ADHD, ASD and the risk of addictive disorders. How to treat, when to treat and why to treat.

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Mardi 9, mercredi 10 & jeudi 11 juin 2026

Novotel Tour Eiffel - Paris - France

Congrès International d'Addictologie de l'ALBATROS

ALBATROS International Congress of Addictology

Conflict of Interests

Activity	Organization
Speaker	Adamed, Eli Lilly, Johnson & Johnson, Lundbeck, Otsuka, Pfizer, Servier, Neuraxpharm, Recordati, Rovi, Rubió, Takeda
Consultancy	Lundbeck, Johnson & Johnson, Takeda, Servier, Pfizer
Research support	Johnson & Johnson
Asesorías	Lundbeck, Johnson & Johnson, Casen Recordati

I am employed by the Conselleria de Sanitat (Hospital Universitario Doctor Peset and the Universitat de València.

DIAGNOSTIC AND STATISTICAL MANUAL OF MENTAL DISORDERS

FIFTH EDITION
TEXT REVISION

DSM-5-TR™

AMERICAN PSYCHIATRIC ASSOCIATION

Shared Heritability

Emerging epidemiological research indicates significant genetic overlap between the the development of ASD and SUD.

Common Neurobiology

Both conditions frequently share neurobiological pathways linked to atypical dopamine regulation.

Reward Deficiency Syndrome

A biological predisposition that makes the artificial dopamine surge of substances intensely, disproportionately rewarding.

ADHD and Autism Spectrum Disorder (ASD)

- Until the publication of **DSM-5**, diagnoses of **ASD** and **Attention-Deficit/Hyperactivity Disorder (ADHD)** were mutually exclusive.
- However, the co-occurrence of **ADHD symptoms and autistic symptoms** is common in clinical practice and is associated with, **higher rates of additional psychiatric comorbidities** and **worse social, cognitive, and adaptive functioning.**
- In addition, other **concurrent disorders are not adequately addressed** in patients with ASD and/or ADHD, affecting their outcomes:
  - **ASD in children with ADHD may be identified at a later age** than in children with ASD alone, which may hinder the early diagnosis and treatment of ASD
  - **Patients with co-occurring ASD and ADHD** experience greater difficulties with inhibitory control, impulse regulation, and executive functioning than those with ASD or ADHD alone.

1. Lord C, et al. Autism spectrum disorder. Nat Rev Dis Primers. 2020 ; 2. American Psychiatric Association, 2013; 3. Simonoff E, et al. American Acad Child Adol Psychiatry 2008; 4. Rong Y, et al Res Autism Spectr Dis 2021. 5. Croen LA, et al. Autism 2015; 19:814–823.

Symptoms and level of functioning related to comorbidity in children and adolescents with ADHD: a cross-sectional registry study

Marie Elwin[1,3*], Tove Elvin[1] and Jan-Olov Larsson[2]

BMC
Child and Adolescent Psychiatry and Mental Health

Abstract

Background: It is well known that a wide range of psychiatric disorders co-occur with attention deficit hyperactivity disorder. In this study we aimed to examine the associations of psychiatric comorbidity in ADHD with symptom severity and level of functioning.

Methods: We used data from the Swedish National Quality Registry for ADHD Treatment Follow-up and identified comorbid diagnoses in a sample of 3246 Swedish children and adolescents with ADHD. We investigated the association of comorbidity with symptom severity and level of function by multiple linear regressions.

Results: Autism spectrum disorder, anxiety and affective disorders, oppositional defiant disorder or conduct disorder, learning disorders, and multiple comorbid disorders associate to lower levels of functioning compared to ADHD only. Multiple comorbidity, autism spectrum disorder, oppositional defiant or conduct disorders and tic disorders relate to ADHD symptom severity.

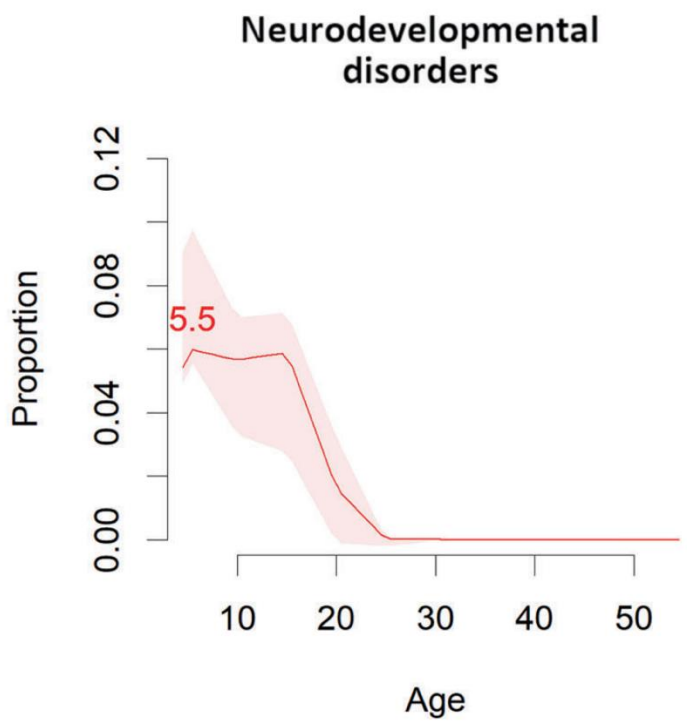
Conclusions: Comorbidity subgroups with ADHD differ in functional impairment and ADHD symptoms severity. Information on comorbidity profiles could be used for treatment planning more adapted to the individual. Especially those who have autism spectrum disorders and multiple comorbid disorders are at risk of severe ADHD symptoms and low level of functioning.

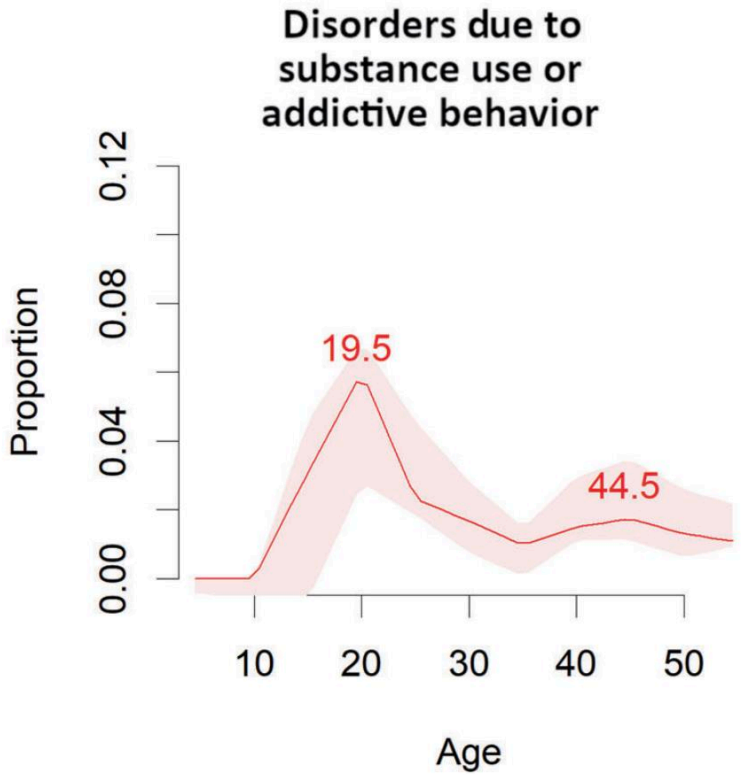
Child Adolesc Psychiatry Ment Health (2020) 14:30
https://doi.org/10.1186/s13034-020-00336-4

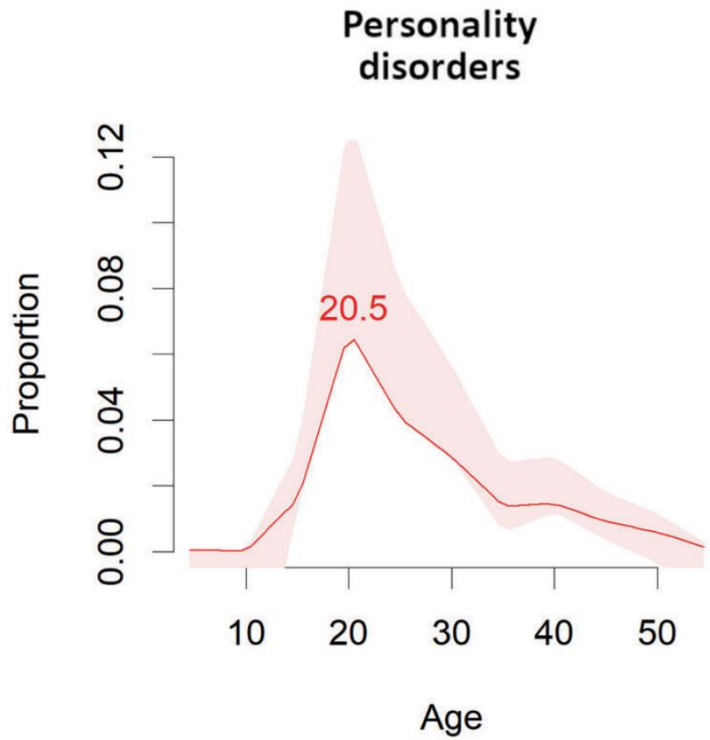
Age at onset of mental disorders worldwide: large-scale meta-analysis of 192 epidemiological studies

Marco Solmi[1,2,3] · Joaquim Radua[3,4,5] · Miriam Olivola[3] · Enrico Croce[6] · Livia Soardo[7] · Gonzalo Salazar de Pablo[3,8,9] · Jae Il Shin[10] · James B. Kirkbride[11] · Peter Jones[12,13] · Jae Han Kim[14] · Jong Yeob Kim[14] · Andrè F. Carvalho[15] · Mary V. Seeman[16] · Christoph U. Correll[17,18,19,20] · Paolo Fusar-Poli[3,7,21,22]

Meta-analytic distribution of age of onset for specific mental disorders blocks







Molecular Psychiatry (2022) 27:281–295

Historical Evolution of ADHD: From Empirical Observation to the Neurosciences

Melchior Adam Weikard

1770-1775

German physician. First to describe a syndrome resembling ADHD in a medical textbook.

John Haslam and Benjamin Rush

1809-1812

Describe several clinical cases of children with impulsivity and inattention.

1798

Alexander Crichton

Scottish physician. Described attention disorders in his medical textbook.

1844

Heinrich Hoffmann

German physician. Published children's stories such as 'Fidgety Phil', illustrating symptoms of hyperactivity.

1867

British psychiatrist Reported cases of impulsive children.

Henry Maudsley

1885-1895

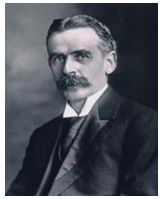
Désiré-Magloire Bourneville

French physician. Formal description of children with a hyperactive impulsive profile.

1899

Thomas Clouston

Presented multiple clinical cases to the Royal College of Physicians, defining the disorder as a 'defect of moral control'.



George F. Still

1902

Scottish psychiatrist Reinforced earlier descriptions of impaired inhibitory control.

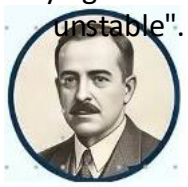
1908

Alfred Tredgold

English physician who emphasized the persistent and chronic nature of these symptoms.

1917

Spanish neuropsychiatrist. Reported ADHD symptoms in children, classifying them as "the unstable".



Gonzalo Rodríguez-Lafora

1917-1950

The concept of 'minimal brain damage' emerged after observing hyperkinesia as a sequel of encephalitis, epilepsy, and head trauma.

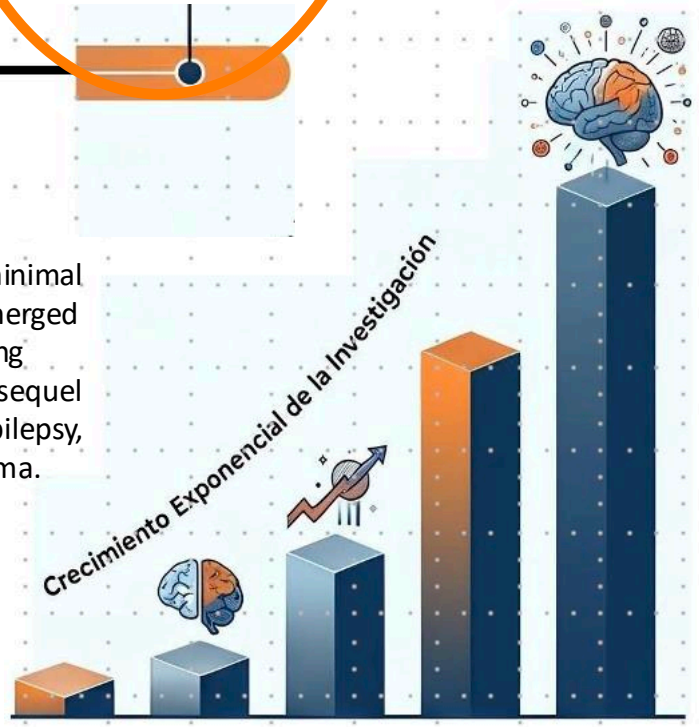
1937

First clinical trial of stimulants (**Benzedrine**) for ADHD symptoms.

Charles Bradley

1960s – Present

Research Boom: Major advances in all aspects of ADHD, consolidating its neurobiological and genetic basis.



Martinez-Badía J, Martinez-Raga J. Who says this is a modern disorder? The early history of attention deficit hyperactivity disorder. World J Psychiatry. 2015; 5(4):379-86.

The Evolution of Autism: A Timeline of Discovery and Acceptance

1798–1979: Discovery and Contested Origins

1798–1944: Defining the Condition

1798: Itard documents "wild child" case.

1908: Bleuler first uses term "autism" for self-absorption.

1943: Kanner publishes "Autistic Disturbances".

1944: Asperger describes "autistic psychopathy".

Pre-1900s	Feral children and retrospective analysis.
1908	Eugen Bleuler terms "autism".
1943-44	Kanner & Asperger publish definitive works.
1990s	ADA/IDEA rights; Asperger in DSM IV.
2005	ASAN founding.
2023	**CDC prevalence 1 in 36.**

1950s–1960s: The Era of "Mother-Blame"

Bruno Bettelheim popularizes harmful "refrigerator mother" theory, falsely attributing autism to cold parenting.

1964–1970s: The Biological Shift

Bernard Rimland proves biological basis; Dr. Ivar Lovaas pioneers early behavioral techniques.

1964–1970s: The Biological Shift

Bernard Rimland proves biological basis; Dr. Ivar Lovaas pioneers early behavioral techniques.

1980–Future: Recognition, Rights, and Neurodiversity

1980–2013: Clinical Evolution

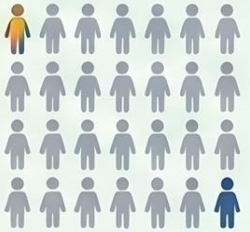
DSM-III recognizes "infantile autism," consolidating into "Autism Spectrum Disorder" in DSM-5.

2004–2023: Advocacy and Prevalence

Sinclair launches neurodiversity in 2004; Autistic Self Advocacy Network (ASAN) founded in 2005.

2023:

CDC Prevalence Rates reach **1 in 36 children**.



The Future: Inclusion and Life-Span Support

Future focus shifts toward adult research, workplace neurodiversity, and overall quality of life.

Specialised minds: extending adaptive explanations of personality to the evolution of psychopathology

Adam D. Hunt* and Adrian V. Jaeggi

Evolutionary Human Sciences (2022), **4**, e26,
doi:10.1017/ehs.2022.23

Barbara Franke[a,b,*], Giorgia Michelini[c], Philip Asherson[c], Tobias Banaschewski[d], Andrea Bilbow[e,f], Jan K. Buitelaar[g], Bru Cormand[h,i,j,k], Stephen V. Faraone[l,m], Ylva Ginsberg[n,o], Jan Haavik[m,p], Jonna Kuntsi[c], Henrik Larsson[n,o], Klaus-Peter Lesch[q,r,s], J. Antoni Ramos-Quiroga[t,u,v,w], János M. Réthelyi[x,y], Marta Ribases[t,u,v], Andreas Reif[z]

Live fast, die young? A review on the developmental trajectories of ADHD across the lifespan

European Neuropsychopharmacology (2018) 28, 1059-1088

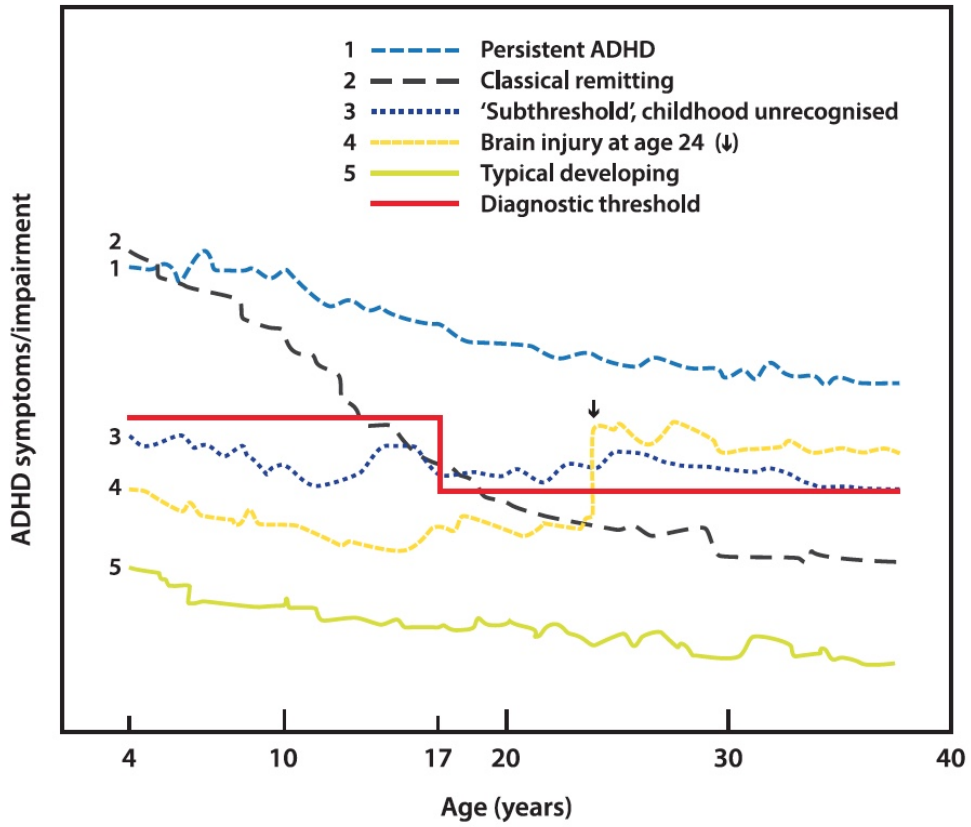
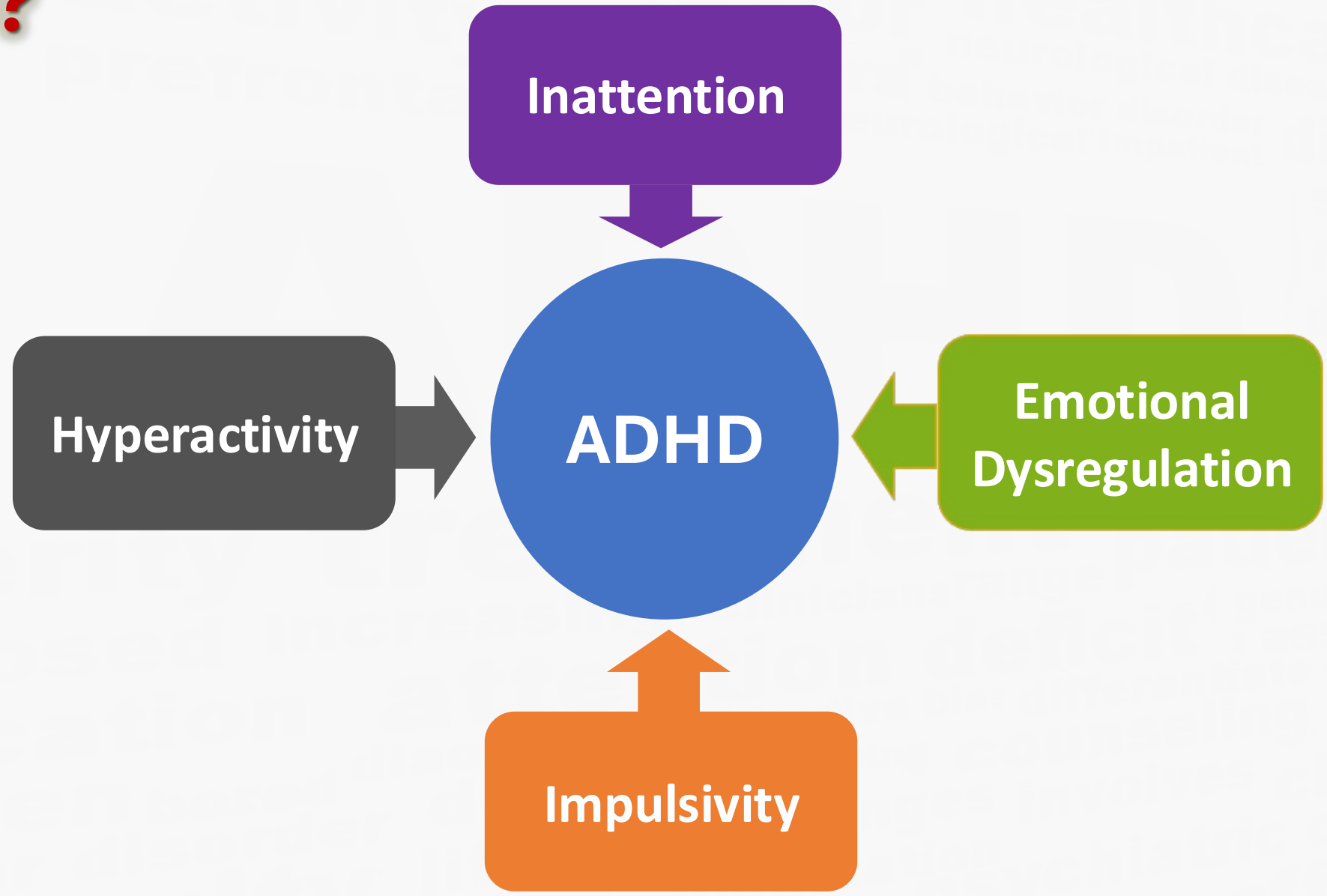


Fig. 1 Theoretical developmental trajectories of ADHD across the lifespan. Details are given in the text.

- ADHD is the most frequent childhood onset psychiatric disorder, with a **world-wide prevalence in children and adolescence of 3.4-7.2%.**
- Studies show that approximately 2/3 of children diagnosed of ADHD continue experiencing symptoms in adulthood, so that it is estimated that **2.5-4.5% of the adult population** have ADHD.

ADHD?


Inattention
Hyperactivity
ADHD
Emotional Dysregulation
Impulsivity

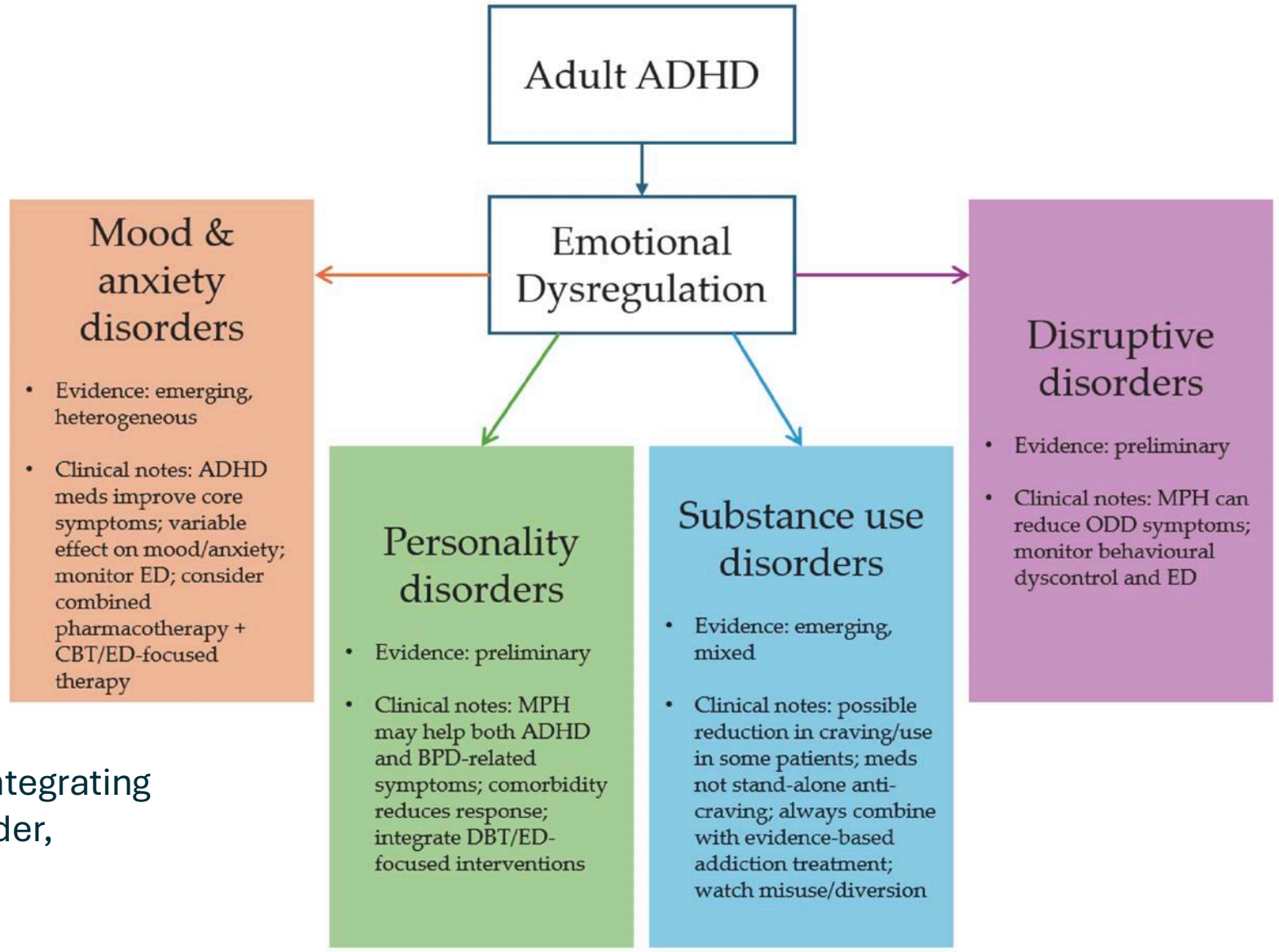
Journal of Clinical Medicine
J. Clin. Med. 2025, 14, 8848

Effectiveness of Pharmacological Treatments for Adult ADHD on Psychiatric Comorbidity: A Systematic Review

Beniamino Tripodi [1,2,3], Manuel Glauco Carbone [1,2,4,5,6,*], Irene Matarese [7], Roberta Rizzato [1], Filippo Della Rocca [2,4,5,6,8], Francesco De Dominicis [9] and Camilla Callegari [1]

MDPI

Emotional dysregulation as a potential transdiagnostic bridge between ADHD and comorbid conditions



Outlines practical considerations for integrating pharmacological treatments into broader, individualized care plans

Emotion Regulation: A Transdiagnostic Feature of Psychiatric Disorders

A systematic review and meta-analysis of 188 studies (Sloan et al., 2026) reveals impaired emotion regulation as a universal factor across the psychiatric spectrum, identifying it as a critical target for clinical intervention.

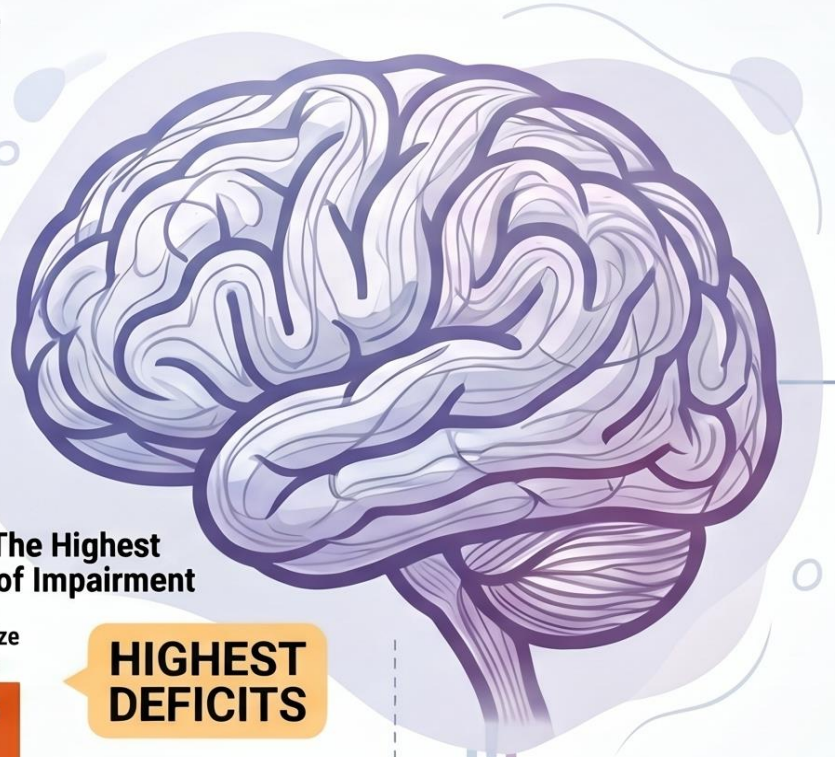
Universal Impairment & Study Scope

188

Massive Evidence Base:
Analysis of 188 studies

15
Diagnoses Covered

Over 20,000
Total Participants

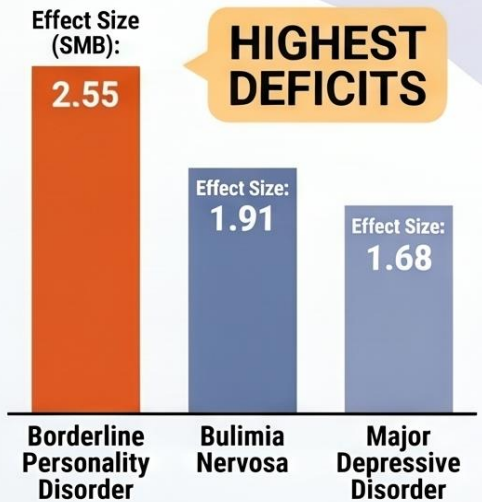


Universal DERS Impairment

All 12 major disorders analyzed showed significant, large-scale difficulties in emotion regulation.

Depression
Anxiety
Social Anxiety Disorder
Panic Disorder
General Anxiety Disorder
Specific Phobia
Sleep Disorders
ADHD
OCD
Schizophrenia
Eating Disorders
Substance Use

BPD: The Highest Level of Impairment



Strategy Shifts & Clinical Strategy

Adaptive Strategies
(Cognitive Reappraisal)

Most disorders show **REDUCED** use

Notable Strategy Exceptions

ADHD
ADHD and OCD: No significant increase in maladaptive expressive suppression.

OCD

Maladaptive Strategies
(Suppression)

Most disorders show **INCREASED** use

A Unified Treatment Target

Depression
BPD
Anxiety
BPD

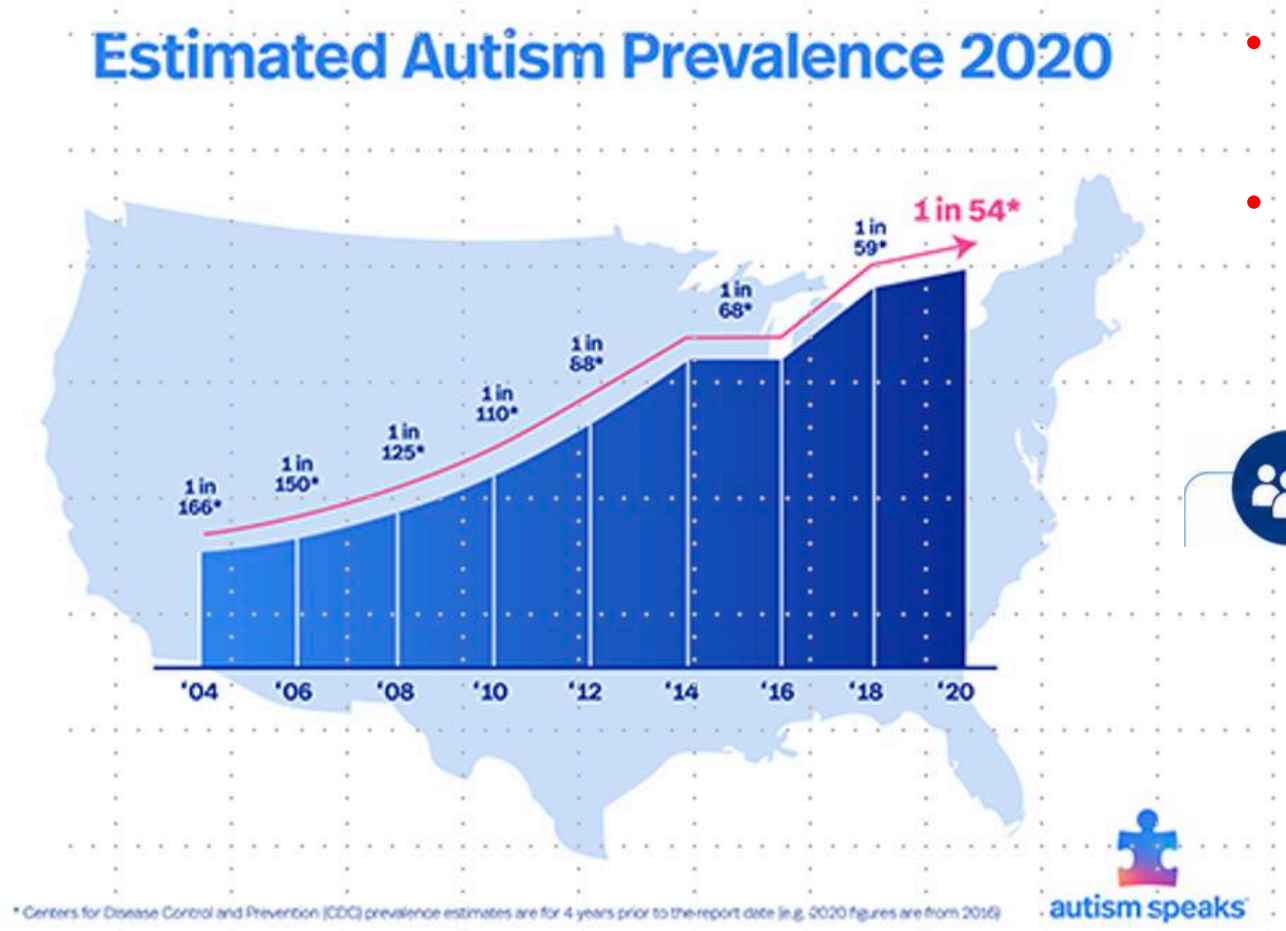
DBT
(Dialectical Behavior Therapy)

CBT
(Cognitive Behavioral Therapy)

Targeting emotion regulation through DBT and CST is effective across diverse psychiatric diagnoses.

Sloan ME, et al. Emotion regulation impairment across psychiatric disorders: a systematic review and meta-analysis. Transl Psychiatry 2026. Epub ahead of print.

Prevalence of Autism Spectrum Disorder (ASD)



Prevalence of ASD has more than DOUBLED between 2002 & 2020

- The prevalence of ASD has increased significantly in recent years.
- A recent study, based on epidemiological data from 37 countries, reported a mean prevalence of 0.97% among children attending primary school[2].

ASD and COMORBIDITY

54.8-94% of individuals with ASD also have at least another mental disorder.

Most common:
- ADHD,
- Anxiety disorders,
- Depression,
- Eating disorders, …,
- Addictive disorders?

Morales-Hidalgo, et al., 2018; Fombonne, MacFarlane & Salem, 2021

CORE DOMAINS OF ADULT AUTISM PRESENTATION AND FACTORS INFLUENCING RECOGNITION

Domains summarize commonly described patterns of adult autism presentation and factors that may influence recognition.

1 SOCIAL COMMUNICATION DIFFERENCES

Typical manifestations in adulthood

- Subtle differences in pragmatic language, conversational reciprocity, and interpretation of implicit social cues
- Variations in eye contact, facial expression, synchrony, and prosody

Factors reducing visibility

- Social learning and camouflaging strategies may produce superficially typical interaction
- Brief interactions may capture observable behavior but not the cognitive effort required to sustain social interaction

2 INTERPRETATION OF SOCIAL INFORMATION

Typical manifestations in adulthood

- Greater effort interpreting implicit social signals, emotional nuance, or rapidly shifting expectations
- Social interaction involves conscious analytical processing rather than automatic inference

Factors reducing visibility

- Differences may be interpreted as shyness, introversion, or social anxiety rather than reflecting neurodevelopmental variation

3 FOCUSED INTERESTS

Typical manifestations in adulthood

- Highly focused interests involving deep knowledge, pattern recognition, or engagement with specific topics
- These interests may support identity development and professional expertise

Factors reducing visibility

- These patterns may be interpreted as meticulous or perfectionistic working style, which can reduce their recognition as part of a broader neurodevelopmental profile

4 COGNITIVE AND BEHAVIORAL INFLEXIBILITY

Typical manifestations in adulthood

- Preference for predictability, reliance on routines, and challenges adapting to unexpected changes
- Often associated with differences in executive processes such as cognitive flexibility and planning

Factors reducing visibility

- In adulthood, these interprns may be interpreted as personality style, perfectionism, or coping strategies rather than neurodevelopmental differences

5 EXECUTIVE FUNCTIONING DIFFERENCES

Typical manifestations in adulthood

- Differences in task initiation, organization, planning, and cognitive flexibility
- May manifest as occupational challenges, alternative ways of managing tasks, or variable productivity

Factors reducing visibility

- Executive differences may be interpreted as mood-related difficulties, stress responses, or motivational factors when development history is not explored

6 SENSORY PROCESSING DIFFERENCES

Typical manifestations in adulthood

- Heightened sensory sensitivity, reduced sensory filtering, or increased perceptual load in complex environments
- Sensory stimuli (e.g., noise, light, crowds) may increase cognitive load or sensory discomfort

Factors reducing visibility

- Sensory experiences may be interpreted as anxiety, irritabliity, or stress reactivity rather than differences in sensory processing

7 CAMOUFLAGING AND COMPENSATORY STRATEGIES

Typical manifestations in adulthood

- Masking autistic behaviors, imitation of social scripts, modulation of prosody or facial expression
- Development of cognitive strategies to navigate social and interaction demands

Factors reducing visibility

- Camouflaging may reduce externally observable markers of autism, while increasing internal cognitive and emotional load

8 INTERNALIZING SYMPTOMS

Typical manifestations in adulthood

- Anxiety, depressive symptoms, chronic stress, and psychological distress are common
- Frequent reasons for psychiatric consultation among autistic adults

Factors reducing visibility

- Psychiatric symptoms may dominate clinical presentation, obscuring underlying neurodevelopmental patterns if developmental history is not systematically assessed

9 AUTISTIC BURNOUT

Typical manifestations in adulthood

- Significant exhaustion, reduced functional capacity, heightened sensory sensitivity
- Decreased tolerance for social demands following prolonged compensatory effort

Factors reducing visibility

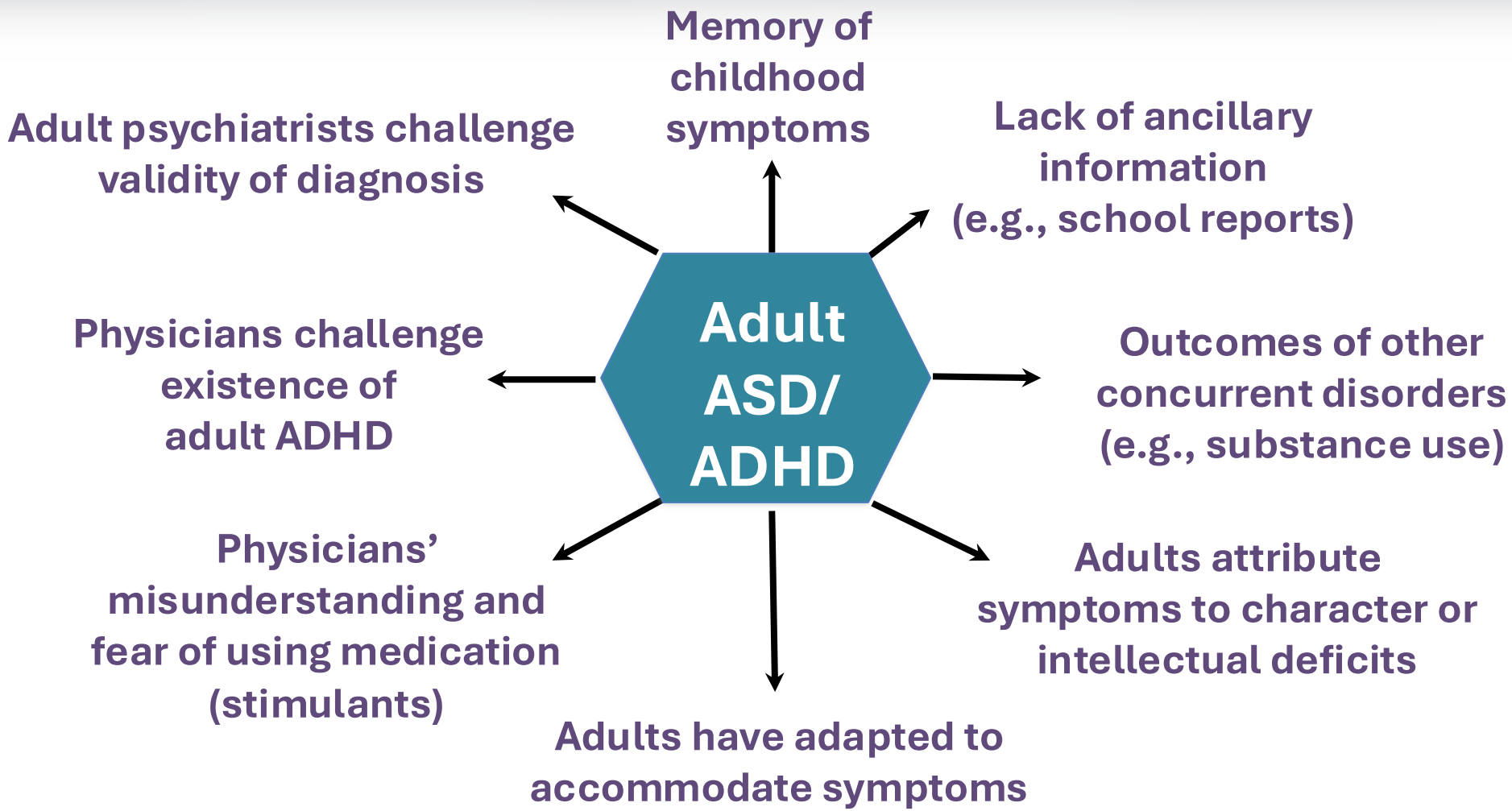
- Burnout may be interpreted as depressive relapse, occupational stress, emotional dysregulation, or general fatigue if the role of sustained camouflaging and environmental mismatch is not recognized

KEY MESSAGE

Recognition of autism in adulthood is influenced by individual differences, context, co-occurring conditions, cultural factors, and the use of compensatory or masking strategies. A comprehensive, developmentally informed assessment is essential.

Garza Guerra AJ et al. Underrecognition of Autism and Implications for Adult Psychiatric Practice: A Narrative Review. Cureus. 2026;18(4):e107164

Challenges in diagnosis of ADHD / ASD (in adults)



NICE. Attention deficit hyperactivity disorder: diagnosis and management (NG87). 2018. [Online: https://www.nice.org.uk/guidance/ng87]
Weisler R, et al. Prim Psychiatry 2008; 15: 53–64.

ADHD and ASD are often UNDIAGNOSED across the lifespan

Reasons for missed **ADHD** and/or **ASD diagnoses in children, adolescents or adults:**

- **Inattentive symptoms iin ADHD predominate and are overlooked, especially in girls**
- **Diagnosis is overshadowed by a competing diagnosis, such as anxiety, ADHD/ASD, …**
- **Parents, teachers or clinicians are reluctant to use ADHD or ASD "label"**
- **Social/emotional/intellectual scaffolding can mask symptoms**

Adults may present with ADHD or ASD that was never diagnosed during childhood

Mattingly. CNS Spectr. 2021;26:202. Gershon. J Atten Disord. 2002;5:143. Taylor. Arch Dis Child. 2017;102:376.
Riglin. J Atten Disord. 2022;26:1271. Ginsberg. Prim Care Companion. CNS Disord. 2014;16:PCC.13r01600.

The Hidden Cost of the Undiagnosed: Risks of Unchecked ADHD and Autism

THE PROBLEM: THREE CORE RISK AREAS

MENTAL HEALTH BURDEN

High Rates of Depression, Anxiety, and Suicidality.

Undiagnosed ADHD and ASD are strongly linked to higher rates of depression and anxiety, with significant increases in suicide attempts.

STATISTIC: The Physical Safety Gap.

3.25x
Higher Risk of Accidental Injury in Children.

STATISTIC: The Forensic Connection.

Up to 50% of Incarcerated Adults May Be Undiagnosed.

Incarcerated Adults
(in some forensic samples)

THEME 1: PHYSICAL AND MENTAL HEALTH

HIDDEN PSYCHIATRIC COMORBIDITIES

10% of Psychiatric Inpatients Have Undiagnosed ADHD.

This is twice the rate of the general population, suggesting underlying, undetected neurodevelopmental conditions.

PHYSICAL HEALTH COMORBIDITIES

Increased Hospitalizations and Sleep Disorders.

Adults with undiagnosed ADHD report more frequent doctor visits, hospitalizations, and chronic sleep problems.

IMPACT ON SELF-ESTEEM

Lower Self-Worth in Children Aged 10–12.

Undiagnosed persistent symptoms are significantly associated with iswer self-csteem and higher emotional distress.

THEME 2: OFFENDING BEHAVIOR & SUBSTANCE MISUSE

THE SELF-MEDICATION TRAP

43% of Residential Substance Abuse Patients Screen Pusitive.

Many undiagnooed individuals use illicit drugs or alcohol as a form of "self-medication" to manage untreated symptoms.

EARLIER ONSET OF ADDICTION

Faster Path to Substance Dependence.

Undiagnosed individuals often show earlier initiation of tohacco and drug use and a higher frequency of substance use.

ANTISOCIAL BEHAVIOR CYCLES

Link to Conduct and Antisocial Disorders.

Lock of diagnosis is associated with a history of condost problems and a higher likelihood of engaging in criminal activity.

THEME 3: DAY-TO-DAY IMPACT

EDUCATIONAL AND ECONOMIC DISPARITY

Fewer Years of Education and Lower Income.

Undiagnosed ADHD is consistently linked to lower university completion rates and significantly lower yearly household income.

WORKPLACE IMPAIRMENT

Higher Rates of Absenteeism and Procrastination.

Adults struggling without a diagnosis report more frequent absences and severe functional impairment.

THE "ALIEN" EXPERIENCE

Social Isolation and Relationship Difficulties.

Many undiagnosed adults report a lifelong feeling of "being different" or "Ske an alien," leading to chronic interpersonal struggles.

ROAD SAFETY RISKS

Increased Rates of Careless Driving.

Undiagnosed ADHD is specifically linked to more risky driving behaviors and a higher frequency of serious traffic accidents.

THE SOLUTION: SCREENING AND EARLY DIAGNOSIS

ROUTINE SCREENING IN HIGH-RISK SETTINGS

Implement Standardized Tools in Psychiatric and Forensic Clinics.

Using tools like the Adult ADHD Self-Report Scale (ASRS) in emergency and substance abuse settings can catch cases.

THE POWER OF EARLY INTERVENTION

Diagnosis Dramatically Reduces Long-Term Risks.

Propar diagnosis and subsequent treatment can significantly reduce criminality, traffic accidents, and suicide rates.

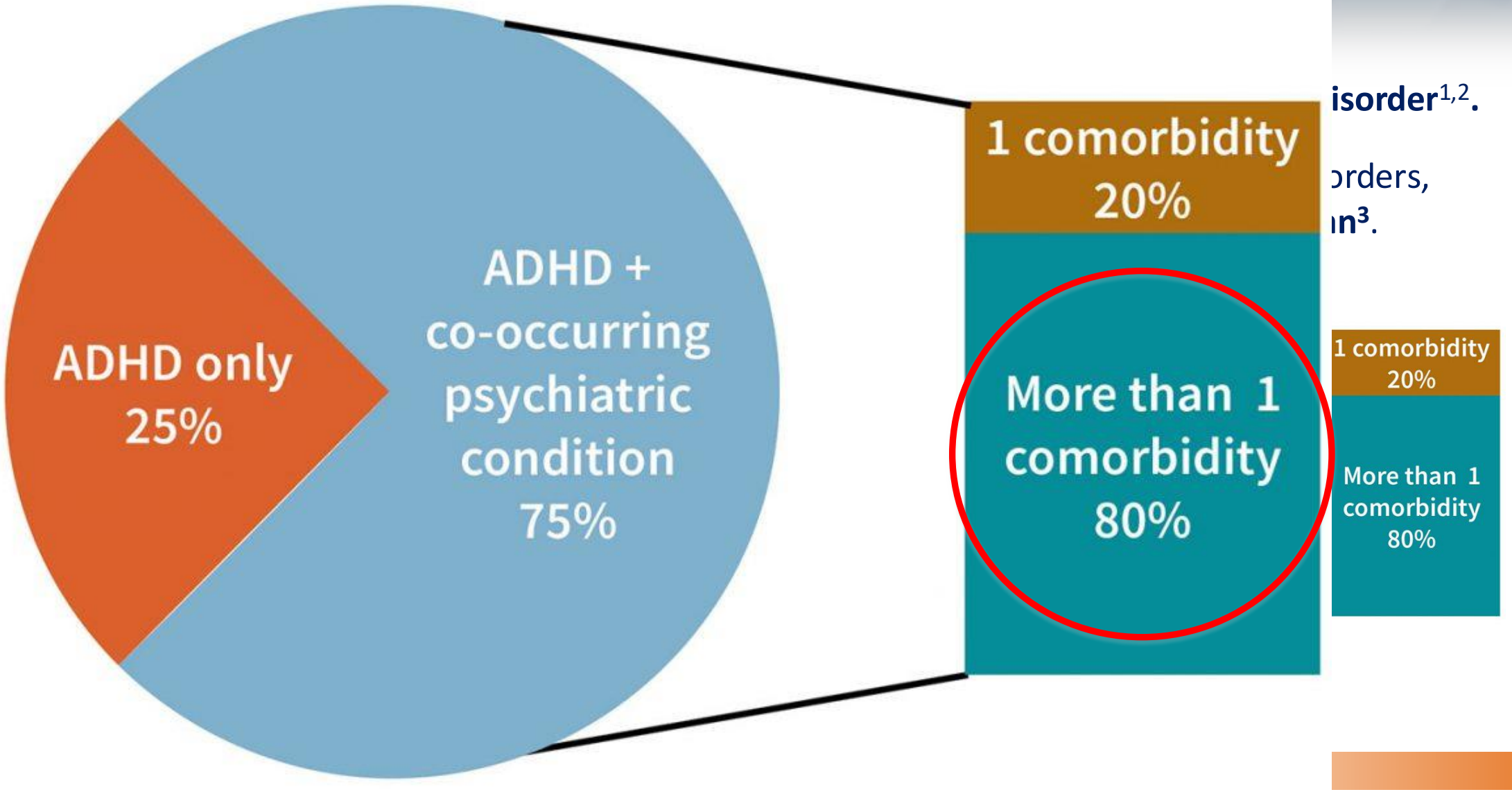
BETTER ACADEMIC OUTCOMES

Bridging the Educational Gap.

Identifying symptoms early allows for aduestioosl support, helping students achieve academic parity with their neurotypical peers.

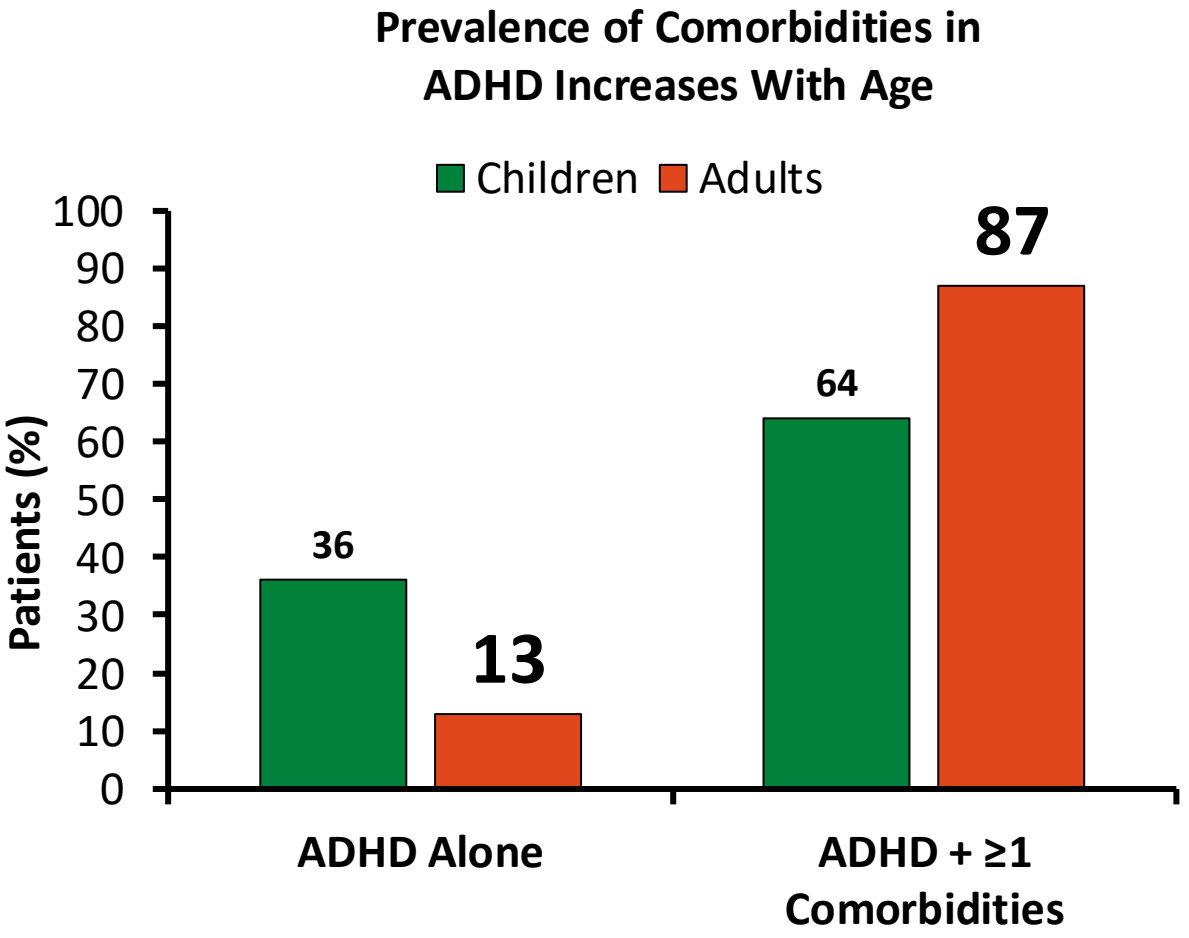
ADHD Never Walks Alone.
Adult with ADHD and Psychiatric Comorbidities

- Approx., **isorder[1,2].**
- **Numero** orders, substanc **n[3].**
- The high problem esteem, **ADHD[3,4].**
- The pres aspecto that cont adults[5].



1. CADDRA. Canadian ADHD Practice Guidelines (4th ed.). 2020. **2.** Kessler et al. Am J Psychiatry. 2006; 163(4): 716-23 ; **3.** Kooij et al. J Atten Disord. 2012; 16 (5 suppl): 3-19
4. Faraone et al. Nat Rev Dis Primers. 2015; 1(15020) **5.** American Psychiatric Association. Diagnostic and statistical manual of mental disorders (5th ed). 2013

ADHD Frequently Occurs with Coexisting Psychiatric Conditions



Common Comorbid Conditions

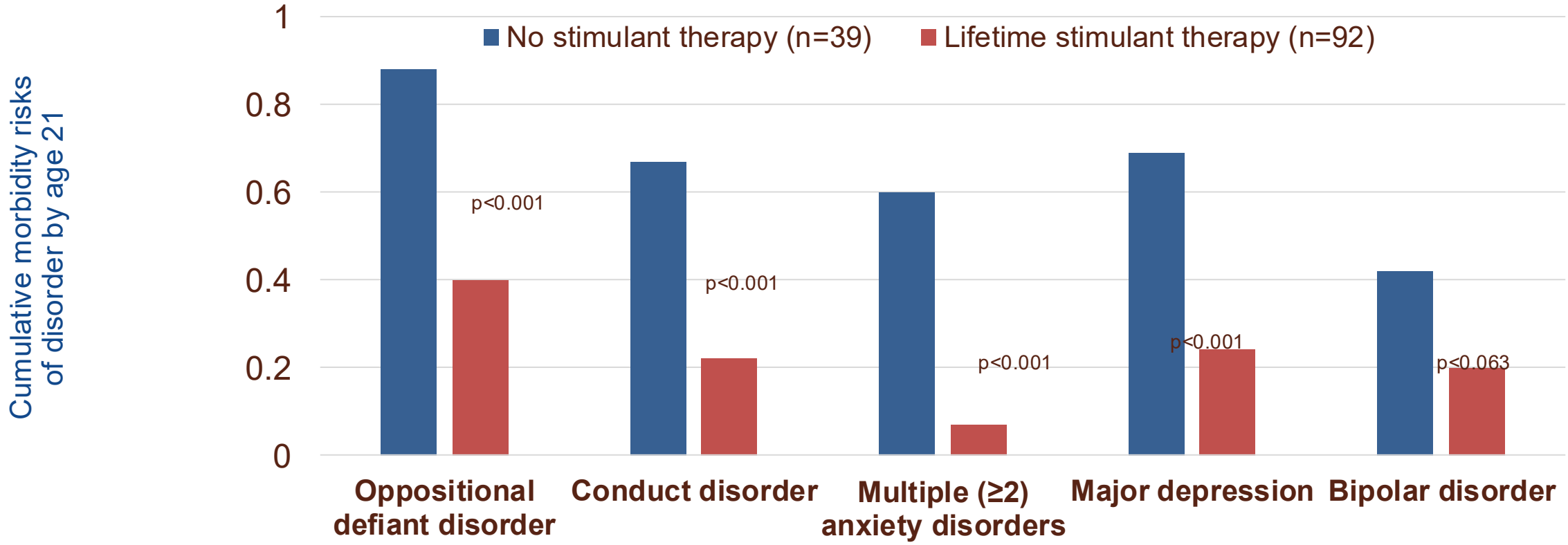
	Comorbidity	Frequency, %
Children	Behavioral/conduct problems	52
	Anxiety	33
	Depression	17
	Autism spectrum disorders	14
	Tourette syndrome	1
Adults	Major depressive disorder	60
	Substance use disorders	57
	Anxiety (any anxiety disorder)	56
	Developmental disability	25
	Bipolar disorder	12

Torgersen. Nord J Psychiatry. 2006;60:38. Danielson. J Clin Child Adolesc Psychol. 2018;47:199.
Ohnishi. Innov Clin Neurosci. 2019;16:11. Quenneville. Psychiatry Res. 2022;310:114423.

Treating ADHD early may potentially prevent psychiatric comorbidities[1]

Ten-year prospective study into young adult years of youth with ADHD grown up

Treatment with stimulants was associated with decreased risk for psychiatric comorbidities



Biederman J et al. Do stimulants protect against psychiatric disorders in youth with ADHD? A 10-year follow-up study. Pediatrics. 2009

International Journal of *Environmental Research and Public Health*

Prevalence of Attention Deficit Hyperactivity Disorder (ADHD) among Substance Use Disorder (SUD) Populations: Meta-Analysis

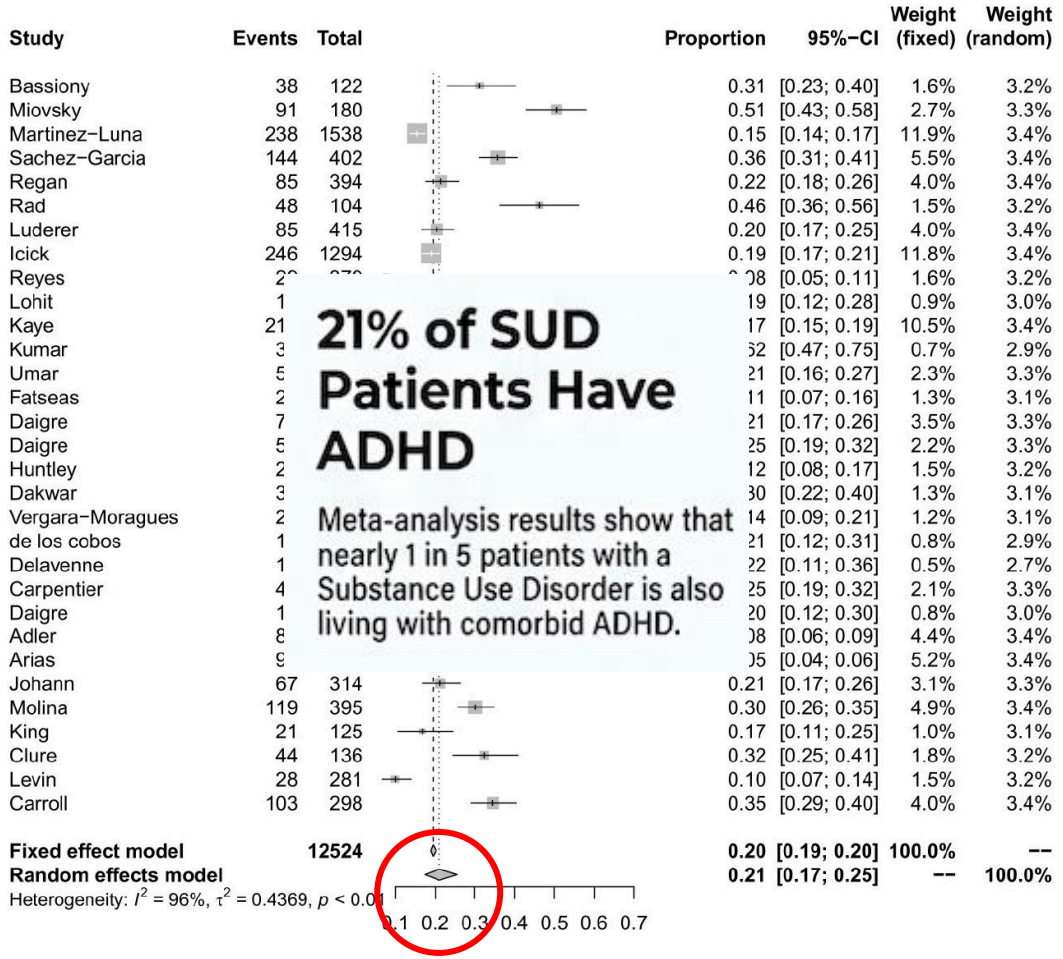
Henrik Rohner *,†, Nikolas Gaspar *,†, Alexandra Philipsen and Marcel Schulze

MDPI

This meta-analysis shows that **1/5 patients with a substance use disorder (SUD) could be diagnosed with comorbid ADHD** if adequately assessed.

8x Higher Than the General Population

While the prevalence in SUD populations is 21%, the prevalence of ADHD in the general adult population is only approximately 2.5%.



21% of SUD Patients Have ADHD

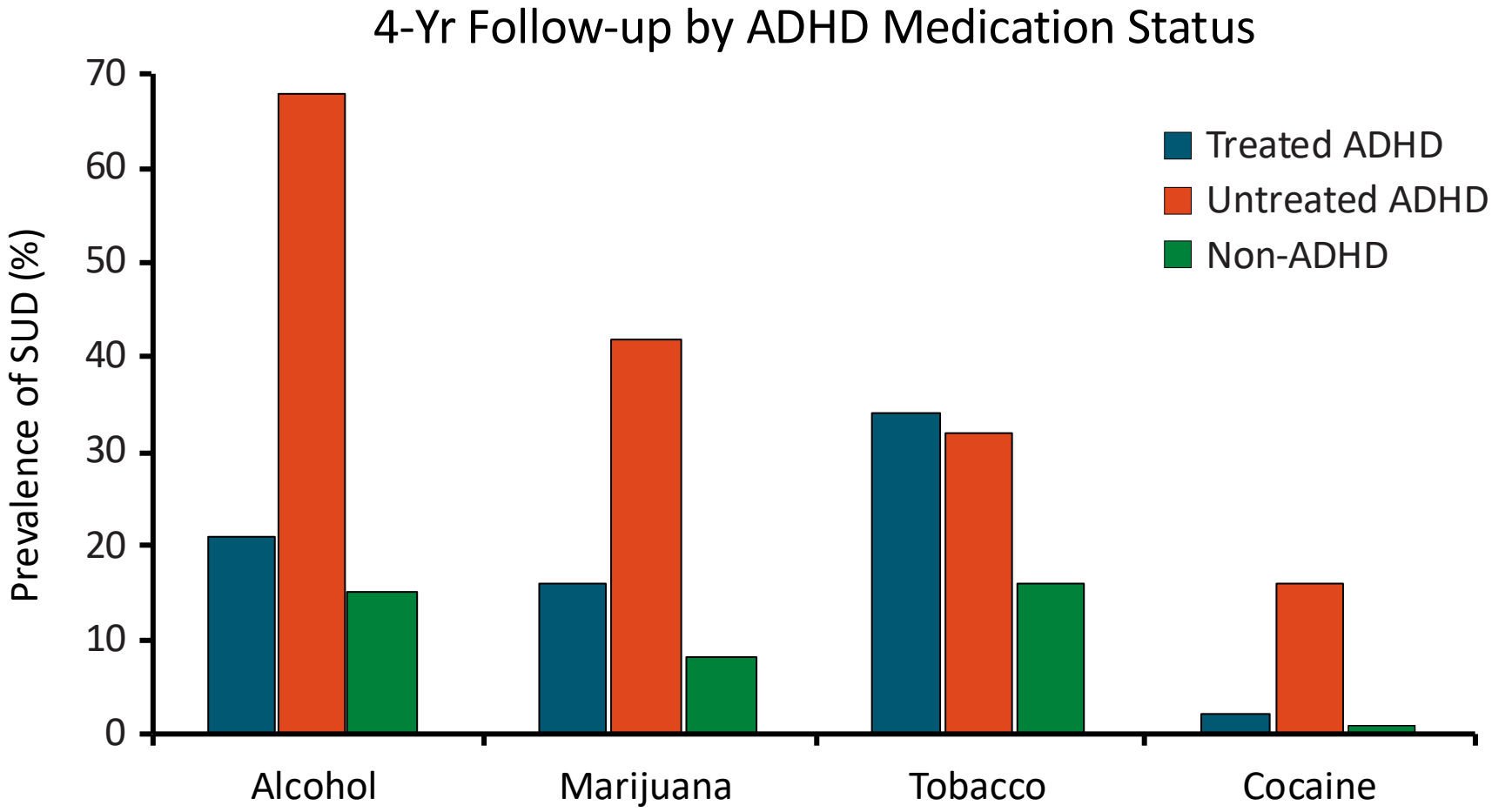
Meta-analysis results show that nearly 1 in 5 patients with a Substance Use Disorder is also living with comorbid ADHD.

In addition, **more than half of adolescents and adults with ADHD also present a concurrent SUD**

Int. J. Environ. Res. Public Health **2023**, *20*, 1275. https://doi.org/10.3390/ijerph20021275

Untreated ADHD Is Associated With More Frequent SUD

Untreated ADHD participants were at significantly increased risk for any SUD subtype at follow-up compared with non-ADHD control participants (n = 120). ADHD patients: n = 140



Kollins. J Atten Disord. 2008;12:115.

SUBSTANCE USE DISORDER

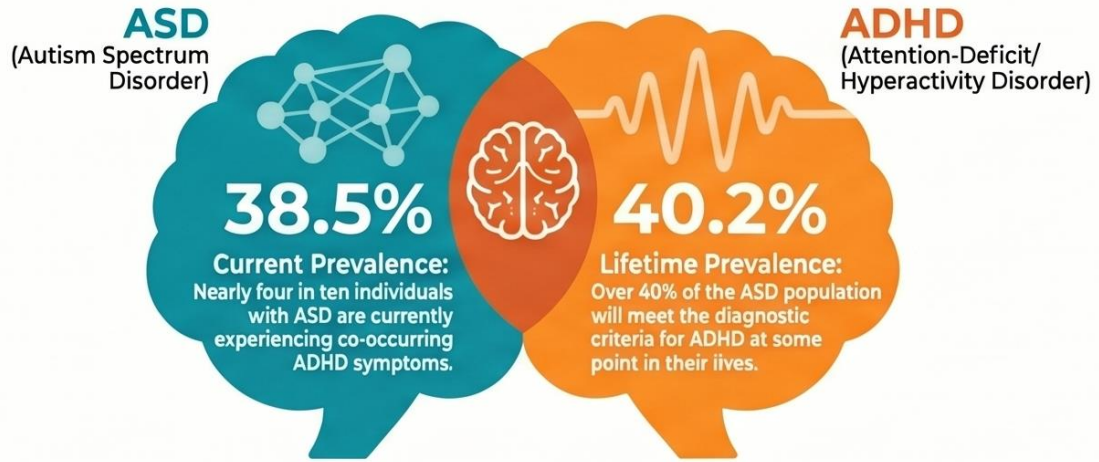
Compared to typically developing individuals, people with ADHD have a two-fold risk for substance abuse and dependence [126, 127]. The literature suggests that one-quarter of adults with SUD [128] and one-half of adolescents with Substance Use Disorder (SUD) have ADHD [129]. Several studies suggest a higher rate of SUD in adults with ADHD than in the general population, and ADHD itself is a risk factor for SUD [130, 131]. Among ADHD patients with a comorbid behavior disorder, those with either comorbid CD or Bipolar Disorder have the greatest likelihood of developing SUD [114, 132-135].

Individuals with ADHD are at significant risk of using substances (e.g. nicotine, cocaine and cannabis) and of starting use earlier than the general population [134]. Moreover, the accompanying poor self-esteem and impulsivity associated with ADHD may be conducive to the development of SUD.

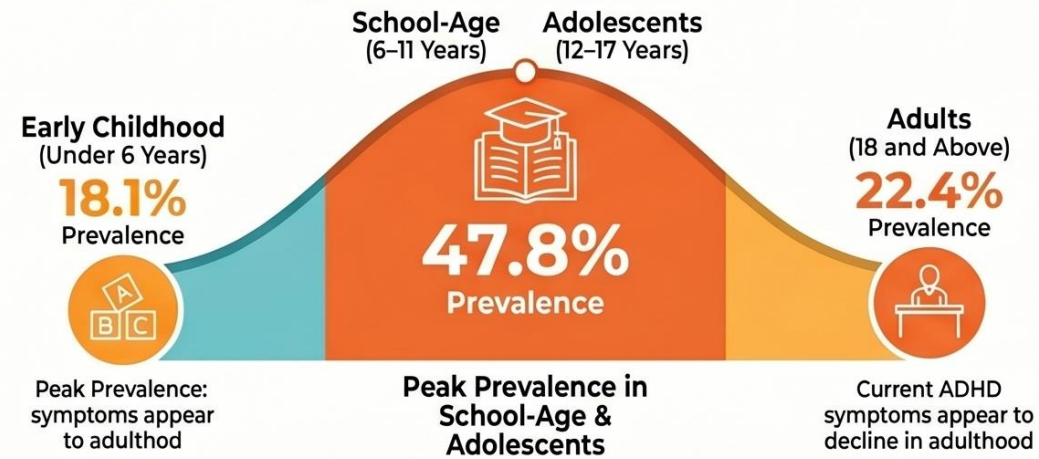
Marijuana continues to be the most commonly abused agent in individuals with ADHD [136]. Abuse can include alcoholism, smoking and other drugs [126]. Furthermore, substance use problems may increase the severity of ADHD symptoms. On the other hand, it is also true that patients with these substance use problems may present with attention, behaviour and self-control symptoms that can mimic ADHD. A referral to a specialist may be required before establishing an ADHD diagnosis when a patient is actively using illicit substances.

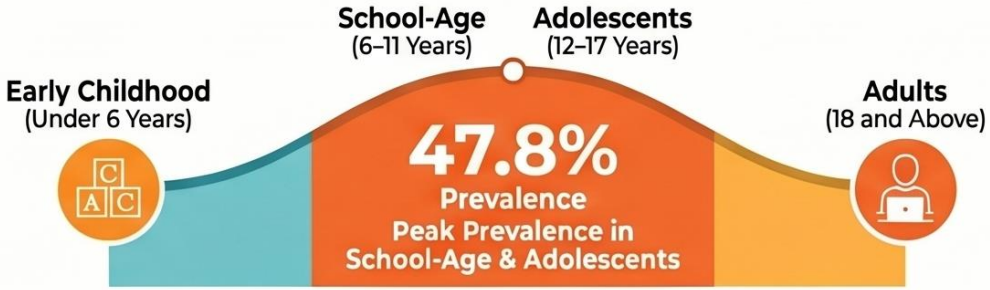
The Intersection of ADHD and Autism: A Meta-Analysis of Co-occurrence

A meta-analysis of 63 studies involving over 184,000 individuals with Autism Spectrum Disorder (ASD) establishes high prevalence of co-occurring ADHD, significantly impacting developmental trajectories and clinical approaches.



The Influence of Age





Methodological & Diagnostic Factors

Clinical vs. Population Settings

42.6% Prevalence

27.4% Prevalence

Prevalence is higher in Clinical/Community settings compared to Population/Registry samples.

The "DSM-5" Impact

55.6% Prevalence

36.7% Prevalence

Studies using DSM-5 criteria show higher prevalence because the DSM-5 explicitly allows for co-diagnosis.

Intellectual Disability (ID) Correlation: A lower proportion of ID in the sample is associated with a higher current prevalence of ADHD.

The Biological Connection & Clinical Need

Genetic Overlap

50%–72%

Shared familial transmission and biological pathways explain why these two disorders frequently co-occur.

Risk of Delayed ASD Diagnosis

Children first diagnosed with ADHD are 30 times more likely to receive their ASD diagnosis after age six, often due to symptoms masking one another.

Importance of Early Assessment

Establishing a comorbid diagnosis is essential for implementing disorder-specific therapeutic interventions and reducing the social burden on households.

Rong Y et al. Prevalence of attentiondeficit/hyperactivity disorder in individuals with autism spectrum disorder: A meta-analysis. Res Autism Spectr Disord 2021; 83:101759.

Mapping Neurobiological Divergence: A Population Modeling Study of Autism and ADHD

Large-scale neuroimaging study (N=4,255) using 'Brain Charts' to benchmark individual brains against a 75,000+ reference sample to map distinct neuroanatomical signatures of Autism and ADHD, influenced by sex, age, and co-occurrence.

AUTISM: Localized STG Increases

Localized Increase (STG)

Significant increases in cortical thickness and volume were localized to the superior temporal gyrus.

ADHD: Global Structural Reductions

Global Structural Reductions

ADHD showed global decreases in volume and surface area, but widespread increases in thickness.

CO-OCCURRING PROFILES: Resemble ADHD

Co-occurring Cases Resemble ADHD

Profiles with both diagnoses show widespread thickness increases, mirroring ADHD more than autism.

Sex-Specific Divergence

Males

Neuroanatomical signatures in autism were primarily modulated by sex, specifically appearing in males.

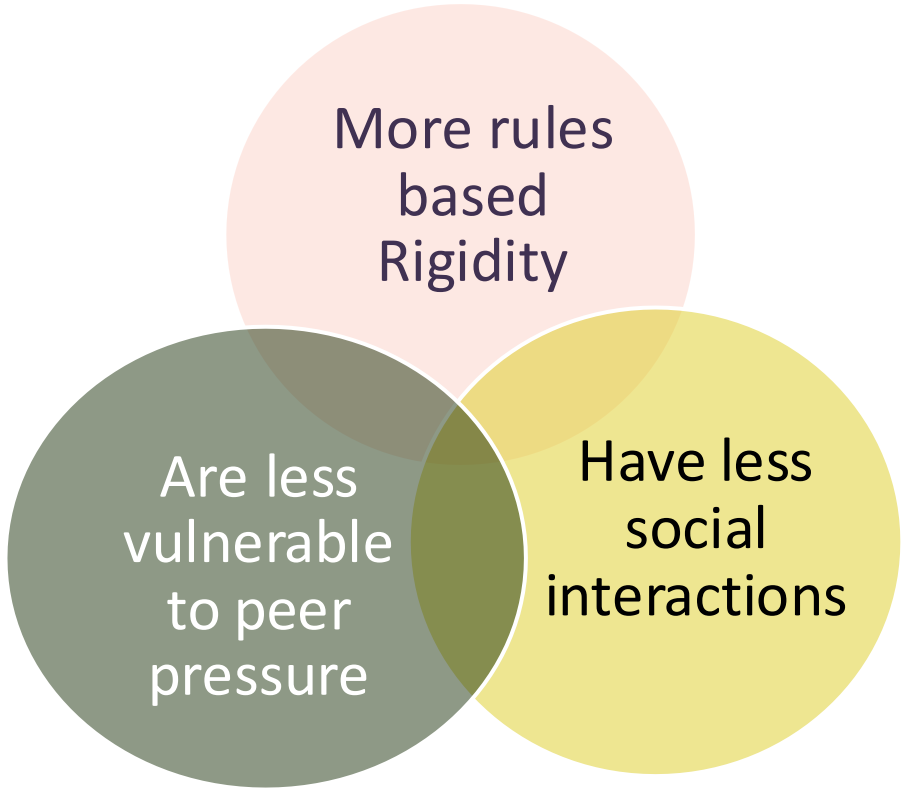
	Autism Trend			ADHD Trend		
Cortical Thickness	Localized Increase (STG)	Localized Increase (STG)	No Significant Difference	Global Increase	Global Decrease	Global Decrease
Cortical Volume						
Surface Area						

ADHD Age-Diagnosis Interactions

ADHD structural deviations were not static, showing significant age-related changes in frontal and parietal regions.

Substance Use Disorder and Autism

Old perspective
Individuals with ASD



Real world
Individuals with ASD

- Individuals with ASD are twice as likely to develop an addiction problem than their non-ASD peers.
- Nearly 7% of individuals seeking substance abuse treatment also had an Alcohol Use Disorder diagnosis.
- An estimated 1 in 5 teens and young adults receiving substance abuse treatment may have undiagnosed symptoms of Autism.
- Among those who provided[27] any information on their motivations to use drugs, individuals with ASD were nearly 9x more likely than non-ASD individuals to report using them to manage behaviour specifically

Ramos et al, 2013; Weir et al, Lancet 2021

Dual Disorder in individuals with ASD

The Clinical Intersection

*Individuals diagnosed with ASD have **double the risk of developing a SUD** compared with the general population.*

A Dual Diagnosis Hiding in Plain Sight

The intersection of Autism Spectrum Disorder (ASD) and Substance Use Disorder (SUD) is a critical blind spot in modern psychiatric practice.

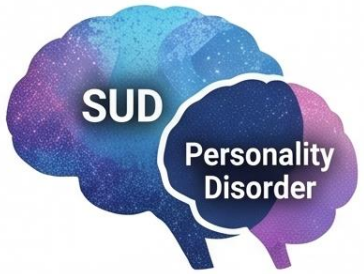
Often overshadowed by core ASD traits, addiction in this population frequently goes unrecognized, misunderstood, and untreated.

Reference: Garza Guerra et al. (2026), Kunreuther E (2020).

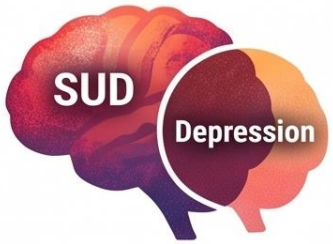
The Brain in Conflict: Neurobiological Interactions of Comorbid Addiction

Introduction:
The High Prevalence of Dual Diagnosis

SUD + Personality Disorders: 18–73%

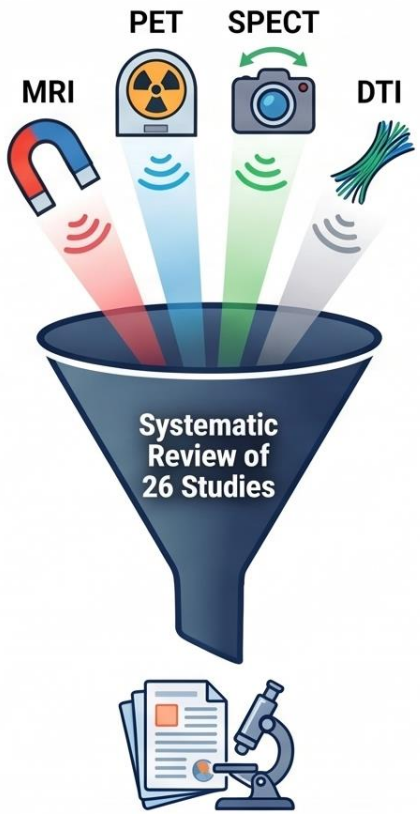


SUD + Depressive Disorders: 30%



SUD frequently co-occurs with personality and depressive disorders, significantly impacting brain function.

Methodology:
Reviewing Neuroimaging Evidence



Defining the Interaction Models

The Four Interaction Models:
Neurobiological Framework

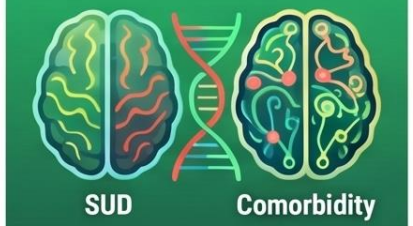
Amplifying

Definition: Comorbidity worsens or intensifies the existing neurobiological effects of SUD.

Attenuating

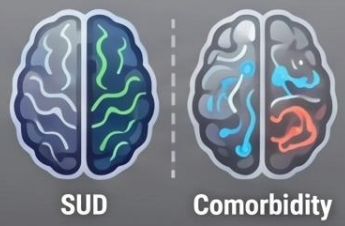
Definition: Comorbidity reduces or "masks" the neurobiological fingerprint of SUD.

Unique



Definition: Comorbidity leads to distinct brain alterations not seen in either disorder alone.

No Effect



Definition: Comorbidity does not significantly change the observed SUD neurobiological alterations.

Major Results:
Disorder-Specific Findings

Schizophrenia & Personality Disorders

Primary Interaction: Unique or Amplifying,
Key Brain Regions Affected: Frontal areas (PFC).

ADHD

Primary Interaction: Unique.
Key Brain Regions Affected: Insuia and Basal Gangila (inhibitory control).

Depression

Primary Interaction: Attenuating or No Effect.
Key Brain Regions Affected: Striatum (dopamine transporter binding).

Conclusion:
Future Care & Personalized Treatment

Driving Toward Individualized Care

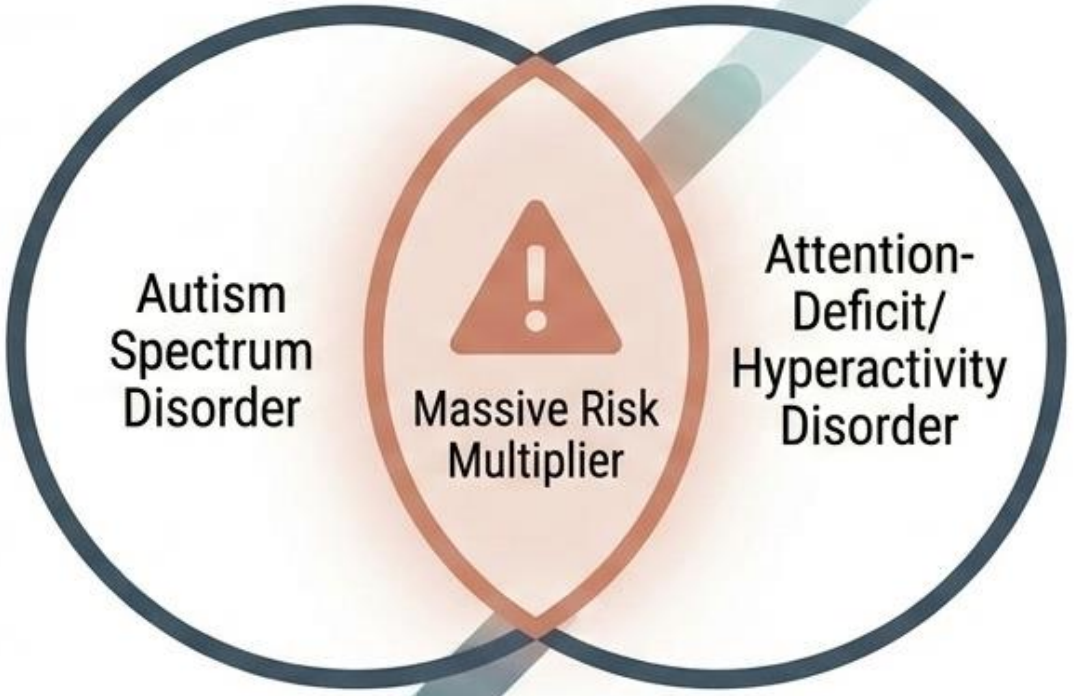
Future research must account for:

Medication and **Abstinence Duration**

To improve individualized care and outcomes.

Tesselaar DRM, et al. Psychiatric comorbidity in substance use disorders, a systematic review of neuro-imaging findings. Neurosci Biobehav Rev 2025;177:106325.

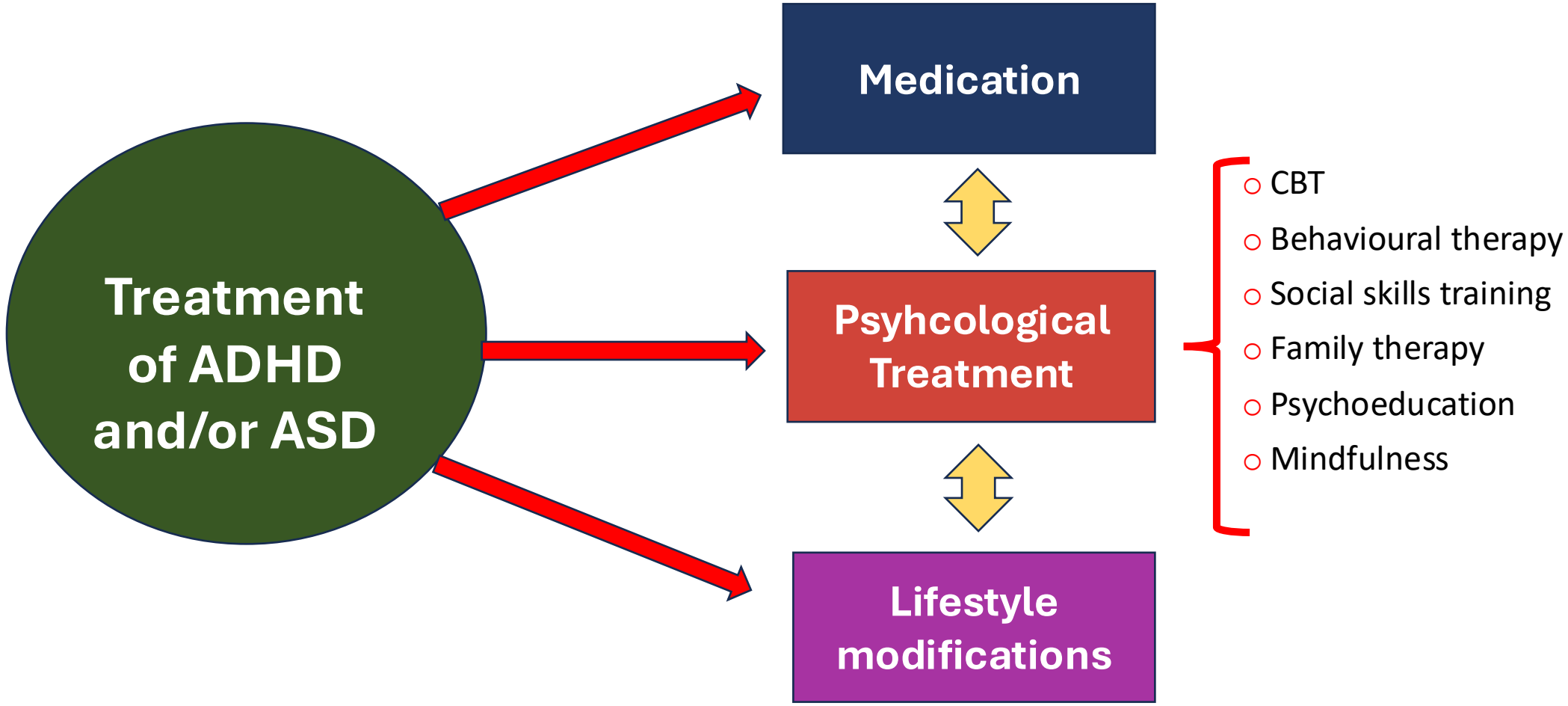
The ADHD Connection: A Risk Multiplier



Up to 58% of individuals with co-occurring ASD and ADHD develop a Substance Use Disorder, compared to 30% of those without ADHD.

The impulsivity inherent to ADHD acts as a powerful catalyst, overriding the natural protective rigidities of autism and accelerating the cycle of addiction.

Reference: Yule et al. (2023), De Alwis et al. (2014).



Treatment of choice is **MULTIMODAL or INTEGRATED APPROACH**

Sapkale B, Sawal A (November 20, 2023) Attention Deficit Hyperactivity Disorder (ADHD) Causes and Diagnosis in Adults: A Review. Cureus 15(11): e49144. DOI 10.7759/cureus.49144

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Timothy E. Wilens, MD,[1] Diana W. Woodward, BA,[1] Je Deuk Ko, MD,[1] Amy F. Berger, BS,[1] Colin Burke, MD,[1] and Amy M. Yule, MD[2]

The Impact of Pharmacotherapy of Childhood-Onset Psychiatric Disorders on the Development of Substance Use Disorders

- **21 studies** examined the impact of **pharmacotherapy on the subsequent development of SUD** in ADHD, along with 2 studies in major depressive disorder (MDD) and 3 studies in psychotic disorders.
- **Un inicio más temprano y una mayor duración del tratamiento** del TDAH y el TDM con medicación parecen **mitigar el riesgo de desarrollar un trastorno adictivo**.
- **Earlier initiation and longer duration of pharmacological treatment** for ADHD and MDD appear to **reduce the risk of developing a SUD**.
- These findings highlight the **importance of treating childhood-onset psychiatric disorders as early as possible** and **maintaining treatment over extended periods** to achieve optimal long-term outcomes, including the prevention of SUDs.
- In ADHD, early treatment initiation and longer treatment duration were associated with better outcomes than later initiation and shorter treatment duration.

JAMA Psychiatry. 2013;70(7):740-749. doi:10.1001/jamapsychiatry.2013.1273
Published online May 29, 2013.

Stimulant Medication and Substance Use Outcomes
A Meta-analysis

Kathryn L. Humphreys, MA, EdM; Timothy Eng, BS; Steve S. Lee, PhD

- Meta-analysis of longitudinal studies assessing the association between treatment with stimulant medications during childhood and the risk of developing a substance use disorder (SUD).
- The study analysed trends in the use and abuse/dependence of alcohol, cocaine, cannabis, nicotine and other drugs among 2,565 participants from 15 different studies.
- The aggregated data did not show that stimulants increase substance use or the risk of addiction.

IMPORTANCE Psychostimulant medication is an efficacious treatment for childhood attention-deficit/hyperactivity disorder, yet controversy remains regarding potential iatrogenic effects of stimulant medication, particularly with respect to increasing susceptibility to later substance use disorders. However, stimulant treatment was previously reported to reduce the risk of substance problems.

OBJECTIVE To meta-analyze the longitudinal association between treatment with stimulant medication during childhood and later substance outcomes (ie, lifetime substance use and substance abuse or dependence).

DATA SOURCES Studies published between January 1980 and February 2012 were identified using review articles, PubMed, and pertinent listservs.

STUDY SELECTION Studies with longitudinal designs in which medication treatment preceded the measurement of substance outcomes.

DATA EXTRACTION AND SYNTHESIS Odds ratios were extracted or provided by the study authors. Odds ratios were obtained for lifetime use (ever used) and abuse or dependence status for alcohol, cocaine, marijuana, nicotine, and nonspecific drugs for 2565 participants from 15 different studies.

MAIN OUTCOMES AND MEASURES Random-effects models estimated the overall association, and potential study moderators were examined.

RESULTS Separate random-effects analyses were conducted for each substance outcome, with the number of studies ranging from 3 to 11 for each outcome. Results suggested comparable outcomes between children with and without medication treatment history for any substance use and abuse or dependence outcome across all substance types.

CONCLUSIONS These results provide an important update and suggest that treatment of attention-deficit/hyperactivity disorder with stimulant medication neither protects nor increases the risk of later substance use disorders.

In ADHD stimulants May Prevent Negative Life Events: NNT

Lifetime Psychiatric Outcome	Negative Life Event	NNT (N=265)*
Disruptive behavior disorders	ODD	3
	Conduct disorder	3
Anxiety disorders	≥2 anxiety disorders	3
Educational outcomes	Repeating school grade	3
Mood disorders	Major depressive disorder†	4
	Bipolar disorder	5
Addictive disorders	Cigarette smoking	6
	Alcohol/drug use disorders	10

*Sample size varied (N = 191-259); treatment included stimulants only. †With severe impairment.
Biederman. J Adolesc Health. 2019;65:784.

However …

Is pharmacotherapy (stimulants) as effective and well tolerated in individuals with ADHD + ASD compared to those with ADHD non-ASD?

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