



MASSACHUSETTS
GENERAL HOSPITAL

PSYCHIATRY ACADEMY

Adult ADHD: Diagnosis

Thomas J. Spencer, M.D.

*Massachusetts General Hospital
Harvard Medical School*

Disclosures

FDA	Research Support
Department of Defense	Research Support
Avekshan	Consultant

?

Research Support and Consultant fees are paid to the MGH Clinical Trials Network and not directly to Dr. Spencer

Dr. Spencer receives support from Royalties and Licensing fees on copyrighted ADHD scales through MGH Corporate Sponsored Research and Licensing.

Dr. Spencer has a US Patent (#14/027,676) for a non-stimulant treatment for ADHD and a US Patent Application pending (Provisional Number 61/233,686), on a method to prevent stimulant abuse. Both through MGH corporate licensing

DSM V ADHD

- Descriptors added to facilitate application across the life span
- Cross-situational requirement strengthened to “several” symptoms in each setting
- Onset criterion several symptoms present prior to age 12
- Comorbid diagnosis with autism spectrum disorder allowed
- Adult symptom cutoff now five symptoms both for inattention and for hyperactivity/impulsivity.

Symptoms of Hyperactivity Often Manifest Differently In Adults

Hyperactivity often changes to inner restlessness

DSM IV Symptom Domain

- Squirms and fidgets
- Can't stay seated
- Runs/climbs excessively
- Can't play/work quietly
- “On the go” / “Driven by motor”
- Talks excessively



Common Adult Manifestation

- Workaholic
- Overscheduled/overwhelmed
- Self-select very active job
- Constant activity leading to family tension
- Talks excessively

American Psychiatric Association. 1994. 83-85., ADHD in Adulthood 1999, Weiss, Hechtman and Weiss

Symptoms of Impulsivity Often Manifest Differently In Adults

Impulsivity in adulthood often carries more serious consequences

DSM IV Symptom Domain

- Blurts out answers
- Can't wait turn
- Intrudes/interrupts others



Common Adult Manifestation

- Low frustration tolerance
 - Losing temper
 - Quitting jobs
 - Ending relationships
 - Driving too fast
 - Addictive personality

American Psychiatric Association. 1994. 83-85., ADHD in Adulthood 1999, Weiss, Hechtman and Weiss

Symptoms of Inattention Often Manifest Differently in Adults

DSM IV Symptom Domain

- Difficulty sustaining attention
- Doesn't listen
- No follow through
- Can't organize
- Loses important items
- Easily distractible, forgetful



Common Adult Manifestation

- Difficulty sustaining attention
 - Meetings, reading, paperwork
- Paralyzing procrastination
- Slow, inefficient
- Poor time management
- Disorganized

Executive Functions & ADHD in Adults

- Childhood
 - simple responses to limited demands in a protective environment
- Adulthood
 - juggling of competing tasks, independence, organization, and planning
- Executive functions become more important in adulthood

Toward a Dual Pathway Model of ADHD

Directed Attention

Executive circuit

- Inhibitory deficits
- Executive dysfunction

Fascination

Reward circuit

- Reduce time to reward
- Delay aversion

ADHD

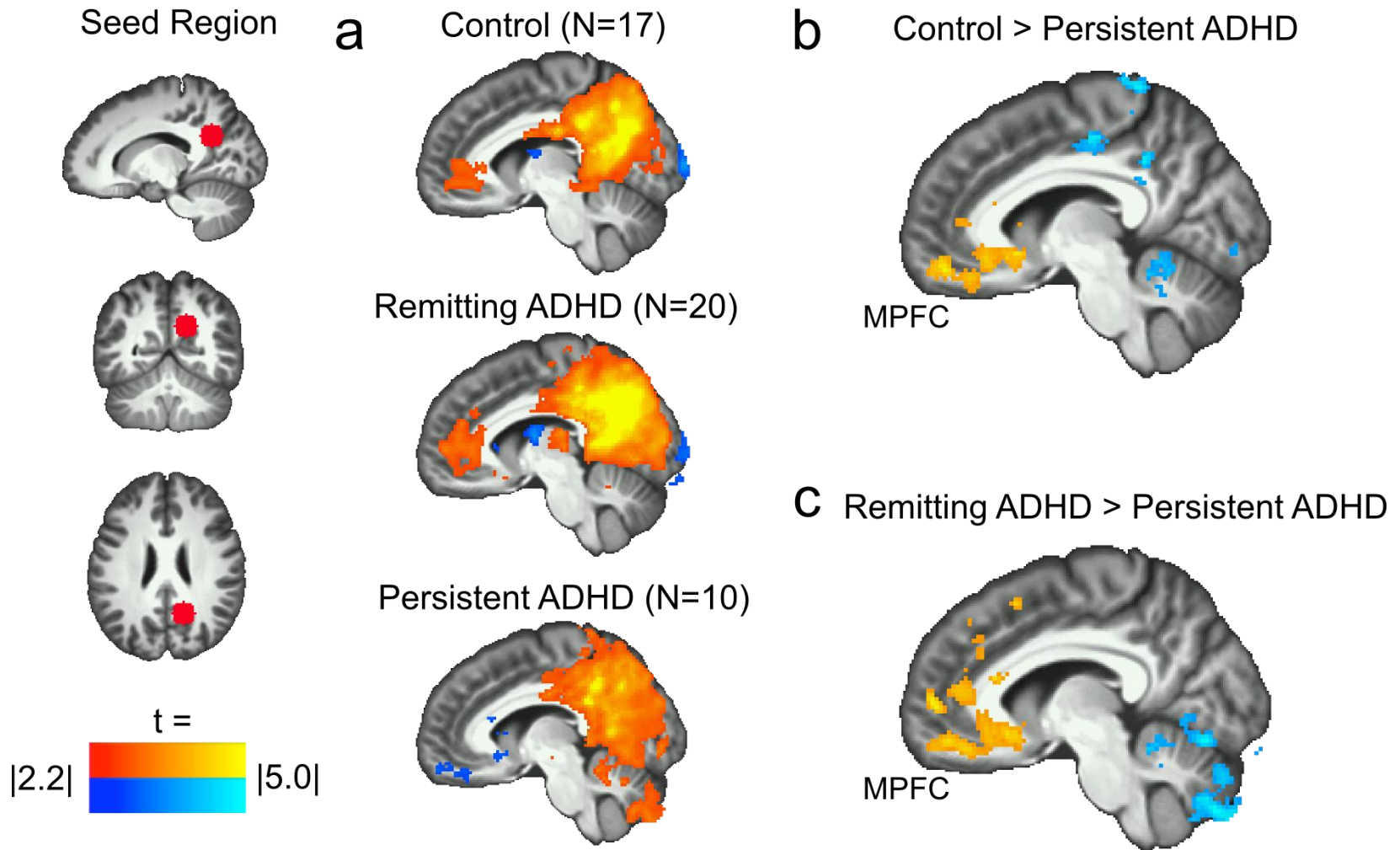
Diagnosis of ADHD in Adults: Patient Compensation Efforts

Patient attempts to compensate and time invested in the compensation is an important diagnostic indication.

Patients usually:

- Set up rigid schedules
- Pursue areas of interest with extreme zeal
- Seek careers/situations with controllable stimuli
- Make use of organizational tools
- Impose own “time-outs” during stimulus overload situations (take walks/disappear)

Reduced MPFC-PCC Coupling Reflects Current Diagnostic State of ADHD



Mattfeld et al. *Brain: A Journal of Neurology* 2014, epub: June 10, 2014

Deficient Emotional Self Regulation

1. Quick to get angry or become upset
2. Easily frustrated
3. Over-react emotionally
4. Easily excited by activities going on around me
5. Lose my temper
6. Argue with others
7. Am touchy or easily annoyed by others
8. Am angry or resentful

Scoring: Never (0), Sometimes (1), Often (2), Very Often (3)

DESR: \geq 95th percentile of total scores in Controls

Deficient Emotional Self-Regulation

- Found in 61% of adult ADHD subjects
- Only partially accounted for by lifetime comorbidity
- ADHD + DESR had significantly greater impairment
 - QLES-Q (all items)
 - SAS-SR (all items except parenting)
 - Marital Status
 - 22.9% vs. 34.7%
 - Divorced
 - 19.5% vs. 8.9%
- Traffic accidents and arrests $p < 0.05$

Diagnosis of ADHD in Adults: Adult ADHD Scales

Symptom Assessment Scales

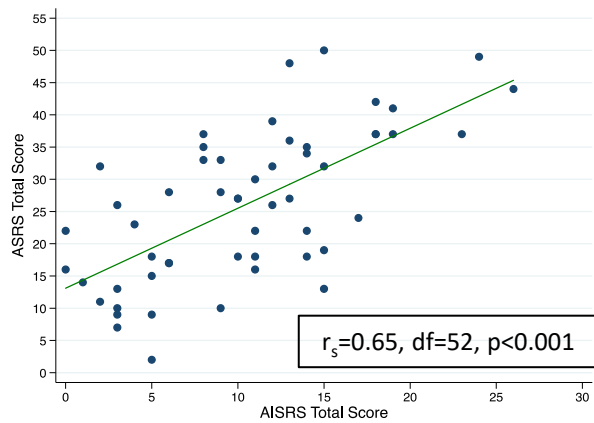
- Brown ADD Scale
- Conners Adult ADHD Rating Scale
- Wender-Reimherr Adult Attention Deficit Disorder Scale
- ADHD Rating Scale
- Barkley Current Symptoms Scale
- Adult Self-Report Scale v 1.1 (18-item symptom assessment and screener)
- Adult Investigator Symptom Report Scale (AISRS)

Diagnostic Scales

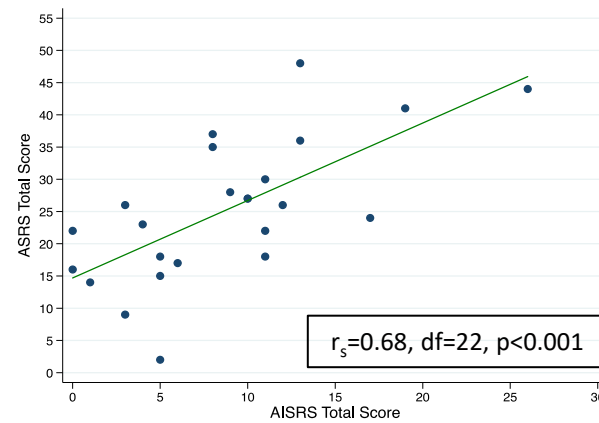
- Conners Adult ADHD Diagnostic Interview
- Barkley Current Symptoms Scale (with supplemental Barkley scales)
- Brown ADD Scale Diagnostic Form
- Kiddie-SADS Diagnostic Interview ADHD Module
- Adult ADHD Clinician Diagnostic Scale (ACDS v. 1.2)

Spearman's Rank Correlations Examining the Association between the AISRS (Clinician) and ASRS (SELF)

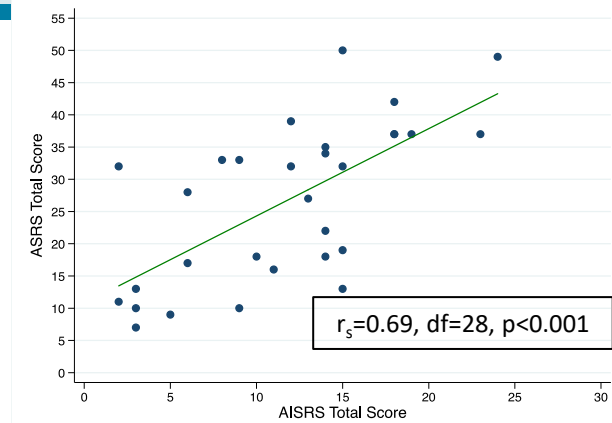
A. Whole Sample (N=54)



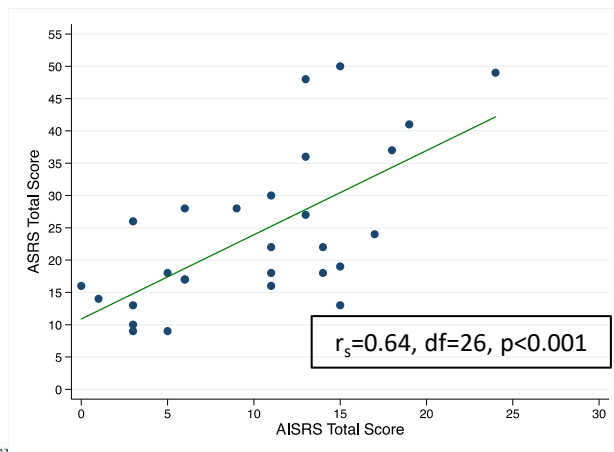
B. Males (N=24)



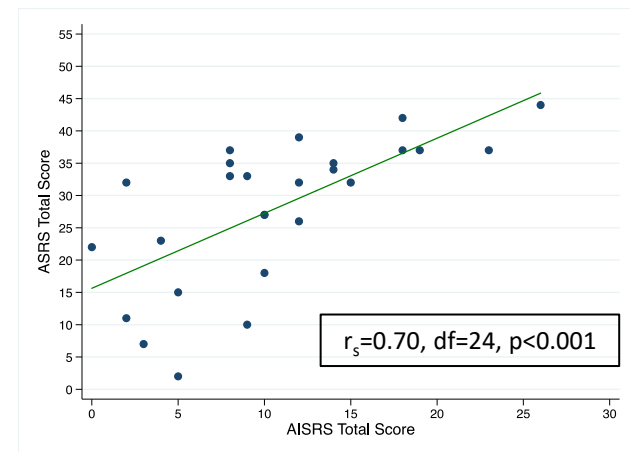
C. Females (N=30)



D. Age ≤40 Years (N=28)



E. Age >40 Years (N=26)



Executive Functions

- Executive Functions (EF) refer to higher order mental operations involved in goal directed behavior and self-regulation
 - Set Shifting (changing activity or solution strategy)
 - Planning /Organizing (managing current and future oriented task demands)
 - Working Memory (holding and manipulating information in your mind)
 - Inhibition (holding back from salient response)
 - Initiation (getting started)
 - Task Monitoring (keeping track of behavior)

Executive Function in ADHD

- ADHD is understood as both a behavioral and a cognitive disorder
- EFDs are common but not ubiquitous in ADHD (perhaps 30% to 50%)
- Psychometric testing and self-report checklists identify EFDs in different people
- **Both** testing and self report exe fx deficits can cause significant ***additional*** impairment in areas of academics, work, and social functioning

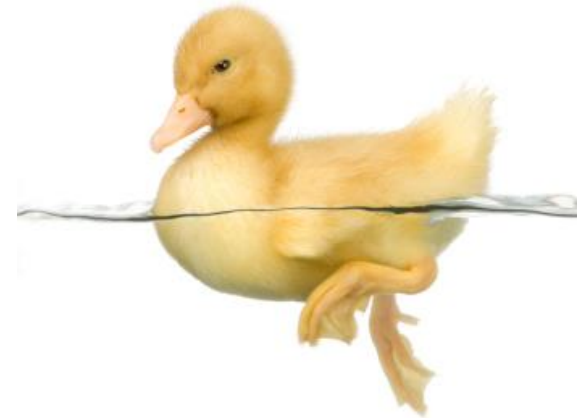
Executive Function in ADHD

You cannot use tests of executive functions to diagnose ADHD

- Abnormalities on tests of executive functions are suggestive of ADHD
- Normal test scores do not rule out the disorder

Simulated Workplace for Unmedicated Adults with and without ADHD

- Adult ADHD associated with significant deficits in task performance as well as internal experience of ADHD Sxs



- Internal struggle with symptoms of ADHD reported by ADHD subjects across the board, despite (relatively) lower observer ratings of externalized symptoms.
- Consistent with previous research: Adults with ADHD more likely to appear calm but suffer from internal restlessness compared with children with ADHD.

What About Driving?



MGH-MIT Driving Simulation Paradigm

- Our group developed and validated a novel driving simulation paradigm with varying driving demands in ways observed on actual roadways
 - Range of driving environments (rural, highway, urban)
 - Differing stimulus intensity (active, monotonous)
 - Periods of both single task driving as well as dual task driving, (e.g. driving while having a cellular phone conversation)

MGH-MIT Driving Simulation Paradigm

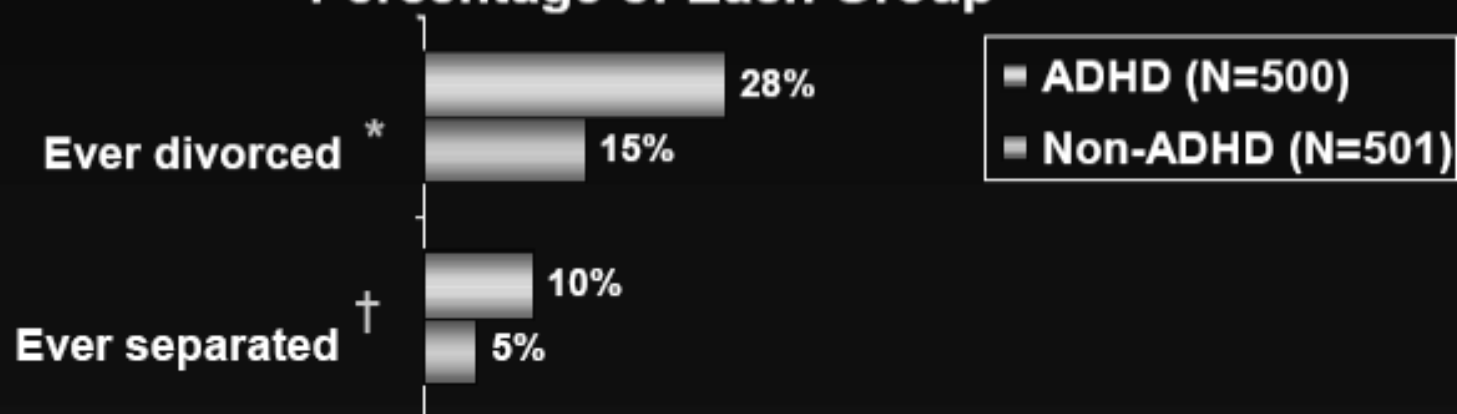
- ADHD subjects reported a higher frequency of speeding, passing and weaving in traffic, and number of real-life accidents, which corresponded with behaviors observed in the simulation, further supporting the validity of our driving simulation paradigm

Poor interpersonal skills

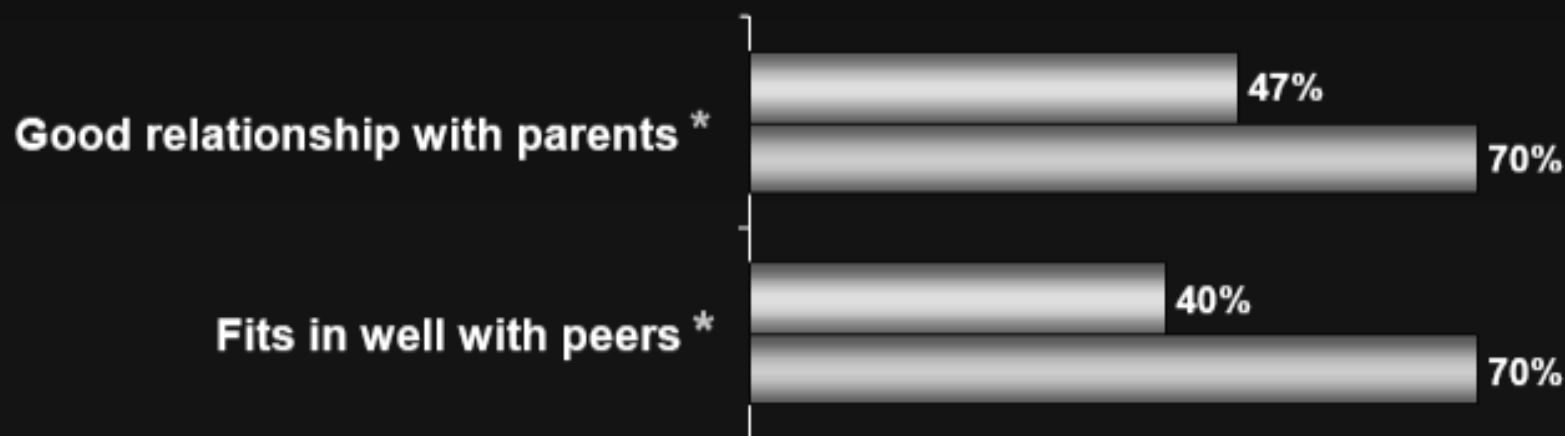
- Trouble Making friends
- Marital problems
- Impulsive comments
- Quick to anger
- Verbally abusive
- Poor follow-through
- Perceived as immature
- Failure to appreciate other's needs
- Poor listening
- Trouble sustaining friends

Relationship Problems as Adults

Percentage of Each Group



Percent "Strongly Agree"



* $P \leq .001$, † $P \leq .01$

ADHD: The Disorder

Symptom domains

- Hyperactivity
- Inattention
- Impulsivity

DESR

+

Exe Fx

Psychiatric comorbidities

- Anxiety and mood disorders
- Disruptive behavior disorders (conduct disorder and oppositional defiant disorder)

Lead to

Functional impairments

Self

- Low self-esteem
- Accidents and injuries
- Smoking
- Substance abuse
- Delinquency

School / Work

- Academic difficulties, underachievement
- Employment difficulties

Home

- Family stress
- Parenting difficulties

Social

- Poor peer relationships
- Socialization deficit
- Relationship difficulties