

Diagnosis, Course and Outcomes of ADHD

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Disclosures

Dr. Spencer receives royalties from Cambridge University Press for book publication

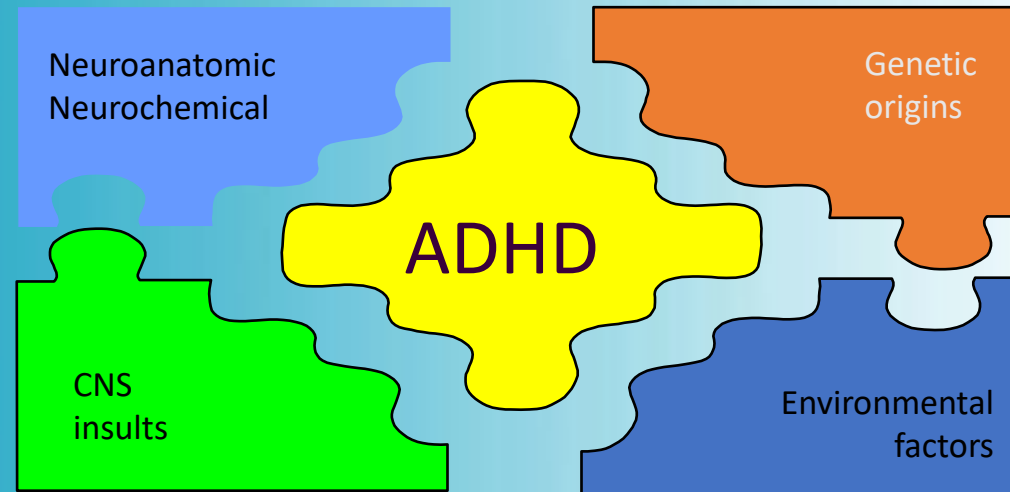
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Dr. Spencer has a US patent (#14/027,676) for a nonstimulant treatment for ADHD (no license fees), and has a patent pending (#61/233,686) for a method to prevent stimulant abuse (no license fees). Both through MGH corporate licensing



ADHD: Etiology

ADHD is a heterogeneous behavioral disorder with multiple interactive etiologies



Five Criteria of DSM 5 TR ADHD Diagnosis

(American Psychiatric Association, 2013 & 2 other sources)



MASSACHUSETTS
GENERAL HOSPITAL

PSYCHIATRY ACADEMY

- Developmentally inappropriate hyperactive-impulsive and/or inattentive symptoms (> 6 months), **that interfere with functioning or development**
 - Six or more symptoms in one or both domains required for youth
 - Five or more for adults 17 or older
- Some symptoms present prior to age 12.
- Several symptoms occur in 2 or more settings (e.g., home and school).
- Symptoms interfere with, or reduce the quality of, social, academic, or occupational functioning.
- No other disorder better explains the symptoms.

DSM V ADHD Symptoms: Context

- **Symptoms are context based**
 - Patients are more symptomatic when performing tasks they don't want to do, or find difficult or boring
 - Signs of the disorder may be minimal or absent when the individual is receiving frequent rewards for appropriate behavior, is under close supervision, is in a novel setting, is engaged in especially interesting activities, has consistent external stimulation (e.g., via electronic screens), or is interacting in one-on-one situations (e.g., the clinician's office).

DSM 5 Criteria: APA; Adler L

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



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

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



Diagnosis of ADHD in Adults: Patient Compensation Efforts

Patient effort and time in compensation is an important diagnostic indication.

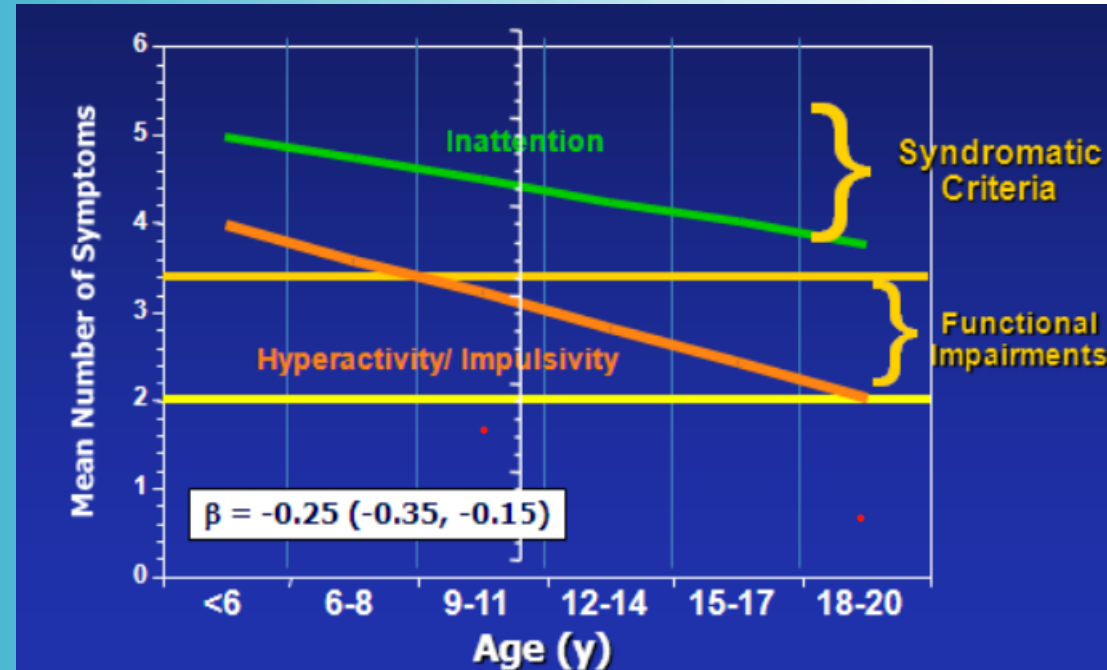
***Twice as hard for half as much
Can take much longer to do tasks with great effort***

Patients Often:

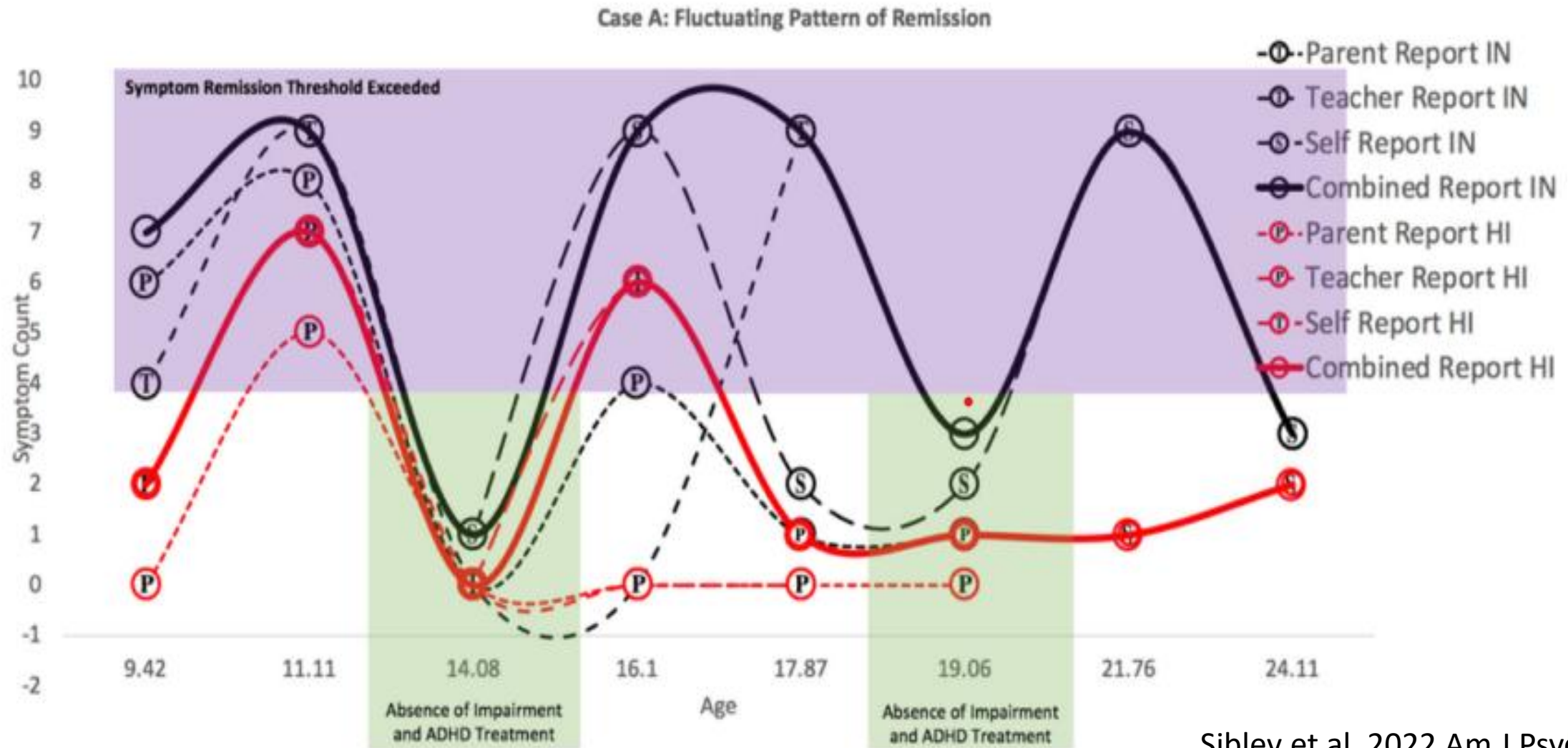
- Rigid schedules; rigid use of organizational tools
- Bursts of excessive time/effort pushing to finish tasks
 - “Beasting “ mode
- Frequent breaks during sustained tasks
 - Scanning the internet, taking walks/disappear
- Seek careers/situations with controllable stimuli/demands
 - Underemployed



Age-Dependent Decline of ADHD Symptoms



Fluctuating Expression of a Chronic Disorder



Sibley et al. 2022 Am J Psych

ADHD: Impairment



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PSYCHIATRY ACADEMY



Occupational/vocational

Motor vehicle accidents

Injuries

Smoking and SUD

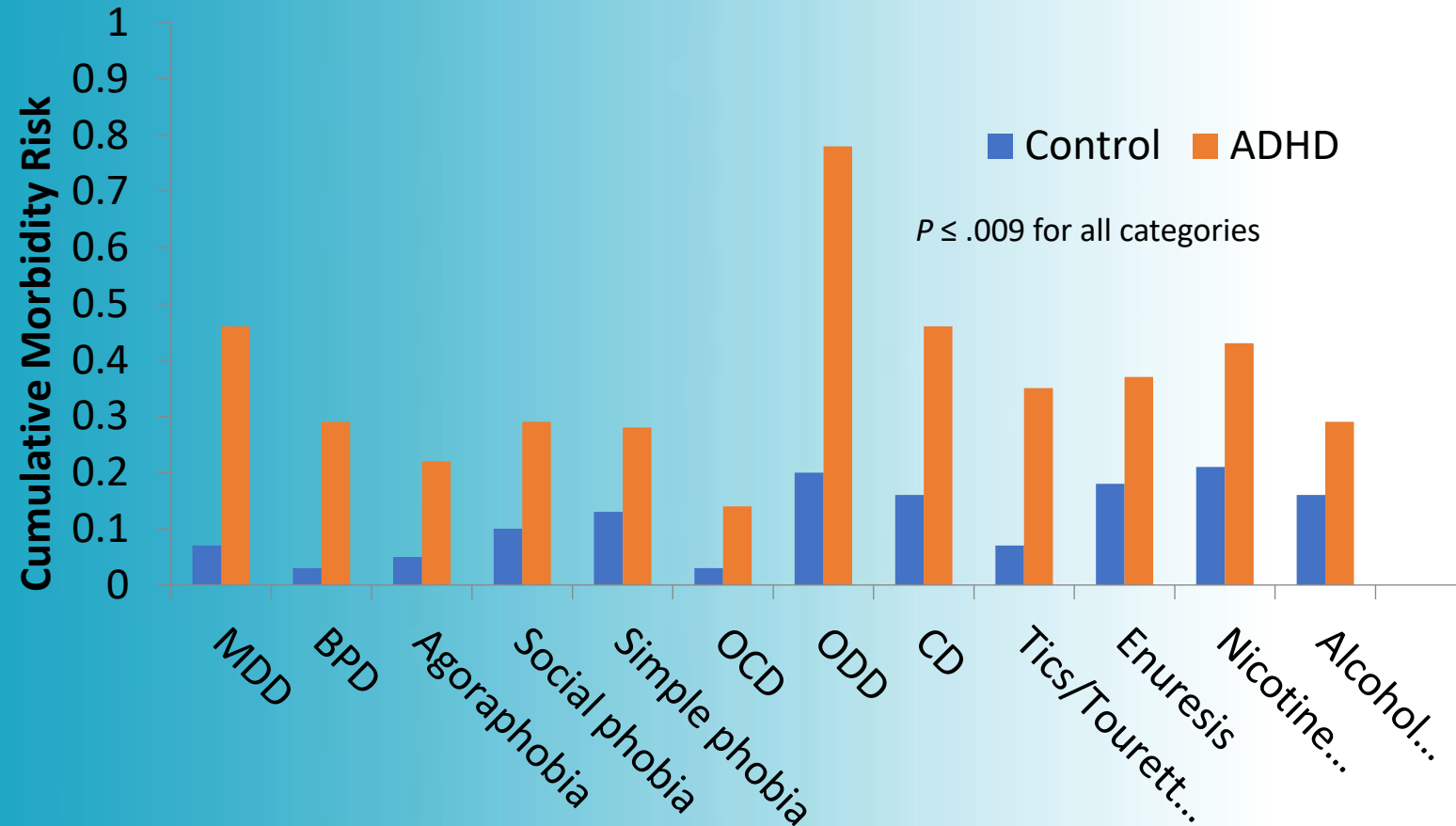
Failure/Self Esteem

Relationships

Academic failure

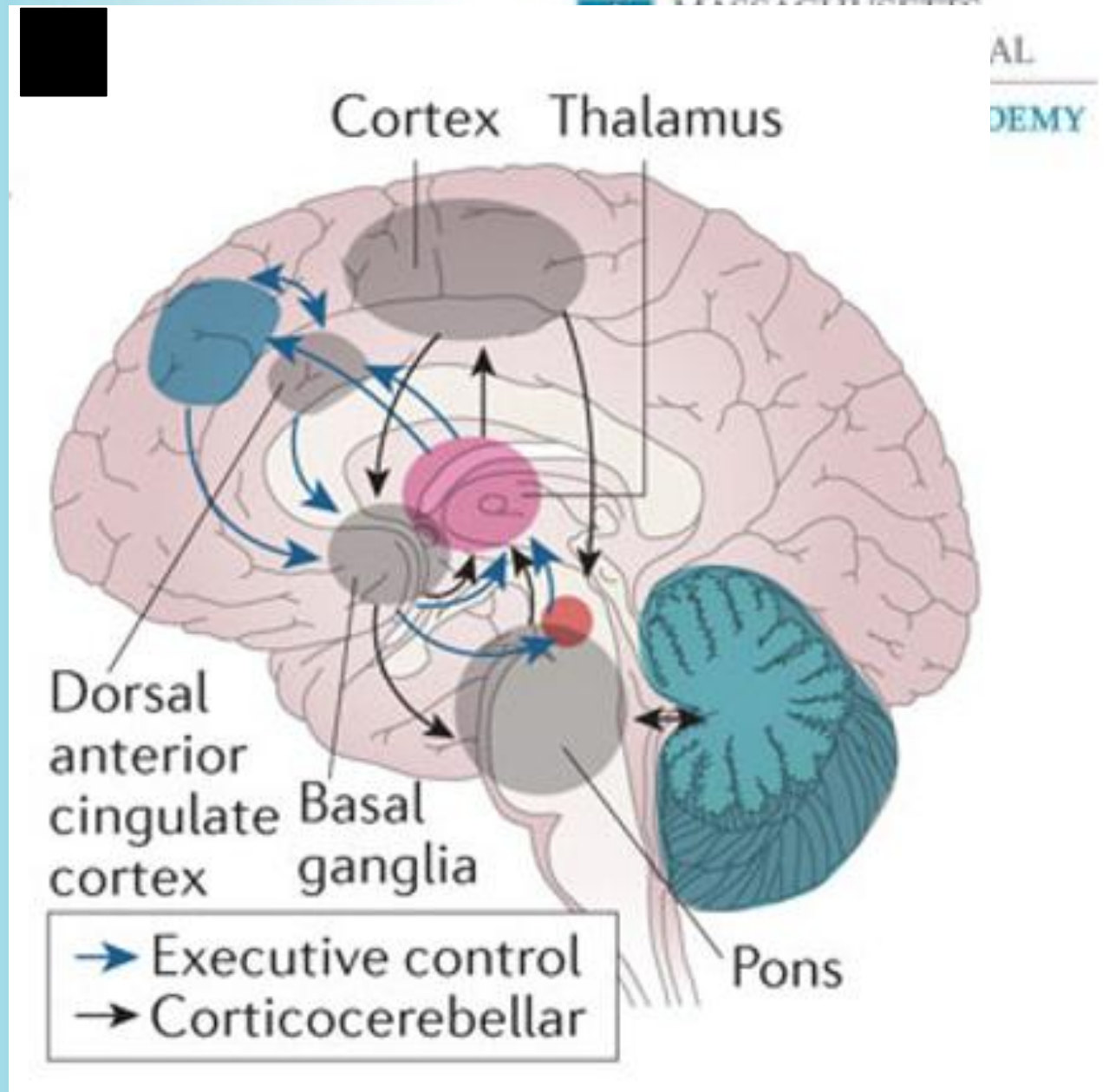


Cumulative Morbidity Risks for Psychiatric Disorders in ADHD and Control Probands



Biederman et al. *Psychological Medicine*, 2006, 36, 167-179.

- Under-activation of fronto-striatal and fronto-parietal networks consistent with impaired goal-directed executive processes
- Under-activation of frontal control over the limbic system consistent with the emotional dysregulation seen in ADHD



Faraone, S. V. et al. (2015) Attention-deficit/hyperactivity disorder *Nat. Rev. Dis. Primers*

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 $p < 0.05$

Executive Functions & ADHD in Adults

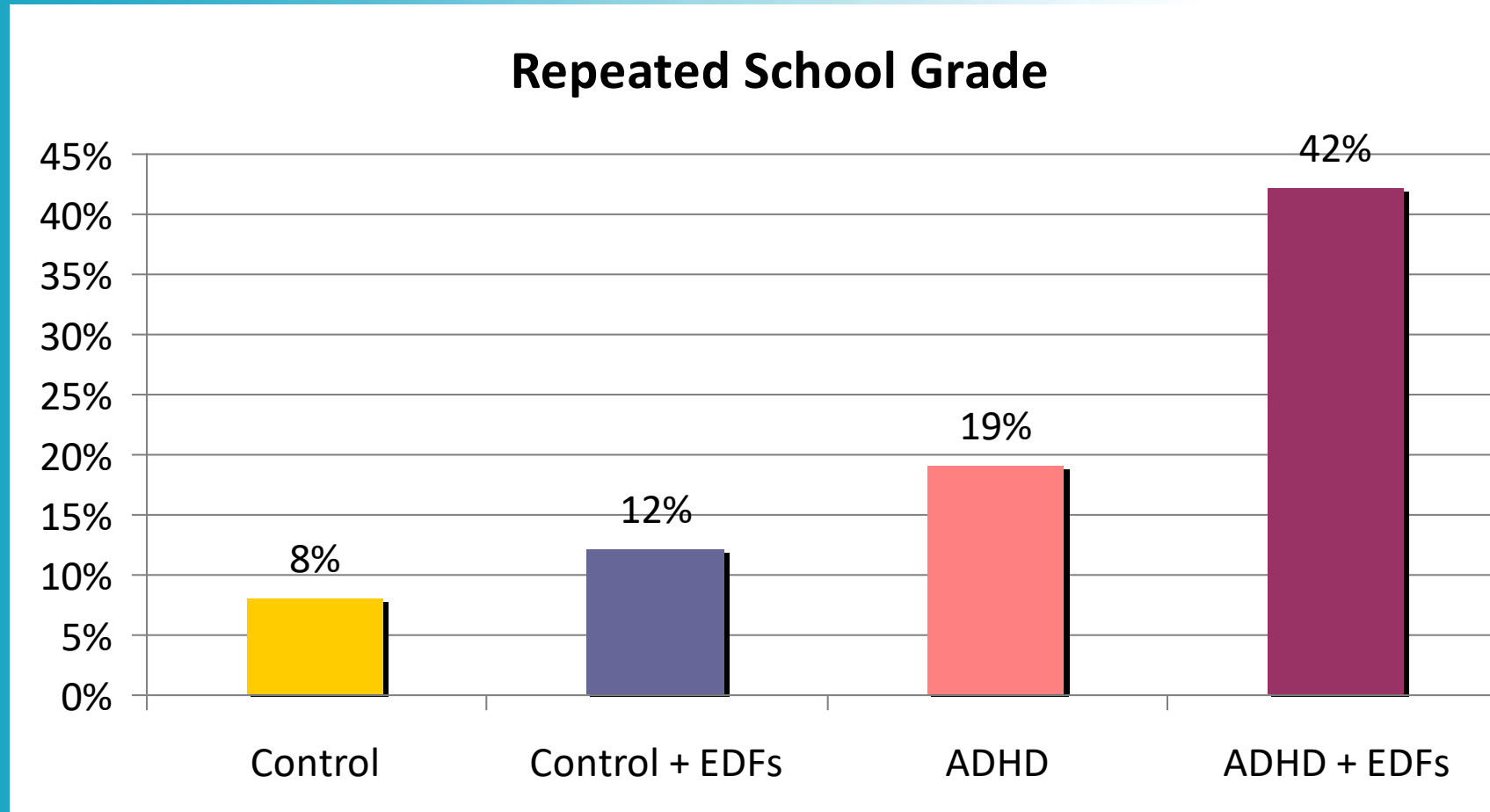
- Childhood
 - simple responses to limited demands in a protective environment
- Adulthood
 - juggling of competing tasks, independence, organization, and planning
- Executive functions become more important in adulthood



Executive Function in ADHD

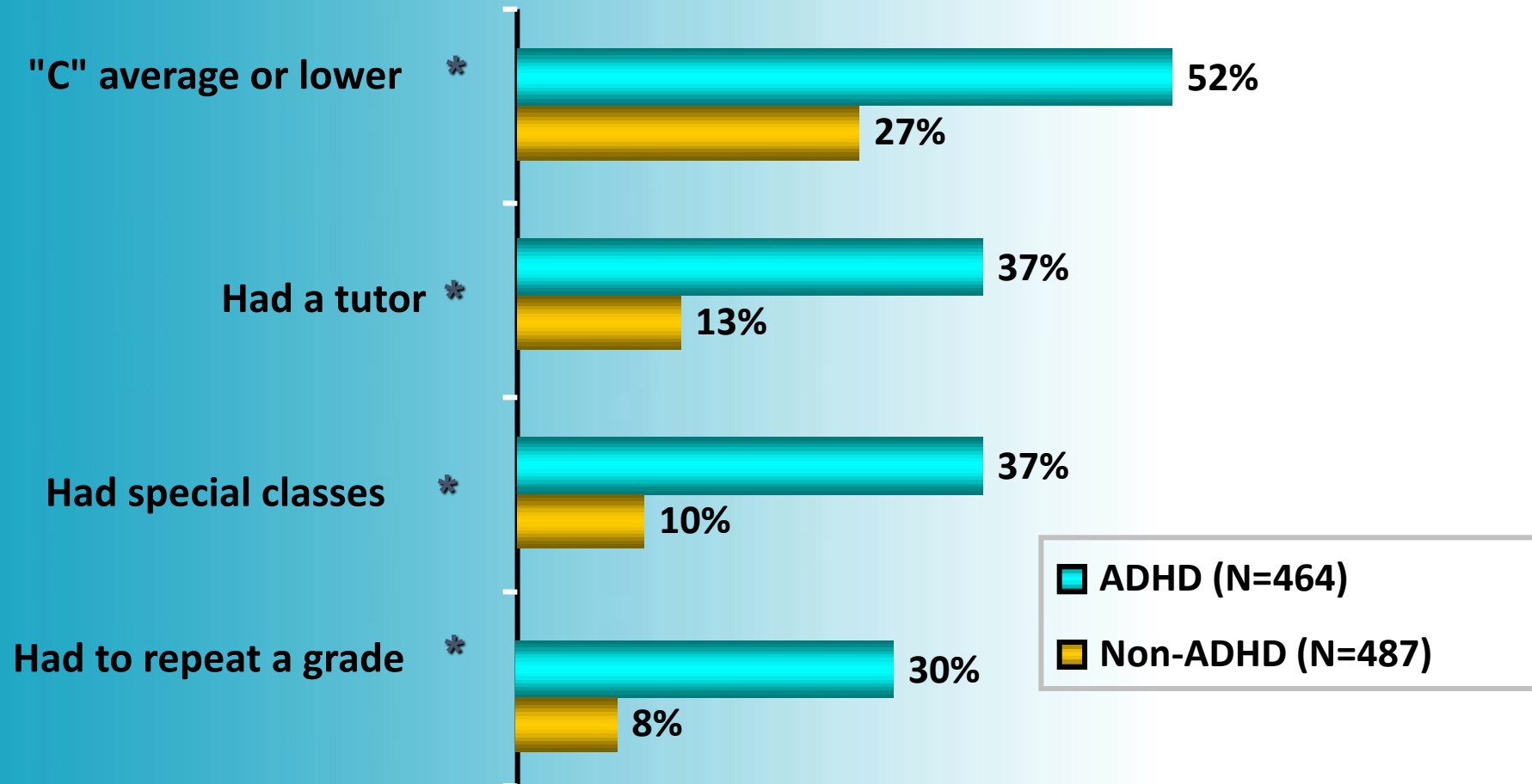
- ADHD is understood as both a behavioral and a cognitive disorder
- EFDs are common but not ubiquitous in ADHD (perhaps 30% to 50%)
- Psychometric testing and self-report checklists identify EFDs in different people
- **Both** testing and self report exe fx deficits can cause significant *additional*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

Impact of EFDs on Youth with ADHD



Educational Impairment in High School

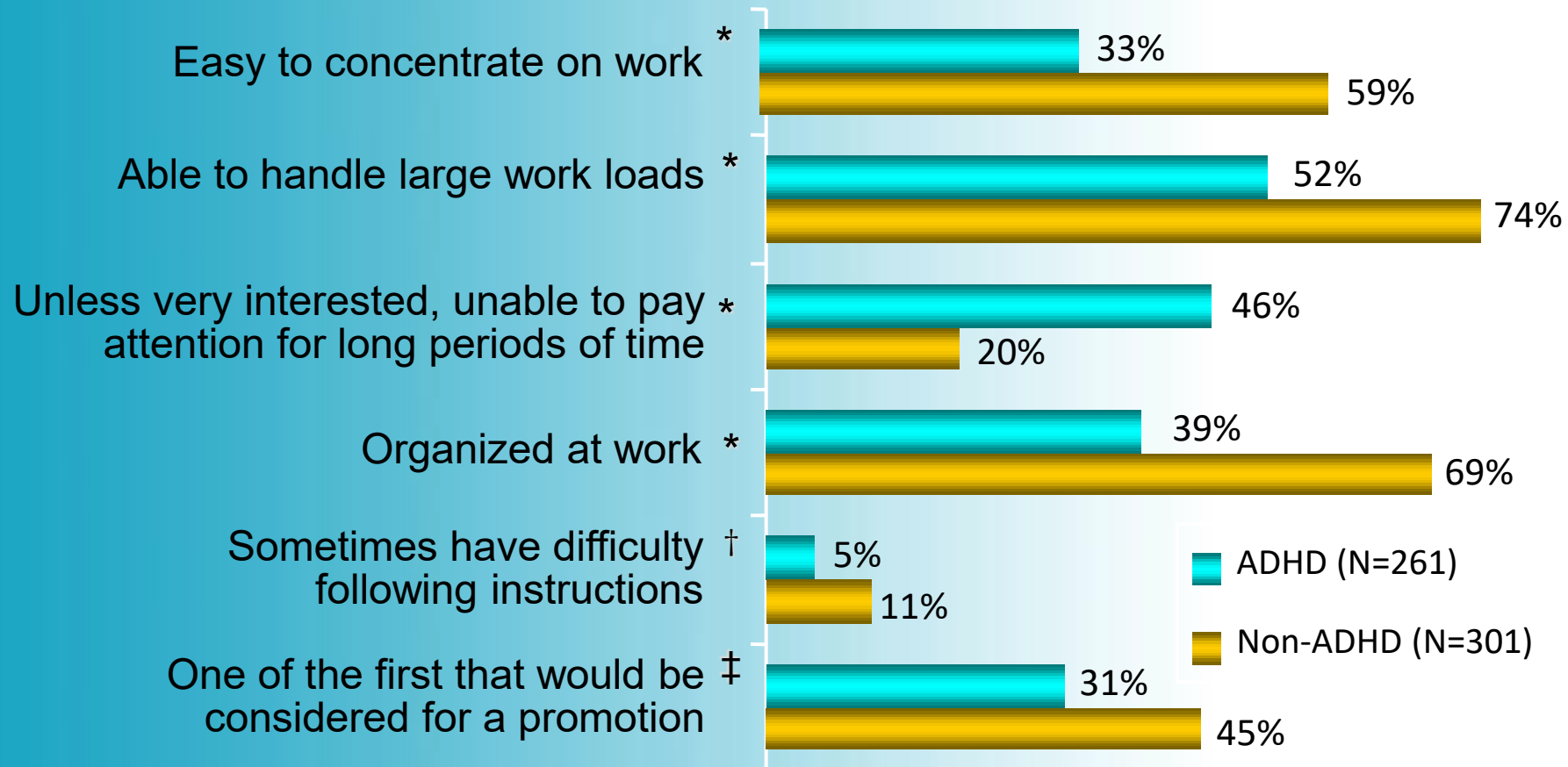
Percentage of Those Who Attended High School



* $p \leq .001$

Workplace Impairment

Percentage of Those Employed Who "Strongly Agree"



* $P \leq .001$, † $P \leq .05$, ‡ $P \leq .01$

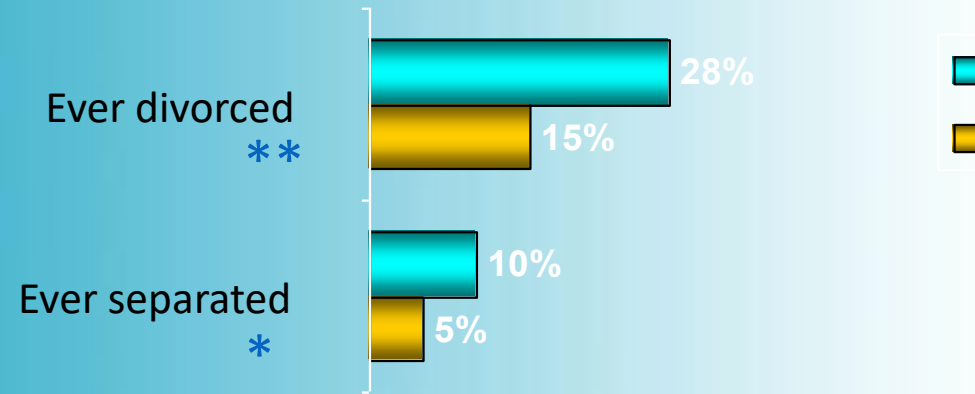
Poor interpersonal skills

- 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

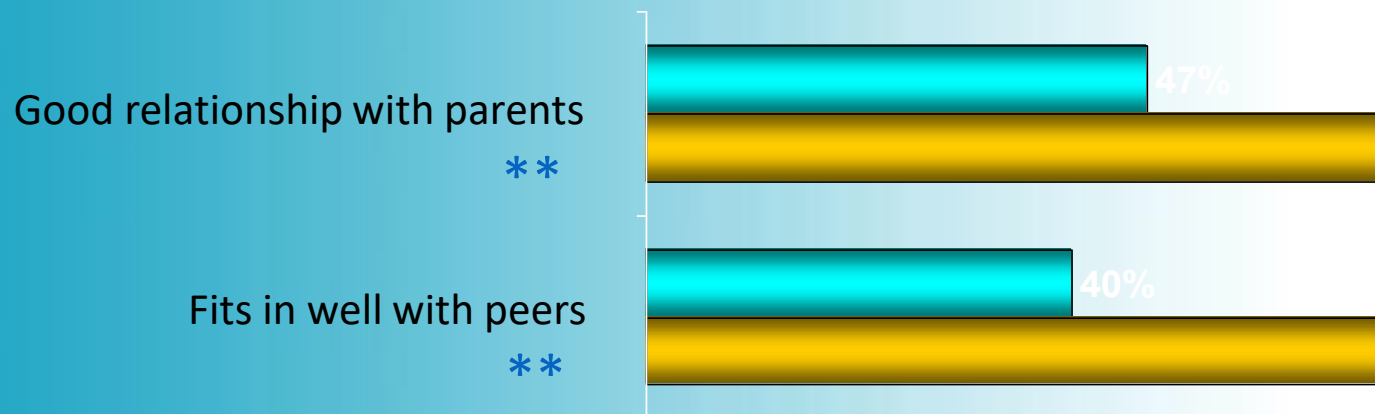
Barkley and Murphy, 2001

Relationship Problems as Adults

Percentage of Each Group



Percent "Strongly Agree"



* $P \leq 0.01$, ** $P \leq 0.001$

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