Adult attention – deficit/hyperactivity disorder and co-existing substance use disorder: epidemiology and clinical presentation

Mirjana Delić, MD
• Attention-deficit/hyperactivity disorder (ADHD) is a neurodevelopmental condition characterised by persistent patterns of inattention and/or hyperactivity and impulsiveness that can lead to severe disruptive behaviour.¹
• Not only a childhood disorder.²-³

• ADHD has an adult prevalence rate of 2–5%.\textsuperscript{1,2}

• There is an estimated 40–60\% persistence into adulthood (the full blown or in „partial remission“).\textsuperscript{3}

• By adulthood there is a 1.5:1 M/F ratio of ADHD, and it is thought that females are likely to be underdiagnosed.\textsuperscript{1}

• A common reason for patient referral is that their child is diagnosed with ADHD first (20\% of parents of children with ADHD will have ADHD themselves).\textsuperscript{3}

Worldwide Prevalence of ADHD in Adults

According to the 2007 WHO-WMH survey initiative, the estimated worldwide prevalence of adult ADHD is 3.4%

<table>
<thead>
<tr>
<th>Country</th>
<th>Prevalence, % (SE)</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Belgium</td>
<td>4.1 (1.5)</td>
<td>486</td>
</tr>
<tr>
<td>Colombia</td>
<td>1.9 (0.5)(^a)</td>
<td>1,731</td>
</tr>
<tr>
<td>France</td>
<td>7.3 (1.8)(^b)</td>
<td>727</td>
</tr>
<tr>
<td>Germany</td>
<td>3.1 (0.8)</td>
<td>621</td>
</tr>
<tr>
<td>Italy</td>
<td>2.8 (0.6)</td>
<td>853</td>
</tr>
<tr>
<td>Lebanon</td>
<td>1.8 (0.7)(^a)</td>
<td>595</td>
</tr>
<tr>
<td>Mexico</td>
<td>1.9 (0.4)(^a)</td>
<td>1,736</td>
</tr>
<tr>
<td>The Netherlands</td>
<td>5.0 (1.6)</td>
<td>516</td>
</tr>
<tr>
<td>Spain</td>
<td>1.2 (0.6)(^a)</td>
<td>960</td>
</tr>
<tr>
<td>USA</td>
<td>5.2 (0.6)</td>
<td>3,197</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>3.4 (0.4)</strong></td>
<td><strong>11,422</strong></td>
</tr>
</tbody>
</table>

\(^a\)Upper end of 95% CI is below the prevalence estimate for total sample
\(^b\)Lower end of 95% CI is above the prevalence estimate for total sample

ADHD most likely has a multifactorial aetiology, including a combination of genetic and environmental risk factors:

- Approximately 80% of ADHD aetiology is linked to genetic factors
- Various environmental factors

<table>
<thead>
<tr>
<th>Group</th>
<th>Timing</th>
<th>Aetiological Factors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Genetic</td>
<td></td>
<td>Mutations in the dopamine receptor and dopamine transporter genes</td>
</tr>
<tr>
<td>Environmental</td>
<td>Prenatal</td>
<td>Developmental cerebral abnormality, chromosome anomaly, virus, anaemia, hypothyroidism, iodine deficiency, exposure to drugs of abuse (e.g. nicotine)</td>
</tr>
<tr>
<td></td>
<td>Perinatal</td>
<td>Prematurity, low birth weight, anoxic-ischaemic encephalopathy, meningitis, encephalitis</td>
</tr>
<tr>
<td></td>
<td>Postnatal</td>
<td>Viral meningitis, encephalitis, cerebral trauma, thyroid dysfunction</td>
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</table>

# Impact of ADHD Beyond Core Symptoms

<table>
<thead>
<tr>
<th><strong>Healthcare System</strong></th>
<th><strong>Family</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>33% ↑ in ER visits¹</td>
<td>Prone to emotional outbursts⁵-⁶</td>
</tr>
<tr>
<td>10x more outpatient visits²</td>
<td>Feels demoralised over constant failure⁵</td>
</tr>
<tr>
<td>5x more claims for outpatient prescription²</td>
<td>Low self-esteem⁵-⁶</td>
</tr>
<tr>
<td>3x more inpatient admissions²</td>
<td>More chaotic personal and family routines⁶</td>
</tr>
<tr>
<td>2–4x more motor vehicle crashes³⁴</td>
<td>Higher rate of parental divorce/separation⁷</td>
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<table>
<thead>
<tr>
<th><strong>Education and Employment</strong></th>
<th><strong>Society</strong></th>
</tr>
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<tbody>
<tr>
<td>Lower occupational status⁸</td>
<td>Difficulties making/sustaining friendships⁵</td>
</tr>
<tr>
<td>↑ in absenteeism⁹ and work loss cost⁹-¹⁰</td>
<td>Poor listening and inadequate social skills⁵</td>
</tr>
<tr>
<td>Poor academic grades for ability⁶</td>
<td>Quick to anger/verbally abusive when angered⁵</td>
</tr>
<tr>
<td>Misses deadlines and often misplaces things⁵-⁶</td>
<td>Poor financial management⁶</td>
</tr>
<tr>
<td>Often late for work/appointments⁵-⁶</td>
<td>Substance use disorders: 2x risk¹¹ and earlier onset¹²</td>
</tr>
<tr>
<td></td>
<td>Less likely to quit smoking¹³</td>
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</tbody>
</table>

Clinical Presentation in Adults

- Disorganisation ("doesn’t plan ahead")
- Forgetfulness ("misses appointments, loses things")
- Procrastination ("starts projects but can’t complete")
- Time management problems ("always late")
- Premature shifting of activities ("starts something but then quickly distracted by something else")
- Impulsive decisions (especially around spending, taking on projects, travelling, jobs or social plans)
- Criminal offences (speeding, illegal drugs)
- Unstable jobs and relationships

Kooij & Francken. DIVA Foundation 2010.
Common Symptoms

- Inattention
- Over-activity
- Impulsiveness
- Ceaseless mental activity (distracted mind)
- Mood lability / emotional dysregulation
- Low tolerance of frustration
- Low self-esteem
- Variable performance
Hyperactivity-related problems

- Inability to relax

- Restless sleep

- Excessively active lifestyle

- Constant purposeless motion of extremities

- Stimulus seeking or anti-social behaviours

Impulsivity-related problems

- Disinhibited behaviour
- Alcohol, cannabis, cocaine, tobacco, caffeine abuse
- Family violence
- Speaking out or making decisions without considering

Inattention-related problems

- Disorganisation and inefficiency
- Procrastination
- Failure to plan ahead
- Forgetfulness
- Difficulty in multitasking
- Misjudging how long it takes to perform tasks
- Inability to complete tasks
- Distractibility
- Poor ability to follow long explanations

Diagnosing ADHD: DSM-5 Criteria

- The essential feature of ADHD is a persistent pattern of inattention and/or hyperactivity-impulsivity that is more frequently displayed and more severe than is typically observed in individuals at a comparable level of development.

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

- Several symptoms are present in at least 2 settings (e.g. home, work, school, with friends-relatives, other activities).

- Symptoms interfere with social, occupational, and/or academic functioning.

- Symptoms not due to another mental disorder.

Classifying ADHD: DSM-5 Criteria

- Presentations:
  - Combined
  - Predominantly inattentive
  - Predominantly hyperactive-impulsive

- Inattention (at least 5 symptoms for age ≥17)

- Hyperactivity-impulsivity (at least 5 symptoms for age ≥17)
  - ADHD in 'partial remission'
  - Mild, Moderate, or Severe depending on few, intermediate, or many symptoms in excess of requirements, and minor, intermediate, or marked impairment, respectively

APA. Diagnostic and Statistical Manual of Mental Disorders 5th Edn. Washington DC: APA; 2013;59–60
Diagnostic Methods

1: Clinical diagnostic interview:
   Evaluate each of the 18 items (DSM/ICD) both currently and retrospectively, and screen for comorbid disorders

2: Evaluation of impairments/needs:
   Matching symptoms to impairments is key to the diagnosis (developmental history important)

3: Screening instruments
   Used to screen for ADHD and monitor treatment response (Adult ADHD Self-Report Scale)

4: Psychometric tests:
   Not sufficiently predictive, but a useful addition to the assessment (includes: IQ-specific reading/mathematics difficulties, slow and variable responses, response inhibition, working memory, choice