The DIVA 2.0 APP for diagnostic assessment of ADHD in adults

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www.divacenter.eu
Topics

- Short introduction on ADHD in adults
- Diagnostic Interview Voor ADHD: DIVA 2.0 in 11 languages
- Demonstration DIVA 2.0 App
Clinical picture of ADHD

Lifetime symptoms of Attention-Deficit/Hyperactivity Disorder:

- **Inattention**: distracted, chaotic, forgetful, late, difficulty making decisions, organising and planning, no sense of time, procrastination
- **Hyperactive**: (inner) restlessness, tense, talkative, busy; coping by: excessive sporting/alcohol abuse/avoiding meetings
- **Impulsive**: acting before thinking, impatient, difficulty awaiting turn, jobhopping, binge eating, sensation seeking

In addition in 90% of adults, lifetime:
- **Moodswings** (5x/day) and **Anger outbursts**

APA 1994; Kooij 2012; Conners 1996
Impairment in adult ADHD

Clinical as well as epidemiological samples compared to NCs:

- Learning problems (60%)
- Less graduated
- Lower education
- Lower income
- Less employed, more sickness leave
- More job changes (longest job 5 yrs)
- More often arrested, divorced and more social problems
- More driving accidents, teenage pregnancies, suicide attempts
- Higher (mental) health care costs

Biederman 2006; Kooij 2001, 2005; Barkley 2002; Manor, 2010
Epidemiological research ADHD

Prevalence children:
USA: 4 - 8%

Prevalence adults:
USA: 4 - 5%
10 countries (mean): 3.4%

Prevalence older adults (>65):
Swedish: 3.3%
NL: 2.8%

Faraone 2003; Kessler 2006; Murphy & Barkley, 1996; Kooij 2005; Fayyad 2007; Michielsen 2012; Guldberg-Kjær 2009
Treatment % per country in adults with ADHD

<table>
<thead>
<tr>
<th>Country</th>
<th>Medical treatment</th>
<th>Mental treatment</th>
<th>Any treatment</th>
<th>Treatment for ADHD</th>
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<td>21.5</td>
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<tr>
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</tbody>
</table>

Fayyad 2007
Neurobiology of ADHD

• Highly heritable (80% of variance explained by genetic factors)
• Neurobiological disorder:
  – Brain: 5% smaller in different areas and underactive
  – 8 candidate genes, esp. dopaminergic (DRD2, 4, 5, DAT1)
  – ADHD = inhibition deficit based on dopamine deficiency
  – Methylphenidate: dopamine agonist; acts as inhibitor of associations, moodswings, restlessness and impulsivity

Thapar 1999; Faraone 2005; Castellanos 2002; Bush 2006; Kessler 2006; Kooij 2005
Developmental trajectories of brain volumes
(Castellanos et al., JAMA, 2002)
Comorbidity in adults with ADHD

ADHD comes seldom alone:

- 75% at least one other disorder
- 33% two or more

Mean: 3 comorbid disorders

Biederman 1993; Kooij 2001, 2004
Comorbidity in ADHD

- Depression (60% winter depression) 20-55%
- Bipolar Disorder (88% BP II) 10%
- Anxiety Disorders 20-30%
- Substance use disorders 25-45%
- Smoking 40%
- Cluster B Pers. Disorders 6-25%
- Sleeping Problems (late sleep) 80%
- Muscle, joint, neck- and backpain ??
- Autism Spectrum Disorder 10-20%

Development of DIVA 2.0

- The DIVA was developed because there is a need for a structured diagnostic instrument in the field that is easily available at low costs, in many different languages, for research and clinical assessment purposes.

- The threshold for patients to get proper assessment for ADHD in adulthood are still very high in most countries due to a lack of knowledge and experience of professionals, due to myths and stigma around a childhood disorder that is not outgrown, and due to a fear of treatment with stimulants.

- However, ADHD has been shown a frequent disorder in adults with a prevalence rate of 3-5%. ADHD is a chronic and impairing disorder that can be effectively treated.
Available in 11 languages: Danish, Dutch, English, Finnish, French, German, Norwegian, Romanian, Spanish, Swedish and Turkish

Next:
• Italian
• Portuguese
• Hebrew
• Japanese

Ongoing:
Translation of DIVA 2.0 in 13 languages supported by the European Network Adult ADHD

www.divacenter.eu
NEW: DIVA 2.0 App

The DIVA 2.0 App is now available in 8 languages in both App store as at Google Play, for Iphone, Android and Ipad! It costs 7.99 euro once, for extended use.

The DIVA 2.0 App adds the total number of DSM-IV criteria for ADHD in both child- and adulthood, and the number or areas of impairment. Data are not stored, but sent via email, both as text and as SPSS file.
Demonstration DIVA 2.0 App
Next steps M-health in psychiatry

- M-health on smartphones and tablets.
- Therapy at the preferred time and place for the patient.
- Current pilots at PsyQ the Netherlands.

Aims:
- To measure a.o. real time movement, temperature, mood, sleep and therapy adherence.
- To intensify treatment outside the office.
- To exercise new behaviour.

Sense & PsyQ, Goallie App development, 2013
QUESTIONS??