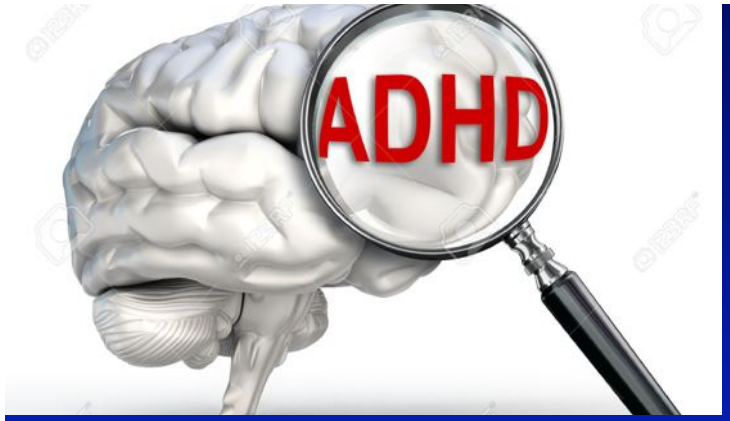

Le TDAH de l'adulte et ses complications, diagnostiquer et traiter : un enjeu de santé publique

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Journée inter associative de la FFA, Paris, 2 Décembre 2020

TDAH: Généralités

- Trouble neuro-comportemental le plus fréquent chez l'enfant (5,29%) (Polanczyk G et Al. 2007)
- Chronicisation: dans près de 66% des cas le trouble reste présent à l'âge adulte (Turgay et Al. 2012)
- Trouble très sous diagnostiqué surtout chez l'adulte (Ginsberg et Al. 2014)
- Souvent comorbide (Wilens et al. 2009)
- It's treatable!
  - (ttt pharmacologiques et non pharma)

TDAH: Généralités

- Le TDAH est un trouble neurodéveloppemental **commun**, **complexe** et **multifactoriel** caractérisé pardes symptômes **d'inattention, d'hyperactivité et/ou d'impulsivité**
- Le TDAH est **hétérogène**, tant dans sa présentation que dans sa sévérité, en partie du fait d'un pourcentage élevé de comorbidités psy associées, ce qui complique d'autant plus son **diagnostic**, son **traitement** et sa **rémission**.
- L'Usage de substance (SUD) est une comorbidité très fréquente chez les adolescents et les adultes.

TDAH

TRASTORNO
DÉFICIT
ATENCIÓN
HIPERACTIVIDAD

1

2

Es un trastorno que afecta a distintas regiones del cerebro

UN TRASTORNO NEUROBIOLÓGICO

3

6% Se estima que afecta a un de los niños en edad escolar[1]

EN TODO EL MUNDO

4

En el 76% de los casos de TDAH la causa está ligada a factores genéticos[2]

ORIGEN

EVOLUCIÓN

El TDAH se inicia en la infancia, y puede seguir presente en la adolescencia y en la edad adulta.

6

5

EL TRATAMIENTO MULTIMODAL DEL TDAH

1 Tratamiento Farmacológico

2 Tratamiento Psicológico

3 Tratamiento Psicopedagógico

Referencias:
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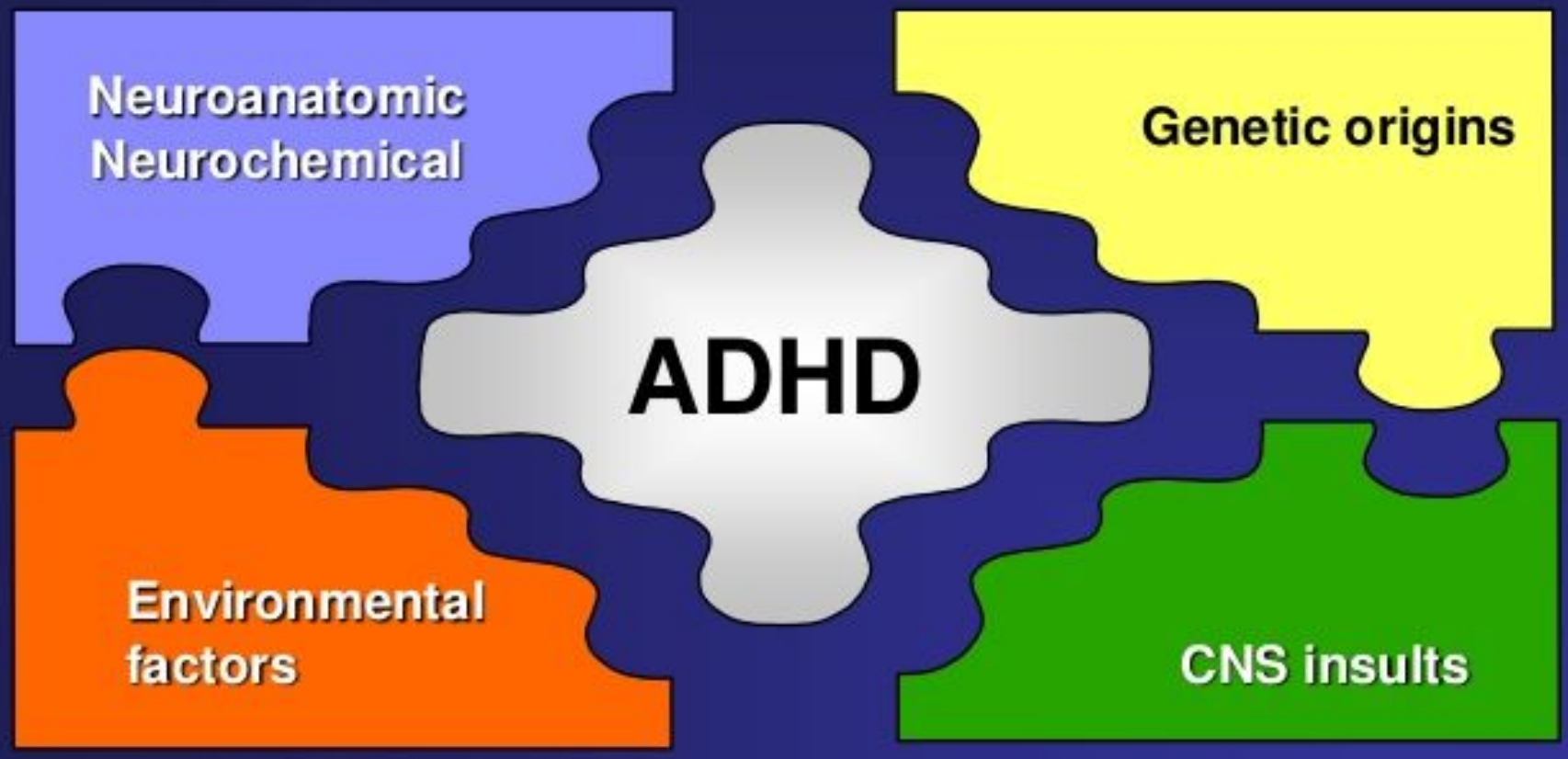
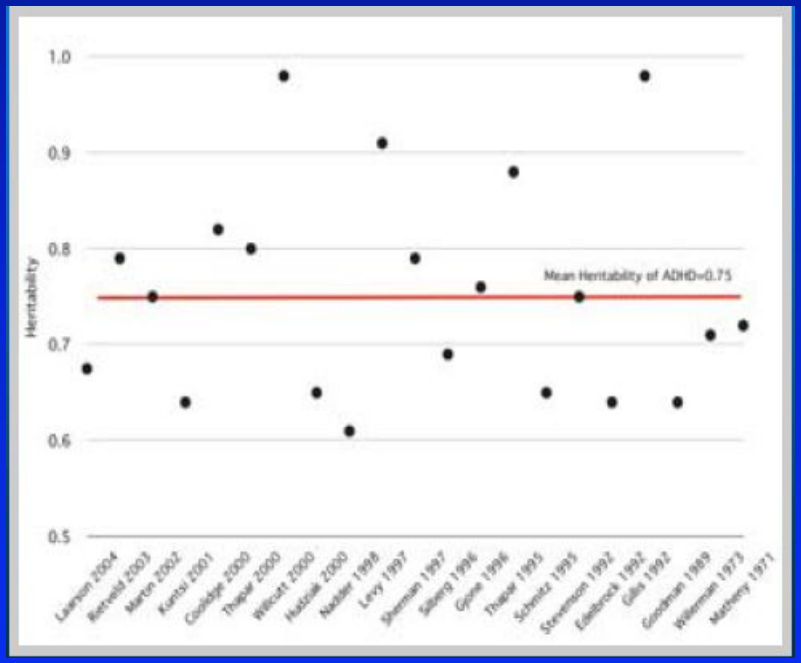
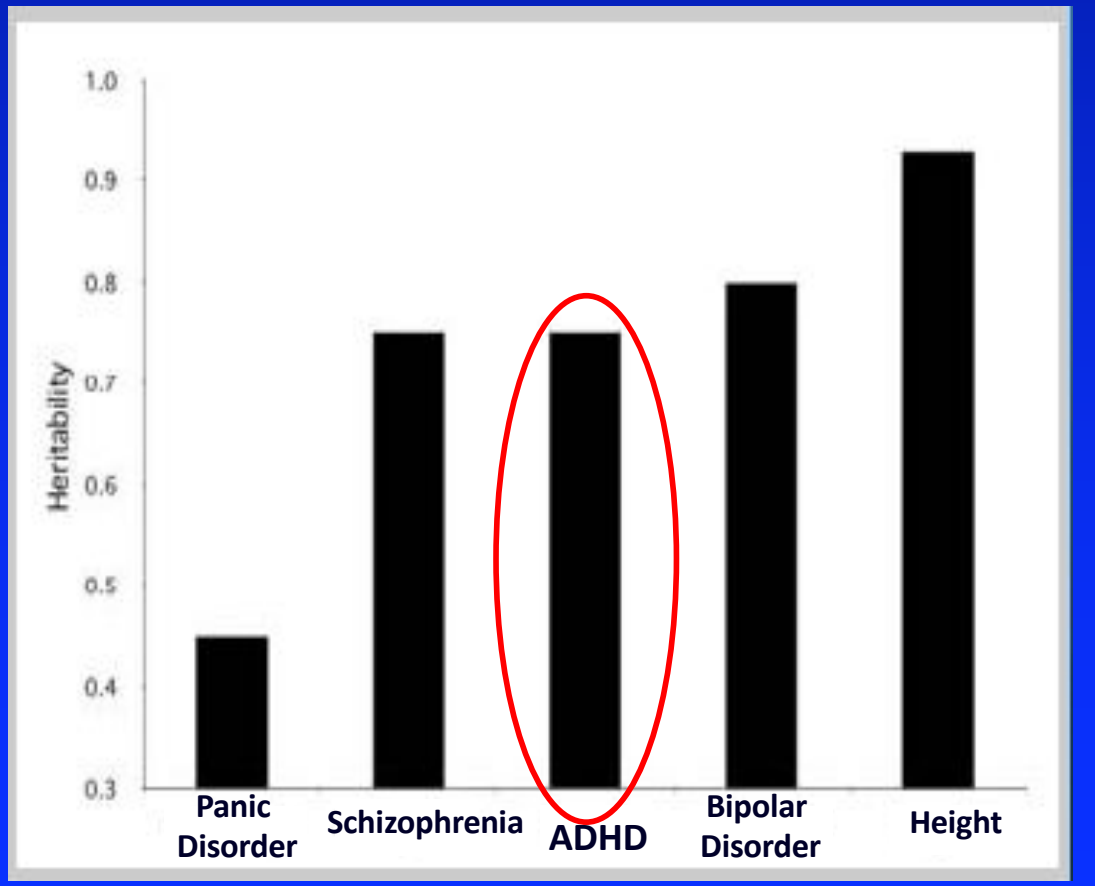
ADHD is Most Likely Caused by a Complex Interplay of Factors



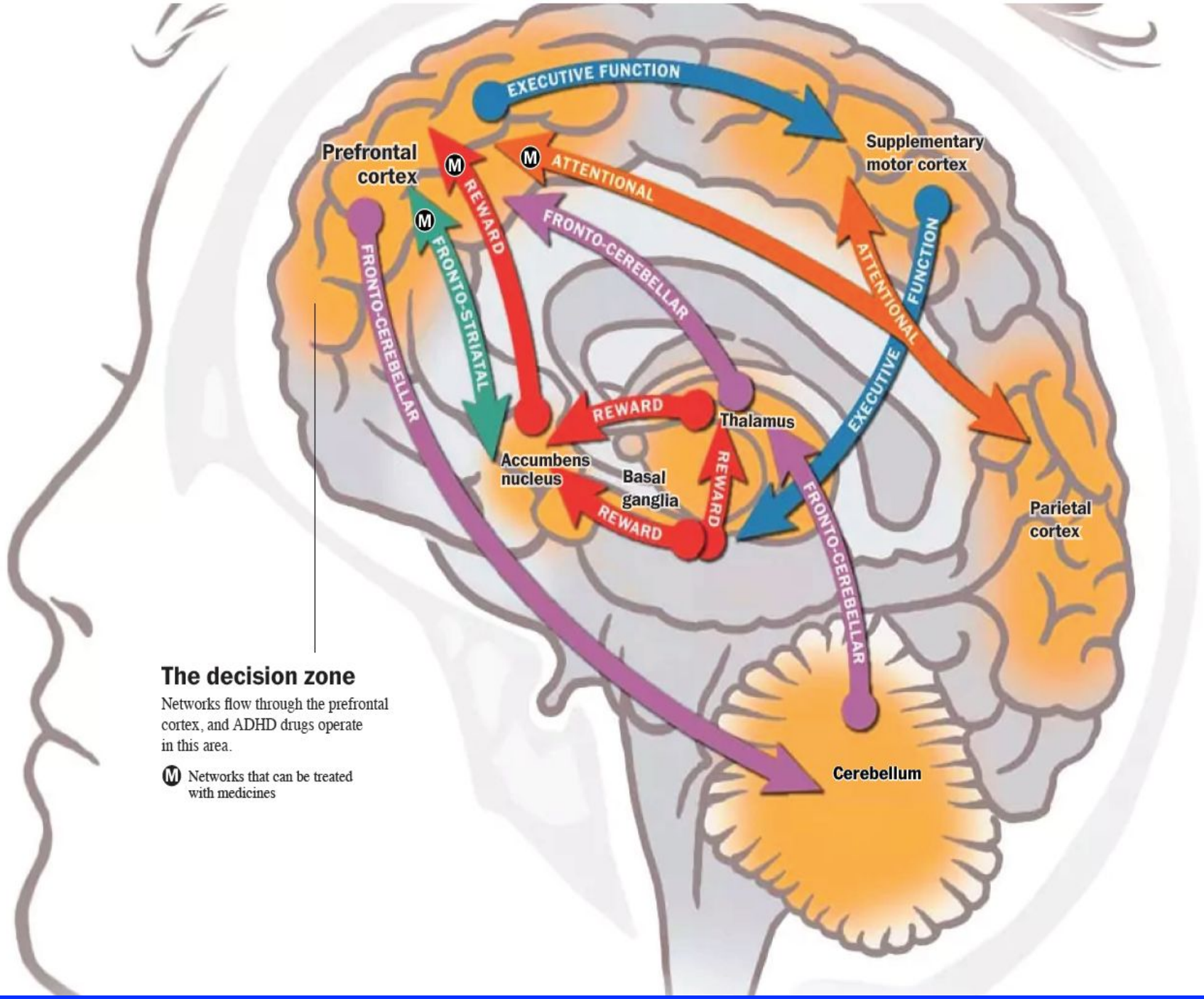
Swanson JM, et al. Mol Psychiatry. 1998;3(1):38-41. Swanson JM, et al. Lancet. 1998; 351(9100):429-33. Milberger S, et al. Biol Psychiatry. 1997;41(1):65-75. Castellanos FX, et al. Arch Gen Psychiatry. 1996;53(7):607-16.

TDAH et Hérédité





Mick, Faraone. *Child Adolesc Psychiatric Clin N Am.* 2008;17:261



The decision zone

Networks flow through the prefrontal cortex, and ADHD drugs operate in this area.

Ⓜ Networks that can be treated with medicines

Contents lists available at ScienceDirect

Neuropsychologia

journal homepage: www.elsevier.com/locate/neuropsychologia

Neuropsychologia 49 (2011) 426–434

ADHD related behaviors are associated with brain activation in the reward system

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Punishment avoidance anticipation
Verbal feedback anticipation

ABSTRACT

Neuroimaging studies on attention-deficit/hyperactivity disorder (ADHD) suggest dysfunctional reward processing, with hypo-responsiveness during reward anticipation in the reward system including the nucleus accumbens (NAcc). In this study, we investigated the association between ADHD related behaviors and the reward system using functional magnetic resonance imaging in a non-clinical sample. Participants were 31 healthy, female undergraduate students with varying levels of self-reported ADHD related behaviors measured by the adult ADHD self-report scale. The anticipation of different types of reward was investigated: monetary reward, punishment avoidance, and verbal feedback.

All three reward anticipation conditions were found to be associated with increased brain activation in the reward system, with the highest activation in the monetary reward anticipation condition, followed by the punishment avoidance anticipation condition, and the lowest activation in the verbal feedback anticipation condition. Most interestingly, in all three conditions, NAcc activation was negatively correlated with ADHD related behaviors.

In conclusion, our results from a non-clinical sample are in accordance with reported deficits in the reward system in ADHD patients: the higher the number and severity of ADHD related behaviors, the lower the neural responses in the dopaminergic driven reward anticipation task. Thus, our data support current aetiological models of ADHD which assume that deficits in the reward system might be responsible for many of the ADHD related behaviors.

The Worldwide Prevalence of ADHD: A Systematic Review and Metaregression Analysis

Guilherme Polanczyk, M.D.
Maurício Silva de Lima, M.D., Ph.D.
Bernardo Lessa Horta, M.D., Ph.D.
Joseph Biederman, M.D.
Luis Augusto Rohde, M.D., Ph.D.

Objective: The worldwide prevalence estimates of attention deficit hyperactivity disorder (ADHD)/hyperkinetic disorder (HD) are highly heterogeneous. Presently, the reasons for this discrepancy remain poorly understood. The purpose of this study was to determine the possible causes of the varied worldwide estimates of the disorder and to compute its worldwide-pooled prevalence.

Method: The authors searched MEDLINE and PsycINFO databases from January 1978 to December 2005 and reviewed textbooks and reference lists of the studies selected. Authors of relevant articles from North America, South America, Europe, Africa, Asia, Oceania, and the Middle East and ADHD/HD experts were contacted. Surveys were included if they reported point prevalence of ADHD/HD for subjects 18 years of age or younger from the general population or schools according to DSM or ICD criteria.

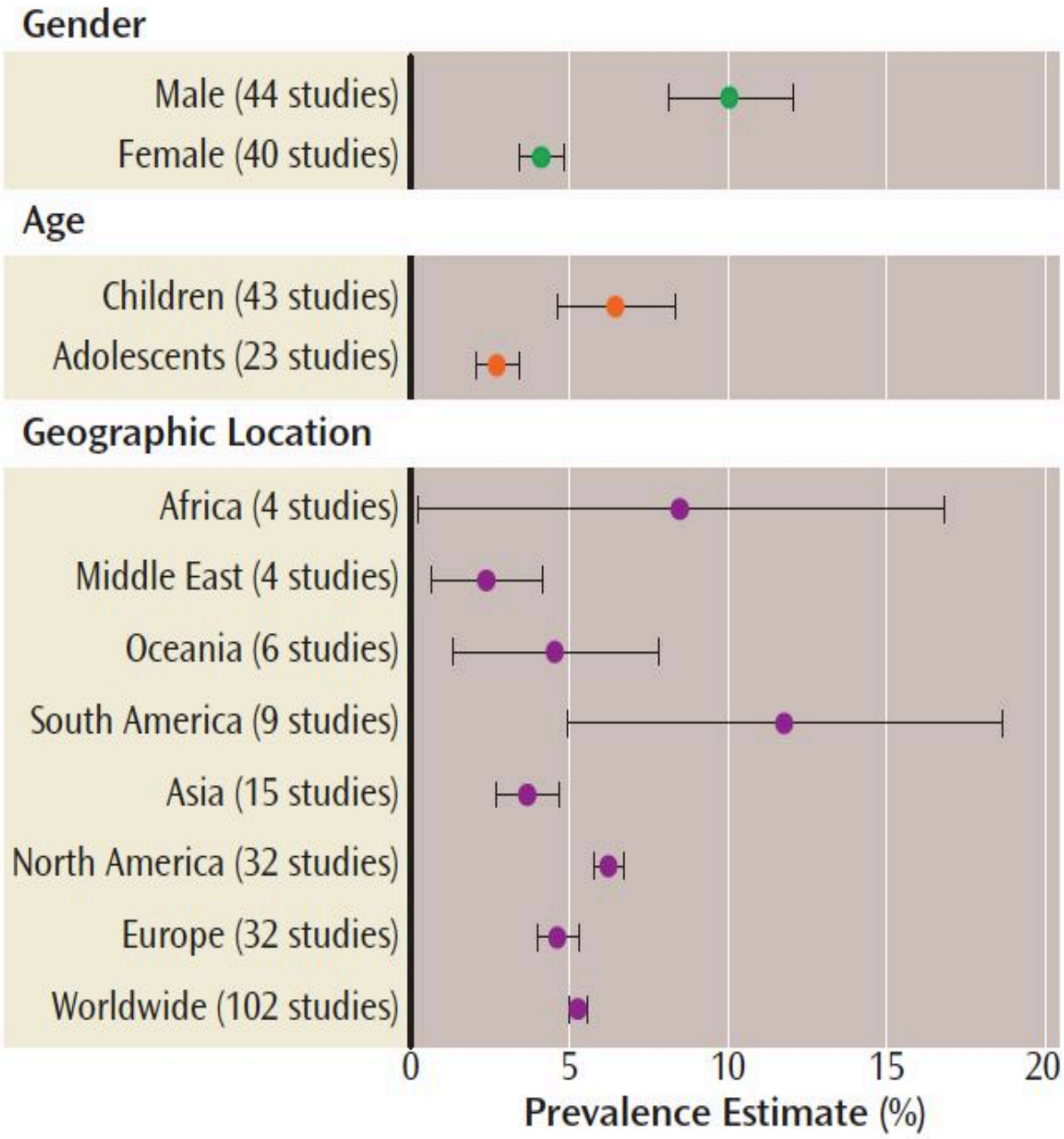
Results: The literature search generated 9,105 records, and 303 full-text articles were reviewed. One hundred and two studies comprising 171,756 subjects from all world regions were included. The ADHD/HD worldwide-pooled prevalence was 5.29%. This estimate was associated with significant variability. In the multivariate metaregression model, diagnostic criteria, source of information, requirement of impairment for diagnosis, and geographic origin of the studies were significantly associated with ADHD/HD prevalence rates. Geographic location was associated with significant variability only between estimates from North America and both Africa and the Middle East. No significant differences were found between Europe and North America.

Conclusions: Our findings suggest that geographic location plays a limited role in the reasons for the large variability of ADHD/HD prevalence estimates worldwide. Instead, this variability seems to be explained primarily by the methodological characteristics of studies.

(Am J Psychiatry 2007; 164:942–948)

L e TDAH est le trouble psy le plus fréquent chez l'enfant.
La prévalence dans le monde (enfant et ado) est comprise entre 3.4 et 7.2% selon des études.

FIGURE 2. ADHD/HD Pooled Prevalence According to Demographic Characteristics and Geographic Location



European Neuropsychopharmacology (2018) 28, 1059-1088

ELSEVIER

Live fast, die young? A review on the developmental trajectories of ADHD across the lifespan

www.elsevier.com/locate/euroneuro

Barbara Franke[a,b,*], Giorgia Michelini[c], Philip Asherson[c], Tobias Banaschewski[d], Andrea Bilbow[e,f], Jan K. Buitelaar[g], Bru Cormand[h,i,j,k], Stephen V. Faraone[l,m], Ylva Ginsberg[n,o], Jan Haavik[m,p], Jonna Kuntsi[c], Henrik Larsson[n,o], Klaus-Peter Lesch[q,r,s], J. Antoni Ramos-Quiroga[t,u,v,w], János M. Réthelyi[x,y], Marta Ribases[t,u,v], Andreas Reif[z]

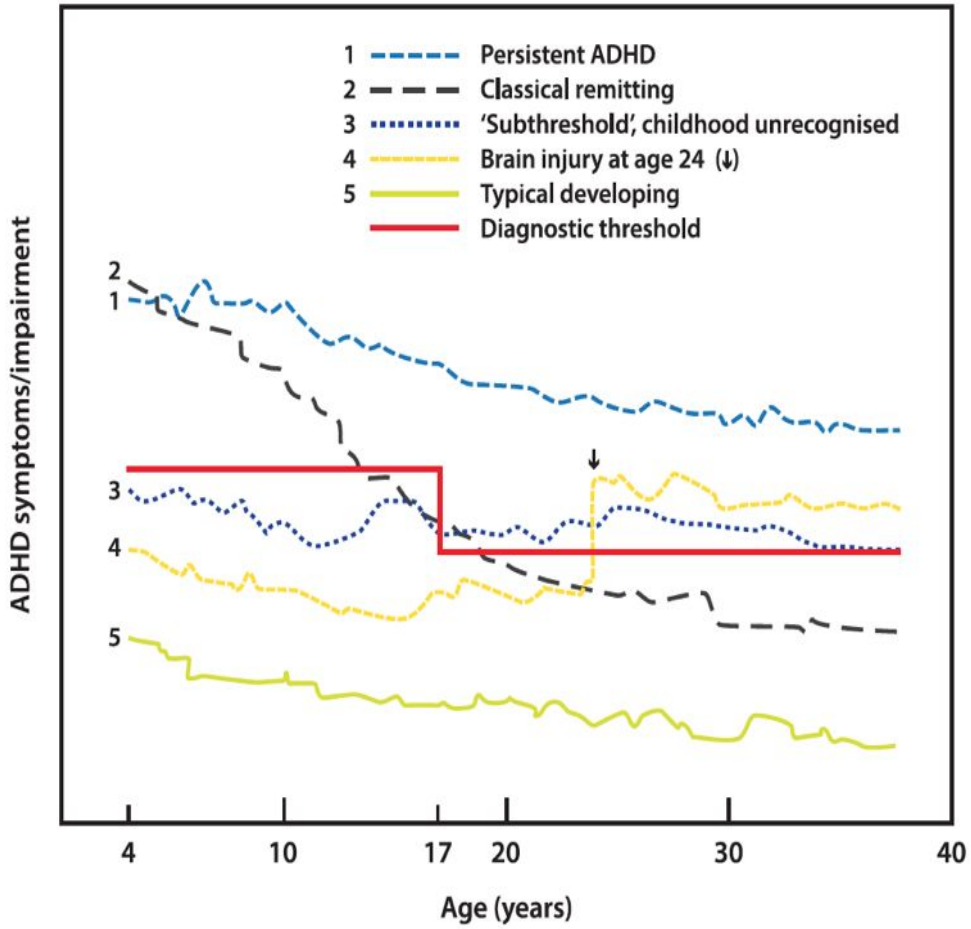
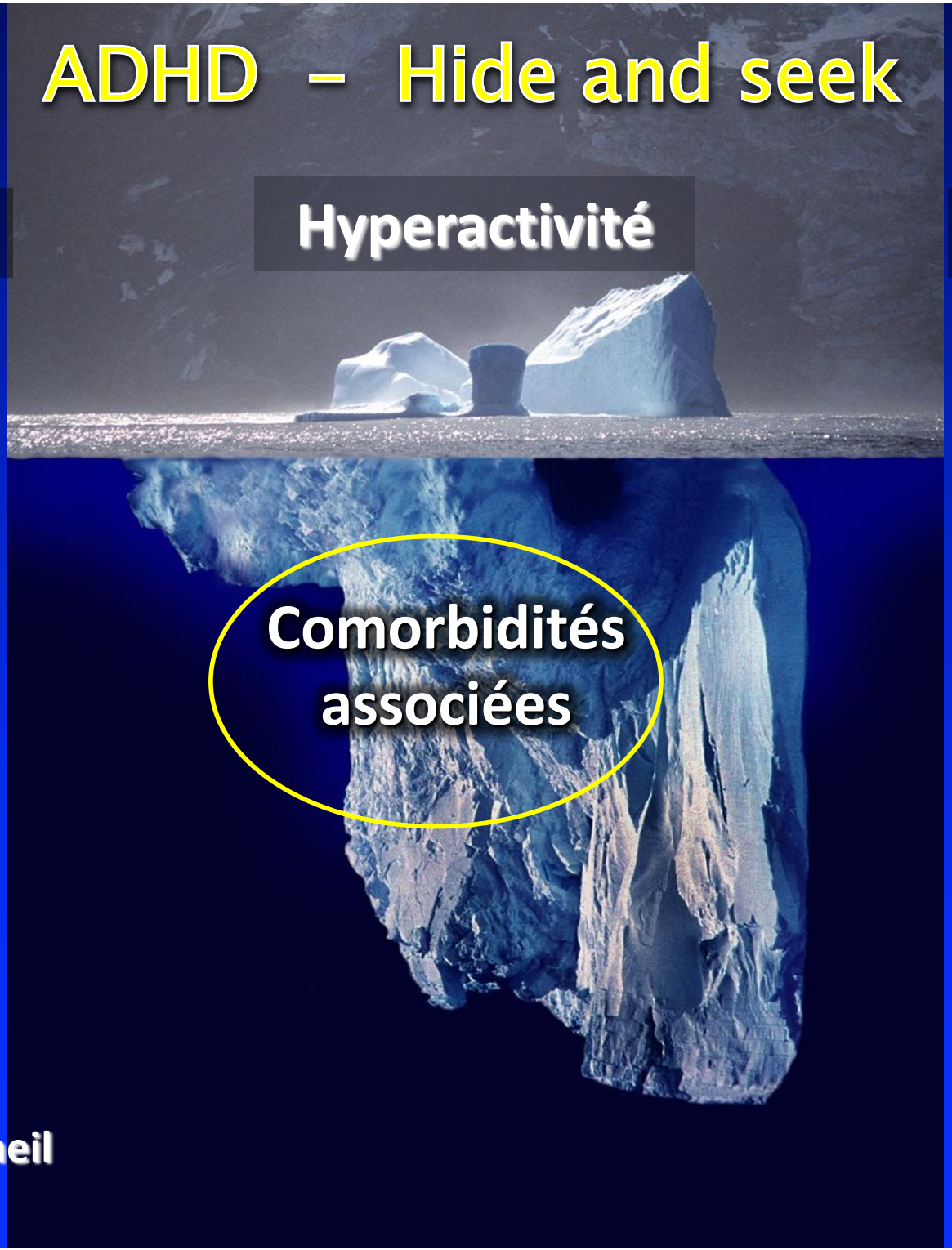


Fig. 1 Theoretical developmental trajectories of ADHD across the lifespan. Details are given in the text.

Les études montrent que 2/3 des enfants diagnostiqués TDAH vont garder les symptoms à l'âge adulte.
La prevalence chez l'adulte est de 3-5%.

ADHD – Hide and seek



Impulsivité

Difficultés d'intégration sociale

Faible estime de soi

Faible tolerance à la frustration

Troubles du sommeil

Inattention

Problèmes scolaires / Professionnels

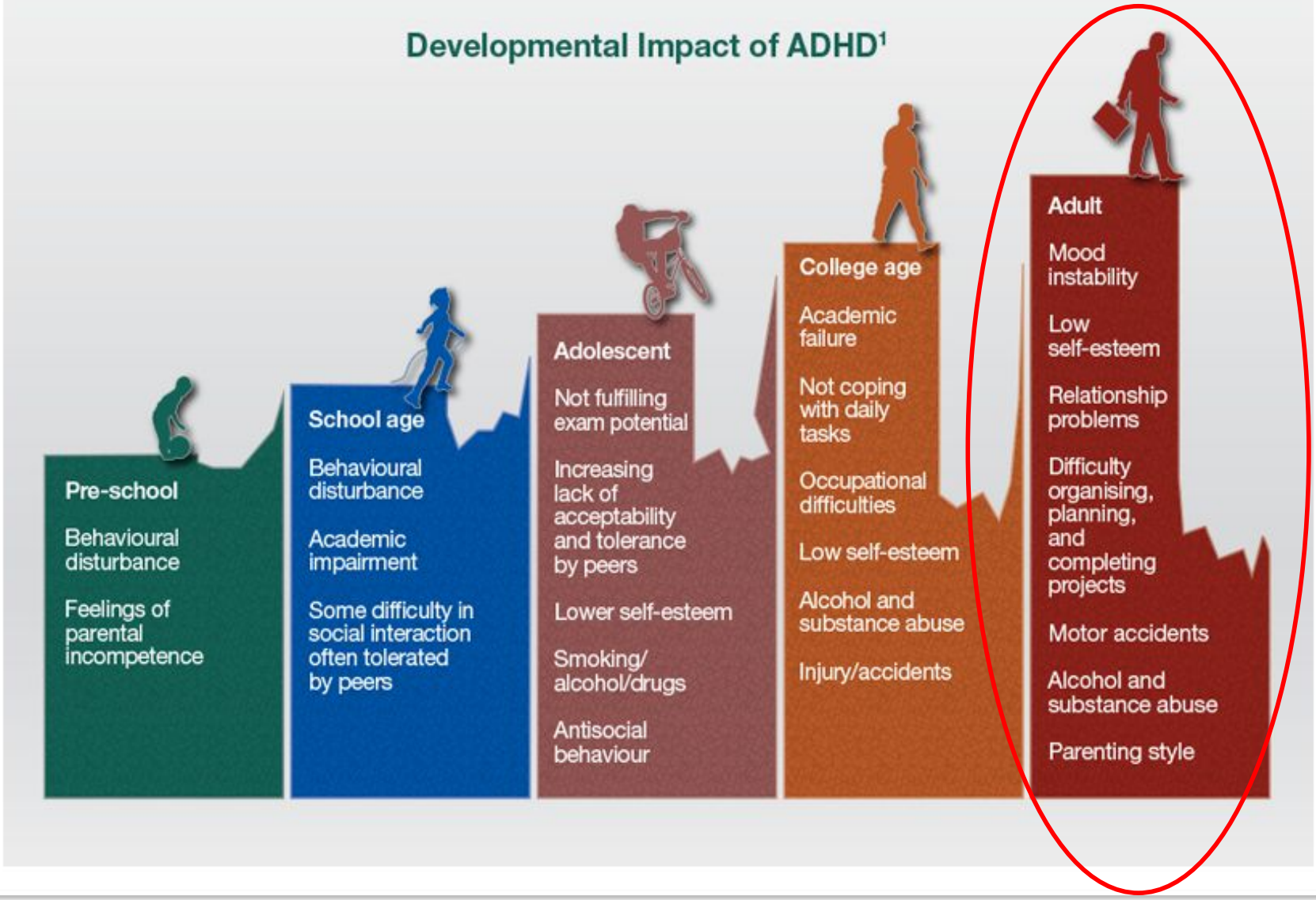
Anxiété

Sous performants et imprévisibles

Troubles des fonctions exécutives

Impacts du TDAH

Typical ADHD Trajectory Across the Ages



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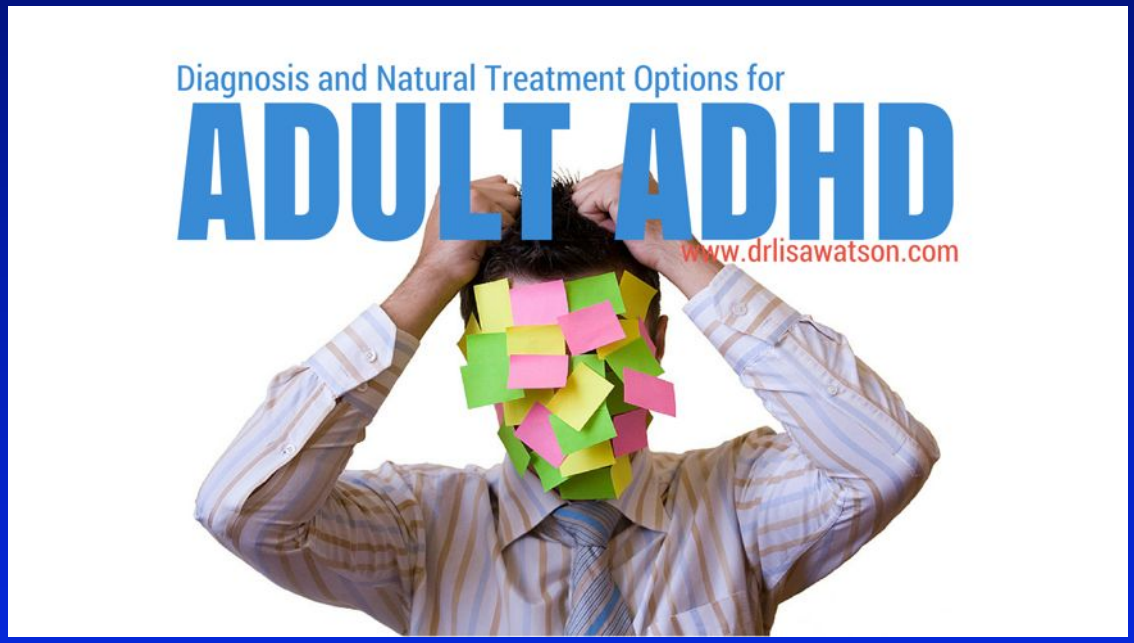
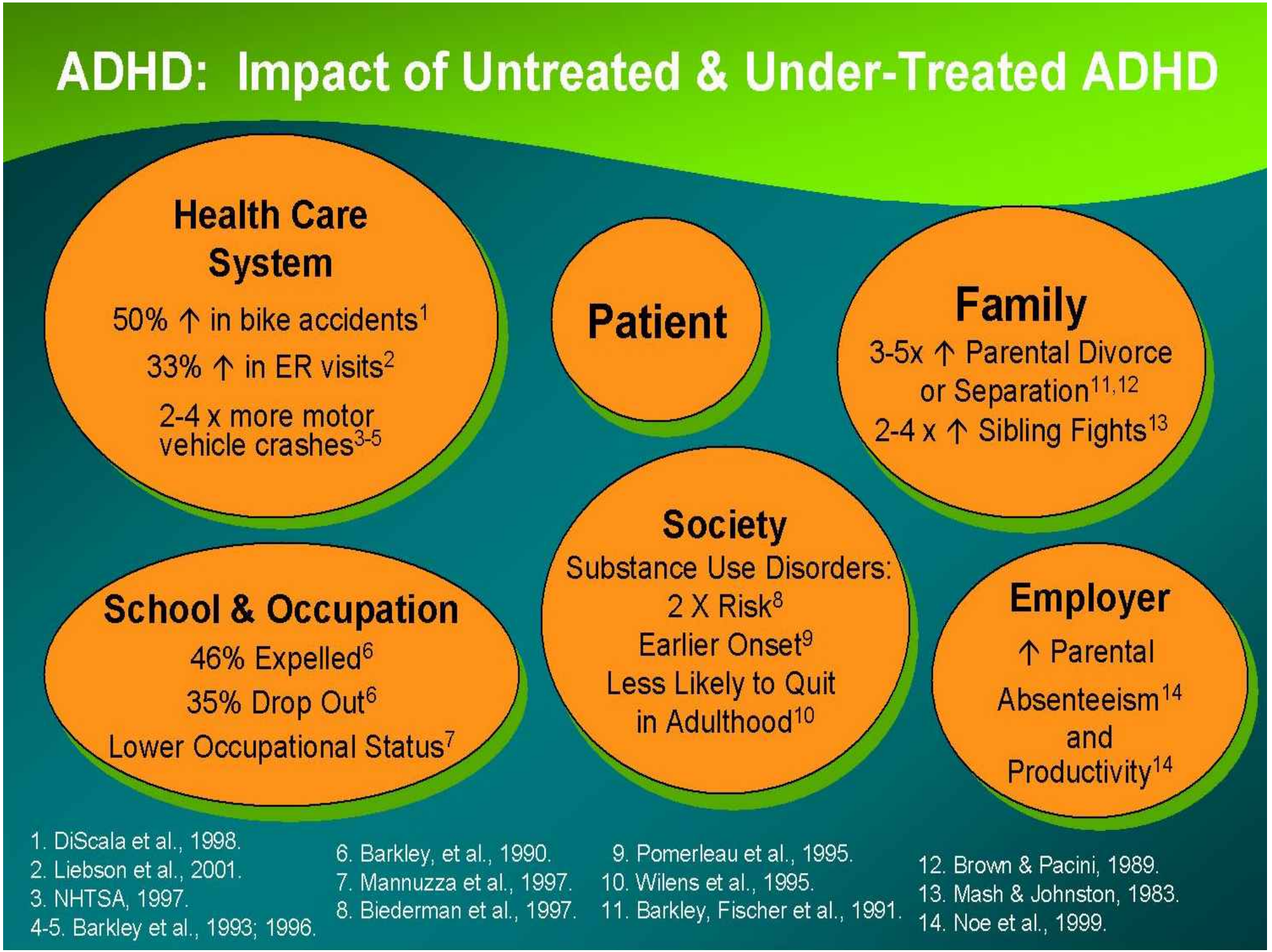
TDAH chez l'adulte



- Conséquences différentes VS chez l'enfant: (Kooj, 2010)
  - Bas niveau d'étude
  - Problèmes de couple et divorce
  - Rendement plus faible au travail, chômage
  - Accidents de la route
  - Comorbidités psychiatriques fréquentes

ADHD: Impact of Untreated & Under-Treated ADHD



1. DiScala et al., 1998.
2. Liebson et al., 2001.
3. NHTSA, 1997.
4-5. Barkley et al., 1993; 1996.
6. Barkley, et al., 1990.
7. Mannuzza et al., 1997.
8. Biederman et al., 1997.
9. Pomerleau et al., 1995.
10. Wilens et al., 1995.
11. Barkley, Fischer et al., 1991.
12. Brown & Pacini, 1989.
13. Mash & Johnston, 1983.
14. Noe et al., 1999.

The economic burden of adult attention deficit hyperactivity disorder: A sibling comparison cost analysis

D. Daley[a,*], R.H. Jacobsen[b], A.-M. Lange[c], A. Sørensen[d], J. Walldorf[d]

European Psychiatry 61 (2019) 41–48

Aim: Attention Deficit Hyperactivity Disorder (ADHD) is a lifespan disorder associated with considerable economic cost. While the economic burden of ADHD has been widely estimated, there is considerable variation in reported costs between studies, which typically focus on health outcomes only, lack adequate control and fail to correct for the influence of genetic and shared environmental factors. The aim of this study is to overcome these limitations to reach a fuller understanding of the economic burden of ADHD.
Method: Using the Danish National Registers 5269 adults with a diagnosis of ADHD in adulthood who had not received a diagnosis in childhood were identified. Excluding cases with missing data, comorbid diagnoses, and cases without a same sex sibling free of any diagnosed psychiatric diagnoses, a final cohort was formed consisting of 460 sibling dyads. Using a cross-sectional method focusing on the year 2010, cost differences between each adult with ADHD and their sibling were calculated from data retrieved from health, education, crime, employment and social care registers.
Results: Adults with ADHD had considerably lower disposable income and paid less tax than their siblings. They also received more state benefits, had higher costs for health, social care, and crime than their siblings. The total average costs difference for the year 2010 was 20,134 euros more than their sibling for each adult with ADHD.
Conclusion: ADHD is associated with considerable costs which are borne by both the individual and the state and underlines the need to consider the wider economic impact of ADHD beyond income and healthcare utilisation costs.

The economic burden of adult attention deficit hyperactivity disorder: A sibling comparison cost analysis

D. Daley[a,*], R.H. Jacobsen[b], A.-M. Lange[c], A. Sørensen[d], J. Walldorf[d]

European Psychiatry 61 (2019) 41–48

Table 3
Calculation of cost comparison using similar siblings, € per individual.

	Adults with ADHD	Siblings	Cost Difference €	Cost Difference %[c]
Individual or family borne costs				
Disposable income				
Total work income and public transfers	26,259	38,252	−11,992	−31%
Income tax payment[b]	6,887	11,406	4,519	40%
Other costs to the individual				
Patient cost of prescribed medication	313	68	−245	−360%
Costs of being a victim of a crime			0	N.A.
Total cost to the individual			**−7,718**	
Public costs				
Public transfers and income tax				
Income replacement transfers	7,476	1,917	−5,559	−290%
Income tax revenue to the state[b]	6,887	11,406	−4,519	−40%
Crime, traffic, foster care and education				
Costs of being in a traffic accident[a]			0	N.A.
Costs of crimes committed (investigation, sentencing)	1,361	349	−1,012	−290%
Education costs (direct costs)	367	711	344	48%
Adult continuation of foster care[a]			0	N.A.
Medical expenses				
Secondary health care	1,207	414	−794	−192%
Primary health care (GP and other primary care)	713	498	−215	−43%
Public subsidy to prescribed medication	764	103	−661	−642%
Total cost to the public sector			**−12,416**	
TOTAL COST (INDIVIDUAL + PUBLIC)			**−20,134**	

N.A.: Not applicable.

[a] We found no statistical significant differences for traffic accidents and continuation of foster care.

[b] The "income tax payment" listed under individual of family borne costs is repeated under "income tax revenue to the state" in the public costs part of the table (albeit with opposite signs). The lower "income tax payment" by "Adults with ADHD" reduces costs to the individual by €4,519, whereas the lower "income tax revenue to the state" by "Adults with ADHD" increases the public costs. The reason for this is that while "income tax payment" is a cost for the private individuals they represent a revenue of exactly the same magnitude to the public sector. Thus when aggregating, these two entries representing payment from one part of society to another cancels out and has no impact on the total costs, but needs to be included when looking at either the private individuals or the public sector separately.

[c] The cost difference in percent is calculated in relation to values for "Siblings".

EUROPEAN PSYCHIATRY

The economic burden of adult attention deficit hyperactivity disorder: A sibling comparison cost analysis

D. Daley[a,*], R.H. Jacobsen[b], A.-M. Lange[c], A. Sørensen[d], J. Walldorf[d]

European Psychiatry 61 (2019) 41–48

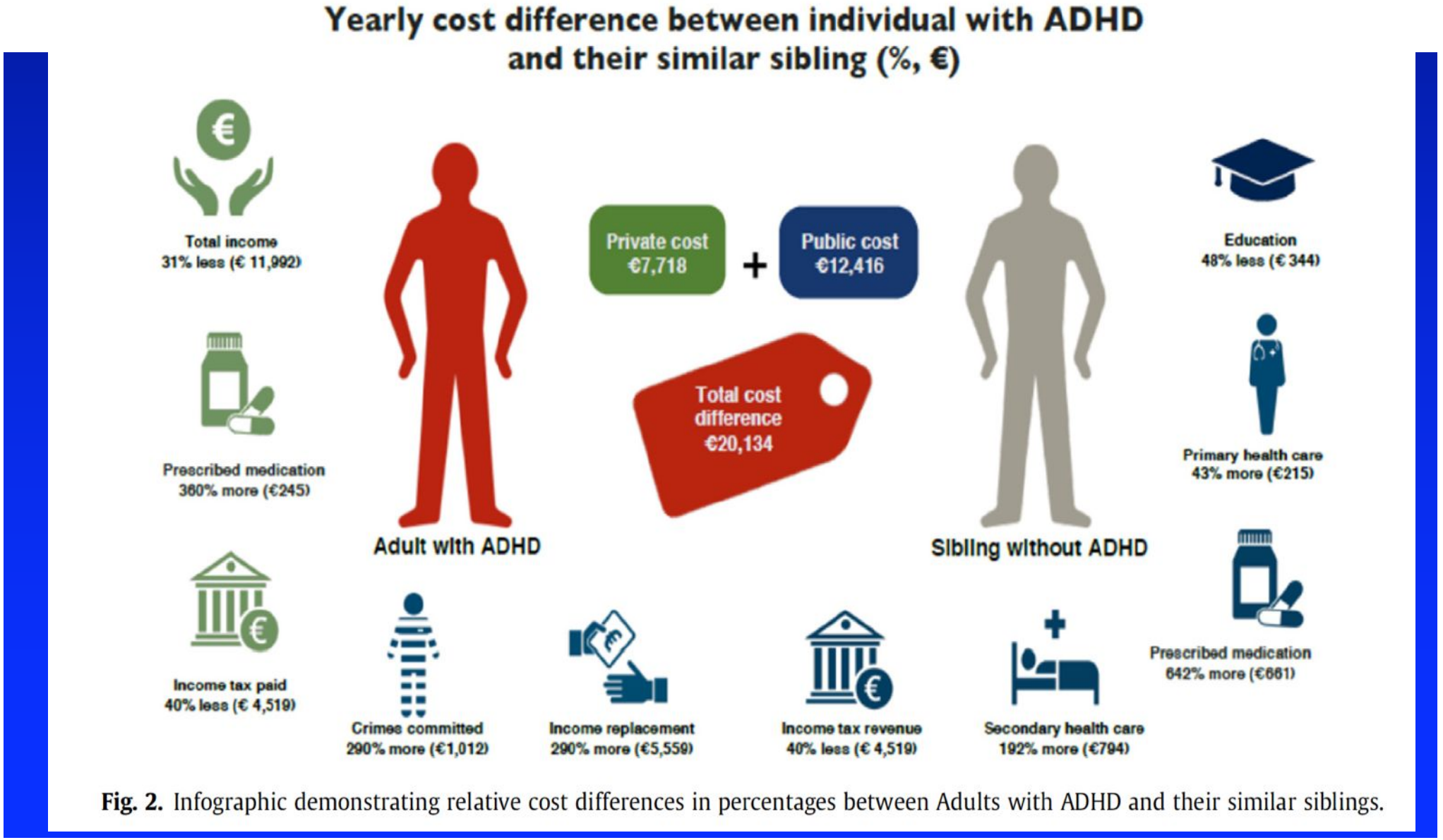


Fig. 2. Infographic demonstrating relative cost differences in percentages between Adults with ADHD and their similar siblings.

Prevalence of Attention Deficit Hyperactivity Disorder in Detention Settings: A Systematic Review and Meta-Analysis

Stéphanie Baggio[1,2], Ana Fructuoso[1], Marta Guimaraes[1], Eveline Fois[1], Diane Golay[1], Patrick Heller[1], Nader Perroud[3], Candy Aubry[4], Susan Young[5], Didier Delessert[6], Laurent Gétaz[1], Nguyen T. Tran[1,7] and Hans Wolff[1]*

frontiers in Psychiatry

SYSTEMATIC REVIEW
published: 02 August 2018
doi: 10.3389/fpsyt.2018.00331

Background: Previous studies have reported a high prevalence of attention deficit hyperactivity disorder (ADHD) among people living in detention (PLD) corresponding to a five- to ten-fold increase compared to the general population. Our main study objective was to provide an updated ADHD prevalence rate for PLD, including PLD in psychiatric units. Sub-objectives included (i) comparing different ways of assessing ADHD, including DSM-5 criteria and (ii) identifying which types of PLD are more likely to have ADHD.

Methods: We conducted a systematic review and meta-analysis following the PRISMA guidelines and the MOOSE checklist. PubMed/Medline, PsycINFO, and Web of Sciences were searched combining "ADHD" and "prison" keywords and synonyms for articles published between January 1, 1966 and January 2, 2018. Potential sources of variation to the meta-analytic ADHD prevalence rate were investigated using meta-regressions and subgroups analyses.

Results: The meta-analysis pooled 102 original studies including 69,997 participants. The adult ADHD prevalence rate was 26.2% (95% confidence interval: 22.7–29.6). Retrospective assessments of ADHD in childhood were associated with an increased prevalence estimate (41.1, 95% confidence interval: 34.9–47.2, $p < 0.001$). There was no significant difference in the prevalence estimate between screenings and clinical interviews in adulthood. Only three studies used the DSM-5 definition of ADHD and results were non-significantly different with other DSM versions. We found no difference according to participants' characteristics.

Conclusion: Our results confirmed the high prevalence rate of ADHD among PLD, corresponding to a five-fold increase compared to the general population. In light of such high ADHD prevalence, our results reinforce the importance of addressing this critical public health issue by (i) systematically offering ADHD screening and diagnosis to all individuals entering detention, and (ii) delivering treatment, monitoring, and care for ADHD during and after detention. These strategies may help reduce recidivism and reincarceration, as well as violence in detention settings, in addition to improving the health and wellbeing of people living in detention. Additionally, our study suggests that using screening scales may be a reliable way of assessing ADHD, although caution is needed because a complete evaluation by an experienced clinician is required to provide a formal diagnosis.

Mortality in children, adolescents, and adults with attention deficit hyperactivity disorder: a nationwide cohort study

Søren Dalsgaard, Søren Dinesen Østergaard, James F Leckman, Preben Bo Mortensen, Marianne Giørtz Pedersen

www.thelancet.com Published online February 26, 2015 http://dx.doi.org/10.1016/S0140-6736(14)61684-6

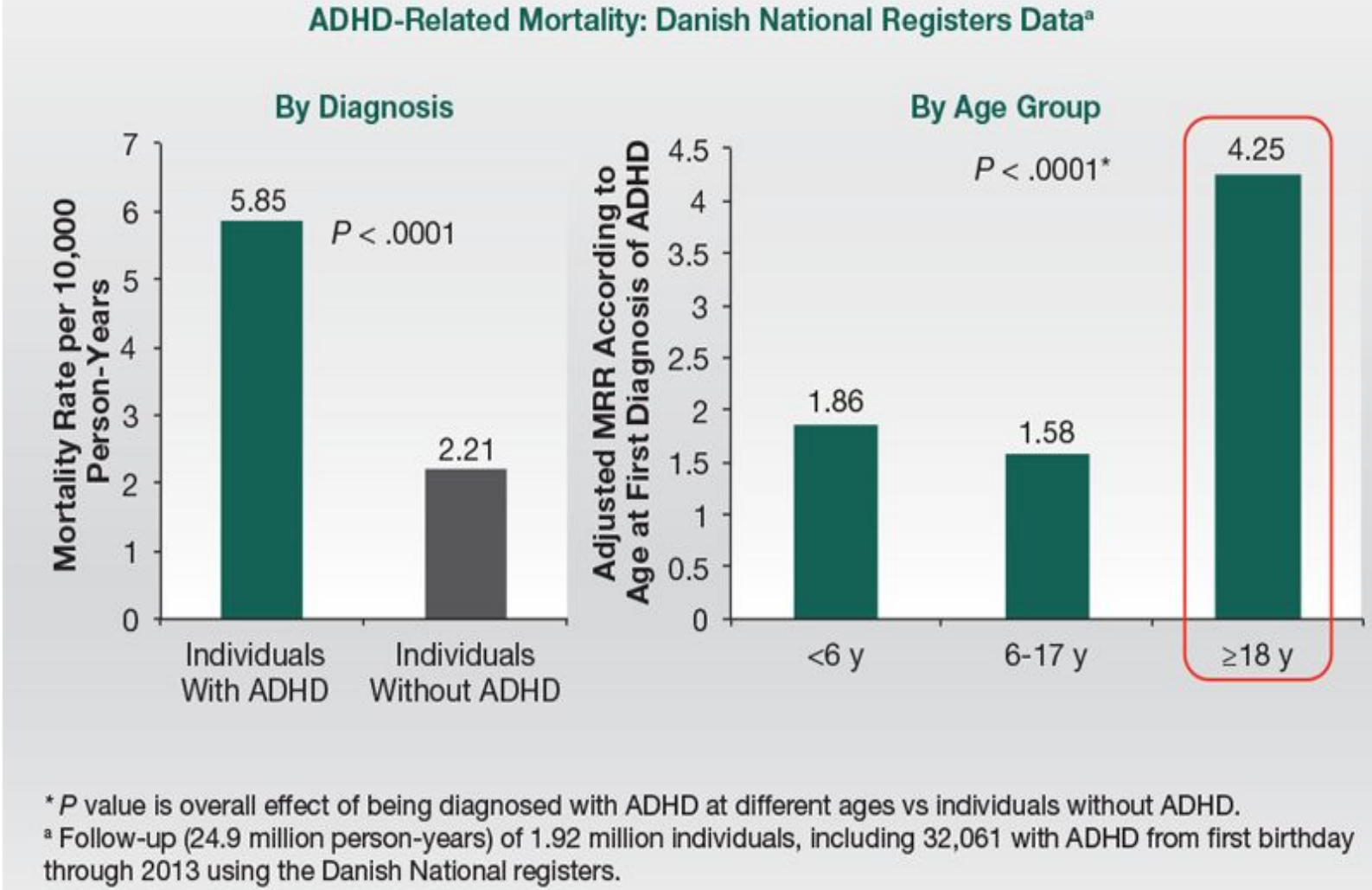
Summary

Background Attention deficit hyperactivity disorder (ADHD) is a common mental disorder associated with factors

- The study was a cohort study with over **32 years of follow-up** of **1,922,248 individuals** in the Danish national registers, including **32,061 with ADHD** (26% females).
- **ADHD** is associated with **significantly increased mortality rates (MR).**
- The authors calculated that **"all-cause MR"** (death from all causes) was:
  - **5.85 for every 10,000** person-years in people with **ADHD**
  - **2.21** per 10,000 in people without the disorder (**controls**).
- **Individuals diagnosed with ADHD in adulthood** had a **higher MR** than did those diagnosed in childhood and adolescence:
  - For individuals diagnosed in adulthood, there was an **MR: 4.25, compared with 1.58 for those people diagnosed in childhood**.

adjusted for these comorbidities, ADHD remained associated with excess mortality, with higher MRRs in girls and women with ADHD than in boys and men with ADHD. The excess mortality in ADHD was mainly driven by deaths from unnatural causes, especially accidents.

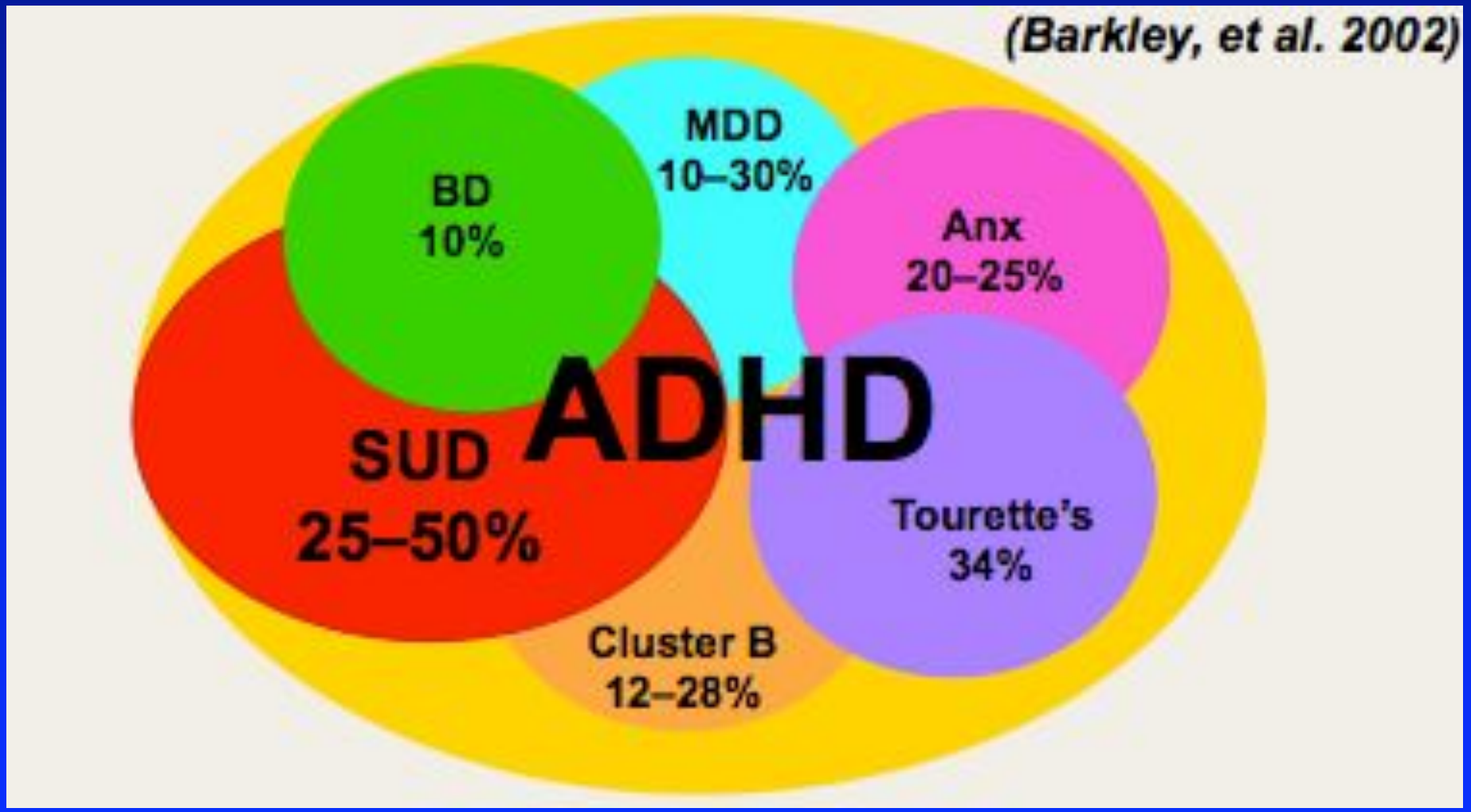
Link Between ADHD and Increased Mortality Risk[1]



* *P* value is overall effect of being diagnosed with ADHD at different ages vs individuals without ADHD.
[a] Follow-up (24.9 million person-years) of 1.92 million individuals, including 32,061 with ADHD from first birthday through 2013 using the Danish National registers.

Dalsgaard et al. Mortality in children, adolescents, and adults with attention deficit hyperactivity disorder: a nationwide cohort study. Lancet. 2015 Feb 26. pii: S0140-6736(14)61684-6. .

- Comorbidités présentes dans près de 75% des cas
- Comorbidité la plus fréquente: SUD (Substance Use Disorder)



Importance capitale du repérage et diagnostic de ces troubles

Developmental trends in ADHD: psychiatric comorbidities

The majority of adults with ADHD have a comorbid psychiatric disorder, which can complicate diagnosis and treatment of ADHD[1-4]

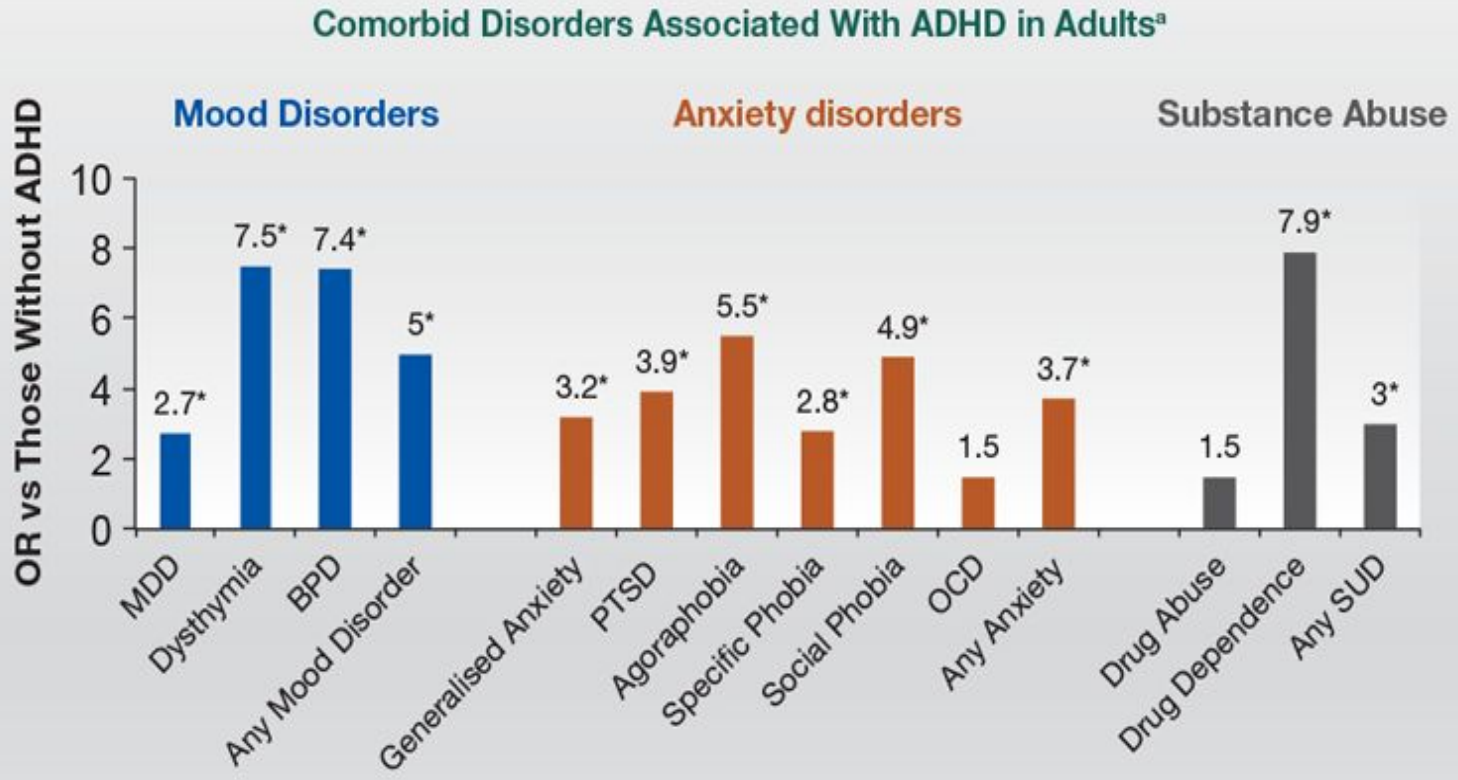
	<6 years	Children	Adolescents	Adults
ADHD / ADD[a]	ADHD>ADD	ADHD>ADD	ADHD=ADD	ADD>ADHD
Oppositional defiant disorder	+++	+++	++	+
Communication disorder	++	+	+	+
Conduct disorder	+	++	+++	Antisocial personality disorder
Anxiety disorder	±	++	+++	+++
Major depression	–	+	++	+++
Dysthymic disorder	–	+	++	+++
Substance-use disorder	–	–	+	++

[a]In this table,[5] ADHD means ADHD combined type and ADD means ADHD predominantly inattentive type Key: – = not diagnosed; + = rare; ++ = common; +++ = very common

Table adapted from Turgay A 2007

1. NCCMH 2008; 2. Kooij SJ et al 2010; 3. CADDRA 2011; 4. Kooij SJ et al 2012; 5. Turgay A 2007

Increased Prevalence of Comorbid Psychiatric Issues in Adults With ADHD[1]



* $P < .05$.

[a] A screen for adult ADHD was included in a probability sub-sample (n = 3,199) of 18-44 y old respondents in the National Comorbidity Survey Replication (NCS-R), a nationally representative household survey assessing a wide range of DSM-IV disorders. Blinded clinical follow-up interviews of adult ADHD were carried out with 154 NCS-R respondents, over-sampling those with a positive screen.

Kessler et al. Am J Psychiatry 2006)

Quels sont les effets du TDAH

- Patients SUD avec un TDAH non-traité:
  - Temps de rétention en ttt méthadone plus faible comparé aux patients non-TDAH (Carpentier, 2011)
  - Maintien de l'abstinence plus faible chez les opio-dépendants (Kolpe, 2007)
  - Plus d'hospits/tentatives de suicide (Arias, 2008)

- Patients SUD traités pour le TDAH
  - Taux de rechute plus faible
  - Un pourcentage plus élevé a un emploi (Bihlar, 2015)

TDAH et SUD

- Etude épidémio (Gudjonsson et al. 2012): 39% des ados TDAH vs 11% utilisent une substance illicite
- Meta-analyse: 23,1% des SUD répondent aux critères du TDAH (Van Emmerik, et Al. 2012)
- Méta-Analyse: Chez les patients TDAH, le risque de SUD à l'âge adulte augmente (Charach, et al. 2011)
- 25% des patients opio-dépendants ont un TDAH (Carpentier, 2014)

Clinical Psychology Review 31 (2011) 328–341

Clinical Psychology Review

Steve S. Lee [a,*], Kathryn L. Humphreys [a], Kate Flory [b], Rebecca Liu [a], Kerrie Glass [b]

VS sujets contrôles sans TDAH, les personnes TDAH ont:

- X3 risque d'addiction à la **nicotine** pendant l'adolescence/ âge adulte (OR: 2.82, P < .001);
- X2 risque d'un TU **Alcool** (OR: 1.74, P < .001);
- X1,5 risque d'un TU **Cannabis** (OR: 1.58, P = .003);
- X2 risque d'un TU **cocaine** (OR: 2.05, P < .001); et
- X2.5 risque d'un TU de substances en general

Résultats TDAH + SUD vs TDAH ou SUD

Début précoce de l'usage et troubles de l'usage des substances [Arias et al, 2008; Carroll y Rounsaville, 1993; Gray and Upadhyaya, 2009; Johann et al, 2004; Ponce et al, 2000; Brinkman et al, 2015; Dunne et al, 2014]

Plus grande sévérité et chronicitation du TUS [Arias et al, 2008; Carroll y Rounsaville, 1993; Carpentier et al, 2011; Dunne et al, 2014; Gray and Upadhyaya, 2009; Johann et al, 2004; Perez de los Cobos et al, 2011; Wilens y Upadhyaya, 2007; Marín-Navarrete, 2013; Peles et al, 2012]

Symptômatologie TDAH plus sévère [Fergusson y Boden, 2008; Wilens y Upadhyaya, 2007]

Plus de troubles neuropsychologiques et cognitifs [Muld et al, 2013; Tamm et al, 2013]

% de risque plus élevé de polyaddictions [Arias et al, 2008; Carroll y Rounsaville, 1993; Gray and Upadhyaya, 2009; Marín-Navarrete, 2013]

Prévalence plus élevée de comorbidités psychiatriques [Arias et al, 2008; Carpentier et al, 2011; Levin et al, 1998a; Wilens et al 2005b; Wilens et al, 1999; Peles et al, 2012]

% plus faible de rétention en traitement [Schubiner, 2005; Wilens y Upadhyaya, 2007]

Martinez-Raga et al, Protocolos de TDAH y patología dual. En prensa 2016

Merci de votre attention.