WOMEN'S COLLEGE HOSPITAL
Healthcare | REVOLUTIONIZED

Understanding ADHD: ADHD and addiction

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Conflicts of interest

- I do not have any current affiliations with any for-profit or non for-profit organization.

- I was a founder member of the UK Adult ADHD Network (non-profit organization).
- I was a scientific advisor (2009-2011) for ADD-UK (user lead charity).
- Scientific advisor for the Cayman Islands Mental Health Commission.

Prevalence of ADHD in the adult

- 2.8% (1.8- 4.1) of adults (ages 18 to 44). (De Graaf et al, 2008)
  - Only a minority were treated
  - 21 days off a year more than workers without ADHD
- More common in men ? 1.46:1 (Cortese et al, 2015) 2.45:1 (Polanczyk et al, 2008)
  - However the chance of persistence over time is the same
  - Patterns of disease are slightly different, women are less impulsive and have less risky behaviours
- Aproximately 40 to 60% of children with ADHD will still fulfil criteria for the disorder at 18. (Sibley et al, 2017)

A bit of history…

- ADHD is not a new diagnosis:
- Sir George F Still- Some abnormal psychical conditions in children: the Goulstonian lectures. *Lancet*, 1902;1:1008-1012

  - Group of impulsive children
  - Genetic trait
  - Behaviour not accounted for by poor upbringing

1868-1941

First amphetamine trials

- The most striking change in behavior occurred in the school activities of many of these patients. There appeared a definite “drive” to accomplish as much as possible. Fifteen of the 30 children responded to Benzedrine by becoming distinctly subdued in their emotional responses. Clinically in all cases, this was an improvement from the social viewpoint.

(Bradley, Am. j. psych. 1937)

As a side note…

- Benzedrine was not made a prescription drug until the late 50s

- **Who Put the Benzadrine in Mrs Murphys Ovaltine? - Harry "The Hipster" Gibson (1944)**

What is ADHD?

- ADHD is a **neurodevelopmental condition** which can persist throughout the lifespan.

- Characterized by a **persistent and pervasive pattern of inattention and/or hyperactivity and impulsiveness**.

- Both **genetic** and **environmental** factors play an important role leading to alterations of **multiple circuits in the brain**.

Is ADHD a cultural construct?

- ADHD in the adult has been detected in all cultures studied and all continents.
- Prevalences vary, some cultures may be more tolerant to ADHD behaviours.
- Expectations of child behaviour vary in different educational paradigms.

DeGraaf and Fayad, 2017

A brief reflection

So if it is not new, why is it so prevalent now?

- Because ….modern life!.
- Only 12% of the people in the world could read and write in 1820, today the share has reversed: only 17% of the world population remains illiterate.
- Most countries require children to study at least 10 y. full time, with many developed countries requiring 14-16 years of school.
- Failure in school is linked to marginalization, early contact with drugs and poorer health outcomes.

What causes ADHD?

What causes ADHD?

- The small additive effect of a variety of genes.
    - Monozygotic twin correlation 0.7
    - Up to 1/3 of parents with an ADHD child will show symptoms of ADHD.
    - DNA variants in *SLC6A3*, *DRD4*, *DRD5*, *HTR1B*, *SLC6A4* and *SNAP25* → *4.2% of inheritance.*
- HIGHLY INHERITABLE
    - We just do not know exactly how…

What causes ADHD?

- A: Sufficient Evidence of a Causal Relationship
  - **No single risk factor met these criteria**
- B: Sufficient Evidence of a Temporal Association
  - **Premature birth**
- C: Limited or Suggestive Evidence
  - **Maternal smoking during pregnancy**
  - **Low birth weight**

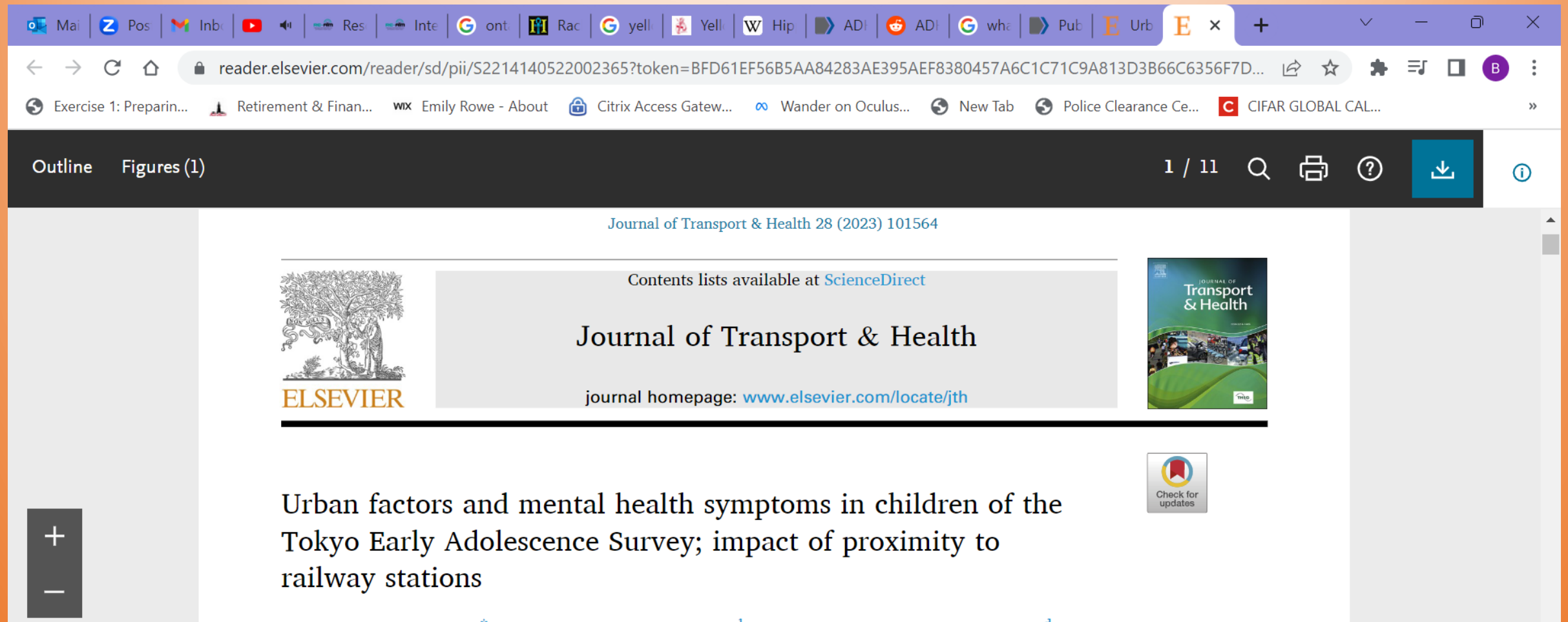
What causes ADHD?

- Prenatal Nicotine exposure. Small effect.
  - Parents under stress smoke more
  - Parents with ADHD smoke more
  - Aggressive parents smoke more
- Lead/mercury exposure :
  - Low exposure, evidence accumulating towards a small effect
  - High exposure, may account for 2%-3% of children with ADHD

Sciberras et al, 2017

What causes ADHD?

- Other environmental factors:



What does not cause ADHD?

- “faulty” parenting? No, but an aggressive childhood environment has an effect and parents with ADHD, may provide an unconventional environment.

- TV, videogames, electronic media?. Insufficient evidence. May worsen but is not clearly causative.

What do I look for if I suspect ADHD?

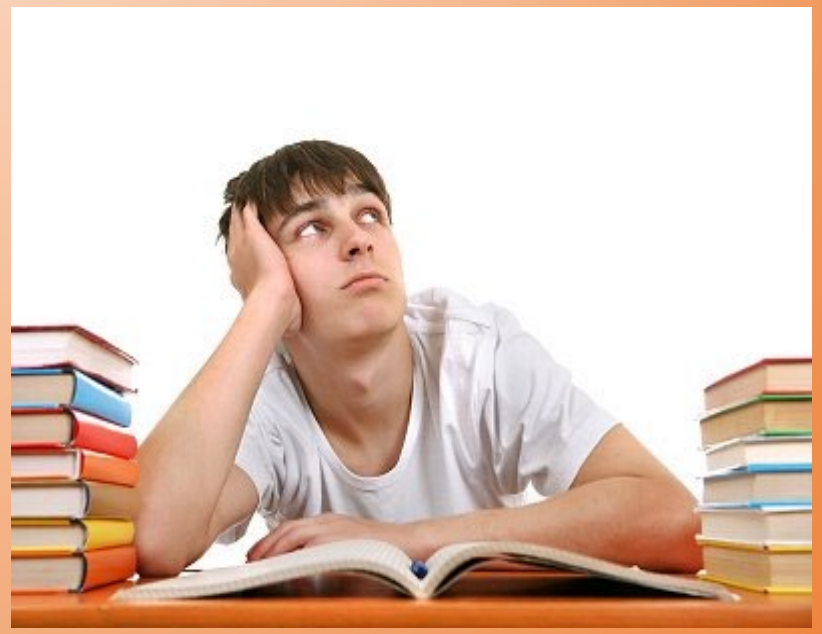
What do I look for?

1-Establish ADHD as a child:

- Examine symptoms in childhood
  - Ask for an external informant if possible, ask for previous medical notes
- Schooling (reports, letters)
  - Boys : exclusion, expulsion, “clown of the class”
  - Girls: talkative, daydreaming, interrupt class
- Early contact with drugs/petty crime
- Dyslexia/dyspraxia

What do I look for?

2-Observe current symptoms



What do I look for?

- Hyperactivity :
  - Fidgety?
  - Intolerance to inaction
  - Restlessness / inability to sit still in low stimulation situations.
  - Inappropriate or excessive activity or an internal feeling of restlessness or edginess.
  - Difficulty keeping quiet; talking out of turn.

What do I look for? …some tips

- Adults with ADHD are less hyperactive than children with ADHD
- Hyperactivity is not only physical but also psychological → internal restlessness
  - Feel “always on the go”, “like an engine can’t stop”, “can’t relax, always something going on in my brain”
- Low stimulus is perceived as a problem:
  - “having nothing to do it’s my worst nightmare”, “being locked up in a room, I explode”
- Also situations of high stimulus are a problem:
  - “I can’t go to the supermarket, so many colours and packages cannot choose anything”

What do I look for?

- Inattention:
  - Lack of attention to detail or carelessness
  - Inattention in tasks or activities the patient finds tedious.
  - Difficulty listening.
  - Failure to follow instructions.
  - Staring many tasks while having difficulty finishing them.
  - Poor organizational skills
  - Avoidance of, dislike of, or inability to expend sustained mental effort.

What do I look for? …some tips

- Some patients can cope well with detail if they are given enough time
  - They will report that they can get things done with accuracy but it takes them more time than other people and they become exhausted afterwards.
- Inattention is coloured by motivation.
  - If they are very motivated they can hyperconcentrate
  - Some patients can learn to get in and out of states of hyperfocusing by using certain techniques

What do I look for?

- Impulsivity:
  - Interrupting or intruding others.
  - Irritability, impatience and frustration.
  - Affective lability or hot temper.
  - Stress intolerance
  - Impulsivity or risk taking in activities.
  - Blurting out responses; poor social timing in dialogue.

What do I look for? … Some tips

- Risky activities with purported fast reward
  - Gambling/alcohol/drug use
  - Racing/risky driving
  - Unsafe sex/unwanted pregnancies
- Fast decisions with consequences
  - Short lived jobs
  - Marital/relationship problems
  - Crime

How do I ask for this information?

- Adults with ADHD can be poor historians
- Poor remote memory
- Lack of comparison for their symptoms (other siblings may also have ADHD)
- Lack of insight
- Self report may underestimate symptoms

How do I ask for this information?

- Situational questions:
  - **Do you go to the movies?** Watching a movie requires concentration but this can be difficult with other people around or f they are not engaged in the movie, it is also difficult to stand up and go.
  - **Do you have problems waiting?** Waiting rooms and waiting in a queue are difficult for these patients, they will report irritability and restlessness.
  - **What do you do when you have to attend a ceremony such as a wedding or a church event?** Quiet environments are difficult for these patients, they will report inability to sit still and need to go for a walk or find an excuse to be out of the building.

How do I ask for this information?

- **How are you a following instructions? Do you cook from recipes? Have you ever done an Ikea furniture piece ?** Following instructions is difficult for these patients, they will report doing these things but “in my own way, even if it takes me longer…”

- **Can you read a book?** Severe inattentive patients will not be able to read for long periods of time or do any activity that requires concentration without frequent interruptions.

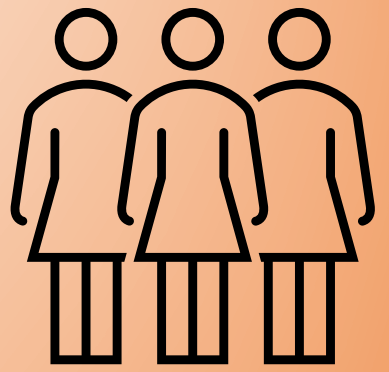
- **What do you do for a living?** Work, explore with detail, why did they choose that profession (they often change jobs or move to different fields).

How do I ask for this information?

- Patients with ADHD and high IQ tend to find jobs or situations that suit them, and in which they will perform well.
  - No deadlines-→ artistic jobs, self employed jobs
  - Jobs with pulses of activity--→ firemen, paramedics
  - Jobs that they are motivated to do

ADHD in women

- More inattention, less hyperactivity-→ daydreamers
- Impulsivity shows differently:
  - Unsafe sex
  - Unplanned pregnancy
  - Impulsive relationships
- There is a clear evolutionary trait against impulsivity in women
  - **This could be because impulsive women die because of exposure to risk**
  - **Impulsive men are seen as useful to society**



What do I look for?

3-Stablish continuity.

Symptoms **should continue** from childhood to adulthood without interruption (they are **not episodic**) with a general tendency to get better as the patient grows older.

However, also as the patient grows older the possibility of having trouble because of symptoms is greater, as adults have less support and more responsibilities than children.

4-Obtain collateral Hx. Relatives, close friends, partners.

Some tools to do this

Wender-Utah rating scale

- http://www1.psykiatristod.se/Global/Psykiatristod/Bilagor/ADHD/WURS_ADHD_.pdf
- The patient rates a total of 61 items (0-4) related to hyperactivity in childhood.
- Easy to complete (20 minutes maximum)
- Easy to score, cut off 46.
- Free, can be downloaded in the internet

	As a child I was (or had):	not at all or very slightly	mildly	moder-ately	quite a bit	very much
1	active restless always on the go	0	1	2	3	4
2	afraid of things	0	1	2	3	4
3	concentration problems easily distracted	0	1	2	3	4
4	anxious worrying	0	1	2	3	4
5	nervous fidgety	0	1	2	3	4
6	inattentive daydreaming	0	1	2	3	4
7	hot- or short-tempered low boiling point	0	1	2	3	4
8	shy sensitive	0	1	2	3	4
9	temper outbursts tantrums	0	1	2	3	4
10	trouble with stick-to-it-tiveness not following through. failing to finish things started	0	1	2	3	4
11	stubborn strong-willed	0	1	2	3	4
12	sad or blue depressed unhappy	0	1	2	3	4
13	incautious. dare-devilish involved in pranks	0	1	2	3	4

Instruments for assessment

- DIVA v.2

A1

Do you often fail to give close attention to detail, or do you make careless mistakes in your work or during other activities? *And how was that during childhood?*

Examples during adulthood:

- ❑ Makes careless mistakes
- ❑ Works slowly to avoid mistakes
- ❑ Does not read instructions carefully
- ❑ Difficulty working in a detailed way
- ❑ Too much time needed to complete detailed tasks
- ❑ Gets easily bogged down by details
- ❑ Works too quickly and therefore makes mistakes
- ❑ Other:

Symptom present: ❑ Yes / ❑ No

Examples during childhood:

- ❑ Careless mistakes in schoolwork
- ❑ Mistakes made by not reading questions properly
- ❑ Leaves questions unanswered by not reading them properly
- ❑ Leaves the reverse side of a test unanswered
- ❑ Others comment about careless work
- ❑ Not checking the answers in homework
- ❑ Too much time needed to complete detailed tasks
- ❑ Other:

Symptom present: ❑ Yes / ❑ No

Instruments for assessment : lists of symptoms

Adult ADHD checklist:

Table 2. BAP extended adults symptoms checklist.

BAP extended adult symptom checklist
1. Lack of attention to detail or carelessness
2. Inattention in tasks or activities the patient finds tedious
3. Difficulty listening
4. Failure to follow instructions
5. Starting many tasks while having difficulty finishing them
6. Poor organisational skills
7. Avoidance of, dislike of, or inability to expend sustained mental effort
8. Losing or misplacing things
9. Ready distractibility
10. Forgetfulness
11. Fidgeting
12. Restlessness or an inability to sit still in low-stimulation situations
13. Inappropriate or excessive activity or an internal feeling of restlessness or edginess
14. Difficulty keeping quiet; talking out of turn
15. Unfocused mental activity; difficulty turning thoughts off
16. Blurting out responses; poor social timing in dialogue
17. Trouble waiting if there is nothing to do
18. Interrupting or intruding on others
19. Irritability, impatience or frustration
20. Affective lability or hot temper

Functional impairment

- Weiss Functional Impairment Scale

WEISS FUNCTIONAL IMPAIRMENT RATING SCALE – SELF REPORT (WFIRS-S)

Work: ☐ Full time ☐ Part time ☐ Other _____ School: ☐ Full time ☐ Part time

Circle the number for the rating that best describes how your emotional or behavioural problems have affected each item in the last month.

		Never or not at all	Sometimes or somewhat	Often or much	Very often or very much	n/a
A	**FAMILY**					
1	Having problems with family	0	1	2	3	n/a
2	Having problems with spouse/partner	0	1	2	3	n/a
3	Relying on others to do things for you	0	1	2	3	n/a
4	Causing fighting in the family	0	1	2	3	n/a
5	Makes it hard for the family to have fun together	0	1	2	3	n/a
6	Problems taking care of your family	0	1	2	3	n/a
7	Problems balancing your needs against those of your family	0	1	2	3	n/
8	Problems losing control with family	0	1	2	3	n/a
B	**WORK**					
1	Problems performing required duties	0	1	2	3	n/a
2	Problems with getting your work done efficiently	0	1	2	3	n/a
3	Problems with your supervisor	0	1	2	3	n/a
4	Problems keeping a job	0	1	2	3	n/a
5	Getting fired from work	0	1	2	3	n/a
6	Problems working in a team	0	1	2	3	n/a
7	Problems with your attendance	0	1	2	3	n/a
8	Problems with being late	0	1	2	3	n/a

Comorbidity

- Comorbidity is common in ADHD
- In fact, ADHD is a risk factor for almost every other mental health diagnosis
- 5-fold increase in any mood disorder, 4-fold in any anxiety disorder and 7-fold increase in drug or alcohol dependence
- Patients with ADHD should be screened for other comorbidities
- Patients with ADHD and substance abuse should receive treatment for both diagnosis.

ADHD and comorbid disorders

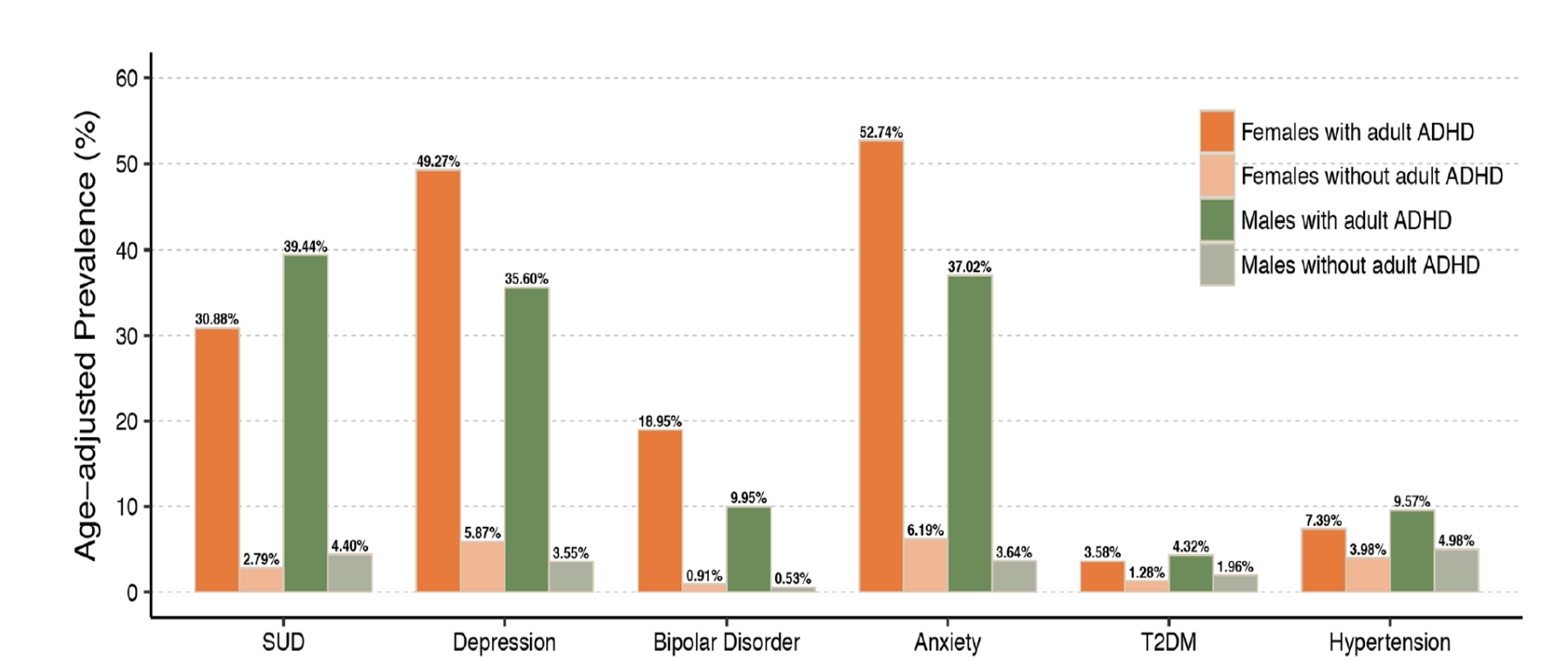


Fig 1. Age-adjusted prevalence estimates of psychiatric and metabolic conditions by sex and adult ADHD status in 5,551,807 individuals aged 18 to 64.
Adult ADHD and comorbid conditions were assessed between age 18 and 64.

T2DM-Type 2 diabetes.

Chen et al, 2018

ADHD and Substance abuse

- ¼ of adults with drug misuse will have ADHD (Wilens et al, 2011)
- Polysubstance misuse is linked to number of ADHD symptoms
- If the patient is in full remission by age 18, risk of substance misuse is equivalent to non ADHD youth
- Treatment with stimulants in childhood does not predispose to drug use in adulthood
- **Treatment of ADHD in the adult does not "magically" stop dependency or abuse of substances**

ADHD and Substance abuse

ADHD prevalence by type of SUD:

- 19 % of cocaine SUD
- 18% opioid SUD
- 25 % alcohol SUD

- Interpret with caution studies are low quality and heterogeneous in nature.

Rohner et al 2023

ADHD and Substance abuse

- Greater severity of both disorders.
- Earlier age of onset
- Higher likelihood of polydrug-abuse
- Higher likelihood suicidal behaviors
- More hospitalizations
- Lower treatment adherence

Behavioural addictions

- Gambling
- Gaming disorder

Effects of pharmacological treatment

- Mild to moderate effect of high dose stimulants in Comorbid ADHD and SUD
- Non-stimulant medications (atomoxetine) are recommended as less risk of misuse.
- **Both atomoxetine and stimulant drugs seem to have scarce impact on addictive behavior, despite the improvement in ADHD symptomatology**

Talking to patients with ADHD about ADHD

How do I talk to an ADHD patient?

- Repeat important information
- Ask patient to bring someone they trust if possible
- Offer information in different formats (leaflets, websites)
- Offer something to fidget with (if patient is fidgety)
- Stir interview to important points if patient diverges
- Keep interviews short.
- Send reminders for appointments often.
- Be flexible

Talking to patients with ADHD: Compensatory mechanisms

- They write everything down
- They bring a friend/relative
- They use technology (reminders, e-agendas)
- They marry somebody obsessional
- They work in environments were there are no clear deadlines or where work is not on a schedule.

IDENTIFY AND ENCOURAGE COMPENSATORY MECHANISMS AS MUCH AS POSSIBLE

What psychological therapies are available and what is the evidence?

- Mostly **CBT** based
- Group and/or 1:1 interventions
- Different approaches, some include psychoeducation and skill learning some focus on straight CBT techniques.
- Effect size is good for self-reported symptoms, general global impression and symptoms of anxiety and depression. BUT quality of evidence is low.


Psychological therapy in ADHD, a brief summary

What psychological therapies are available and what is the evidence?

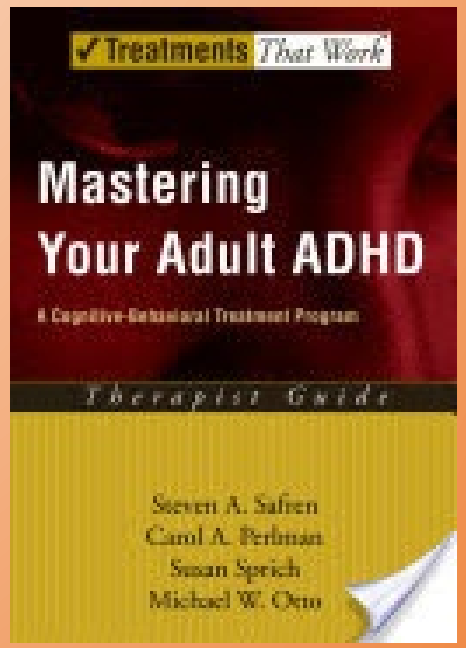
- Two different CBT programs have been found effective in RCTs:
  - **C-BTP** (Safren et al, 2005)
  - **R&R2ADHD** (Emillsson et al, 2011)

CBT for ADHD in the adult: R&R2ADHD

- 22% drop out rate
- No difference in GGI by independent rater
- Positive outcomes in self ratings with moderate-large effect sizes
- Perhaps better for youth with criminal records

CBT for ADHD in the adult

- RCTs are small (<30 in each group)
- All studies performed in adults with medication at the same time
- Inclusion criteria IQ>85-90
- Most comorbidities excluded
- Both interventions are manualized:
  - https://www.cognitivecentre.ca/rr2adhd



Mastering Your Adult ADHD: A Cognitive-Behavioral Treatment Program
Steven A. Safren, Carol A. Perlman, Susan Sprich, Michael W. Otto
Oxford University Press, Jun 16, 2005 -

DBT/mindfulness/skills training for ADHD in the adult

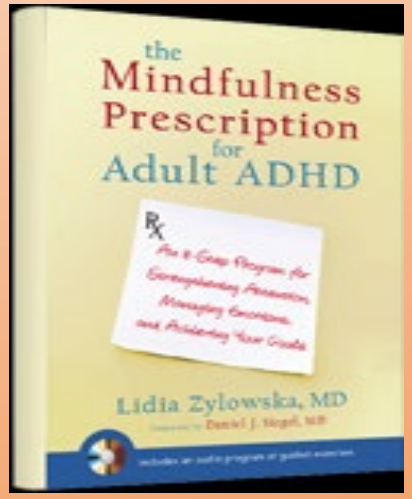
- One positive RCT-group setting (n<30) (Hirvikoski et al, 2011)
- 14 sessions:
  - Psychoeducation about ADHD
  - Description of cognitive dysfunctions in ADHD and introduction to mindfulness
  - Mindfulness training
  - Behaviour analysis
  - Regulation of emotion
  - Psychoeducation about medication
  - Stress management
  - Impulse control

DBT/mindfulness/skills training for ADHD in the adult

- 70% of patients in this study had comorbidity
- 45% were unemployed
- Included patients with wider range of IQ (70 onwards)
- Included patients with a history off substance abuse
- 32% reported 30% reduction in symptoms of ADHD (self-report)
- No improvement on comorbidity
- 20 % drop out
- Manual exists …. in German: Hesslinger, B., Philipsen, A., & Richter, H. (2004). Psychotherapie der ADHS imErwachsenenalter: Ein Arbeitsbuch. Göttingen, Germany: Hogrefe Verlag GmbH& Co. KG.

Mindfulness for ADHD

- Modest decrease in the three main symptom domains (small pilot study, n<30) (Zylowska et al, 2008)
- Improve positive perception of self
- Relatively small drop out :16%
- Modest improvement in comorbidity (no improvement in younger patients).
- Self-help book available:



Challenges in psychological interventions

- ADHD patients may require boosters in between sessions
- Patients may struggle with hyperactivity in mindfulness sessions
- Depression and comorbid physical symptoms were perceived as important barriers to complete therapy

Acceptability of psychological interventions

- Patients benefit from talking with other patients
- Informal setting was perceived as better
- Involvement of family helped with attendance and increased benefit
- Frequent sessions (weekly at least) were perceived as more helpful
- Patients wanted some support in between sessions and benefited from extra materials (Cd's, folders with written techniques)

Psychological interventions vs. medication

- Highly structured group intervention did not outperform individual treatment as usual.
- Psychological interventions resulted in better outcomes during a 1-year period when combined with methylphenidate as compared with placebo.
- Medication compliance increased in patients receiving psychotherapy.

(Phillipsen et al , JAMA, 2015)

Questions please!!!!

- Big doubt ----→ Big illumination
- Small doubt--→ Small illumination
- No doubt-----→ No illumination