ADHD in adulthood: symptoms, comorbidity, course and treatment

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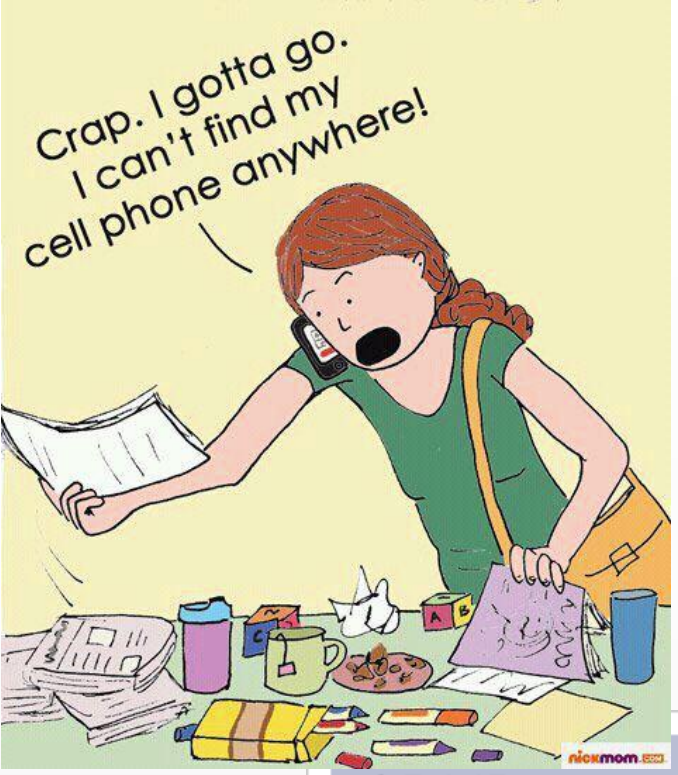
OUTLINE

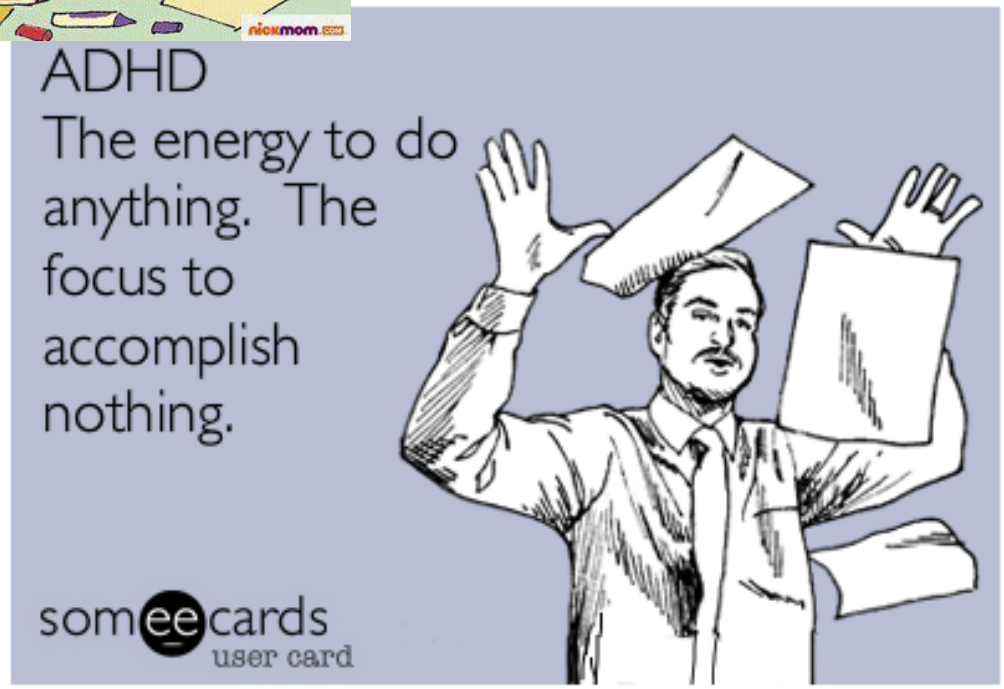
1. What is attention-deficit hyperactivity disorder (ADHD)?
2. Diagnostic criteria, epidemiology
3. Clinical manifestation: childhood vs. adulthood
4. Differential-diagnostics, comorbidity
5. Etiology, neurobiology
6. Therapy

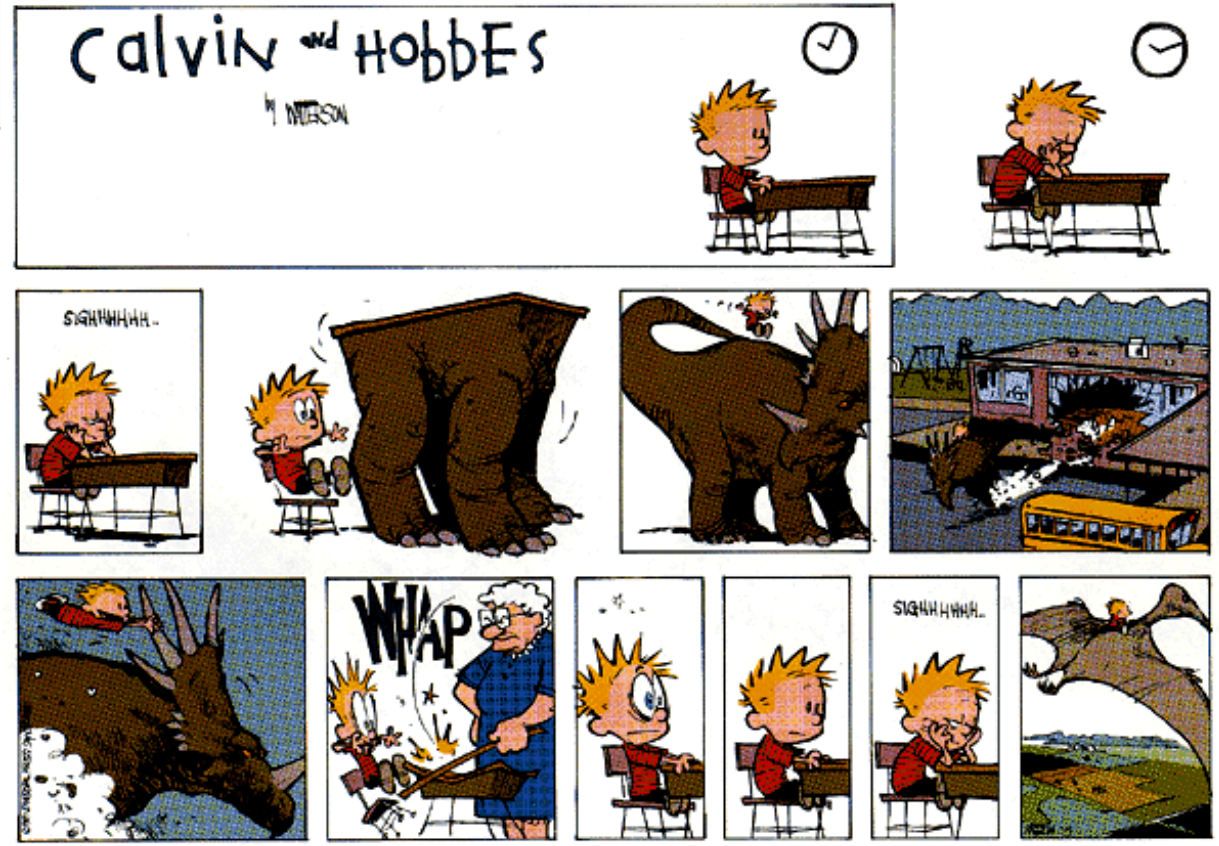

Crap. I gotta go.
I can't find my
cell phone anywhere!
nickmom.com


DO YOU HAVE AN IDEA FOR YOUR STORY YET?
NO, I'M WAITING FOR INSPIRATION.


YOU CANT JUST TURN ON CREATIVITY LIKE A FAUCET. YOU HAVE TO BE IN THE RIGHT MOOD.


WHAT MOOD IS THAT?
LAST-MINUTE PANIC.


ADHD
The energy to do anything. The focus to accomplish nothing.
someecards
user card


Calvin and Hobbes
SIGHHHHHH..
WHAP
SIGHHHHHH..

Attention-deficit hyperactivity disorder

- A neurodevelopmental disorder with dysfunction in:
  - sustained attention and/or switching focus
  - activity control
  - mood/impulse control
  - executive functions (planning, prioritization, time management)
- Childhood onset (<12 years), but 30-60% persist to adulthood
- Easy to manage, but frequently over- and underdiagnosed
- Treatment of ADHD may prevent substance use problems and deliquent behavior

DSM-5 diagnostic criteria of adult ADHD

A. Persistent pattern of inattention and/or hyperactivity-impulsivity that interferes with functioning or development (5+ symptoms)

B. Some symptoms could be observed before age of 12 years

C. Several symptoms are present in multiple settings (eg. school, workplace, home)

D. Symptoms clearly interfere with functioning or development

E. Symptoms are not better explained by other mental disorder

DSM-5 diagnostic criteria: Inattention

1. Fails to give close attention to details, makes careless mistakes
2. Has trouble in sustaining attention over time
3. Does not seem to listen when spoken to directly
4. Fails to finish chores, works, tasks, has trouble in following instructions
5. Has difficulties in organizing tasks or activities
6. Avoid or dislikes tasks that require mental effort
7. Often loses necessary things
8. Is often distracted
9. Is often forgetful in daily activities

DSM-5 diagnostic criteria: Hyperactivity/Impulsivity

1. Often fidgets with or taps hands or feet, or squirms in seat
2. Often leaves seat in situations when remaining seated is expected
3. Children: runs around or climbs when inappropriate, Adults: restless
4. Often unable to play or take part in leisure activities quietly
5. Is often "on the go" acting as if "driven by a motor"
6. Talks excessively
7. Often blurts out an answer before a question has been completed
8. Often has trouble waiting his/her turn
9. Often interrupts or intrudes on others

Epidemiology

- Presentations:
  - Predominantly inattentive
  - Predominantly hyperactive-impulsive
  - **Combined (most prevalent)**
- Prevalence: childhood: 5-10%, adulthood: 1.4-4% (Bitter et al, 2010)
- Male-female ratio: childhood 3:1, adult: 3:2
- Hyperactivity decreases by age, but inattention becomes increasingly impairing in adulthood (dysfunction may occur in adulthood)
- Untreated ADHD is a risk factor for substance use, mood and personality disorders, as well as other poor lifestyle choices

Children vs adults: Inattention

Children:

- Careless mistakes in homework or tests
- Doesn’t listen when spoken to directly
- Loses/lefts home books, notebooks or other study materials
- Procrastinate tasks, has to be urged
- Frequently daydreams, distractible
- Easily bored, cannot engage in games for long time, keeps switching between them
- Has difficulties in following instructions

Adults:

- Can’t read books, keeps being distracted
- Unable to organize tasks, things or making priorities
- Cannot manage time, often procrastinate and misses deadlines
- Often doing multiple tasks at once, but cannot complete them
- Forgetful, „bad listener”, cannot follow others in conversations
- Getting lost easily in tasks and has trouble in making breaks or moving on to another

Children vs adults: Hyperactivity

Children:

- Talks excessively
- Unable to sit still, squirms, fidgets
- Runs around or climbs when not appropriate
- Often excessively noisy
- Moving around constantly, cannot play quietly

Adults:

- Talks excessively
- Feels annoyed by sitting still
- Prefers physically active jobs
- Feels restless, cannot relax
- Needs to do something all the time

Children vs adults: Impulsivity and unstable emotions

Children:

- Tells the answers before question is finished
- Hates waiting, impatient always wants to be first
- Interrupts others frequently
- Temper outbursts, difficulties in stopping tantrums
- Easily frustrated, overly sensitive for perceived injustice

Adults:

- Short tempered, with poor self-control often says rude or inappropriate comments
- Acts before thinking about consequences, has difficulties in planning ahead
- Engages in reckless, risky behaviors
- Has addictive tendencies
- Low frustration tolerance, loses motivations easily
- Sensitive to criticisim, has low self-esteem
- Frequent mood swings

Children vs adults: typical impairments

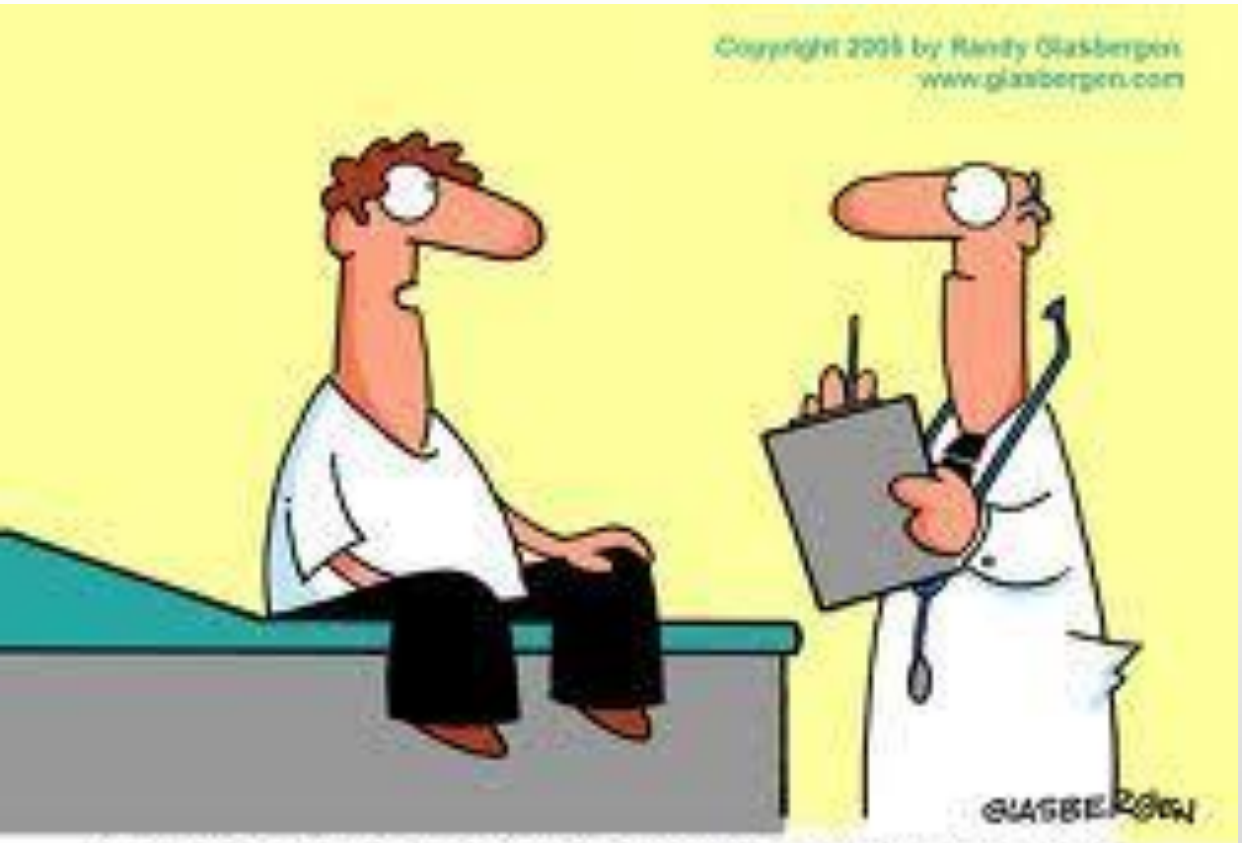
Children:

- Hyperactivity is more disturbing
- Issues with making friends, being outcast, sensitivity to peer pressure
- Loss of confidence and self-esteem
- Academic underachievement
- Poor, impulsive decisions, risky behavior, substance use problems
- Problems in personality development

Adults:

- Attention-deficit is more impairing
- Marital and interpersonal problems (divorce rate: 1.5-2.5!)
- Difficulties in career, frequent job changes, lower socio-economic status
- Legal or health problems due to impulsive behaviors, higher rate of traffic accidents
- Poor mental and medical health status, higher mortality rates

Differentialdiagnostics and comorbidity

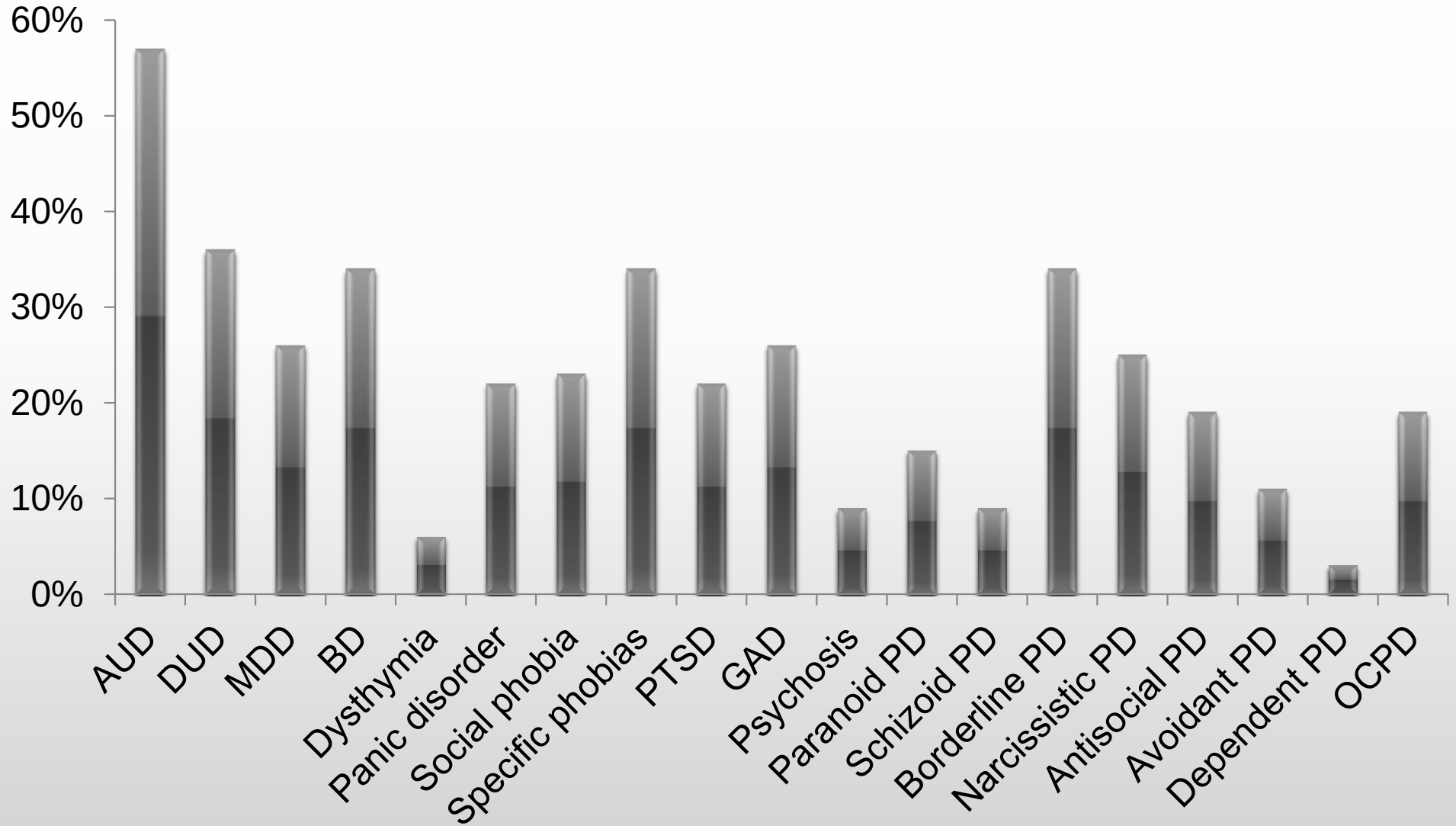


"I already diagnosed myself on the Internet. I'm only here for a second opinion."

Comorbidity

- Psychiatric comorbidity is rather a rule than an exception of it in adult ADHD (60-70% lifetime prevalence)
- Most commonly: Major depressive disorder (MDD), bipolar disorders (BD), borderline personality disorder (BPD), substance use disorder (SUD), anxiety disorders
- It complicates the diagnosis, but effective treatment require proper assessment and management of comorbid disorders as well

Psychiatric comorbidity in adult ADHD: Results from the NESARC survey

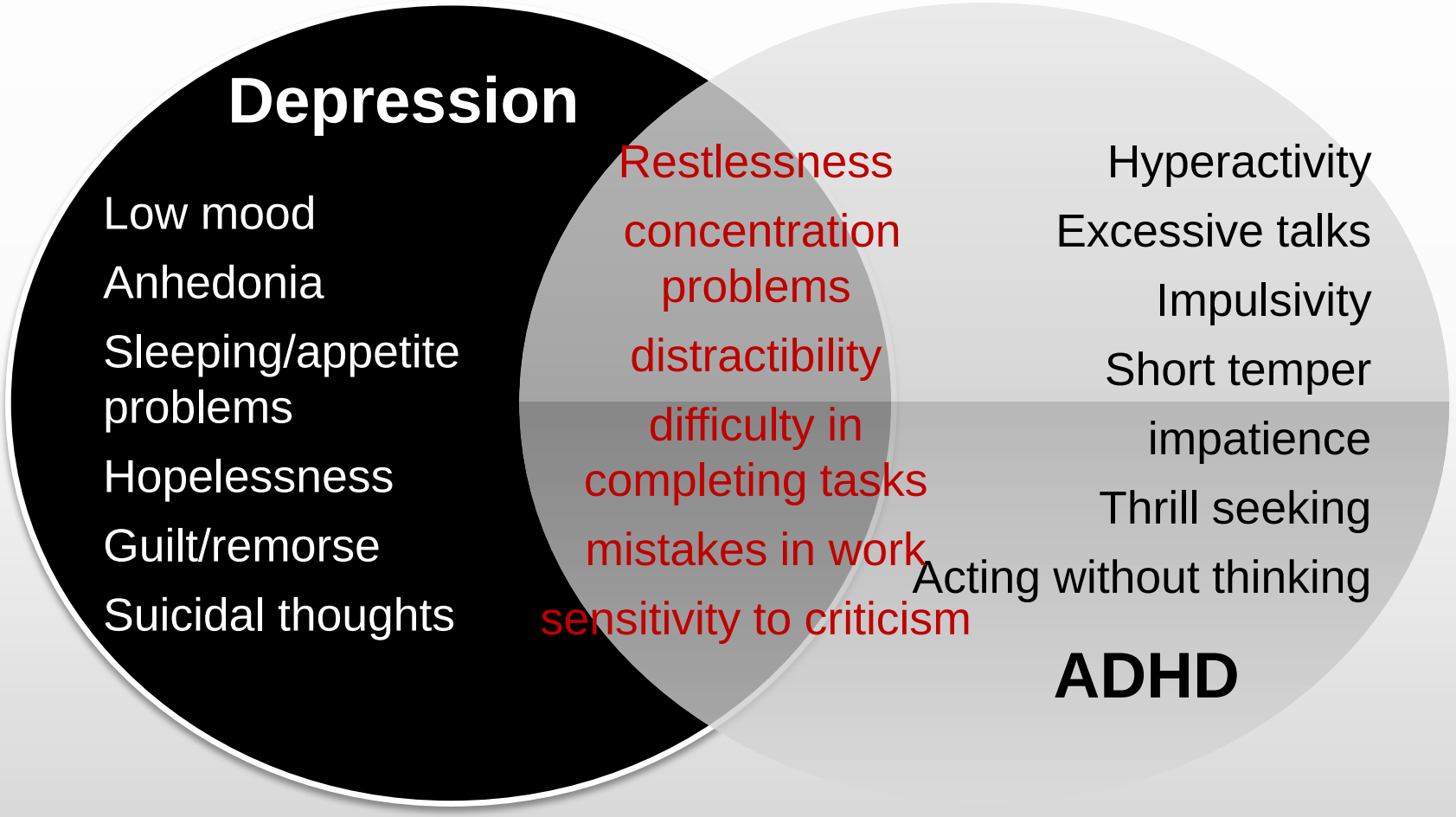


Bernardi et al, Psychological Medicine, 2012

Differential diagnostics

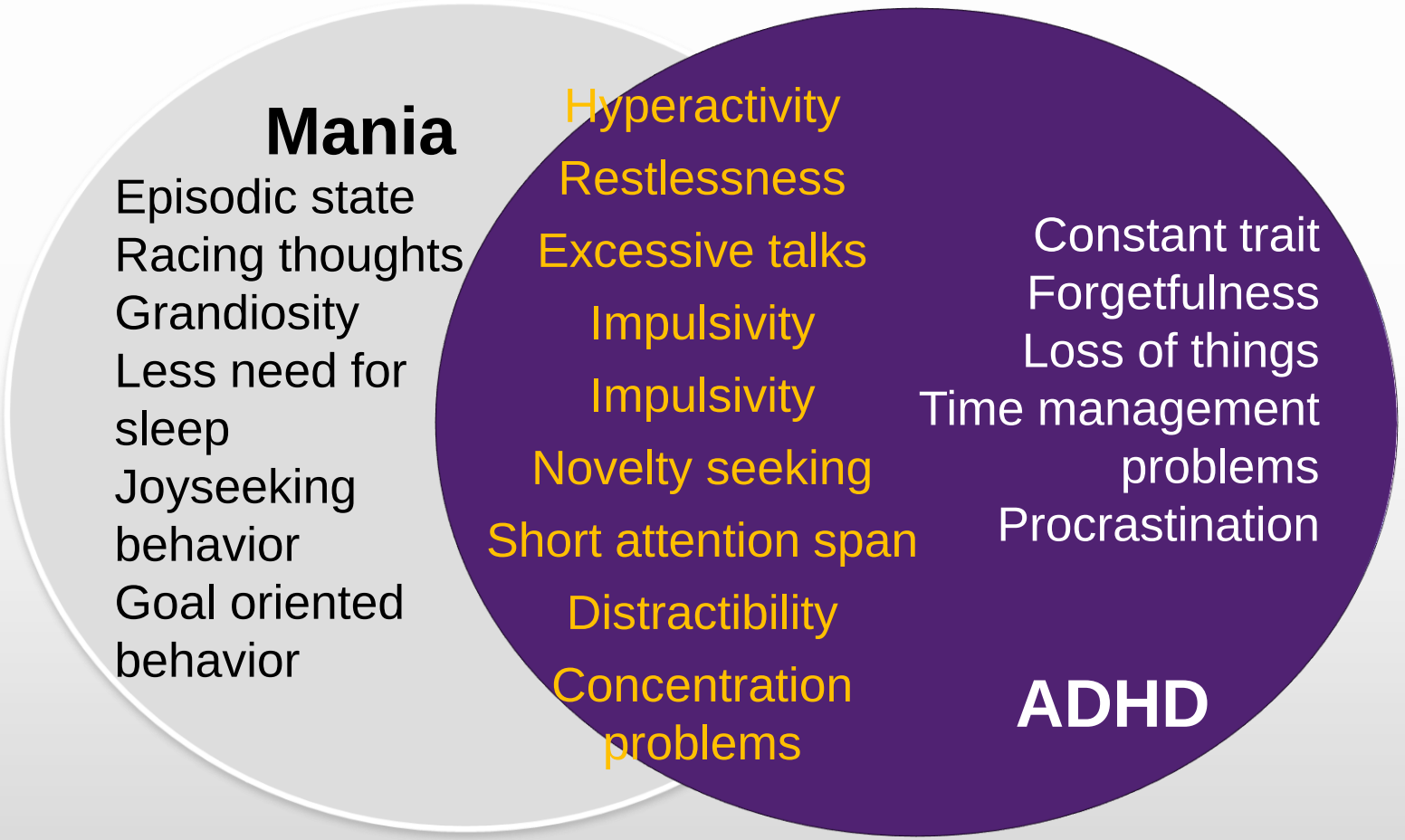
- Somatic conditions: metabolical, endocrinological, neurological diseases, malnutrition
- Psychiatric disorders: mood, anxiety, substance use disorders, personality disorders with increased impulsivity (cluster B), sleeping disorders, schizophrenia (train attention-deficit)
- Thorough assessment of both physical and psychiatric symptoms needs to be performed, with great emphasis on the longitudnal picture (onset, course, temporal relationship of symptoms)
- **IMPORTANT!** Because of the recall bias, longitudinal information should be based on multiple sources (parental interview or school reports as well)

Symptoms of ADHD and depressive episode



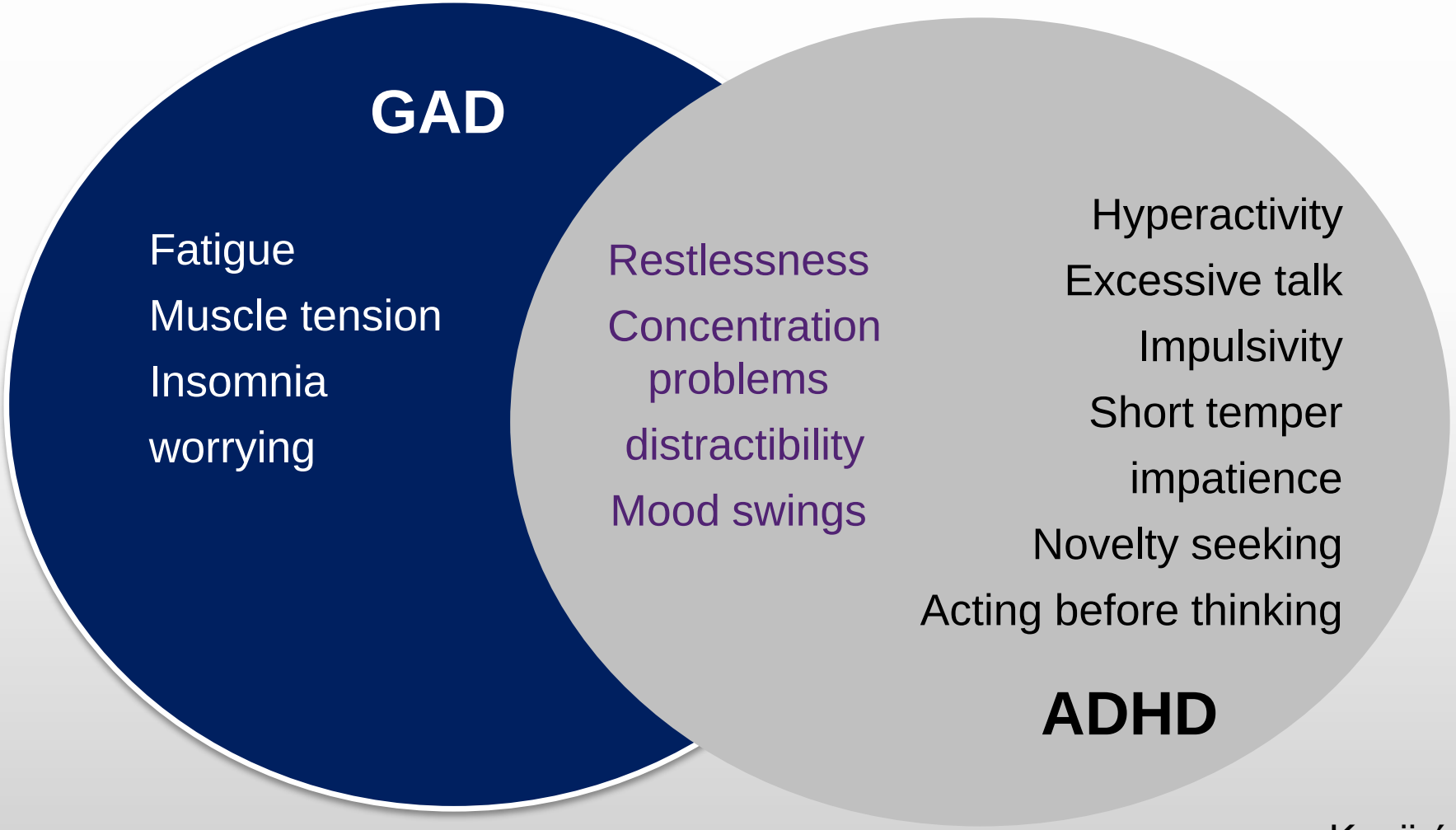
Kooij et al J Atten Disord 2012; 16(5 Suppl) 3S-19S

Symptoms of ADHD and manic episode



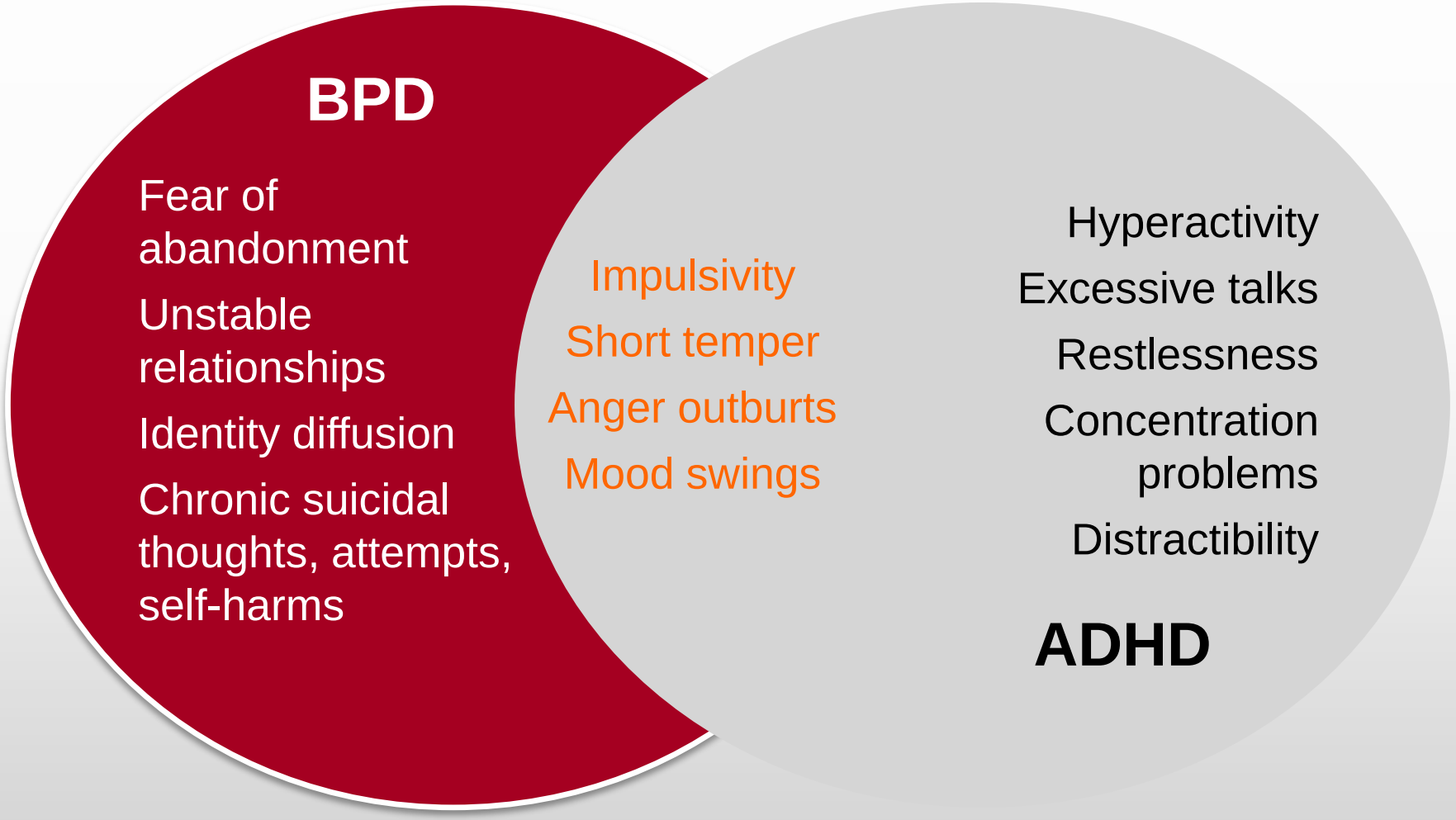
Klassen L.J. és mtsai, Journal of Affective Disorders, 2010

Symptoms of ADHD and Generalized Anxiety Disorder



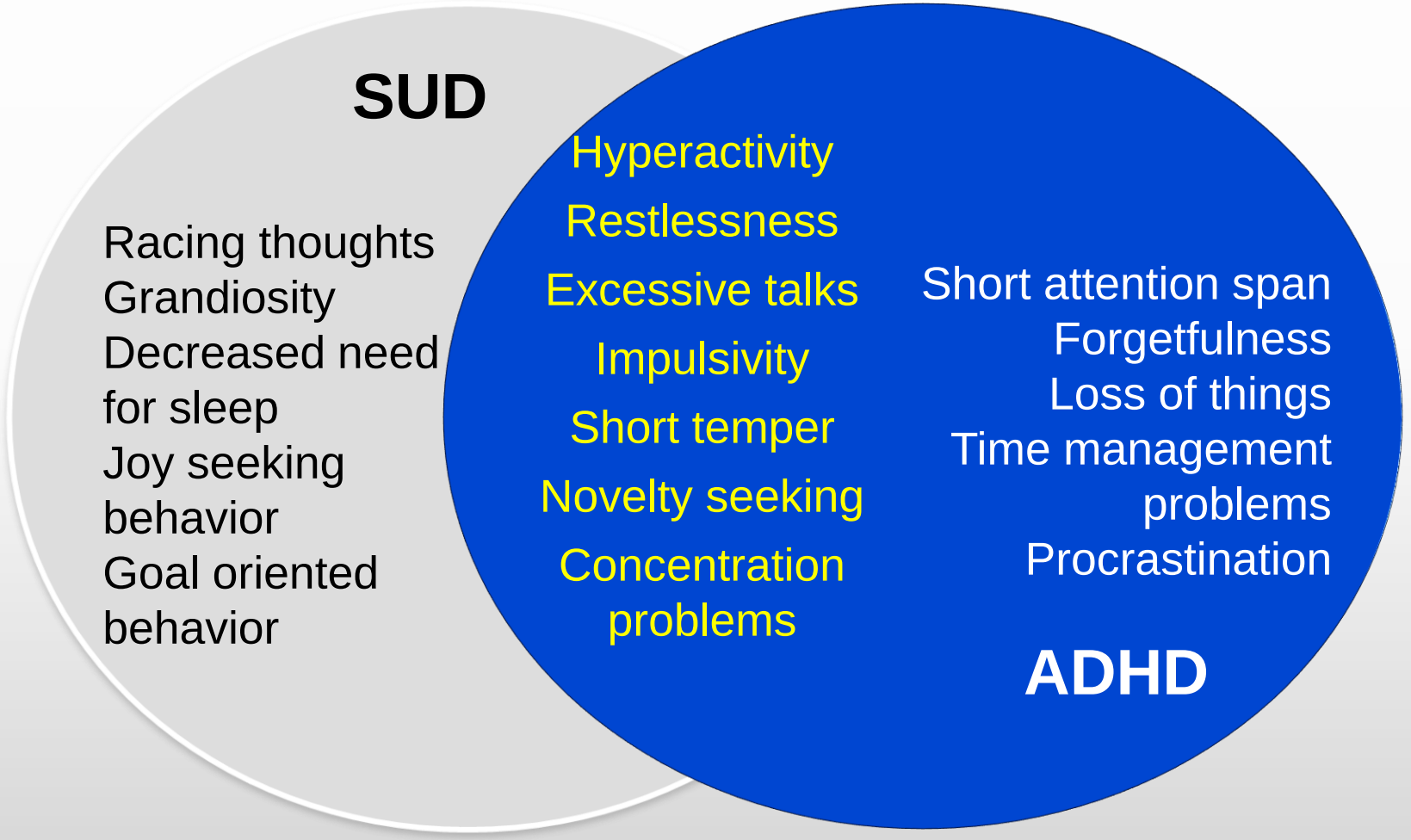
Kooij és mtai J Atten Disord 2012

Symptoms of ADHD and borderline personality disorder



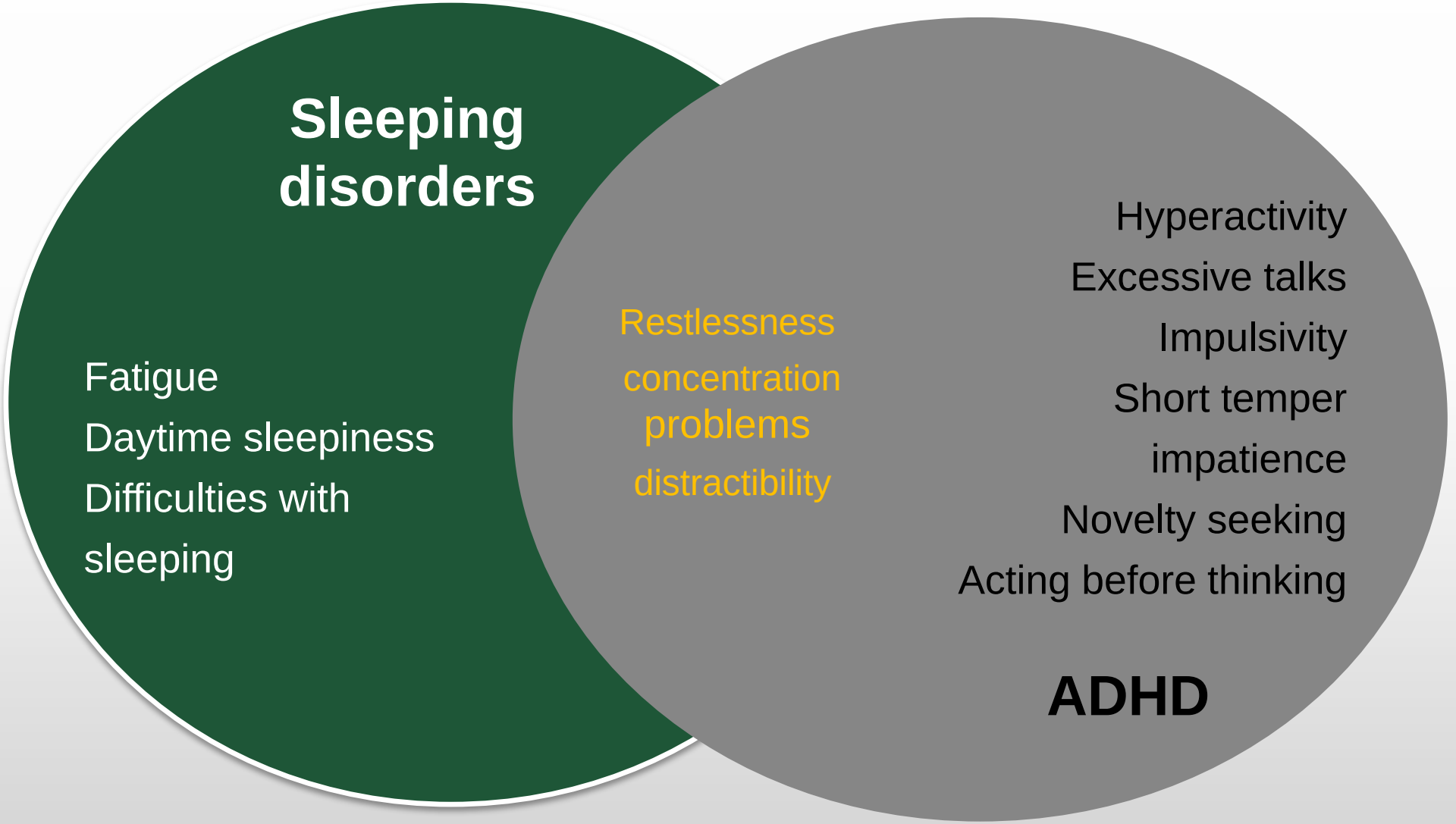
Kooij és mtai J Atten Disord 2012

Symptoms of ADHD and substance use disorders (SUD)



Klassen L.J. és mtsai, Journal of Affective Disorders, 2010

Symptoms of ADHD and sleeping disorders



Kooij és mtai J Atten Disord 2012

Etiology, neurobiology

- Multifactorial disorder: genetic and environmental factors
- Environmental factors: maternal smoking, perinatal adversities
- Genetics:
  - aggregates in families
  - polygenic inheritance
  - heritability: childhood 60-70%, adult 30-50%
  - DAT, DRD4, DRD1, CDH13
  - Pathway analyses: RNA signal transduction, neurodevelopment, axon growth

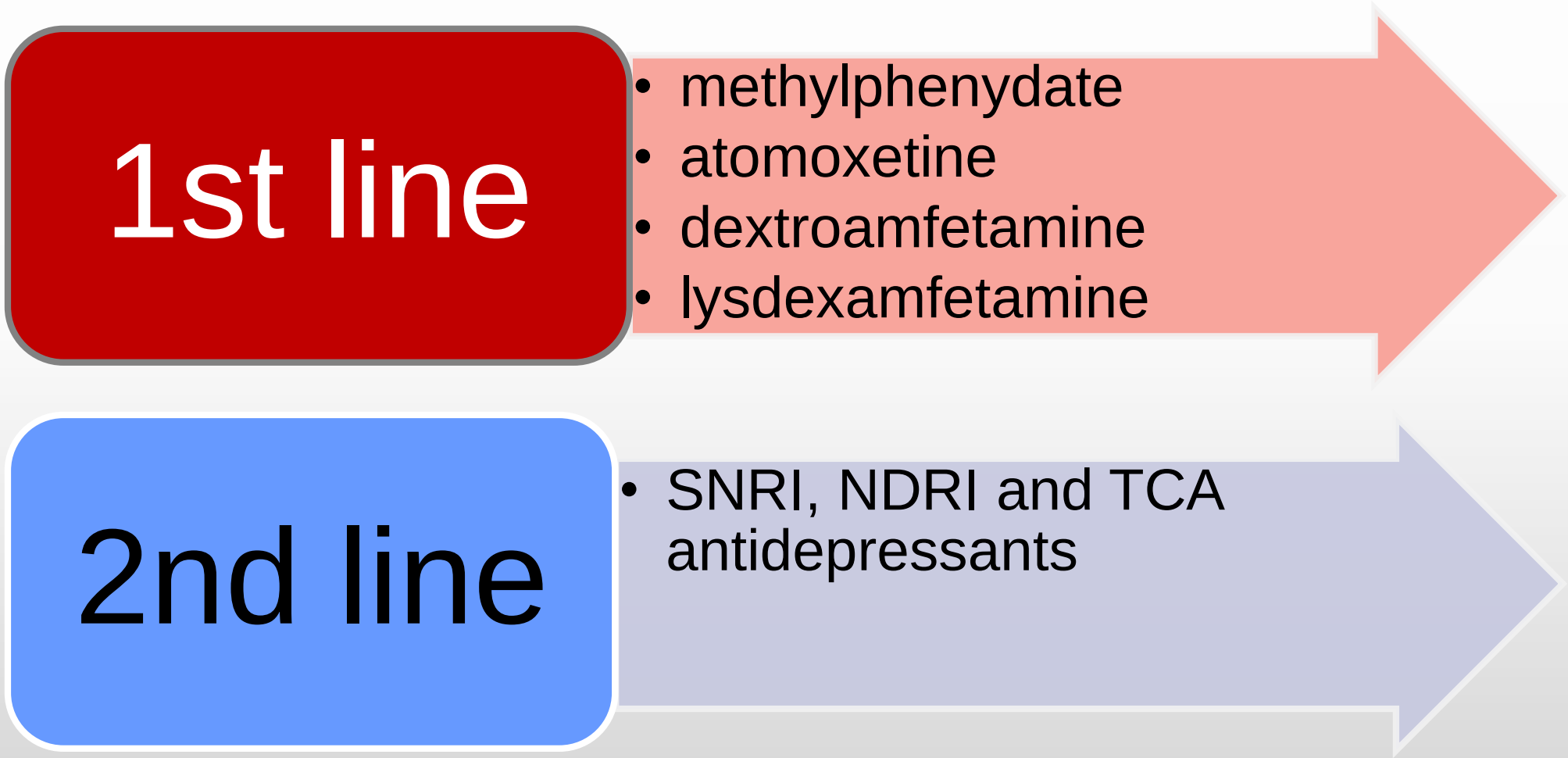
Neurobiology of ADHD

- Neuronal networks involved in executive functions: orbitofrontal and dorsolateral prefrontal circuits
- Basal ganglia: striatum, nucleus caudatus, putamen, globus pallidus
- Lower activity of prefrontal dopaminergic and noradrenergic transmission is presumed, based on the mechanism of action of the effective meds

Treatment of adult ADHD

- Complex therapeutic approach is advised, but pharmacotherapy has utmost importance for adult patients
- Medications: first and second line drugs
- Psychotherapy: cognitive-behaviortherapy, and mindfulness-based cognitive therapy
- Other complementary therapies are not supported by evidence

Medications for adult ADHD



First line medicines

- Mechanism of actions mean dopamine and/or noradrenaline reuptake inhibitor psychostimulants (methylphenydate, dextroamfetamine, lysdexamfetamine), and norandrenaline reuptake inhibitor non-stimulant (atomoxetine)

- Their therapeutic effect is based on the activation of the prefrontal neuronal circuits that are responsible for executive functions, improving attention, work memory while decreasing novelty seeking, impulsivity and hyperactivity.

- Therapeutic effect of psychostimulants develops quickly, whereas effect of atomoxetine builds-up slowly (4-12 weeks), but it may persists weeks after discontinuation

First line medicines: side effects

- If titrated cautiously, then side effects are usually mild (most commonly: loss of appetite, dry mouth, loss of thirst, tachycardia, increased blood pressure, less likely: insomnia, depression)

- Careful screening for potential cardiac conditions helps minimizing chance for potentially fatal arrythmias

- Psychostimulants are controlled substances, their abuse potential differs (methylphenydate<lysdexamfetamine<dextroamfetamine), with variably severe withdrawal symptoms (in therapeutic doses usually sleepiness, fatigue, lower blood pressure), whereas atomoxetine has no addictive potential

- In case of ADHD with comorbid SUD atomoxetine should be the preferred choice

Second line medicines: antidepressants

- Noradrenalin and dopamin reuptake inhibitor meds (bupropion, reboxetine, venlafaxine, certain TCA)
- Not indicated for treatment of ADHD per se, but could be useful in case with comorbid anxiety or mood disorders, or patients with SUD
- Could be administered in combination with methylphenydate or atomoxetine, but their interactions should be monitored carefully

Psychotherapy

- Primary goals are to improve the weak executive functions
- Secondary goals are to moderate the impairment related to ADHD and to treat potential comorbid anxiety or mood problems
- CBT: group therapy-based, 12 sessions, with 1 session per week and homework
- MBCT: 8 step meditation training in group session and individual cognitive therapy
- Effective, but most of the time needs to be combined with medical therapy

Summary

- Adult ADHD is still relatively underdiagnosed, although quite easily manageable disorder
- The medical therapy with first line drugs results in significant improvement in most cases, therefore it should be administered for adults
- Psychotherapy could also be provided for cases with contraindicated medical therapy, or to enhance the therapeutic effect in combination with meds
- Careful examination and consideration of patients' medical history during drug selection and thorough screening for side effects help preventing serious side effects and enables safe treatment in most cases
- However, failure to treat ADHD elevates the patients' risk for substance use disorder, risk-taking behavior, marital, social and occupational impairments, and decrease the efficacy of treating the comorbid psychistric disorders

Thank your for your (sustained) attention!