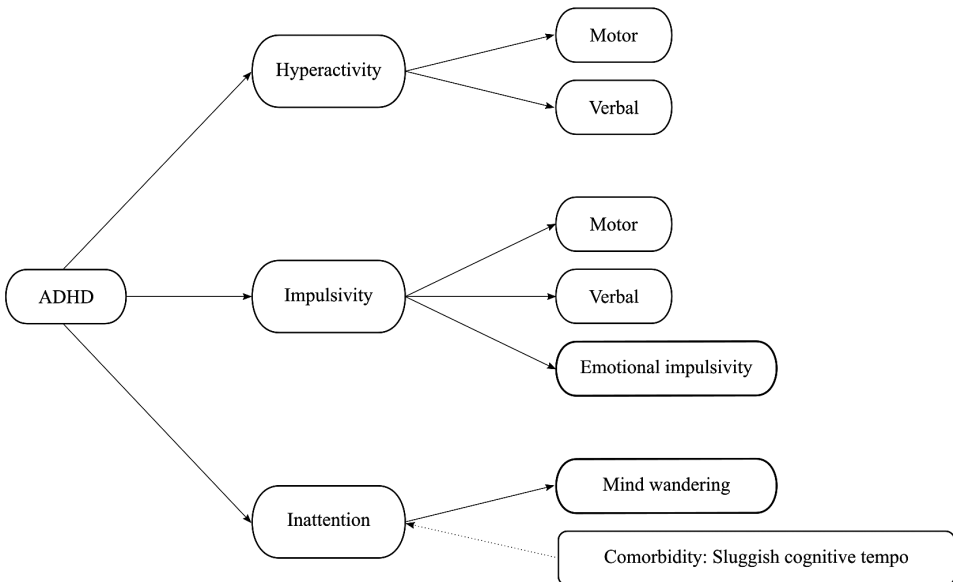


Figure 3 ADHD model which incorporates some of the suggested changes to the concept of ADHD

Ramtekkar et al. (2010) conducted community-based research focused on age and sex differences in the symptoms and diagnoses of ADHD across three age groups: children, adolescents, and young adults. Although their study ignored the age of onset criterion and had been made through parental assessment, its implications are well reflected in the DSM-5. The adults in their sample usually did not meet the DSM-IV criteria but showed significant impairment. They concluded that there might be a need for age-appropriate diagnostic criteria. Their second important conclusion was that the male:female ratio in a community sample had been closer to 2:1, instead of 4:1, as seen in clinical samples. They hypothesized that there may be a gender bias, that females may be underdiagnosed, and that the sex difference was smaller than was believed (Ramtekkar et al., 2010).

Lastly, it is critically important to realize that ADHD and other psychiatric disorders in children and adults should be viewed from the bio-psycho-social perspective. They should also be treated multimodally while addressing issues in all three previously mentioned areas. Unfortunately, in the case of ADHD, many therapeutic approaches depend solely on medication, thus limiting their effectiveness. Cooper (2008) has illustrated these issues in his critique of the United Kingdom's narratives in education about ADHD and its causes. His paper views ADHD as an opportunity to improve educational systems rather than a disadvantage. He points out:

“Beyond ADHD, however, lie educational issues of a broader nature. The biopsychosocial perspective requires us to acknowledge the richness of human psychological diversity. ADHD is simply one example of how certain widely distributed psychological characteristics are rendered educationally dysfunctional by an education system that is outdated and inflexible. Using biopsychosocial insights in the development of educational provision is likely to lead us closer than we have ever been to a genuinely inclusive education system.” (Cooper, 2008; p. 471)

Furthermore, Hawthorne (2010b) argues that ADHD-related science has deeply embedded constitutive and contextual values which shape its methodologies and conclusions. There is an acknowledged controversy connected to the founding of many ADHD-related venues by the pharmacological industry (e.g., Bergey et al., 2018), including some important ADHD advocacy groups (e.g., Children and Adults with Attention-Deficit/Hyperactivity Disorder). She points out other outcomes, such as focusing on medical and biological approaches to ADHD, especially genetics, neurochemistry, and neuroanatomy of the disorder. She highlights that 40% of journal articles focus on psychopharmacology, 4% on behavioral treatment, and 6% on academic or educational interventions (Hawthorne, 2010a). The core definition of the disorder depends on many social values such as control, focus, individual responsibility, and productivity:

“The needs, interests, and other values of many social groups are also embedded in the DSM diagnostic criteria. Adult expectations of children are prominent...

...Similarly, the in-development diagnostic criteria for adults emphasize behaviors considered counterproductive for success in the workplace...

...The converses of socially sanctioned behaviors and achievements are part of what defines the ADHD category. Because these are integral to the category, “ADHD” embeds these values, because diagnosable people fail to live up to the values, the valence of the category is negative.” (Hawthorne, 2010a; p. 509)

The last observation we would like to mention concerns the regular use of ADHD-diagnosable individuals and their non-diagnosable counterparts in research. Those choices and the subsequent conclusions point to a self-reinforcing divide while ignoring other possible factors and thus limiting the descriptions. The potential implicit

bias is connected to understudy of those fields that do not have perceived value in ADHD-related science (Hawthorne, 2010b).

The fact that there is so much divergence suggests that the current definition or concept of ADHD is not yet fully comprehensive or complete. If any of these proposed changes were incorporated into the current ADHD diagnostic criteria, the definition of the existing presentations would broaden, and inevitably new subtypes would arise. Likely, including some of these proposed new symptoms (or clusters of symptoms/behaviors) would make the new diagnoses more homogeneous for each potential diagnostic group. Nevertheless, when considering any such change, we must consider whether it would help in case identification and be beneficial for treatment.

### **ADHD vs. Hyperkinetic Disorders: a critical comparison**

Currently, most adult ADHD research and treatment is almost universally based on the concept of ADHD as defined by DSM-IV and later DSM-5 (e.g., Meinzer et al., 2013; Teicher et al., 2012a; Yang et al., 2013). The ICD-10 diagnostic criteria for Hyperkinetic Disorder and how it should be treated and recognized are inadequate for use in adults with ADHD. The ICD-10 only allows for a diagnosis of Hyperkinetic Disorder when the combined presentation exists, meaning that one must present enough symptoms to meet both the hyperactive-impulsive and the inattention criteria (World Health Organization, 1992). Further impeding its use with adults, the ICD-10 criteria also make diagnosis almost impossible if there is any anxiety or mood disorder present (Drtilkova, 2007), and comorbidity of those disorders and ADHD in adults is common and well documented (American Psychiatric Association, 2013). Table 1 below compares the two manuals to demonstrate their similarities and differences.

The biggest issue with Hyperkinetic Disorder is that it is doubly biased in diagnosing females with this disorder. The first bias is very apparent if we consider that females are more likely to have only the inattentive features, making it impossible to get this diagnosis. The other bias is related to comorbid disorders, particularly mood and anxiety disorders (both are more common in females). The ICD-10 does not make it impossible to diagnose both ADHD and mood or anxiety disorders per se, but it highly discourages it. Unlike the DSM-5, which considers both to be common comorbidities of this disorder.

The natural conclusion is that some females with ADHD cannot get any diagnosis, let alone treatment. Others receive psychiatric help for other disorders, but the ADHD remains undetected and untreated, thus making the entire treatment less effective. This issue pertained to males as well and was demonstrated by a recent study conducted in the Czech Republic and Hungary (Bitter et al., 2019). This issue is indeed severe, as shown in this study by the significant association of current suicide risk with the presence of an undiagnosed ADHD.

The Updated European Consensus Statement on diagnosis and treatment of adult ADHD is the most contemporary “manual” addressing adult ADHD, which suffers the most from the outdated ICD-10, by merging the current research with the experience of a panel of experts throughout Europe (Kooij et al., 2019). The international collaboration and multimodal perspective allowed the researchers to add to the adult presentation of behaviors concerning all three primary symptoms. For inattention it was: Forgetfulness; Distractibility; Chaotic presentation; Difficulty organizing and planning; Difficulty listening; Difficulty with punctuality (arriving either too late or too early); Temporary hyperfocus for highly salient tasks, but no control of attention when required or for many essential activities of daily life; Getting lost in details;

Table 1 Comparison of ADHD and Hyperkinetic disorder

	ADHD (DSM-5) *	Hyperkinetic disorder (ICD-10) **
Diagnostic group	Neurodevelopmental disorders (onset in the developmental period) 314	Behavioral and emotional disorders with onset usually occurring in childhood and adolescence F90
Primary symptoms	Inattention and/or hyperactivity-impulsivity	Hyperactivity-impulsivity and inattention both must be present
Symptom expression		
Inattention/ impaired attention	Often does not follow through on instructions and fails to finish schoolwork, chores, or duties in the workplace (e.g., starts tasks but quickly loses focus and is easily sidetracked).  Often has difficulty sustaining attention in tasks or play activities (e.g., has difficulty remaining focused during lectures, conversations, or lengthy reading). Is often easily distracted by extraneous stimuli (for older adolescents and adults, may include unrelated thoughts).	Prematurely breaking off from tasks and leaving activities unfinished.  The children change frequently from one activity to another, seemingly losing interest in one task because they become diverted to another (although laboratory studies do not generally show an unusual degree of sensory or perceptual distractibility).
	Often avoids, dislikes, or is reluctant to do tasks that require sustained mental effort (e.g., schoolwork or homework; for older adolescents and adults, preparing reports; completing forms; reviewing lengthy papers).  Often fails to give close attention to details or makes careless mistakes in schoolwork, at work, or with other activities. (e.g., overlooks or misses details, work is inaccurate)  Often does not seem to listen when spoken to directly (e.g., mind seems elsewhere, even in the absence of any obvious distractions).  Often has trouble organizing tasks and activities (e.g., difficulty managing sequential tasks; difficulty keeping materials and belongings in order; messy, disorganized work; has poor time management; fails to meet deadlines).  Often loses things necessary for tasks or activities (e.g., school materials, pencils, books, tools, wallets, keys, paperwork, eyeglasses, mobile telephones). Is often forgetful in daily activities (e.g., doing chores, running errand; for older adolescents and adults, returning calls, paying bills, keeping appointments).	Lack of persistence in activities that require cognitive involvement.  n.d.



	ADHD (DSM-5) *	Hyperkinetic disorder (ICD-10) **
Hyperactivity-impulsivity/overactivity	<p>Often runs about or climbs in situations where it is not appropriate (<b>Note:</b> In adolescents or adults, may be limited to feeling restless).</p> <p>Often leaves seat in situations when remaining seated is expected (e.g., leaves his or her place in the classroom, in the office or other workplace, or in other situations that require remaining in place).</p> <p>Often fidgets with or taps hands or feet, or squirms in seat.</p> <p>Often talks excessively.</p> <p>Often blurts out an answer before a question has been completed (e.g., completes people's sentences; cannot wait for turn in conversation).</p> <p>Often has difficulty waiting his or her turn (e.g., while waiting in line).</p> <p>Often interrupts or intrudes on others (e.g., butts into conversations, games, or activities; may start using other people's things without asking or receiving permission; for adolescents and adults, may intrude into or take over what others are doing).</p> <p>? Often unable to play or take part in leisure activities quietly.</p> <p>Is often "on the go" acting as if "driven by a motor" (e.g., is unable to be or uncomfortable being still for extended time, as in restaurants, meetings; may be experienced by others as being restless or difficult to keep up with).</p>	<p>Excessive restlessness, especially in situations requiring relative calm; It may, depending upon the situation, involve the child running and jumping around, getting up from a seat when he or she was supposed to remain seated.</p> <p>Excessive talkativeness and noisiness or fidgeting and wriggling.</p> <p>Disinhibition in social relationships, recklessness in situations involving some danger, and impulsive flouting of social rules (as shown by intruding on or interrupting others' activities, prematurely answering questions before they have been completed, or difficulty in waiting turns) are all characteristic of children with this disorder.</p>
Onset	Several inattentive or hyperactive-impulsive symptoms were present prior to age 12 years.	Hyperkinetic disorders always arise early in development (usually in the first 5 years of life).
Occurrence	Several inattentive or hyperactive-impulsive symptoms are present in two or more settings (e.g., at home, school, or work; with friends or relatives; in other activities)	Should be evident in more than one situation (e.g., home, classroom, clinic).
Severity	There is clear evidence that the symptoms interfere with, or reduce the quality of social, academic, or occupational functioning	n.d.
Exclusion criteria	The symptoms do not occur exclusively during the course of schizophrenia or another psychotic disorder and are not better explained by another mental disorder (e.g., mood disorder, dissociative disorder, personality disorder, substance intoxication or withdrawal)	Anxiety disorders, Affective (mood) disorders, pervasive developmental disorders, schizophrenia
Associated features supporting diagnosis	Mild delays in language, motor, or social development. Even in absence of specific learning disorder, academic or work performance is often impaired Low frustration tolerance, irritability, or mood lability In early adulthood, ADHD is associated with increased risk of suicide attempt, primary when comorbid with mood, conduct or substance use disorders.	Cognitive impairment is common, and specific delays in motor and language development are disproportionately frequent. Associated reading difficulties (and/or other scholastic problems) are common. Secondary complications include dissocial behavior and low self-esteem.
Gender differences	ADHD is more frequent in males than in females in the general population, with a ratio of approximately 2:1 in children and 1.6:1 in adults. Females are more likely than males to present primary with inattentive features.	Hyperkinetic disorders are several times more frequent in boys than in girls. Does not allow for diagnosis unless both hyperactivity-impulsivity and inattention are present.
Comorbidity	Oppositional defiant disorder; conduct disorder; disruptive mood dysregulation disorder; specific learning disorders; anxiety disorders and major depressive disorder; intermittent explosive disorder; substance use disorders; antisocial and other personality disorders; obsessive-compulsive disorder; tic disorder; autism spectrum disorder	Conduct disorder (F90.1 Hyperkinetic conduct disorder)

Doubtfulness – unable to make decisions or solve problems; Needing too much time to complete tasks; Difficulty starting and finishing tasks and Mind Wandering (Mental restlessness; Unrelated spontaneous thoughts, constantly on the go, jumping and flitting, multiple thoughts at the same time; Associative thinking). For hyperactivity it was: (Inner) Restlessness; Difficulty relaxing; Pacing up and down; Talking too much and too loud; Fidgeting, rocking, or tapping; Not being able to bear an office job because of restlessness; Knocking things over because of excessive mobility; Being able to sit still but this comes with muscle strain; Restless sleep. For impulsivity it was: Acting without thinking; Difficulty waiting turn – linked to feelings of irritability; Blurting things out that cause distress to others; Interrupting others; Impatience and difficulty waiting turn; Spending too much; Walking out of jobs; Starting relationships quickly; Not being able to postpone gratification; Sensation seeking and risk-taking behaviors; Binge eating. They also added symptoms for emotional dysregulation such as Mood lability; Low frustration tolerance; Emotional impulsivity; Irritability; Anger outbursts; Premenstrual increase of symptoms (Kooij et al., 2019)

The ICD-11 published in 2018 (which officially entered into force on Jan 1, 2022) resembles the DSM-5 concept of ADHD as almost indistinguishable. It changed the disorder's name to ADHD, adopted the age of onset criteria (below 12 years), recognizes the three presentations (predominantly inattentive, predominantly hyperactive-impulsive, predominantly combined), etc. Therefore, our comparison of the DSM-5 ADHD concept and the Hyperkinetic Disorder concept could fully apply to the ADHD ICD-11 concept. We hope this will motivate mental health care professionals and researchers to adopt the new concept as soon as possible while being aware of its imperfections, thus contributing to the future refinement of the clinical category of ADHD.

Lastly, we want to address a recent issue raised by Callahan & Plamondon (2019) concerning the ICD-11 and DSM-5 concepts, especially regarding adults. They investigated the factor structure of the ADHD symptoms in 880 adult participants and found that only the bifactorial model of ADHD met the criteria of a good fit. They suggest that the ADHD concept would be best served by being defined as consisting of one general factor (G-ADHD) and three specific factors (S-inattention, S-hyperactivity, and S-impulsivity) instead of current concepts which do not include general ADHD factor and consider hyperactivity and impulsivity as one factor instead of two.

To sum up, the DSM-5 seems to have significantly improved the concept of ADHD, reflecting the criticism the previous concepts have faced. Accordingly, the current ADHD concept, as defined by the DSM-5, includes:

- Three subtypes, now called presentations: inattentive, hyperactive-impulsive, and combined, reflecting the instability of the subtypes over time.
- Three levels of symptom severity: mild, moderate, and severe.
- Nine smaller (but more homogenous) groups were created by considering both the type of presentation and severity: mild inattentive presentation, moderate inattentive presentation, severe inattentive presentation, mild hyperactive-impulsive presentation, moderate hyperactive-impulsive presentation, severe hyperactive-impulsive presentation, mild combined presentation, moderate combined presentation, and severe combined presentation.
- Age of onset: The age of onset criteria has shifted from 7 to 12 years, and age-appropriate symptom presentation criteria have been added.

### **Pandemic of covid-19: Unanswered questions and new challenges**

This section focuses mainly on the most current topic: the global pandemic of covid-19 and its impact on patients with ADHD and their families. The ongoing pandemic

has shown that a reduced focus on the psychosocial part of the bio-psycho-social model of mental disorders has specific detrimental consequences for patients/clients and their families.

Current research showed that patients with mental disorders (including ADHD) have an increased risk of covid-19 infection and mortality rate (e.g., Wang et al., 2021). The risk was even higher for African Americans, especially those suffering from depression, and women with mental disorders, particularly ADHD (Wang et al., 2021). Merzon et al. (2021) found that ADHD was associated with more severe symptoms of covid-19 and referral to hospitalization. Pollak et al. (2021) also reported that adults with ADHD had lower adaptation to the pandemic. They faced financial decline, psychological distress, and low adherence to preventative measures.

Lockdowns and other restrictions implemented world-wide become necessary to protect this higher risk group. However, dealing with such restrictions invited other problems. The closing of schools has impacted the caregivers of school-aged children. That is especially true for those taking care of children with special education needs, such as children with ADHD. Iovino et al. (2021) found that six months into the pandemic, family caregivers of children with developmental disabilities (ADHD and ASD) reported significantly more psychological distress and caregiver burden than caregivers of neurotypical children. This relationship was moderated by self-care opportunities for caregivers of children with developmental disabilities. They also exhibited greater resiliency to some covid-19 challenges. Similarly, Pecor et al. (2021) found that caregivers of children with ADHD or ASD reported lower quality of life before and during the pandemic than caregivers of neurotypical children. Child pre-pandemic ADHD symptoms related to worse family well-being during early pandemic (Porter et al., 2021).

Adolescents and young adults with ADHD have also experienced new problems connected to online learning. Sibley et al. (2021) found that social isolation, difficulties engaging with online learning, and boredom were the most common problems. Moreover, children and adolescents with ADHD subjected to lockdown during the pandemic had problems with sleep, high levels of state anxiety, and executive functions (Navarro-Soria et al., 2021).

Lockdowns also increased other means of entertainment such as digital media use and gaming. Shuai et al. (2021) compared children with ADHD without problematic digital media use (phone use and internet addiction) and children with ADHD with problematic digital media use. Children with problematic digital media use suffered from more severe core ADHD symptoms, executive function deficits, negative emotions, were more stressed, and had a lower motivation to learn.

With the increased stress on caregivers of children with ADHD and all ADHD patients, treatment becomes even more important to mitigate the adverse effects of the covid-19 pandemic. However, the treatment of mental disorders has become much more complicated due to the various restrictions throughout the world.

New options became necessary and we have seen a rise in telehealth. The patients usually had the choice of on-site sessions using face masks or a telepsychiatric session (by telephone or by videoconference). Wyler et al. (2021) found in their exploratory study with adult ADHD patients that there was no significant difference for any of these sessions between the patient and the therapist's assessment regarding session flow, post-session positivity, satisfaction, and therapeutic alliance. Telepsychiatric sessions were rated significantly less deep than on-site sessions. McGrath (2020) demonstrated on the example of ADMiRE (specialist ADHD service in Dublin) new challenges in providing mental health care services during covid-19 restrictions. Most

of them related to patient diagnostic and treatment, such as postponement of new patient assessments, lack of school feedback, delays in initiation of medication and its optimization, reduction in referral rate, and difficulties reported by families. One more problem with ADHD medication concerns psychostimulants, which are usually controlled drugs (such as in Ireland and the Czech Republic). Getting larger supply due to health care concerns and fear of supply issues due to the pandemic was challenging. Some patients were for a time left without medication due to the problems connected to acquiring controlled drugs during the onset of the pandemic.

This pandemic has presented entirely new challenges and required much flexibility in overcoming them. The researchers and therapists have learned many lessons along with patients. Going forward, we need to keep the changes that make sense even in the post-pandemic world (such as easing barriers in getting mental health care) and improve the entire mental health care system so the problems we have encountered would be minimized in the future.

## DISCUSSION

Over the years, many studies have contributed significantly to our overall understanding of the ADHD concept and symptomatology. Numerous researchers have proposed changes to the current diagnostic criteria, introducing new symptoms or dimensions of ADHD, hoping their contribution will help practitioners diagnose and treat the disorder more accurately. However, for each such proposal, some consider the proposed change valid, while others are categorically against it. Consequently, the field of ADHD appears to be still divided across all aspects of the disorder.

One of the issues the current ADHD concept still faces is its very definition. To be diagnosed, a person must exhibit a certain number of symptoms of inattention and hyperactivity-impulsivity. We have demonstrated that the symptoms criteria might not be enough anymore. The dimensions themselves are not precise. The model by Callahan and Plamondon (2019) offers an elegant solution, but it does not answer everything.

On the one hand, research has demonstrated that subtypes are clinically distinct (e.g., Graetz et al., 2001; Lahey et al., 1998). On the other hand, subtypes are unstable within individuals across their development. Therefore, the DSM-5 has ceased using subtypes in favor of presentations.

Why do presentations change? Stefanatos and Baron (2007) proposed that the symptom criteria themselves are the culprit. The same criteria are used regardless of chronological age, therefore maturing children may naturally cross the symptom boundaries just because the presentation of the symptom will not fit it anymore. DSM-5 addressed this issue in some small measure, but the adult version of the criteria will likely exhibit the same drawback.

Adulthood is a very lengthy developmental period, and the validity of the criteria will likely decrease throughout its course. Many criteria are tied to workplace and administrative tasks (Tab. 1). How will they fit those unemployed, on parental leave, or retired? What if the adults work in professions that do not require many of these tasks? Is it possible to have adults who have minimal problems in their chosen careers but have issues in their social lives due to their ADHD? Will those be able to gain a diagnosis and therefore care? They also mention that hyperactive-impulsive symptoms are usually the earliest to be noticed and that attentional come later. Some subtypes might not have been fully realized at the age of assessment, contributing to the apparent instability (Stefanatos & Baron, 2007). Nevertheless, all subtypes have been observed in adults (e.g., Ramtekkar et al., 2010).

Diagnostic manuals will always be slightly behind the most current science, for it takes many years to change them, and it takes time to come into effect. Science can be quicker and more flexible. As such, moving forward, we might need to use new ways and communication channels to address critical new issues that might arise. Some attempts are already underway, such as the European consensus statement (Kooij et al., 2019). However, a global crisis such as the pandemic of covid-19 needs an even more immediate response. We need functioning communication channels on a national and international scale to cover all mental health care sectors. The establishment of such channels should be one of our priorities to ease the recovery of our patients after this pandemic passes.

The covid-19 pandemic was especially difficult for patients with ADHD in all age groups. As the danger of further outbreaks and some forms of restrictions is still present, clinicians need to address these issues. Continued care and potential crisis management for patients with ADHD and their families seem especially important. We need to open dialogue between parents, schools, patients, and workers in mental health care. We should also incorporate telehealth into everyday practice even after the epidemic is entirely over to remove barriers in receiving mental health care (such as distance).

To answer these questions satisfactorily, we need to focus on longitudinal studies that will follow diagnosed children through adolescence to adulthood and diagnosed adults through their lifetimes. We need good qualitative data to help us understand how impulsivity, hyperactivity, and attention behave in those who fall into the ADHD category. Data across ethnic groups, socioeconomic standings, genders, age groups, and so forth. We need information from patients themselves, persons who live with them and may observe them in their natural environment, and persons with formal ties (teachers, employers). We can only develop the best possible treatment for each patient when we understand how those symptoms behave, how the patients and their environment perceive them, and how they impact them.

We believe that the contradiction within ADHD-related science reflects the complexity of this disorder rather than problems with the quality of the science itself. Moving forward, we should focus on the multimodal concept of ADHD with particular attention to the bio-psycho-social perspective. We should pay more attention to academic and vocational intervention and non-pharmacological treatments. We should pay more attention to the social support structure of the patients and their psychological needs. We should also focus on patients' well-being, strengths, spiritual needs, and other resources they can use to enhance their recovery. Lastly, we should also focus on comparing ADHD patients with patients with different clinical conditions, improving our ability to make a differential diagnosis, and identifying the patients in our care who might have undiagnosed ADHD.

ADHD is a life-long condition that provides unique challenges. Child and adolescent mental health care and adult mental health care are considered separate fields; continuity of care becomes a genuine issue. Patients can age out of the system and lose their care and support. There might not even be any additional care options for adults with ADHD. With the focus on psychiatric reform in the Czech Republic, we should keep these problems in mind to create a new, modern, inclusive mental health care system.

## CONCLUSION

The concept of ADHD was superior to hyperkinetic disorders, especially regarding adult patients; however, it is not without flaws. It is essential to keep these flaws in

mind when the two concepts merge to further improve them without repeating past mistakes.

We have focused on the evolution of the ADHD concept and the ideas surrounding it. The biggest highlight is the living discussion surrounding it and the reflection of its critique, which is incorporated into the criteria. The biggest pitfall is the singular focus on the biomedical perspective to the detriment of the psychosocial perspective. Going forward, we need to mend this divide and invite other perspectives into the clinical viewpoint.

#### LITERATURE

- American Psychiatric Association (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.).
- Barkley, R. A. (2015a). Concentration Deficit Disorder (Sluggish Cognitive Tempo). In R. A. Barkley (Ed.), *Attention-Deficit Hyperactivity Disorder: A handbook for diagnosis and treatment* (4th ed., pp. 435-452). The Guilford Press.
- Barkley, R. A. (2015b). Emotional dysregulation is a core component of ADHD. In R. A. Barkley (Ed.), *Attention-Deficit Hyperactivity Disorder: A handbook for diagnosis and treatment* (4th ed., pp. 81-115). The Guilford Press.
- Barkley, R. A., & Peters, H. (2012). The earliest reference to ADHD in the medical literature? Melchior Adam Weikard's description in 1775 of "Attention Deficit" (Mangel der Aufmerksamkeit, *Attentio Volubilis*). *Journal of Attention Disorders*, 16(8), 623-630. <https://doi.org/10.1177/1087054711432309>
- Bell, A. S. (2010). A critical review of ADHD diagnostic criteria: What to address in the DSM-V. *Journal of Attention Disorders*, 15(1), 3-10. <https://doi.org/10.1177/1087054710365982>
- Bergey, M. R., Filipe, A. M., Conrad, P., & Singh, I. (Eds.) (2018). *Global perspectives on ADHD: social dimensions of diagnosis and treatment in 16 countries*. Johns Hopkins University Press.
- Biederman, J., Faraone, S. V., Weber, W., Russell, R. L., Rater, M., & Park, K. S. (1997). Correspondence between DSM-III-R and DSM-IV Attention-Deficit/Hyperactivity Disorder. *Journal of the American Academy of Child and Adolescent Psychiatry*, 36(12), 1682-1687. <https://doi.org/10.1097/00004583-199712000-00016>
- Bitter, I., Mohr, P., Balogh, L., Látalová, K., Kakuszi, B., Stopková, P., Zmeškalová-Jelenová, D., Pulay, A., & Czobor, P. (2019). ADHD: a hidden comorbidity in adult psychiatric patients. *Attention Deficit and Hyperactivity Disorders*, 11(1), 83-89. <https://doi.org/10.1007/s12402-019-00285-9>
- Callahan, B. L., & Plamondon, A. (2019). Examining the validity of the ADHD concept in adults and older adults. *CNS Spectrums*, 24(5), 518-525. <https://doi.org/10.1017/S1092852918001190>
- Capdevila-Brophy, C., Artigas-Pallarés, J., Navarro-Pastor, J. B., Garcia-Nonell, K., Rigau-Ratera, E., & Obiols, J. E. (2014). ADHD predominantly inattentive subtype with high Sluggish Cognitive Tempo: A new clinical entity? *Journal of Attention Disorders*, 18(7), 607-616. <https://doi.org/10.1177/1087054712445483>
- Chess, S. (1960). Diagnosis and treatment of the hyperactive child. *New York State Journal of Medicine*, 60, 2379-2385. <http://europepmc.org/abstract/MED/13809736>
- Cooper, P. (2008). Like alligators bobbing for poodles? A critical discussion of education, ADHD and the biopsychosocial perspective. *Journal of Philosophy of Education*, 42(3-4), 457-474.
- Drtílková, I. (2007). Klasifikace hyperkinetických poruch a terminologie. In I. Drtílková, & O. Šerý (Eds.), *Hyperkinetická porucha/ADHD* (1st ed., pp. 21-28). Galen.
- Elia, J., Arcos-Burgos, M., Bolton, K. L., Ambrosini, P. J., Berrettini, W., & Muenke, M. (2009). ADHD latent class clusters: DSM-IV subtypes and comorbidity. *Psychiatry Research*, 170(2-3), 192-198. <https://doi.org/10.1016/j.psychres.2008.10.008>
- Faraone, S. V., Biederman, J., & Friedman, D. (2000). Validity of DSM-IV subtypes of attention-deficit/hyperactivity disorder: A family study perspective. *Journal of the American Academy of Child and Adolescent Psychiatry*, 39(3), 300-307. <https://doi.org/10.1097/00004583-200003000-00011>
- Graetz, B. W., Sawyer, M. G., Hazell, P. L., Arney, F., & Baghurst, P. (2001). Validity of DSM-IV ADHD subtypes in a nationally representative sample of Australian children and adolescents. *Journal of the American Academy of Child and Adolescent Psychiatry*, 40(12), 1410-1417. <https://doi.org/10.1097/00004583-200112000-00011>
- Hallowell, E. M., & Ratey, J. J. (2011) *Driven to distraction: Recognizing and Coping with Attention Deficit Disorder* (2nd ed.). Anchor Books.

- Hawthorne, S. (2010a). Institutionalized intolerance of ADHD: sources and consequences. *Hypatia*, 25(3), 504-526. <https://www.jstor.org/stable/40928635>
- Hawthorne, S. (2010b). Embedding values: how science and society jointly valence a concept—the case of ADHD. *Studies in History and Philosophy of Science Part C: Studies in History and Philosophy of Biological and Biomedical Sciences*, 41(1), 21-31. <https://doi.org/10.1016/j.shpsc.2009.12.005>
- Iovino, E. A., Caemmerer, J., & Chafouleas, S. M. (2021). Psychological distress and burden among family caregivers of children with and without developmental disabilities six months into the COVID-19 pandemic. *Research in Developmental Disabilities*, 114, 1-12. <https://doi.org/10.1016/j.ridd.2021.103983>
- Kooij, J. J. S., Bijlenga, D., Salerno, L., Jaeschke, R., Bitter, I., Balázs, J., Thome, J., Dom, G., Kasper, S., Nunes Filipe, C., Stes, S., Mohr, P., Leppämäki, S., Casas Brugué, M., Bobes, J., Mccarthy, J. M., Richarte, V., Kjems Philipsen, A., Pehlivanidis, A., ... Asherson, P. (2019). Updated European Consensus Statement on diagnosis and treatment of adult ADHD. *European Psychiatry*, 56(1), 14-34. <https://doi.org/10.1016/j.eurpsy.2018.11.001>
- Kooij, J. J. S., Buitelaar, J. K., van den Oord, E. J., Furer, J. W., Rijnders, C. A. T., & Hodiament, P. P. G. (2005). Internal and external validity of Attention-Deficit Hyperactivity Disorder in a population-based sample of adults. *Psychological Medicine*, 35(6), 817-827. <https://doi.org/10.1017/S003329170400337X>
- Lahey, B. B., Pelham, W. E., Stein, M. A., Loney, J., Trapani, C., Nugent, K., Kipp, H., Schmidt, E., Lee, S., Cale, M., Gold, E., Hartung, C. M., Willcutt, E., & Baumann, B. (1998). Validity of DSM-IV Attention-Deficit/Hyperactivity Disorder for younger children. *Journal of the American Academy of Child and Adolescent Psychiatry*, 37(7), 695-702. <https://doi.org/10.1097/00004583-199807000-00008>
- Landgren, M., Kjellman, B., & Gillberg, C. (2000). Deficits in attention, motor control and perception (DAMP): a simplified school entry examination. *Acta Paediatrica*, 89(3), 302-309. <https://doi.org/10.1111/j.1651-2227.2000.tb01332.x>
- McGrath, J. (2020). ADHD and Covid-19: current roadblocks and future opportunities. *Irish Journal of Psychological Medicine*, 37(3), 204-211. <https://doi.org/10.1017/ipm.2020.53>
- Meinzer, M. C., Lewinsohn, P. M., Pettit, J. W., Seeley, J. R., Gau, J. M., Chronis-Tuscano, A., & Waxmonsky, J. G. (2013). Attention-Deficit/Hyperactivity Disorder in adolescence predicts onset of Major Depressive Disorder through early adulthood. *Depression and Anxiety*, 30(6), 546-553. <https://doi.org/10.1002/da.22082>
- Merzon, E., Weiss, M. D., Cortese, S., Rotem, A., Schneider, T., Craig, S. G., Vinker, S., Golan, C. A., Green, I., Ashkenazi, S., Weizman, A., & Manor, I. (2021). The association between ADHD and the severity of COVID-19 infection. *Journal of Attention Disorders*, 1-11. <https://doi.org/10.1177/10870547211003659>
- Mowlem, F. D., Skirrow, C., Reid, P., Maltezos, S., Nijjar, S. K., Merwood, A., Barker, E., Cooper, R., Kuntsi, J., & Asherson, P. (2019). Validation of the Mind Excessively Wandering Scale and the relationship of mind wandering to impairment in adult ADHD. *Journal of Attention Disorders*, 23(6), 624-634. <https://doi.org/10.1177/1087054716651927>
- Navarro-Soria, I., Real-Fernández, M., Juárez-Ruiz De Mier, R., Costa-López, B., Sánchez, M., & Lavigne, R. (2021). Consequences of confinement due to COVID-19 in Spain on anxiety, sleep and executive functioning of children and adolescents with ADHD. *Sustainability*, 13(5), 1-17. <https://doi.org/10.3390/su13052487>
- Novák, T. (2012). *Proč jsi stále tak neklidný (2nd ed.)*. Grada
- Pecor, K. W., Barbyannis, G., Yang, M., Johnson, J., Materasso, S., Borda, M., Garcia, D., Garla, V., & Ming, X. (2021). Quality of life changes during the COVID-19 pandemic for caregivers of children with ADHD and/or ASD. *International Journal of Environmental Research and Public Health*, 18(7), 1-12. <https://doi.org/10.3390/ijerph18073667>
- Pollak, Y., Shoham, R., Dayan, H., Gabrieli-Seri, O., & Berger, I. (2021). Symptoms of ADHD predict lower adaptation to the COVID-19 outbreak: financial decline, low adherence to preventive measures, psychological distress, and illness-related negative perceptions. *Journal of Attention Disorders*, 1-12. <https://doi.org/10.1177/10870547211027934>
- Porter, B. M., Douglas, I. J., Larginho, T. L., Aristizabal, M., Mitchell, M. E., Roe, M. A., & Church, J. A. (In press). Examination of pre-pandemic measures on youth well-being during early stages of the COVID-19 pandemic. *Biological Psychiatry Global Open Science*. <https://doi.org/10.1016/j.bpsgos.2021.08.003>
- Ptáček, R., Ptáčková, H., & Braten, E. (2020). K historii diagnostické kategorie ADHD. *Česká a slovenská psychiatrie*, 116(4), 190-196. <http://www.cspsychiatri.cz/detail.php?stat=1344>
- Ramtekkar, U. P., Reiersen, A. M., Todorov, A. A., & Todd, R. D. (2010). Sex and age differences in Attention-Deficit/Hyperactivity Dis-

- order symptoms and diagnoses: implications for DSM-V and ICD-11. *Journal of the American Academy of Child & Adolescent Psychiatry*, 49(3), 217-228. <https://doi.org/10.1016/j.jaac.2009.11.011>
- Shuai, L., He, S., Zheng, H., Wang, Z., Qiu, M., Xia, W., Cao, X., Lu, L., & Zhang, J. (2021). Influences of digital media use on children and adolescents with ADHD during COVID-19 pandemic. *Globalization and Health*, 17(1), 1-9. <https://doi.org/10.1186/s12992-021-00699-z>
- Sibley, M. H., Ortiz, M., Gaias, L. M., Reyes, R., Joshi, M., Alexander, D., & Graziano, P. (2021). Top problems of adolescents and young adults with ADHD during the COVID-19 pandemic. *Journal of Psychiatric Research*, 136, 190-197. <https://doi.org/10.1016/j.jpsychires.2021.02.009>
- Stanton, K., Forbes, M. K., & Zimmerman, M. (2018). Distinct dimensions defining the adult ADHD self-report scale: Implications for assessing inattentive and hyperactive/impulsive symptoms. *Psychological Assessment*, 30(12), 1549-1559. <https://doi.org/10.1037/pas0000604>
- Stefanatos, G. A., & Baron, I. S. (2007). Attention-Deficit/Hyperactivity Disorder: A neuropsychological perspective towards DSM-V. *Neuropsychology Review*, 17(1), 5-38. <https://doi.org/10.1007/s11065-007-9020-3>
- Still, G. F. (2006). Some abnormal psychological conditions in children: excerpts from three lectures. *Journal of Attention Disorders*, 10(2), 126-136. <https://doi.org/10.1177/1087054706288114>
- Teicher, M. H., Polcari, A., Furligas, N., Vitaliano, G., & Navalta, C. P. (2012). Hyperactivity persists in male and female adults with ADHD and remains a highly discriminative feature of the disorder: a case-control study. *BMC Psychiatry*, 12(1), 1-14. <https://doi.org/10.1186/1471-244X-12-190>
- Todd, R. D., Rasmussen, E. R., Wood, C., Levy, F., & Hay, D. A. (2004). Should Sluggish Cognitive Tempo symptoms be included in the diagnosis of Attention-Deficit/Hyperactivity Disorder? *Journal of the American Academy of Child and Adolescent Psychiatry*, 43(5), 588-597. <https://doi.org/10.1097/00004583-200405000-00012>
- Volk, H. E., Neuman, R. J., & Todd, R. D. (2005). A systematic evaluation of ADHD and comorbid psychopathology in a population-based twin sample. *Journal of the American Academy of Child and Adolescent Psychiatry*, 44(8), 768-775. <https://doi.org/10.1097/01.chi.0000166173.72815.83>
- Wang, Q., Xu, R., & Volkow, N. D. (2021). Increased risk of COVID-19 infection and mortality in people with mental disorders: analysis from electronic health records in the United States. *World Psychiatry*, 20(1), 124-130. <https://doi.org/10.1002/wps.20806>
- Warnke, A., & Riederer, C. (2013). *ADHD - An illustrated historical overview*. [Brochure]. <http://www.cpo-media.net/ADHD/History/HTML/>
- World Health Organization (1992). *The ICD-10 classification of mental and behavioral disorders: Clinical descriptions and diagnostic guidelines*. WHO.
- World Health Organization (2019). *International statistical classification of diseases and related health problems (11th ed.)*. <https://icd.who.int/>
- Wyler, H., Liebrez, M., Ajdacic-Gross, V., Seifritz, E., Young, S., Burger, P., & Buadze, A. (2021). Treatment provision for adults with ADHD during the COVID-19 pandemic: an exploratory study on patient and therapist experience with on-site sessions using face masks vs. telepsychiatric sessions. *BMC Psychiatry*, 21(1), 1-16. <https://doi.org/10.1186/s12888-021-03236-9>
- Yang, H. N., Tai, Y. M., Yang, L. K., & Gau, S. S. F. (2013). Prediction of childhood ADHD symptoms to quality of life in young adults: Adult ADHD and anxiety/depression as mediators. *Research in Developmental Disabilities*, 34(10), 3168-3181. <https://doi.org/10.1016/j.ridd.2013.06.011>

## SOUHRN

Vývoj konceptu ADHD a jeho vztah k hyperkinetickým poruchám: Narativní přehledová studie

Porucha pozornosti s hyperaktivitou (ADHD) je unikátní poruchou. Většinou se rozvine v raném dětství a v 50 % případů přerůstá v celoživotní poruchu, což přináší významné výzvy pro výzkumníky i odborníky v praxi. Nová kritéria vytvořená Světovou zdravotnickou organizací spojila kategorie hyperkinetických poruch a ADHD. Cílem této narativní přehledové studie bylo prozkoumat a usnadnit osvojení konceptu ADHD odborníky a výzkumníky, kteří byli zvyklí pracovat s hyperkinetickými poruchami. 1) Byla analyzována evoluce konceptu ADHD od jeho ustanovení ve 3. edici Diagnostického a statistického manuálu duševních poruch (DSM-III) až po DSM-5; 2) byly porovnány současné koncepty ADHD v DSM-5 a hyperkinetické poruchy v Mezinárodní statistické klasifikaci nemocí a přidružených zdravotních problémů (MKN-10); a 3) byly popsány některé nové výzvy, kterým může koncept ADHD če-



lit v budoucnosti. Prozkoumány byly dimenze a struktura konceptu včetně potenciálních nových symptomů, jako jsou například emocionální dysregulace a tzv. mind wandering. Představeny byly také dospělé prezentace symptomů hyperaktivity, impulzivity a nepozornosti. Au-

toři se dotkli také nedávných výzev spojených s globální pandemií covid-19. Závěrem lze konstatovat, že koncept ADHD se od svého vzniku významně zlepšil. Ve vědeckém výzkumu zabývajícím se ADHD by však měla být více zohledněna psycho-bio-sociální perspektiva.