# Preface

Attention deficit / hyperactivity disorder (ADHD) is a neurodevelopmental disorder characterized by symptoms of attention deficits and/or hyperactivity and impulsivity. Although the emphasis may be directed towards either attention deficits or hyperactivity and impulsivity, both present to some extent.

ADHD has long been assumed to disappear in adulthood, most often during adolescence. Therefore, the diagnosis of ADHD was not made in adults. This idea still prevails among certain caregivers who do not recognize adult ADHD as a disorder. ADHD symptoms, by definition, are present since childhood and can thus be perceived as long-standing 'characteristic traits' of the individual. This is in contrast with other psychiatric disorders such as anxiety and mood disorders, which usually occur episodically and are more easily perceived as a disorder by the healthcare provider.

This book was written in parallel with the development and implementation of the *Guideline for the Diagnosis and Treatment of Patients with ADHD and Substance use Disorders.* The first version of this guideline was developed in 2010 together with the Belgian Association for Alcohol and Other Drug Disorders (http://www.vad.be) and an update of the guideline was published in 2016. These recommendations are followed in this book, and an overview of the main recommendations is summarized here as well. During the implementation of the guideline, we noticed the healthcare provider's request for clear and practical direction that could assist with the implementation of these recommendations into current practice.

The combination of ADHD and substance use disorders is a complex pathology with various manifestations for which complex treatment is needed and several methodologies may be adopted. We are grateful for all the input received from specialists who were consulted while writing the original first Dutch version of this book: Annemie Vermassen, Gwendolyne De Clippeleir, Lieve Govaerts, Vina Van Geystelen, Sabrina Van Poucke, Koen De Kerpel, Romain Meeusen and Bart Roelands. Special thanks goes to Michiel van Kernebeek for all his help and input in the translation of the book into its English version.

"This concise book addresses an important need; namely how to best diagnose and treat ADHD individuals with a comorbid substance use disorder. The first section provides clear recommendations on how to achieve a valid ADHD diagnosis and provide treatment in the context of having an ongoing substance use problem. The second section covers critical principles in treating adult ADHD in substance abusing patients and "walks" the reader through several therapeutic approaches that might be applied to this patient population as well as how these approaches might be adapted based on setting. Finally, the third section is uniquely organized in that it allows the learner to use various modules in ways that suit the therapist and their patients. There are excellent modules on psychoeducation that can be provided as a therapeutic platform in which other additional therapeutic approaches might be applied. These other approaches (e.g. cognitive behavioral therapy and skills training, ergo- and art therapy, mindfulness, and musical therapy) are lucidly described. The wisdom of this modular treatment guide is that the authors do not focus on one approach; rather they suggest "meeting the patient where she/he is" and modifying their intervention based on this. Moreover, the authors organize the treatment guide under problem headings that occur in common practice (such as emotion-regulation or social skills); thus increasing the real-world utility of the treatment guide section. By providing the relevant clinical approaches under each of the problem headings, the learner better understands how to apply these clinical approaches appropriately. This is a practical and insightful book that I highly recommend to both novice and experienced clinicians alike."

**Frances R. Levin, MD, the Kennedy-Leavy Professor of Clinical Psychiatry at Columbia University, Director of the Division on Substance Abuse Medical Center/ New York State Psychiatric Institute.**

"This is a very timely publication. Clinicians already noticed a long time ago that Attention Deficit/ Hyperactivity Disorder (ADHD) and Substance Use Disorders (SUDs) often went hand in hand and that childhood ADHD was often followed by adult SUD. In the last 15-20 years, scientific research about the relation between ADHD and SUD has also increased and we now know a lot more about the risk of developing adult SUD in children with ADHD, the prevalence of ADHD in patients with SUD and the way these disorders are best diagnosed. We also know much more now about the overlapping

psychopathology of ADHD and SUDs and recently we learned how to treat these disorders when they co-occur in a patient. However, the scientific evidence is presented in single subject papers in many different scientific journals covering many different fields of research, including pediatrics, developmental disorders, child and adolescents psychiatry, adult psychiatry, and addiction. This is the first publication in which the existing clinical knowledge and our scientific knowledge is summarized and integrated in a handsome format that will make it much easier for clinicians to provide scientifically based and clinically informed diagnosis and treatment for SUD patients with a comorbid diagnosis of adult ADHD.

The first section of the book is a condense guideline based on the scientific literature about the screening, diagnosis, and treatment of ADHD in SUD patients and results in a large number of clinically relevant conclusions. In the second section, these conclusions are then translated into practical recommendations for daily practice, including general and more specific treatment principles for diagnosis, psychotherapy and pharmacotherapy. In the third section, the authors present a detailed description of ten psychological treatment modules. In the fourth section, these modules are supplemented with worksheets to support their implementation in daily clinical practice.

This is a very well written, very informative, and very useful guide for all clinicians treating SUD patients with adult ADHD. In addition, this book can be used by patients in the context of psycho-education and as a shared decision making aid."

**Wim van den Brink, MD PhD, Professor of Psychiatry and Addiction, Academic Medical Centre, University of Amsterdam, President of the International Collaboration of ADHD and Substance Abuse (ICASA)**

## How should you use this book?

The book includes four major parts.

The first part includes the conclusions and recommendation from the updated *Guideline for the Diagnosis and Treatment of Patients with ADHD and Substance use Disorders*. The second part provides an overview of the different treatment options and the therapeutic frameworks.

The third part consists of ten treatment modules, which can be used and consulted in random order.

Depending on the individual difficulties that a patient is facing, the different modules can be used independently of each other. This allows for a more individualized treatment approach. The modules include treatment advice derived from different therapeutic methods and frameworks. For the application of certain treatment methods (e.g., active music therapy, occupational therapy, cognitive behavioral therapy (CBT)), additional education or training in the relevant field may be required. Other techniques can be used by skilled care workers in addiction care from different disciplines (e.g., skill training). Working together with different therapeutic visions and with different methods while working towards the same treatment goal can increase the effectiveness of the multidisciplinary approach.

At the end of the modules, worksheets (part V) are available to aid with applying certain techniques. The worksheets allow both care worker and patient to engage practically and goal-directed. The patient can compile a workbook with these worksheets and use them as a reference work. These worksheets can also be downloaded from the website www.gompel-svacina.com. The website also contains practical tools: the integral guideline, the slides of the exercises given to the care providers and more practical information for the patients.

# Introduction

## Attention Deficit/Hyperactivity Disorder (ADHD)

ADHD is a neurobiological developmental disorder with an important genetic component [1]. The disorder often develops during childhood, but may persist into adolescence and adulthood. ADHD is associated with significant impairment in psychosocial functioning [2] and is characterized by three main components:

- **Attention deficit**: includes difficulties maintaining attention (concentration problems), making mistakes due to carelessness, being easily distracted, frequent absent-mindedness, difficulty with organizing activities, difficulty in finishing complex tasks, forgetfulness, problems with following instructions correctly and often losing things.
- **Hyperactivity**: includes moving excessively (with hands, feet, or the entire body) and difficulty sitting still. In children, it is expressed by an inability to play quietly, frequently climbing onto things, running around continuously and an uninterrupted urge to talk. In adults, it is more likely expressed as an inner sense of restlessness, the inability to relax, difficulty sitting still and being continuously occupied.
- **Impulsivity**: includes functioning without thinking of consequences, difficulty in postponing things or waiting one's turn, interrupting others, providing an answer before the question was finished, excitement seeking and thrill seeking.

In the past few decades, ADHD diagnostic criteria have changed regularly [3]. In DSM-III, the term "attention deficit disorder" (ADD) was mentioned for the first time, distinguishing between ADD with or without hyperactivity. In 1994, DSM-IV was published, including distinct symptoms for inattention (nine in total) and hyperactivity and impulsivity (nine as well). Additionally, it was acknowledged that ADHD may persist into adulthood [4]. If at least six of the nine symptoms were present for at least six months, one can refer to attention deficit and hyperactivity/impulsivity, respectively. As such, three ADHD types were defined: a predominantly inattentive, a predominantly hyperactive-impulsive, and a combined type.

In DSM-5 (2013), ADHD is part of the cluster of neurobiological developmental disorders [5]. The nine symptoms of inattention and the nine symptoms of hyperactivity and impulsivity remain identical to the prior DSM version, but now include specific examples for adolescents and adults [see Table 1]. In children, at least six symptoms must be present, while older adolescents and adults must present with five. An important change in DSM-5 includes the age at which the first symptoms must present (now: 12 years old). Symptoms must present in at least two domains (school, home, work), but symptoms before the age of 12 do not need to have had a significant impact on school or social relationships. In addition, in DSM-5, a pervasive developmental disorder (PDD) is no reason to exclude an ADHD diagnosis, as PDD is included in the neurodevelopmental disorders. As a result, autism spectrum disorder does not exclude an ADHD diagnosis. Finally, ADHD subtypes are now presented as 'presentations' rather than 'subtypes', which better addresses any change in presentation during an individual's lifetime:

- A predominantly inattentive presentation;
- A predominantly hyperactive/impulsive presentation;
- A combined presentation.

## ADHD in adulthood

Not all children with ADHD outgrow the disorder in adolescence or adulthood. Rather, the way in which the symptoms are expressed in the transition from child to adult can vary [6-7]. For example, symptoms of inattention in adults with ADHD may manifest as time management problems, forgetfulness, and/or distraction. In contrast, hyperactive-impulsive symptoms in adult ADHD patients may manifest as more subjective feelings of restlessness, or be related to choosing a very active job, changing jobs and ending relationships more regularly, distracting others, or having a low tolerance level (being irritated or frustrated easily), or finishing or disrupting other people's sentences regularly.

Adult ADHD is not always recognized and, therefore, it often remains untreated. In Belgium, about 4.1% of adults are estimated to have ADHD [8]. A possible explanation for the underdiagnosis of adult ADHD is that adults with ADHD were not diagnosed earlier in childhood. With a rigorously structured life and relatively few demands on the child, serious problems do not occur and the ADHD remains undetected. If changes in the expectations and responsibilities of the individual occur while growing up, the symptoms can become visible, and may necessitate treatment [6]. Another possibility is that ADHD is masked by the presence of other (comorbid) disorders. In adults with ADHD, mood and anxiety disorders occur up to four times more often than in adults without ADHD [8-9].

TABLE 1. **DSM-5 Diagnostic criteria for Attention-Deficit/Hyperactivity Disorder**

**A.** A persistent pattern of inattention and/or hyperactivity-impulsivity that interferes with functioning or development as characterized by (1) or (2). Six or more of the symptoms have persisted for at least six months to a degree that is inconsistent with the developmental level, and that negatively impacts directly on social and academic/occupational activities. The symptoms are not solely a manifestation of oppositional behavior, defiance, hostility, or failure to understand tasks or instructions. For older adolescents and adults (age 17 and older), five or more symptoms are required.

(1) Inattention

- **(a)** Often fails to give close attention to details or makes careless mistakes in schoolwork, at work, or during other activities.
- **(b)** Often has difficulty sustaining attention in tasks or play activities.
- **(c)** Often does not seem to listen when spoken to directly.
- **(d)** Often does not follow through on instructions and fails to finish schoolwork, chores, or duties in the workplace (e.g., loses focus, side-tracked).
- **(e)** Often has trouble organizing tasks and activities.
- **(f)** Often avoids, dislikes, or is reluctant to do tasks that require mental effort over a long period of time (such as schoolwork or homework).
- **(g)** Often loses things necessary for tasks and activities (e.g. school materials, pencils, books, tools, wallets, keys, paperwork, eyeglasses, mobile telephones).
- **(h)** Is often easily distracted.
- **(i)** Is often forgetful in daily activities.

(2) Hyperactivity and Impulsivity

- **(a)** Often fidgets with or taps hands or feet, or squirms in seat.
- **(b)** Often leaves seat in situations when remaining seated is expected.
- **(c)** Often runs about or climbs in situations where it is not appropriate (adolescents or adults may be limited to feeling restless).
- **(d)** Often unable to play or take part in leisure activities quietly.
- **(e)** Is often "on the go" acting as if "driven by a motor".
- **(f)** Often talks excessively.
- **(g)** Often blurts out an answer before a question has been completed.
- **(h)** Often has trouble waiting his/her turn.
- **(i)** Often interrupts or intrudes on others (e.g., butts into conversations or games)

**B.** Several inattentive or hyperactive-impulsive symptoms were present prior to age 12 years.

**C.** 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).

**D.** There is clear evidence that the symptoms interfere with, or reduce the quality of, social, academic or occupational functioning.

**E.** 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, anxiety disorder, dissociative disorder, personality disorder, substance intoxication or withdrawal).

## Drug dependence

The term drug dependence, substance abuse, or addiction refers to the excessive use of one or more psychoactive substances. It is termed substance use disorder (SUD) according to DSM-5, and includes substance abuse and dependence as a single disorder measured on a continuum from mild (when two to three symptoms are present), to moderate (when four to five symptoms are present), to severe (when six or more symptoms are present) [see Table 2].

TABLE 2. **DSM-5 Diagnostic criteria for Substance Use Disorders**

| | |
|---|---|
| A1. | Consuming more alcohol or other substances than originally planned. |
| A2. | Worrying about stopping or consistently failed efforts to control one's use. |
| A3. | Spending a large amount of time using drugs/alcohol, or doing whatever is needed to obtain them. |
| A4. | Use of the substance results in failure to "fulfil major role obligations" such as at home, work, or school. |
| A5. | "Craving" the substance (alcohol or drug) |
| A6. | Continuing the use of a substance despite health problems caused or worsened by it. |
| A7. | Continuing the use of a substance despite its having negative effects in relationships with others. |
| A8. | Repeated use of the substance in a dangerous situation (for example, when having to operate heavy machinery, when driving a car). |
| A9. | Giving up or reducing activities in a person's life because of the drug/alcohol use. |
| A10. | Building up a tolerance to the alcohol or drug. Tolerance is defined by the DSM-5 as "either needing to use noticeably larger amounts over time to get the desired effect or noticing less of an effect over time after repeated use of the same amount." |
| A11. | Experiencing withdrawal symptoms after stopping use. Withdrawal symptoms typically include, according to the DSM-5: "anxiety, irritability, fatigue, nausea/vomiting, hand tremor or seizure in the case of alcohol." |

## Prevalence of ADHD in addiction care

ADHD is three to four times more frequent in populations with SUD compared to the general population [10]. The prevalence varies between 10 and 54% (mean 23%) [11]. In treatment-seeking SUD patients, research denotes a prevalence between 5 and 31% for ADHD; the prevalence being dependent on country, treatment setting, and type of substance abused [12]. In a recent meta-analysis including 29 studies (with a total of 6689 patients from 6 countries) 23.1 % of patients with SUD have an underlying ADHD [11]. A large international study shows a prevalence rate of 13.9% [13]. Age, gender and ethnicity do not impact the prevalence rate [11]; although another study indicates a slightly increased

prevalence in men (28%) compared to women (19%) [14]. In a large recent international study in ten countries, it was shown that northern countries (Norway, Sweden) have higher prevalence rates of up to 31% of ADHD in patients with SUD [12]. It was also shown that the prevalence is slightly lower when the diagnosis was made using the previous DSM-IV compared to DSM-5 criteria [12].

## How ADHD influences substance abuse

ADHD influences the pathophysiology of SUD: how SUD develops, how the symptoms occur, and how effective treatment of SUD will be. If the comorbid ADHD is not diagnosed and adequately treated, it may hamper the treatment of SUD significantly. ADHD symptoms such as impulsivity and planning and organizing difficulties are factors that influence the treatment of SUD directly, but the substance use itself will also negatively influence the treatment of ADHD [15]. In addition, treatment retention is an important difficulty in the treatment of SUD, even more with underlying ADHD. Therefore, it is highly recommended to start both treatments (for ADHD and for SUD) as soon as possible and to focus on both disorders simultaneously, rather than to postpone ADHD treatment. An updated guideline with regards to the diagnosis and treatment of ADHD and SUD is available and strongly argues towards an integrated treatment approach in adults with SUD and comorbid ADHD [16].

ADHD and SUD often co-occur [17-18], most probably due to the overlap in underlying neurobiological (dopaminergic) deficits of both disorders [19-21]. Being able to diagnose and treat ADHD as soon as possible is important because ADHD negatively influences a child's development and often predisposes to more comorbid psychiatric disorders, including but not limited to SUD [22-25]. The chance of developing SUD when underlying ADHD is present increases even more with the presence of other psychiatric disorders such as depression, anxiety disorder or bipolar disorder [10].

Patients in addiction care with underlying ADHD often started using drugs at an earlier age, exhibit more experimentation behavior, and often use more psychoactive substances simultaneously than those without ADHD [26]. Additionally, they have an increased risk of traffic accidents [14] and suicide attempts, and they are more often hospitalized [27-28]. Patients with ADHD and SUD also report reduced quality of life [26] and more significant professional, social and personal problems [29]. In a qualitative study, patients with ADHD and SUD say they benefit from the use of psychoactive substances, but also express being generally less happy with their lives and necessitating more treatment than patients with

SUD but without ADHD [30]. Their main problem includes structuring of everyday life due to scheduling problems [31].

ADHD is associated with an increased risk of developing a SUD later in life [32-36] and with a faster transition from less severe to more serious SUD [27]. Despite being in treatment more often, adults with ADHD and SUD have more difficulties remaining drug-free compared to SUD patients without ADHD [14, 37-38]. In adult ADHD patients with SUD, ADHD symptoms are often expressed more intensely [39] and more often in combination with other psychiatric disorders (behavioral problems, antisocial personality disorders, bipolar disorders and / or post-traumatic stress disorders)[13, 26, 28, 34]. In summary, the SUD is often more complex and more chronic than in patients without ADHD [40].

Even though it is clear that ADHD and SUD are often co-occurring, several hypotheses remain regarding *why*. Impulsivity of young adults with ADHD plays a role, including increased experimental behavior with drugs and alcohol, observed mainly in young adults with a hyperactive or combined presentation of ADHD [41-42]. Self-medication may also play a role. Research shows that approximately one third of (young) adults with ADHD use nicotine, alcohol, or other drugs of abuse to manage or ease their ADHD symptoms [43]. Sedating drugs of abuse may be used to counter feelings of restlessness, negative emotions, depression, anxiety and sleeping problems, or to stop the constant flow of thoughts and emotions [31]. Also cocaine [44] and cannabis [10] are sometimes used in order to reduce ADHD symptoms. Self-medication can however lead to more problematic drug use [42]. ADHD also shows an important overlap with SUD in terms of genetics and neurobiology [45], which may in part explain why ADHD and SUD so often co-occur. The lack of impulse control is a key symptom of ADHD but also of SUD. It can also commonly be observed in individuals with gambling disorders, eating disorders and impulsive and compulsive use of alcohol and other drugs of abuse [46]. Neurobiological aspects of impulsive thought and action are observed as deficits in dopamine and noradrenaline transmission in frontal and limbic brain regions [47].