Improving the Recognition and Management of ADHD in Adults
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Faculty Disclosures

- Royalty: Lulu Press
- Consultant: Sunovion Pharmaceuticals, Inc.
Learning Objectives

- Describe the presentation of attention-deficit/hyperactivity disorder (ADHD) in adults, as well as currently accepted diagnostic criteria and patient characteristics that are closely associated with the disorder.
- Outline a therapeutic approach for the management of ADHD in adult patients.
- Identify psychiatric comorbidities that are frequently associated with ADHD and describe an approach to management.
ADHD in Adults
Overview

- Neurological disorder characterized by frequent and sometimes severe levels of inattention, impulsivity, and hyperactivity
- Traditionally viewed as emerging during childhood and usually resolved by young adulthood, but now understood to persist well into adulthood
- Strongly associated with poor outcomes related to social function, education, criminality, alcohol use, substance use/abuse, and occupational status

Productivity Losses Associated with Adult ADHD

*P < .05

Of Abs, Official Absences; STD, short-term disability; Tot Abs, Total Absences (unofficial + official absences); Total Days equals sum of total absences, short-term disability, and worker compensation; Unof Abs, Unofficial Absences; WC, worker compensation.

### Increased Healthcare Utilization Among Adults with ADHD

<table>
<thead>
<tr>
<th>Service</th>
<th>% ADHD</th>
<th>% Control</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Outpatient services</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Psychiatrist</td>
<td>27.53</td>
<td>2.22</td>
<td>&lt;.01</td>
</tr>
<tr>
<td>Psychologist</td>
<td>16.03</td>
<td>1.38</td>
<td>&lt;.01</td>
</tr>
<tr>
<td>Outpatient GP</td>
<td>57.77</td>
<td>51.20</td>
<td>&lt;.01</td>
</tr>
<tr>
<td>Mental health facility</td>
<td>0.09</td>
<td>0</td>
<td>.16</td>
</tr>
<tr>
<td>Mental health/chemistry department facility</td>
<td>1.33</td>
<td>0.27</td>
<td>&lt;.01</td>
</tr>
<tr>
<td><strong>Inpatient services</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Emergency room</td>
<td>14.34</td>
<td>10.26</td>
<td>&lt;.01</td>
</tr>
<tr>
<td>Inpatient admission</td>
<td>6.71</td>
<td>4.09</td>
<td>&lt;.01</td>
</tr>
<tr>
<td><strong>Frequency – number of admissions</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>93.29</td>
<td>95.91</td>
<td>&lt;.01</td>
</tr>
<tr>
<td>1</td>
<td>5.24</td>
<td>3.55</td>
<td>—</td>
</tr>
<tr>
<td>2</td>
<td>1.02</td>
<td>0.40</td>
<td>—</td>
</tr>
<tr>
<td>3+</td>
<td>0.45</td>
<td>0.14</td>
<td>—</td>
</tr>
</tbody>
</table>

GP, general practitioner.
# Untreated ADHD and the Risk for Substance Use Disorder

<table>
<thead>
<tr>
<th>Study</th>
<th>Population</th>
<th>Follow-up</th>
<th>Risk for SUD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biederman et al. 1999</td>
<td>Medicated (N=56)</td>
<td>4-year, through adolescence</td>
<td>Medicated patients at reduced risk</td>
</tr>
<tr>
<td></td>
<td>Nonmedicated (N=19)</td>
<td></td>
<td>Adjusted OR=0.15 (95% CI=0.04 to 0.6)</td>
</tr>
<tr>
<td></td>
<td>Controls (N=137)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wilens et al. 2003</td>
<td>Medicated† (N=674)</td>
<td>Into adolescence &amp; adulthood*</td>
<td>~2-fold reduced risk in medicated subjects</td>
</tr>
<tr>
<td></td>
<td>Nonmedicated (N=360)</td>
<td></td>
<td>Pooled estimate OR=1.9 (95% CI=1.1 to 3.6)</td>
</tr>
<tr>
<td>Barkley et al. 2003</td>
<td>Medicated‡ (N=9)</td>
<td>&gt;13-year into adulthood</td>
<td>Stimulant use and drug use in adulthood was not associated</td>
</tr>
<tr>
<td></td>
<td>Nonmedicated (N=21)</td>
<td></td>
<td>P&gt;.05</td>
</tr>
<tr>
<td>Katusic et al. 2005</td>
<td>Medicated‡ (N=295)</td>
<td>17.2 years into adulthood (mean)</td>
<td>Substance abuse in 20% of medicated vs 27% of nonmedicated</td>
</tr>
<tr>
<td></td>
<td>Nonmedicated (N=84)</td>
<td></td>
<td>Adjusted OR=0.6 (95% CI=0.3 to 1.0)</td>
</tr>
</tbody>
</table>

*6 study meta-analysis; †97% stimulants; ‡stimulants
CI, confidence interval

Clinician Confidence in the Diagnosis and Treatment of Adult ADHD*

* Differences between primary care physicians and psychiatrists are significant at $P < .001$ for diagnosis and treatment of ADHD.

† Primary care physicians: n = 1,145; psychiatrists: n = 600.

Goodman DW. Prim Care Companion CNS Disord. 2012;14(4):PCC.
Undertreatment of ADHD in Adults

Recognition and Diagnosis
Case Evaluation #1: 18-year-old Female

- First-year college student
- Generally high functioning, in good academic standing, involved in multiple extracurricular activities
- Feels overwhelmed by too many commitments, tends to procrastinate, has become increasingly forgetful of appointments and course assignments
- Reports that her grades have started to decline
- Speaks very quickly and abruptly, loses her train of thought when speaking, appears to be having difficulty sitting still in her chair
- When queried, she reveals that she has always had to work really hard to keep up and takes longer to complete tasks than any of her peers
What aspects of the patient’s clinical presentation might lead you to suspect that she has ADHD?

What other conditions would you consider? (e.g., mania)

What additional questions would you pose?

What criteria would you use to make a diagnosis?
## Common Dysfunctional Behavior Patterns in Adult ADHD

<table>
<thead>
<tr>
<th>Behavior</th>
<th>Description</th>
<th>Short-term Gain/Long-term Loss</th>
</tr>
</thead>
</table>
| **Anticipatory avoidance** | • Magnification of difficulty of a pending task with doubts about the ability to complete it  
• Rationalizations to justify procrastination | • Defers short-term stress but creates a self-fulfilling prophecy  
• Task looms ahead and can seem overwhelming when facing a deadline |
| **Brinkmanship** | • Waiting until the last moment to complete a task, often when facing an impending deadline | • Deadline-associated stress can be focusing, but leaves little room for error and can yield suboptimal results |

## Common Dysfunctional Behavior Patterns in Adult ADHD (Cont’d)

<table>
<thead>
<tr>
<th>Behavior</th>
<th>Description</th>
<th>Short-term Gain/Long-term Loss</th>
</tr>
</thead>
</table>
| **Pseudoefficiency** | • Completing several low-priority, manageable tasks (e.g., checking e-mail)  
                            • Avoiding high-priority tasks (e.g., work projects) | • Creates sense of productivity by reducing a to-do list  
                            • Defers more difficult projects |
| **Juggling**  | • Taking on new, exciting projects  
                            • Feeling busy without completing projects | • Becoming motivated to start a novel project is easier than completing an ongoing one  
                            • Usually results in many incomplete projects |

Overview of DSM-5 Criteria for ADHD in Adults

- Presence of ≥ 5 symptoms of **inattention** and/or **hyperactivity-impulsivity**:
  - Prior to 12 years of age
  - For ≥ 6 months to a degree inconsistent with developmental level
  - In ≥ 2 settings

- Clear evidence that symptoms interfere with, or reduce the quality of social, academic, or occupational functioning

- Not occurring exclusively during the course of schizophrenia or other psychotic disorder, and not better explained by another mental disorder

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DSM-5, *Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition.*
Lack of attention to details/careless errors
Difficulty sustaining attention
Does not seem to listen
Does not follow through on instructions
Difficulty organizing tasks and activities
Avoids sustained mental efforts
Loses and misplaces objects
Easily distracted
Forgetful in daily activities
DSM-5: Symptoms of Hyperactivity-Impulsivity

- Fidgetiness (head or feet)/squirms in seat
- Leaves seat frequently
- Running about/feeling restless
- Excessively loud or noisy
- Always “on the go”
- Talks excessively
- Blurts out answers
- Difficulty waiting his/her turn
- Tends to act without thinking

Relative Frequency of ADHD Symptoms in Adults

After ruling out other conditions, you diagnose the patient with ADHD.

- Do you have enough information to classify this patient’s ADHD?
  - Importance of acquiring a full clinical history
  - Corroborating with a third party

- What further questions would you pose?

- How can classification inform management goals and treatment for adults with ADHD?
DSM-5: ADHD Subtypes

Predominantly inattentive

Combined

Predominantly hyperactive-impulsive

DSM-5: ADHD Severity

- **Mild**
  - Few symptoms beyond the required number for diagnosis
  - Minor impairment in social, school, or work settings

- **Moderate**
  - Symptoms or functional impairment between “mild” and “severe”

- **Severe**
  - Many symptoms beyond the required number for diagnosis
  - Several symptoms are particularly severe
  - Marked impairment in social, school, or work settings

Case Evaluation 1: Discussion

- What type of validated tools are available to aid in your evaluation? Which would you choose to employ?
  - WHO Screener: brief, free resource, easily completed in the waiting room, and can be used to guide patient interview
# ADHD Rating Scales

<table>
<thead>
<tr>
<th>ACDS</th>
<th>ADHD Clinical Diagnostic Scale for Adults</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASRS</td>
<td>Adult ADHD Self-Report Scale</td>
</tr>
<tr>
<td>BADDS</td>
<td>Brown Attention-Deficit Disorder Symptom Assessment Scale for Adults</td>
</tr>
<tr>
<td>ADHD-RS-IV</td>
<td>ADHD Rating Scale IV with Adult Prompts</td>
</tr>
<tr>
<td>BCS</td>
<td>Barkley Current Symptom Scale</td>
</tr>
<tr>
<td>CSS</td>
<td>Current Symptom Scale</td>
</tr>
<tr>
<td>WRAADDS</td>
<td>Wender-Reimherr Adult Attention Deficit Disorder Scale</td>
</tr>
<tr>
<td>CAARS-S-S</td>
<td>Conners' Adult ADHD Rating Scales Short Version Self-Report</td>
</tr>
</tbody>
</table>
### WHO Adult ADHD Self-Report Scale Screener

Check the box that best described how you have felt and conducted yourself over the past 6 months. Please give the completed questionnaire to your health care professional during your next appointment to discuss the results.

1. How often do you have trouble wrapping up the final details of a project once the challenging parts have been done?
2. How often do you have difficult getting things in order when you have to do a task that requires organization?
3. How often do you have problems remembering appointments or obligations?
4. When you have a task that requires a lot of thought, how often do you avoid or delay getting started?
5. How often do you fidget or squirm with your hands or feet when you have to sit down for a long time?
6. How often do you feel overly active and compelled to do things, as if you were driven by a motor?

Add the number of checkmarks that appear in the darkly shaded areas. Four or more checkmarks indicate that your symptoms may be consistent with adult ADHD. It may be beneficial for you to talk with your health care provider about an evaluation.

<table>
<thead>
<tr>
<th>Never</th>
<th>Rarely</th>
<th>Sometimes</th>
<th>Often</th>
<th>Very Often</th>
</tr>
</thead>
</table>

Source: “Adult ADHD SELF-REPORT SCALE – V1.1 (ASRS-V1.1) SCREENER,” FROM WHO COMPOSITE INTERNATIONAL DIAGNOSTIC INTERVIEW, © WORLD HEALTH ORGANIZATION.

Treatment Strategies
You diagnose the patient as having ADHD (combined presentation and moderate severity).

- What is your initial treatment approach?
- How do you go about choosing a first-line therapy for a newly diagnosed patient such as this one?
Approaches to the Treatment of ADHD in Adults

Pharmacologic
- Psychostimulants
- Nonstimulants

Nonpharmacologic
- Cognitive-behavioral therapy (CBT)
- Metacognitive therapy
- Dialectical behavioral therapy (DBT)-based psychotherapy

*Form of psychosocial therapy using cognitive-behavioral principles

Weisler RH and Childress AC. *Prim Care Companion CNS Disord.* 2011;13(6). pii: PCC.
## FDA-Approved Pharmacologic Treatments

<table>
<thead>
<tr>
<th>Class</th>
<th>Agents</th>
<th>Mechanism of Action</th>
</tr>
</thead>
</table>
| Psychostimulants | • Methylphenidate  
                  | • Dexmethylphenidate  
                  | • Mixed amphetamine salts  
                  | • Lisdexamfetamine       | • Increase availability of synaptic dopamine |
| Nonstimulant   | • Atomoxetine                              | • Specifically inhibits norepinephrine reuptake   |
Considerations for Choice of Pharmacotherapy

- Stimulant vs nonstimulant
  - Risk for abuse/misuse

- Short-acting* vs long-acting
  - Required duration of symptom control
  - Patient preference
  - Risk for nonadherence
  - Risk for abuse/misuse

*Short-acting stimulants are not currently approved for adult ADHD
Osmotic-Release Oral System (OROS) Methylphenidate

AISRS, Adult ADHD Investigator System Symptom Report Scale; IR, immediate release; MPH, methylphenidate; TID, 3 times per day.


Mean AISRS Score

Week

0 1 2 3 4 5 6

IR-MPH (TID)

OROS-MPH
Lisdexamfetamine Treatment Improves Executive Function Among Adults with ADHD

Mean (SD) self-reported BRIEF-A GEC T-score at baseline and week 10/end point/early termination, and Change from baseline LS mean (SE) self-reported BRIEF-A GEC T-score at week 10/end point/early termination.

*Shaded area represents range of T-scores considered to represent clinically significant impairments.
†P < .0001.

GEC, Global Executive Composite; LS, least squares; SD, standard deviation; SE, standard error.

## Safety and Tolerability of Lisdexamfetamine

<table>
<thead>
<tr>
<th>Adverse Event*</th>
<th>LDX (n=79) N (%)</th>
<th>PBO (n=80) N (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any event</td>
<td>62 (78.5)</td>
<td>47 (58.8)</td>
</tr>
<tr>
<td>Decreased appetite</td>
<td>26 (32.9)</td>
<td>5 (6.3)</td>
</tr>
<tr>
<td>Dry mouth</td>
<td>25 (31.6)</td>
<td>6 (7.5)</td>
</tr>
<tr>
<td>Headache</td>
<td>20 (25.3)</td>
<td>2 (2.5)</td>
</tr>
<tr>
<td>Feeling jittery</td>
<td>10 (12.7)</td>
<td>0 (0.0)</td>
</tr>
<tr>
<td>Insomnia</td>
<td>10 (12.7)</td>
<td>3 (3.8)</td>
</tr>
<tr>
<td>Initial insomnia</td>
<td>8 (10.1)</td>
<td>5 (6.3)</td>
</tr>
<tr>
<td>Irritability</td>
<td>8 (10.1)</td>
<td>3 (3.8)</td>
</tr>
<tr>
<td>Weight decreased</td>
<td>8 (10.1)</td>
<td>0 (0.0)</td>
</tr>
<tr>
<td>Diarrhea</td>
<td>6 (7.6)</td>
<td>2 (2.5)</td>
</tr>
<tr>
<td>Fatigue</td>
<td>6 (7.6)</td>
<td>3 (3.8)</td>
</tr>
<tr>
<td>Hyperhidrosis</td>
<td>5 (6.3)</td>
<td>0 (0.0)</td>
</tr>
<tr>
<td>Upper respiratory tract infection</td>
<td>5 (6.3)</td>
<td>1 (1.3)</td>
</tr>
<tr>
<td>Anorexia</td>
<td>4 (5.1)</td>
<td>0 (0.0)</td>
</tr>
<tr>
<td>Heart rate increased</td>
<td>4 (5.1)</td>
<td>2 (2.5)</td>
</tr>
<tr>
<td>Libido decreased</td>
<td>4 (5.1)</td>
<td>0 (0.0)</td>
</tr>
<tr>
<td>Nasopharyngitis</td>
<td>4 (5.1)</td>
<td>4 (5.0)</td>
</tr>
<tr>
<td>Nausea</td>
<td>2 (2.5)</td>
<td>5 (6.3)</td>
</tr>
</tbody>
</table>

*Preferred Terminology, Medical Dictionary for Regulatory Activities.*

LDX, lisdexamfetamine dimesilate; PBO, placebo

ADHD-RS-AP, Attention-Deficit/Hyperactivity Disorder Rating Scale with Adult Prompts; CGI-I, Clinical Global Impressions-Improvement; MAS, mixed amphetamine salts; MMRM, mixed-effects model for repeated measures.

*P < .001; †P < .001

### Atomoxetine Treatment Is Associated with Improved Executive Function in Young Adults with ADHD

**BRIEF-A Mean Change from Baseline to Postbaseline Visitors for All Randomized Patients – Repeated Measures Analysis for Global Executive Composite Scores**

<table>
<thead>
<tr>
<th>Week</th>
<th>Treatment</th>
<th>N*</th>
<th>LS Mean Change ± SE</th>
<th>Difference</th>
<th>P Value</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>Atomoxetine</td>
<td>157</td>
<td>−18.02 ± 1.69</td>
<td>−7.11</td>
<td>.002</td>
<td>−11.49 to −2.73</td>
</tr>
<tr>
<td></td>
<td>Placebo</td>
<td>166</td>
<td>−10.91 ± 1.67</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Atomoxetine</td>
<td>115</td>
<td>−22.53 ± 2.07</td>
<td>−7.78</td>
<td>.005</td>
<td>−13.19 to −2.36</td>
</tr>
<tr>
<td></td>
<td>Placebo</td>
<td>128</td>
<td>−14.75 ± 2.00</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*N includes all randomized patients who also had a BRIEF-A baseline score and a postbaseline score at Visit 4 (Week 5) and/or Visit 6 (Week 12), as applicable.

Increased Response to Atomoxetine Over 6 Months of Treatment

CAARS

AISRS

*(A) $P \leq .006$ atomoxetine vs placebo; (B) $P \leq .012$ atomoxetine vs placebo.
†$P < .0001$ atomoxetine vs placebo.

ATX, atomoxetine; PLA, placebo.

Atomoxetine Treatment: Onset and Resolution of AEs

AEs, adverse events.

Case Evaluation 1: Discussion

- Would you also recommend nonpharmacologic intervention for the patient? If so, what type?
- How strong is the evidence in support of nonpharmacologic therapies for the treatment of ADHD?
Effect of CBT on ADHD Symptoms and Global Function

### ADHD (BCS/CSS)

<table>
<thead>
<tr>
<th>Study or Subgroup</th>
<th>Experimental Mean</th>
<th>SD</th>
<th>Total</th>
<th>Control Mean</th>
<th>SD</th>
<th>Total</th>
<th>Weight</th>
<th>Std. Mean Difference</th>
<th>IV, Random, 95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emilsson 2011</td>
<td>15.7</td>
<td>8.7</td>
<td>15</td>
<td>25</td>
<td>8.5</td>
<td>17</td>
<td>50.1%</td>
<td>-1.05 (-1.80, -0.31)</td>
<td></td>
</tr>
<tr>
<td>Safren 2005</td>
<td>14.8</td>
<td>8.7</td>
<td>16</td>
<td>23.9</td>
<td>9.9</td>
<td>15</td>
<td>49.9%</td>
<td>-0.95 (-1.70, -0.20)</td>
<td></td>
</tr>
<tr>
<td>Total (95% CI)</td>
<td>15</td>
<td>9.9</td>
<td>31</td>
<td>25.9</td>
<td>10.0</td>
<td>32</td>
<td>100.0%</td>
<td>-1.00 (-1.53, -0.48)</td>
<td></td>
</tr>
</tbody>
</table>

Heterogeneity: Tau² = 0.00; CHI² = 0.04; df = 1 (P = .85); I² = 0%

Test for overall effect: Z = 3.72 (P = .0002)

### GLOBAL FUNCTION (CGI)

<table>
<thead>
<tr>
<th>Study or Subgroup</th>
<th>Experimental Mean</th>
<th>SD</th>
<th>Total</th>
<th>Control Mean</th>
<th>SD</th>
<th>Total</th>
<th>Weight</th>
<th>Std. Mean Difference</th>
<th>IV, Random, 95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emilsson 2011</td>
<td>3</td>
<td>0.8</td>
<td>8</td>
<td>4.1</td>
<td>0.9</td>
<td>13</td>
<td>36.5%</td>
<td>-1.22 (-2.19, -0.25)</td>
<td></td>
</tr>
<tr>
<td>Safren 2005</td>
<td>3.3</td>
<td>0.8</td>
<td>16</td>
<td>4.1</td>
<td>1.1</td>
<td>15</td>
<td>63.5%</td>
<td>-0.81 (-1.55, -0.08)</td>
<td></td>
</tr>
<tr>
<td>Total (95% CI)</td>
<td>3</td>
<td>1.0</td>
<td>24</td>
<td>4.1</td>
<td>1.1</td>
<td>28</td>
<td>100.0%</td>
<td>-0.96 (-1.55, -0.38)</td>
<td></td>
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</tbody>
</table>

Heterogeneity: Tau² = 0.00; CHI² = 0.04; df = 1 (P = .97); I² = 0%

Test for overall effect: Z = 3.02 (P = .002)

CBT, cognitive behavior therapy.

Effect of CBT vs Standard Treatment on Symptoms of Depression and Anxiety

### DEPRESSION

<table>
<thead>
<tr>
<th>Study or Subgroup</th>
<th>Mean</th>
<th>SD</th>
<th>Total</th>
<th>Mean</th>
<th>SD</th>
<th>Total</th>
<th>Weight</th>
<th>Std. Mean Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emilsson 2011</td>
<td>5</td>
<td>5.8</td>
<td>15</td>
<td>15.4</td>
<td>9.3</td>
<td>17</td>
<td>47.4%</td>
<td>-1.29 (-2.06, -0.52)</td>
</tr>
<tr>
<td>Safren 2005</td>
<td>7.6</td>
<td>4.3</td>
<td>16</td>
<td>12.4</td>
<td>7.7</td>
<td>15</td>
<td>52.6%</td>
<td>-0.76 (-1.49, -0.02)</td>
</tr>
<tr>
<td>Total (95% CI)</td>
<td>31</td>
<td>32</td>
<td>100.0%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-1.01 (-1.54, -0.48)</td>
</tr>
</tbody>
</table>

Heterogeneity: Tau² = 0.00; CHI² = 0.96; df = 1 (P = .33); I² = 0%

Test for overall effect: Z = 3.72 (P = .0002)

### ANXIETY

<table>
<thead>
<tr>
<th>Study or Subgroup</th>
<th>Mean</th>
<th>SD</th>
<th>Total</th>
<th>Mean</th>
<th>SD</th>
<th>Total</th>
<th>Weight</th>
<th>Std. Mean Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Safren 2005</td>
<td>3.7</td>
<td>3.5</td>
<td>16</td>
<td>7.2</td>
<td>4.9</td>
<td>15</td>
<td>49.2%</td>
<td>-0.81 (-1.54, -0.07)</td>
</tr>
<tr>
<td>SaEmilsson 2011</td>
<td>7.3</td>
<td>5.9</td>
<td>15</td>
<td>12.8</td>
<td>7.5</td>
<td>17</td>
<td>50.8%</td>
<td>-0.79 (-1.51, -0.06)</td>
</tr>
<tr>
<td>Total (95% CI)</td>
<td>31</td>
<td>32</td>
<td>100.0%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-0.80 (-1.31, -0.28)</td>
</tr>
</tbody>
</table>

Heterogeneity: Tau² = 0.00; CHI² = 0.04; df = 1 (P = .97); I² = 0%

Test for overall effect: Z = 3.02 (P = .002)

Psychiatric Comorbidities of ADHD
Case Evaluation #2: 32-Year-Old Male

- Presents to his PCP for symptoms of depression
- History of mild depression during his early 20s with excessive alcohol consumption (not currently an issue)
- Diagnosed at the age of 8 with ADHD and treated with methylphenidate until the age of 14
- Reports being recently laid off from his job as a research associate during a company-wide reorganization. Adds that his last 2 performance reviews were mediocre and “would have been let go soon anyway.”
- Further questioning reveals employer feedback suggesting a lack of ability to carefully follow directions and track multiple ongoing projects, as required for his position

PCP, primary care physician.
Case Evaluation #2: Discussion

- What additional questions would you ask the patient to further assess the nature of his symptoms?
- How do you discern whether the patient’s symptoms and behavioral patterns are primarily due to ADHD or to depression?
  - Patient interview
  - Third party account
  - Is trouble with concentration worse than usual?
- What are your management goals for this patient?
- Would you refer this patient to a psychiatrist?
Comorbidities of ADHD in Adults

Hodgkins P et al. Primary Care Companion to CNS Disorders. 2011;13(2):PCC.

*P ≤ .05; **P ≤ .0001
Risk for Psychiatric Comorbidities by ADHD Presentation Subtype

Adults with ADHD, n = 17,899

# Impact of Adjunctive Atomoxetine Therapy in Adults with ADHD and Anxiety

<table>
<thead>
<tr>
<th>Measure</th>
<th>Change</th>
<th>p-value</th>
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</thead>
<tbody>
<tr>
<td>Total HAM-A</td>
<td>6.6</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Cognitive anxiety subscale</td>
<td>6.7</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Somatic anxiety subscale</td>
<td>4.8</td>
<td>&lt;.001</td>
</tr>
<tr>
<td><strong>Total Sheehan’s Disability Scale</strong></td>
<td>6.3</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Occupational disability</td>
<td>4.6</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Social disability</td>
<td>5.6</td>
<td>&lt;.001</td>
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<tr>
<td>Family and home responsibilities</td>
<td>4.9</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Weight</td>
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<td>&lt;.20</td>
</tr>
<tr>
<td>Systolic BP</td>
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<td>&lt;.30</td>
</tr>
<tr>
<td>Diastolic BP</td>
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<td>&lt;.92</td>
</tr>
<tr>
<td>Pulse</td>
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<td>&lt;.25</td>
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</tbody>
</table>

Atomoxetine in Adults with ADHD and Alcohol Use Disorder

Atomoxetine ADHD/SUD Study Group

Cumulative Heavy Drinking Days

Follow-up Time (days)

Event ratio = 0.737

P value = .0230

Considerations for Optimizing ADHD Management
Patient Education

- Manage therapeutic expectations
- Provide information about how medications work (e.g., relationship between timing of release and therapeutic effects)
- Emphasize the importance of adherence to therapy
- Address patient concerns regarding development of tolerance and long-term safety
- Ensure patient awareness of the potential for misuse
Medication Adherence

- Mean adherence was 86.8% (SD = 14.5%) to ADHD medications in the 2 weeks prior to assessment.

<table>
<thead>
<tr>
<th>Adherence Level</th>
<th>% of Patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;80%</td>
<td>22%</td>
</tr>
<tr>
<td>&lt;90%</td>
<td>44%</td>
</tr>
<tr>
<td>100%</td>
<td>26%</td>
</tr>
</tbody>
</table>

- Level of education was not associated with adherence.
- Self-reported adherence to ADHD medications was negatively associated with severity of ADHD symptoms.

Summary

- ADHD is a disorder that affects adults as well as children, and has been found to have pervasive negative impact across multiple life domains.

- Application of DSM-5 criteria and knowledge of characteristics closely associated with adult ADHD can facilitate diagnosis, which is complicated by heterogeneous clinical presentation and the frequent presence of psychiatric comorbidities.

- Several pharmacotherapies have been shown to be effective for treating adult ADHD, especially when combined with disorder-oriented psychotherapy to address residual symptoms.

- To optimize disease management, clinicians should tailor treatment based on behavioral and physiological patient characteristics, as well as provide education on the nature of ADHD and the importance of treatment adherence.
Questions and Answers
Thank You!