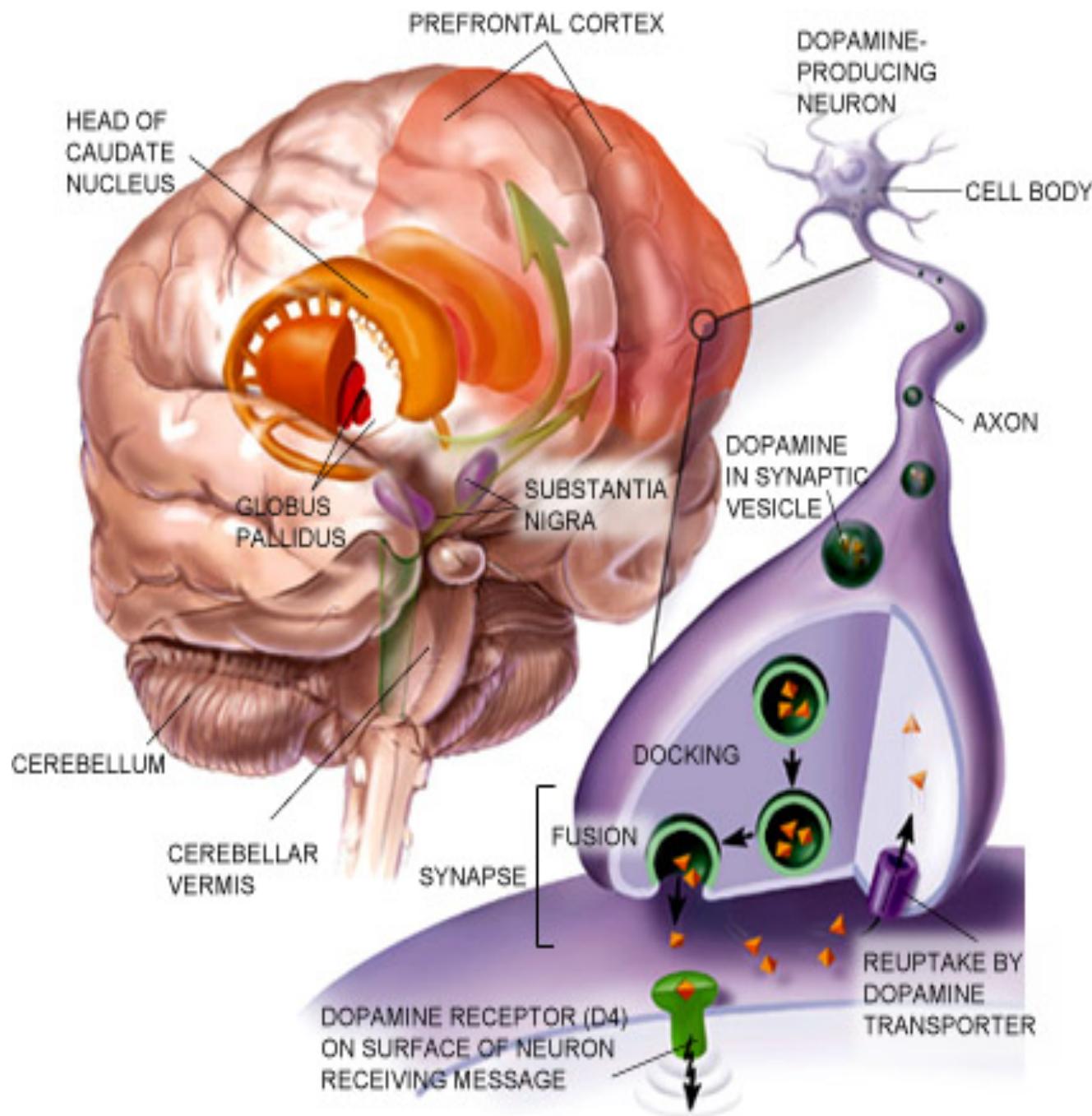


Schema basato sul modello di Brown, 2013



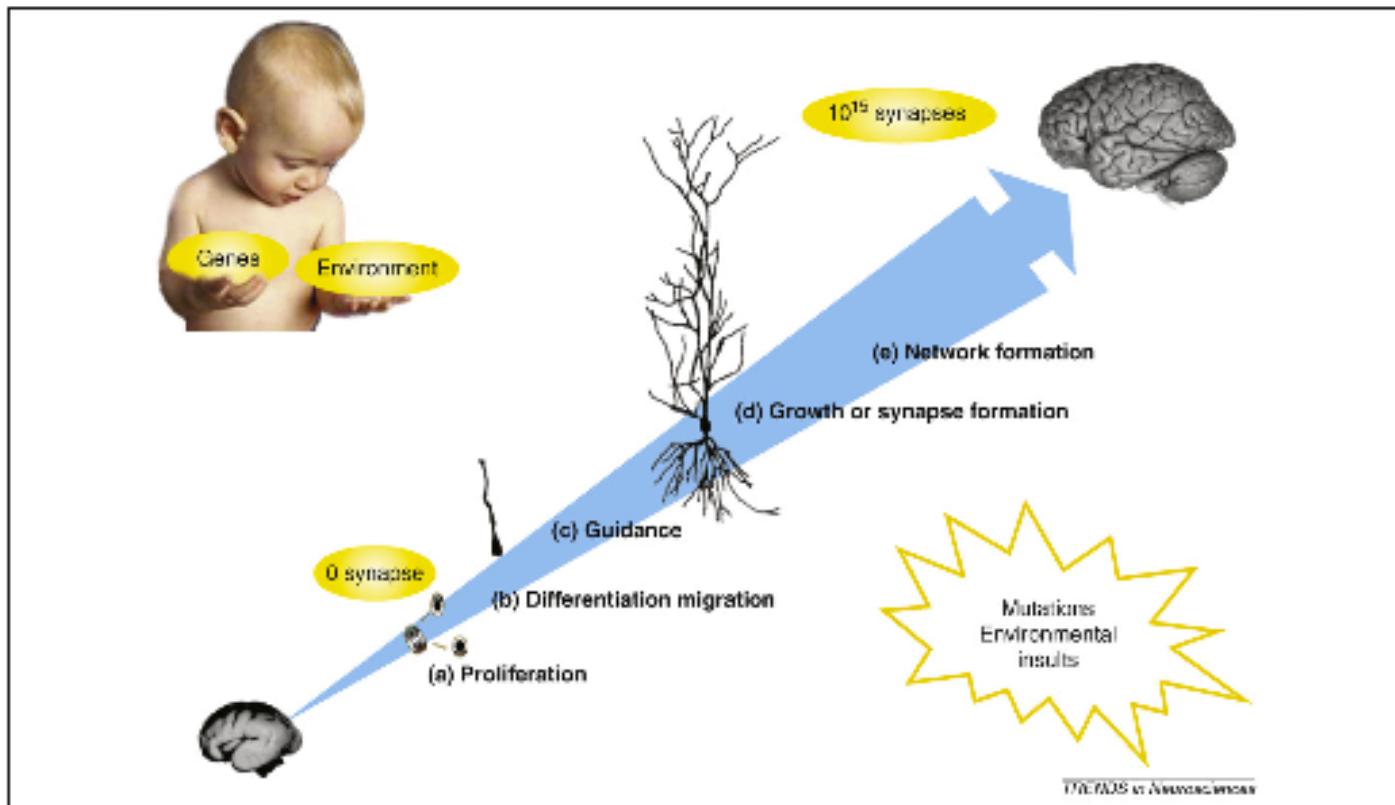
- When executive functions are impaired, the individual may no longer be capable of satisfactory self-care, of performing remunerative or useful work independently, or of maintaining normal social relationships...regardless of how high the person scores on test of skills, knowledge and abilities...
- Defective capacity for self-control...emotional lability or flattery, a heightened tendency to excitability or irritability, impulsivity, erratic carelessness, rigidity and difficulty in making shift of attention and in ongoing behavior...other defects in executive functions, however, are not so obvious..perhaps the most serious of this problem are impaired capacity to initiate activity, decreased or absent motivation..and defects in planning and carrying out activity sequences that make up goal-directed behavior...

# Neuro-archaeology: pre-symptomatic architecture and signature of neurological disorders

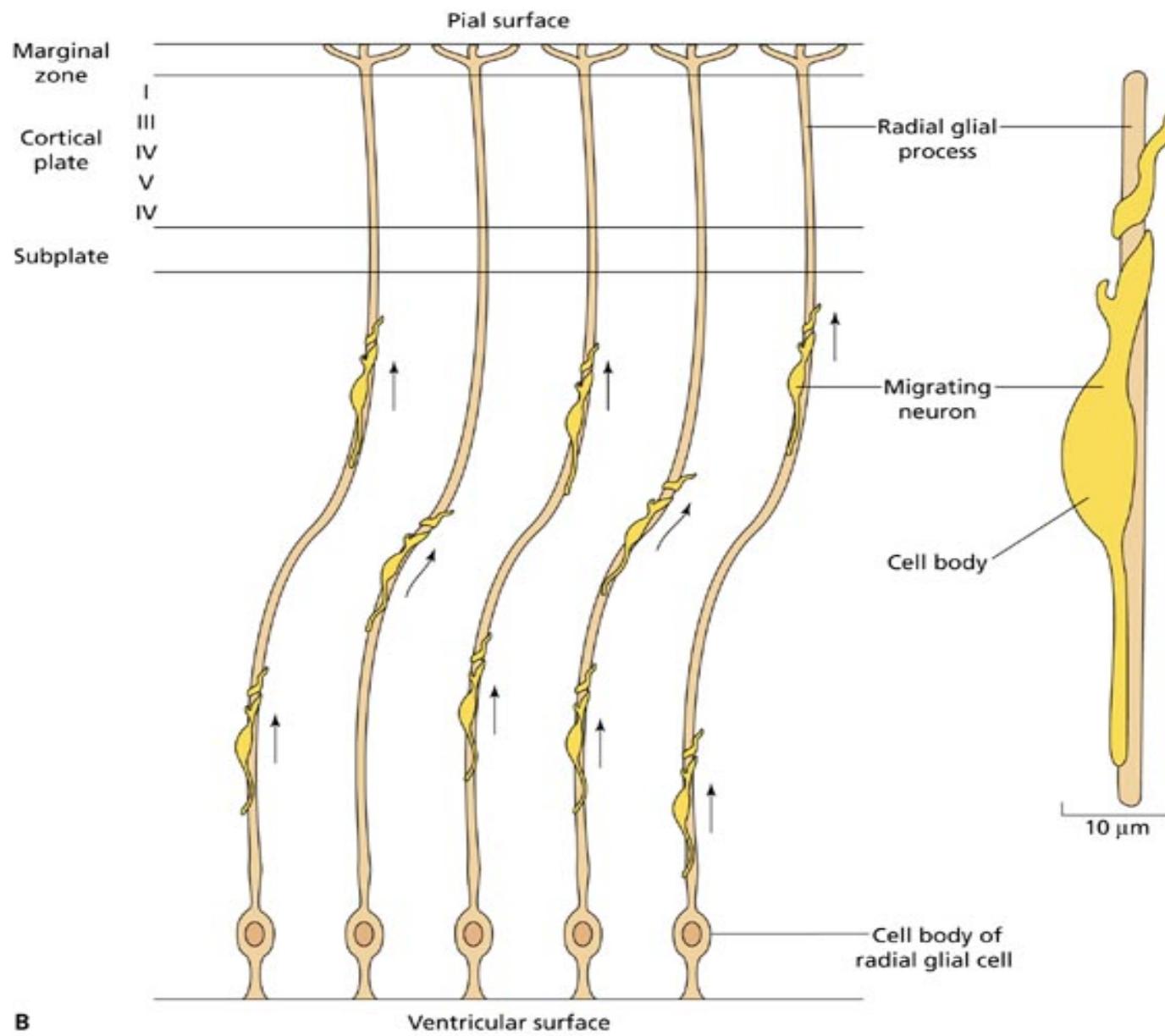
Yehezkel Ben-Ari

Institute of Neurobiology of the Mediterranean Sea (INMED), Institut national de la santé et de la recherche médicale (INSERM), Campus Scientifique de Luminy, Route de Luminy, Marseille 13263 Cedex, France

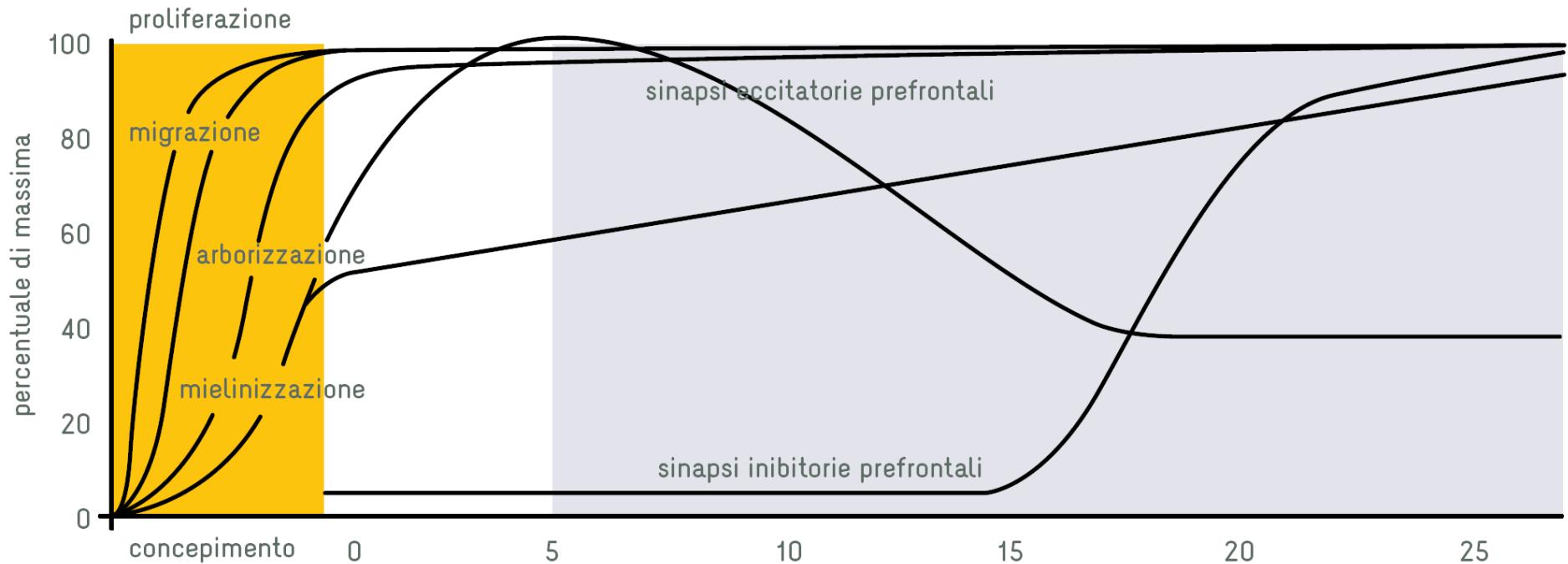
During brain development cells divide, differentiate and migrate to their assigned targets to form synapses and active cell assemblies. This sequence is controlled both by genetic programs and environmental factors. Alterations of this sequence by mutations or environmental insults leads to the formation of misconnected circuits endowed with a 'pre-symptomatic signature'. I propose here that early- and late-onset neurological disorders as diverse as infantile epilepsies, mental retardation, dyslexia or, in certain conditions, even Huntington's and Alzheimer's disease might be, in part, born at early developmental stages before symptoms appear. The core of this working hypothesis is that imaging or non-invasive recordings might unravel signatures of disorders to come, thereby permitting earlier diagnosis and potential treatment of neurological disorders.



**Figure 1.** Schematic illustration to depict the impact of the environment and genetic mutations on all developmental stages. (a) Proliferation, (b) differentiation and migration, (c) guidance, (d) growth or synapse formation and (e) network elaboration are modulated by genetic and environmental factors. Alterations of these steps due to mutations and/or environmental factors can lead to developmental-stage-dependent malformations that will be associated with inappropriate proliferation, migration, guidance, differentiation, growth or synapse formation.



Cambiamento del volume  
della materia durante lo  
sviluppo normale del cervello.



# DSM 5: NEURODEVELOPMENTAL DISORDERS

## **Intellectual Disability (Intellectual Developmental Disorder – ICD-11)**

Intellectual Developmental Disorder  
Intellectual or Global Developmental Delay Not Elsewhere Classified

## **Communication Disorders**

Language Disorder  
Speech Disorder  
Social Communication Disorder

## **Autism Spectrum Disorder**

Autism Spectrum Disorder

## **Attention Deficit/Hyperactivity Disorder**

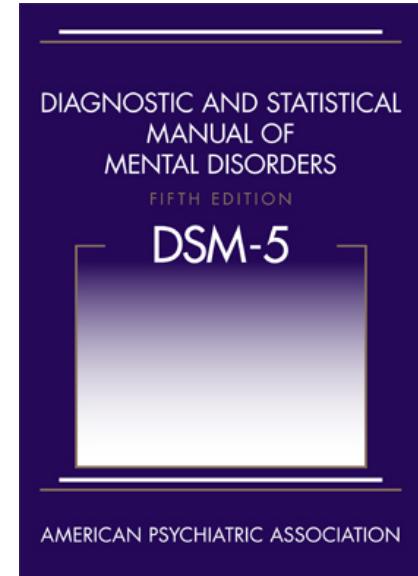
Attention Deficit/Hyperactivity Disorder  
Attention Deficit/Hyperactivity Disorder Not Elsewhere Classified

## **Specific Learning Disorder**

Specific Learning Disorder

## **Motor Disorders**

Developmental Coordination Disorder  
Stereotypic Movement Disorder  
Tourette's Disorder  
Chronic Motor or Vocal Tic Disorder  
Provisional Tic Disorder  
Tic Disorder Not Elsewhere Classified  
Substance-Induced Tic Disorder  
Tic Disorder Due to a General Medical Condition



Condizioni caratterizzate da:

**-insorgenza in età evolutiva**  
**-spesso in comorbidità**  
**-compromissioni del funzionamento personale, sociale, scolastico o occupazionale.**



# HHS Public Access

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## School Readiness and Self-Regulation: A Developmental Psychobiological Approach

**Clancy Blair and C. Cybele Raver**

Department of Applied Psychology, New York University, New York, New York 10003

Clancy Blair: clancy.blair@nyu.edu

### Abstract

Research on the development of self-regulation in young children provides a unifying framework for the study of school readiness. Self-regulation abilities allow for engagement in learning activities and provide the foundation for adjustment to school. A focus on readiness as self-regulation does not supplant interest in the development of acquired ability, such as early knowledge of letters and numbers; it sets the stage for it. In this article, we review research and theory indicating that self-regulation and consequently school readiness are the product of integrated developmental processes at the biological and behavioral levels that are shaped by the contexts in which development is occurring. In doing so, we illustrate the idea that research on self-regulation powerfully highlights ways in which gaps in school readiness and later achievement are linked to poverty and social and economic inequality and points the way to effective approaches to counteract these conditions.

# INTERVENIRE SUI FATTORI DI RISCHIO

Child Development, September/October 2005, Volume 76, Number 5, Pages 949–967

## Can Instructional and Emotional Support in the First-Grade Classroom Make a Difference for Children at Risk of School Failure?

Bridget K. Hamre and Robert C. Pianta

*University of Virginia*

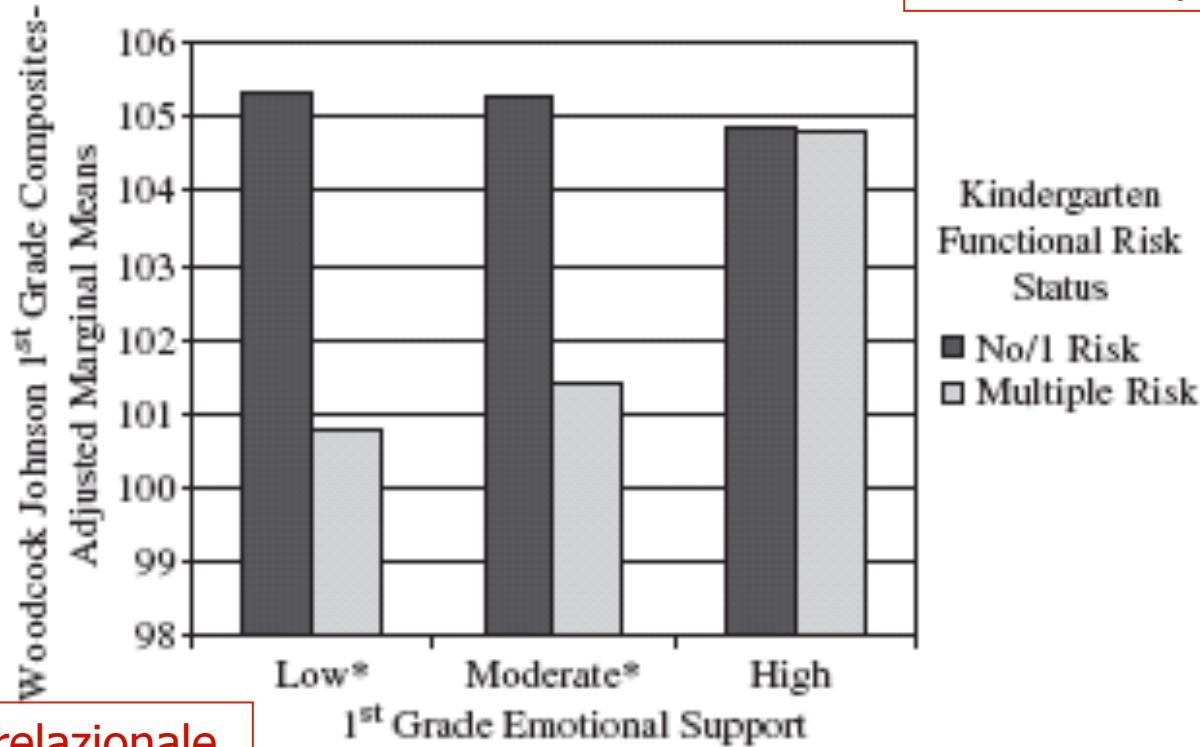
This study examined ways in which children's risk of school failure may be moderated by support from teachers. Participants were 910 children in a national prospective study. Children were identified as at risk at ages 5–6 years on the basis of demographic characteristics and the display of multiple functional (behavioral, attention, academic, social) problems reported by their kindergarten teachers. By the end of first grade, at-risk students placed in first-grade classrooms offering strong instructional and emotional support had achievement scores and student–teacher relationships commensurate with their low-risk peers; at-risk students placed in less supportive classrooms had lower achievement and more conflict with teachers. These findings have implications for understanding the role that classroom experience may play in pathways to positive adaptation.

# Fattori di rischio

- Bassa scolarità materna
- Rischio comportamentale
  - Difficoltà a mantenere l'attenzione
  - Comportamenti esternalizzanti
  - Scarse abilità sociali

# Difficoltà comportamentali e abilità di lettura

Rischio comportamentale



Supporto emotivo-relazionale

Figure 2. Woodcock-Johnson first-grade composites, adjusted for 54-month performance, by kindergarten functional risk status and first-grade emotional support.

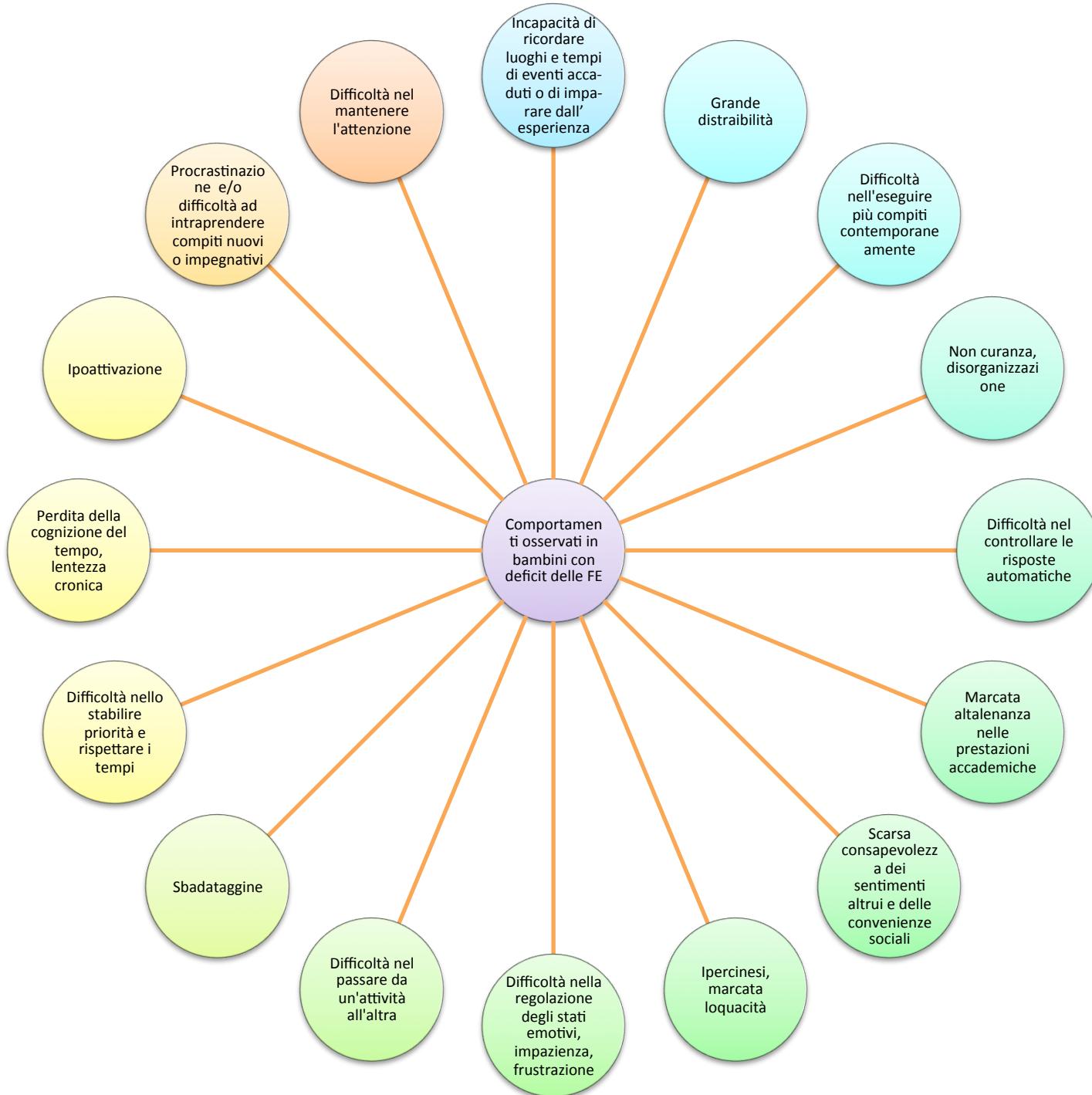
\*Estimated means at this level have 95% confidence intervals that do not overlap.



*Il Ministro dell'Istruzione, dell'Università e della Ricerca*

# **STRUMENTI D'INTERVENTO PER ALUNNI CON BISOGNI EDUCATIVI SPECIALI E ORGANIZZAZIONE TERRITORIALE PER L'INCLUSIONE SCOLASTICA**

**Direttiva Ministeriale 27.12.2012**



# Continuum tra variabilità “normale” e disturbi del neurosviluppo



# DSM 5: NEURODEVELOPMENTAL DISORDERS

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Tic Disorder Not Elsewhere Classified  
Substance-Induced Tic Disorder  
Tic Disorder Due to a General Medical Condition

DIAGNOSTIC AND STATISTICAL  
MANUAL OF  
MENTAL DISORDERS  
FIFTH EDITION

**DSM-5**

AMERICAN PSYCHIATRIC ASSOCIATION

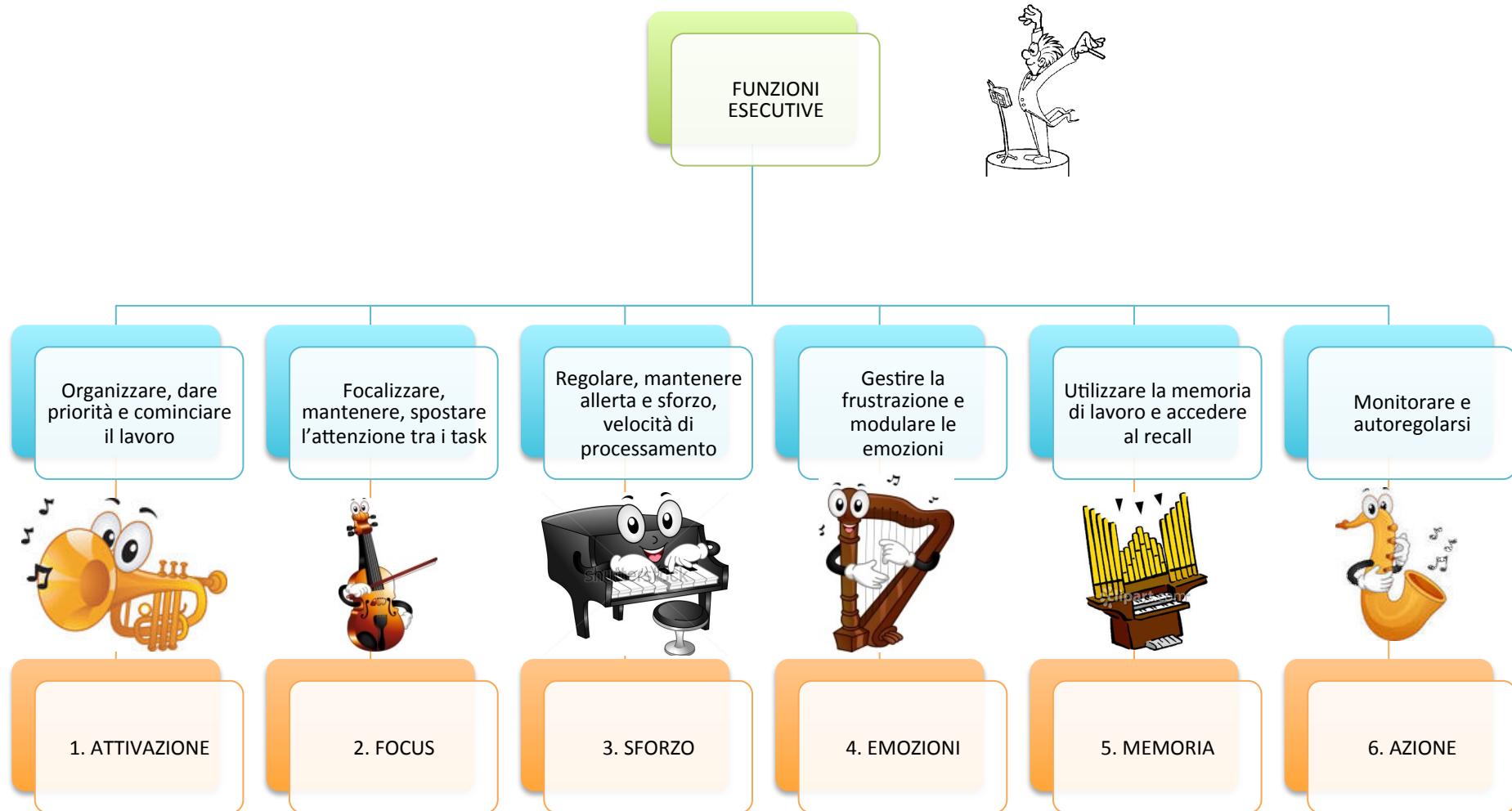
Condizioni caratterizzate da:

- insorgenza in età evolutiva**
- spesso in comorbidità**
- compromissioni del funzionamento personale, sociale, scolastico o occupazionale.**

# A new working definition of ADHD

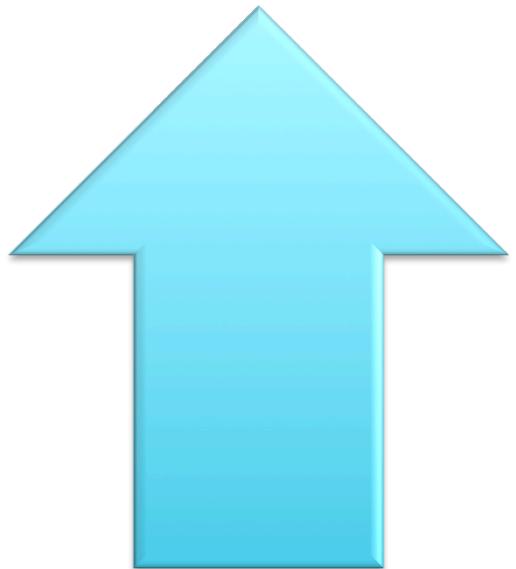
- A complex syndrome of
- developmental impairments of executive functions,
- the self-management system of the brain,
- a system of mostly unconscious operations
- these impairments are situationally variable,
- chronic and significantly interfere with functioning in many aspects of the person's daily life

(Brown, 2013)



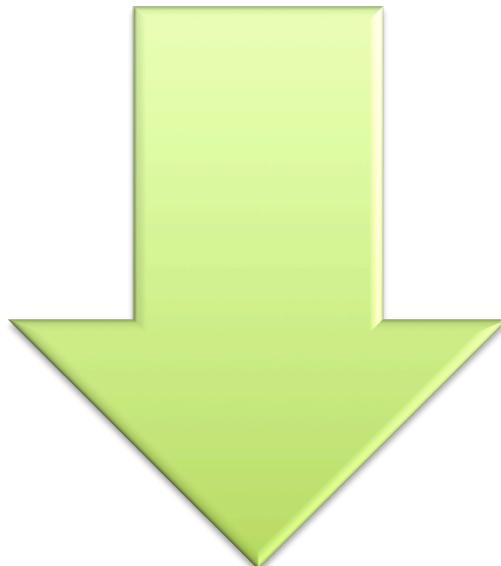
Schema basato sul modello di Brown, 2013

# La compromissione delle FE è situazionale



## **L'ADHD può non essere osservabile**

- In situazioni altamente strutturate
- In situazioni nuove
- quando il paziente è impegnato in attività interessanti
- quando il paziente viene seguito individualmente
- in un contesto controllato e sorvegliato
- quando vengono elargite frequenti ricompense
- durante attività brevi e rapide



## **L'ADHD peggiora particolarmente**

- In situazioni non strutturate
- durante attività ripetitive
- In situazioni noiose
- In presenza di molte distrazioni
- con sorveglianza minima
- quando si richiede attenzione sostenuta o sforzo mentale
- durante attività lente e prolungate

Difficoltà di  
organizzazione



Difficoltà nella  
gestione del  
tempo



Difficoltà  
nell'iniziare

CHI NON E' CAPACE DI GESTIRE IL PROPRIO DIARIO



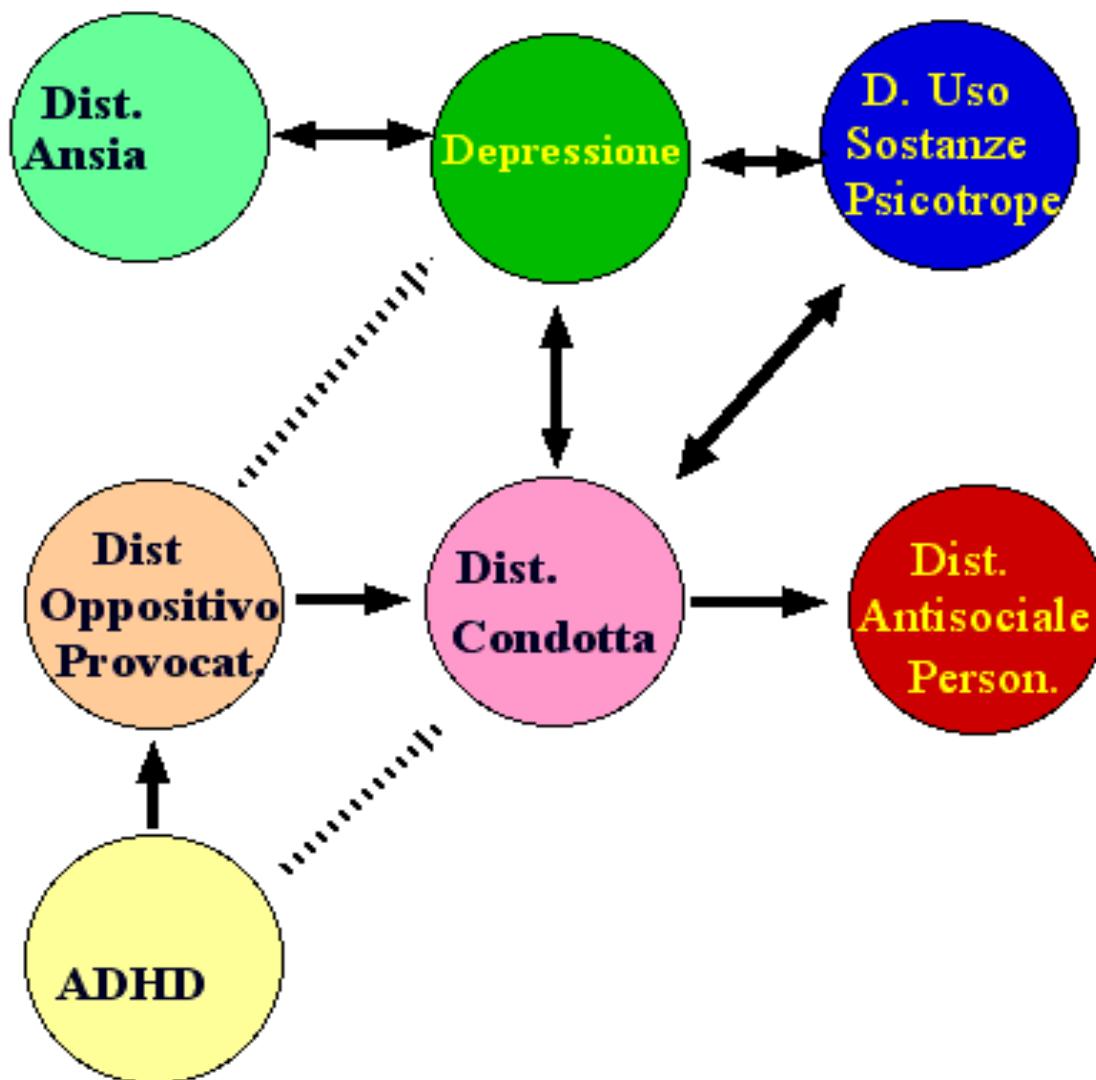
# Emotional and motivational aspects of ADHD

- Brown's model emphasized that ADHD involves difficulty in modulating a wider variety of emotions; he includes also impairments in motivational functions such as activating to work and sustaining effort.
- ADHD tend to suffer from diminished anticipatory dopamine cell firing which makes it more difficult for them to sustain motivation for activities that do not provide immediate and continuing reinforcement.

Infanzia

Adolescenza

Eta' Adulta



## ORIGINAL ARTICLE

## Medication for Attention Deficit-Hyperactivity Disorder and Criminality

Paul Lichtenstein, Ph.D., Linda Halldner, M.D., Ph.D., Johan Zetterqvist, M.Ed.,  
 Arvid Sjölander, Ph.D., Eva Serlachius, M.D., Ph.D.,  
 Seena Fazel, M.B., Ch.B., M.D., Niklas Långström, M.D., Ph.D.,  
 and Henrik Larsson, M.D., Ph.D.

## ABSTRACT

## BACKGROUND

From the Departments of Medical Epidemiology and Biostatistics (P.L., L.H., J.Z., A.S., N.L., H.L.) and Clinical Neuroscience (E.S.), Karolinska Institutet, Stockholm; and the Department of Psychiatry, University of Oxford, Oxford, United Kingdom (S.F.). Address reprint requests to Dr. Lichtenstein at the Department of Medical Epidemiology and Biostatistics, Karolinska Institutet, Box 281, 17177 Stockholm, Sweden, or at paul.lichtenstein@ki.se.

N Engl J Med 2012;367:2006-14.  
 DOI: 10.1056/NEJMoa1203241  
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## METHODS

Using Swedish national registers, we gathered information on 25,656 patients with a diagnosis of ADHD, their pharmacologic treatment, and subsequent criminal convictions in Sweden from 2006 through 2009. We used stratified Cox regression analyses to compare the rate of criminality while the patients were receiving ADHD medication, as compared with the rate for the same patients while not receiving medication.

## RESULTS

As compared with nonmedication periods, among patients receiving ADHD medication, there was a significant reduction of 32% in the criminality rate for men (adjusted hazard ratio, 0.68; 95% confidence interval [CI], 0.63 to 0.73) and 41% for women (hazard ratio, 0.59; 95% CI, 0.50 to 0.70). The rate reduction remained between 17% and 46% in sensitivity analyses among men, with factors that included different types of drugs (e.g., stimulant vs. nonstimulant) and outcomes (e.g., type of crime).

## CONCLUSIONS

Among patients with ADHD, rates of criminality were lower during periods when they were receiving ADHD medication. These findings raise the possibility that the use of medication reduces the risk of criminality among patients with ADHD. (Funded by the Swedish Research Council and others.)

# ADHD...anche evoluzioni positive

**INCREASED CREATIVITY (WHITE & SHAH, 2011)**

**(SOCIAL) INTUITION AND LEADERSHIP SKILLS**

**(FERNANDEZ-MAYORALAS, LOPEZ-ARRIBAS, MUNIZ- BORREGA, & PRADOS-PARRA, 2012)**

**ARE ALSO REPORTED FOR SUBCLINICAL FORMS OF ADHD,**

**HIGHLIGHTING AN EVOLUTIONARY PSYCHOBIOLOGICAL  
PERSPECTIVE FOR POSITIVE SELECTION AND MAINTENANCE OF  
ADHD-RELATED TRAITS IN POPULATIONS**

**(DING ET AL., 2002; MATTHEWS & BUTLER, 2011; SWANSON ET AL., 2000).**



Credi che facciamo bene a fargli studiare il violino?