ADHD
in homeless people

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DSM-5 criteria

A. A persistent pattern of inattention and/or hyperactivity-impulsivity that interferes with functioning or development

Six or more of the symptoms of inattention **AND/OR** hyperactivity impulsivity have persisted for at least six months to a degree that is inconsistent with developmental level and that negatively impacts directly on social and academic/occupational activities

The symptoms are not solely a manifestation of oppositional behaviour, defiance, hostility, or failure to understand tasks or instructions.

For older adolescents and adults (age 17 and older), five or more symptoms are required

DSM-5 criteria (cont'd)

Symptoms of inattention

- Often fails to give close attention to details or makes careless mistakes in schoolwork, at work, or with other activities
- Often has trouble holding attention on tasks or play activities
- Often does not seem to listen when spoken to directly
- Often does not follow through on instructions and fails to finish schoolwork, chores, or duties in the workplace (e.g., loses focus, side-tracked)
- Often has trouble organizing tasks and activities
- Often avoids, dislikes, or is reluctant to do tasks that require mental effort over a long period of time (such as schoolwork or homework)
- Often loses things necessary for tasks and activities (e.g. school materials, pencils, books, tools, wallets, keys, paperwork, eyeglasses, mobile telephones)
- Is often easily distracted
- Is often forgetful in daily activities

DSM-5 criteria (cont'd)

Symptoms of hyperactivity/impulsivity

- Often fidgets with or taps hands or feet, or squirms in seat
- Often leaves seat in situations when remaining seated is expected
- Often runs about or climbs in situations where it is not appropriate (adolescents or adults may be limited to feeling restless)
- Often unable to play or take part in leisure activities quietly
- Is often "on the go" acting as if "driven by a motor"
- Often talks excessively
- Often blurts out an answer before a question has been completed.
- Often has trouble waiting his/her turn
- Often interrupts or intrudes on others (e.g., butts into conversations or games)

DSM-5 criteria (cont'd)

B. Several inattentive or hyperactive-impulsive symptoms were present prior to age 12 years

C. Several inattentive or hyperactive-impulsive symptoms are present in two or more settings (e.g. at home, school, or work; with friends or relatives; in other activities)

D. There is clear evidence that the symptoms interfere with, or reduce the quality of, social, academic or occupational functioning

E. The symptoms do not occur exclusively during the course of schizophrenia or another psychotic disorder and are not better explained by another mental disorder (e.g. mood disorder, anxiety disorder, dissociative disorder, personality disorder, substance intoxication or withdrawal)

Presentations

- ***Combined Presentation*:** if enough symptoms of both criteria inattention and hyperactivity-impulsivity were present for the past 6 months

- ***Predominantly Inattentive Presentation*:** if enough symptoms of inattention, but not hyperactivity-impulsivity, were present for the past six months

- ***Predominantly Hyperactive-Impulsive Presentation*:** if enough symptoms of hyperactivity-impulsivity but not inattention were present for the past six months

- Because symptoms can change over time, the presentation may change over time as well

DSM-5-TR

- Partial remission

- Variability symptoms:

- Close supervision
- Activities especially interesting
- Novel settings
- One-on-one situations
- Frequent rewards

Psychiatric comorbidities

Adult ADHD is highly comorbid with ADs (OR: 5.0), MDD (OR: 4.5), BD (OR: 8.7) and SUDs (OR: 4.6).

Hartman et al. Neurosc Biobeh Rev , 2023

Physical comorbidities

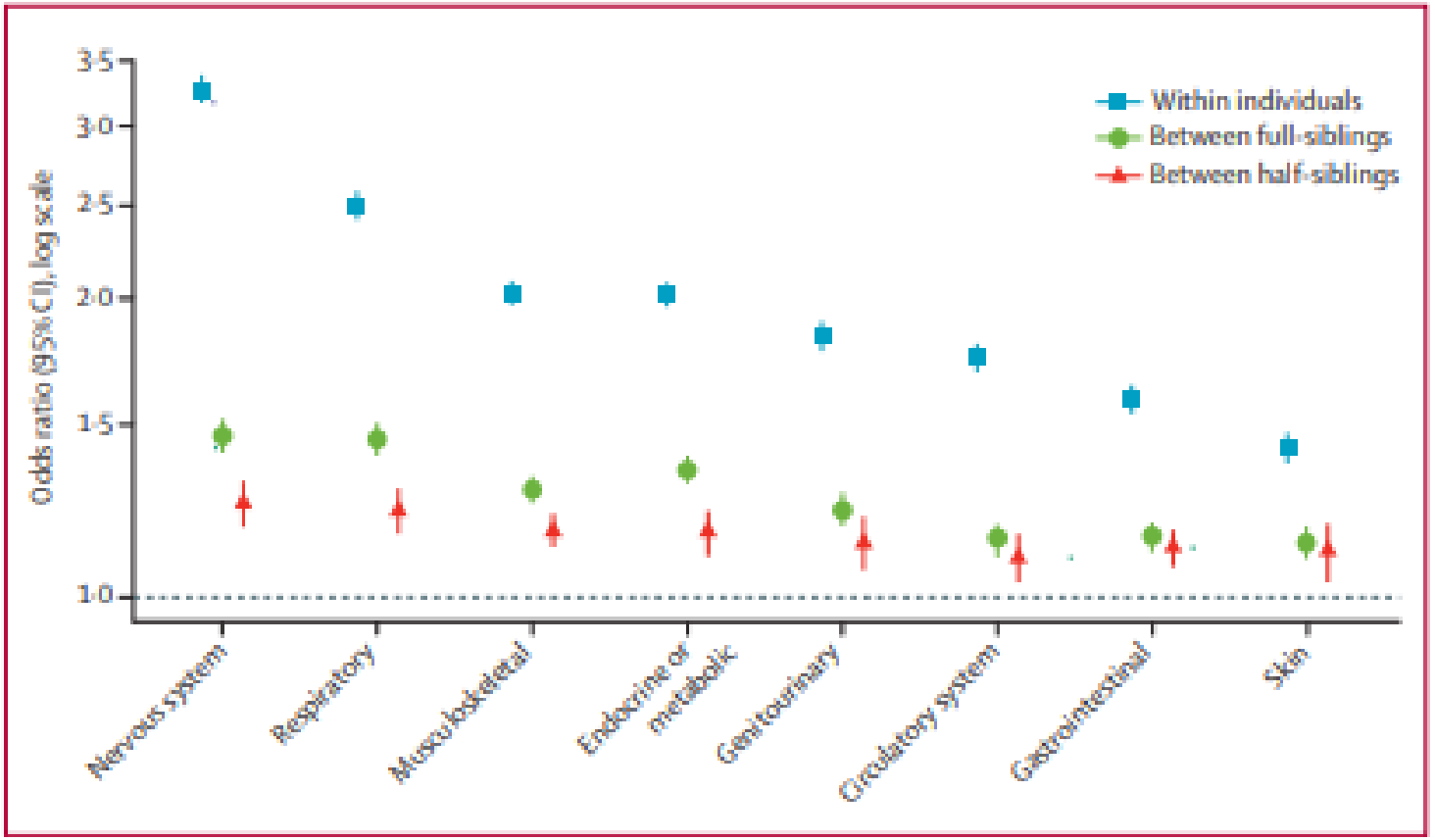
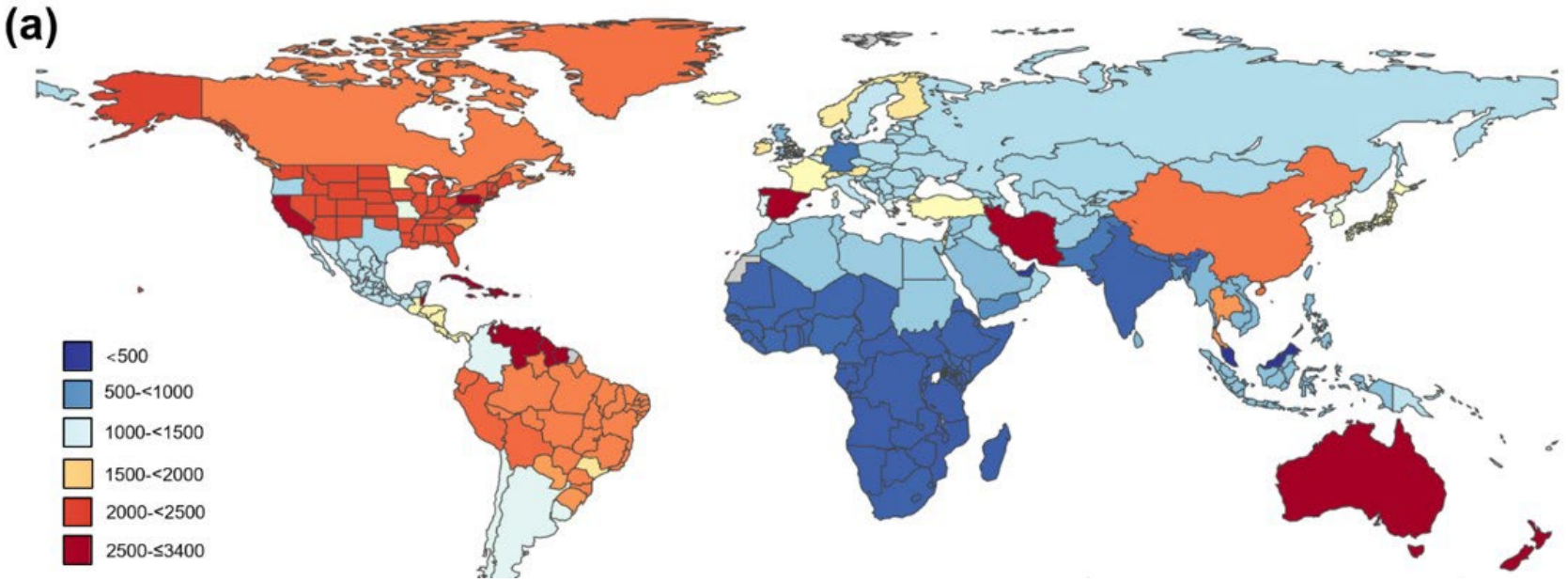


Figure 1: Associations between ADHD and broad disease groups in individuals and between full-siblings and maternal half-siblings

GBD data (unpublished)



Cortese et al. 2023, under review

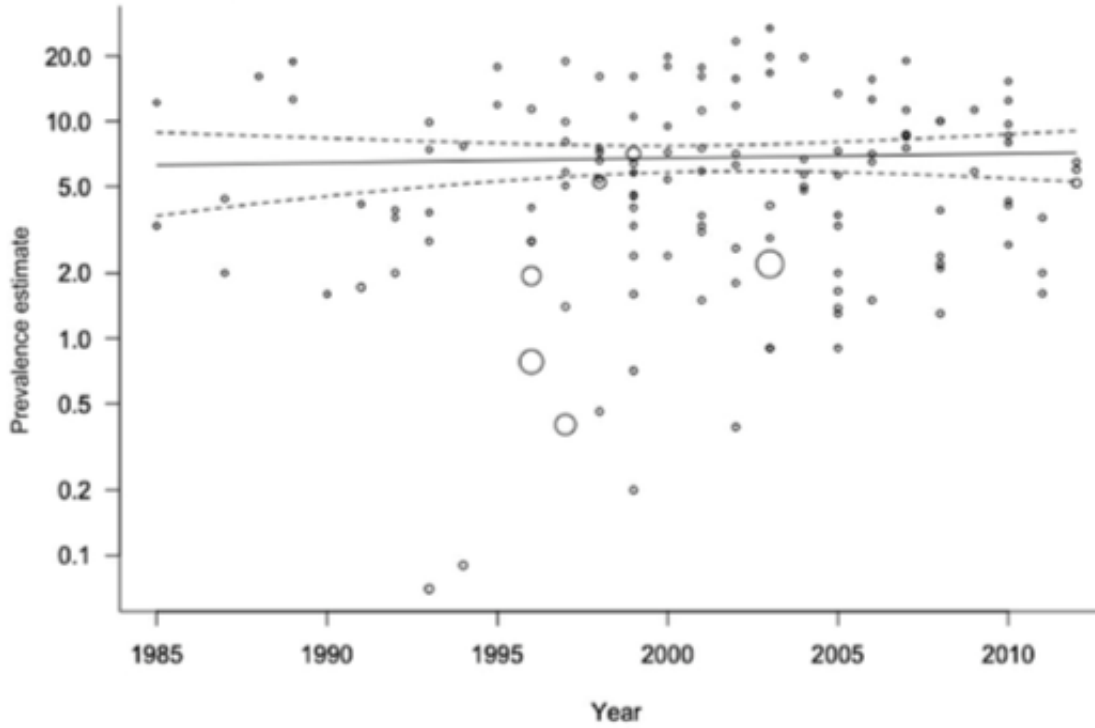
Int. J. Epidemiol. Advance Access published January 24, 2014

International Journal of Epidemiology, 2014, 1–9
doi: 10.1093/ije/dyt261
Original article

Original article

ADHD prevalence estimates across three decades: an updated systematic review and meta-regression analysis

Guilherme V Polanczyk,[1,2,3] Erik G Willcutt,[4] Giovanni A Salum,[3,5] Christian Kieling[5] and Luis A Rohde[3,5]*

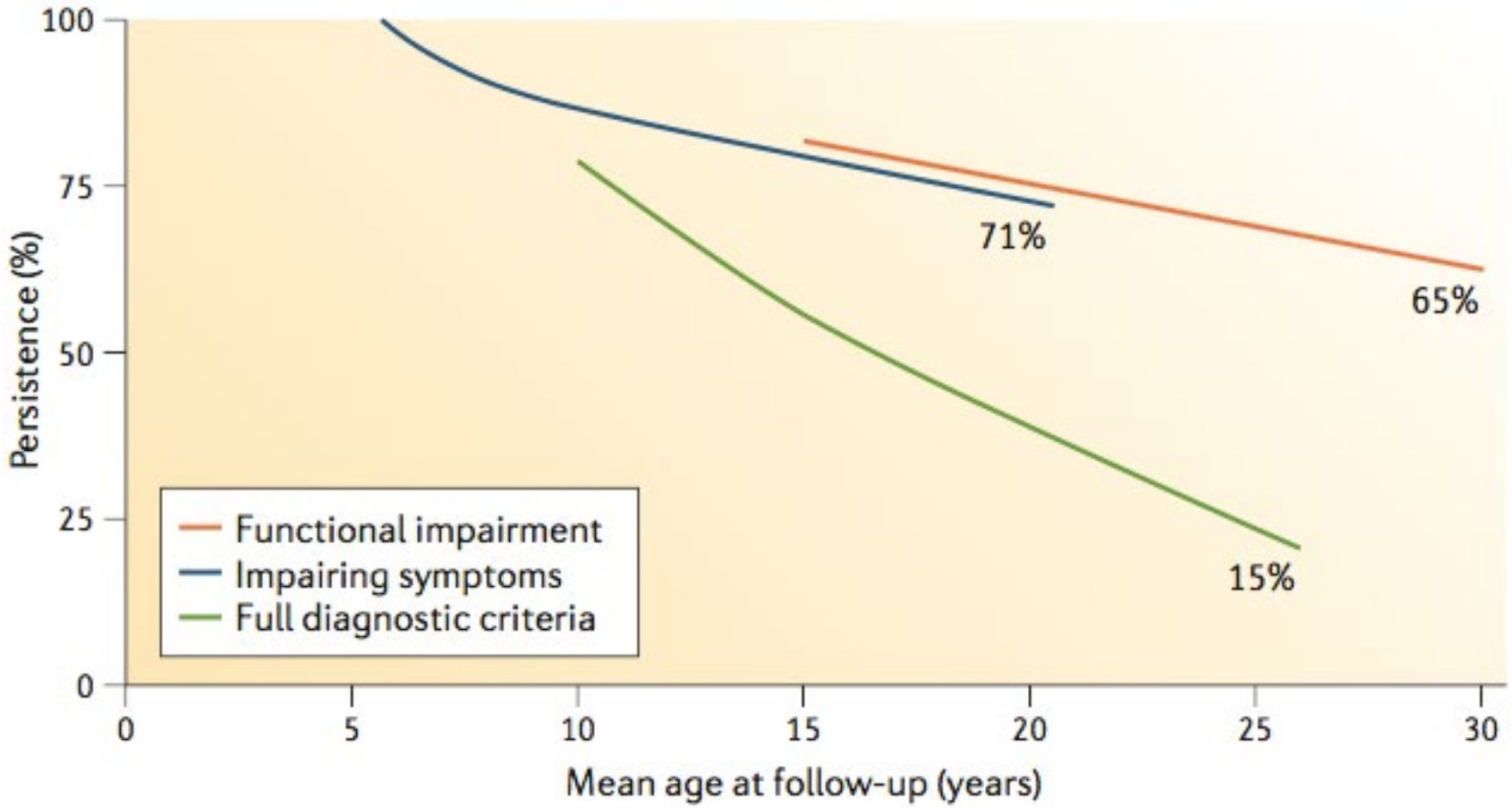


Prevalence in adults



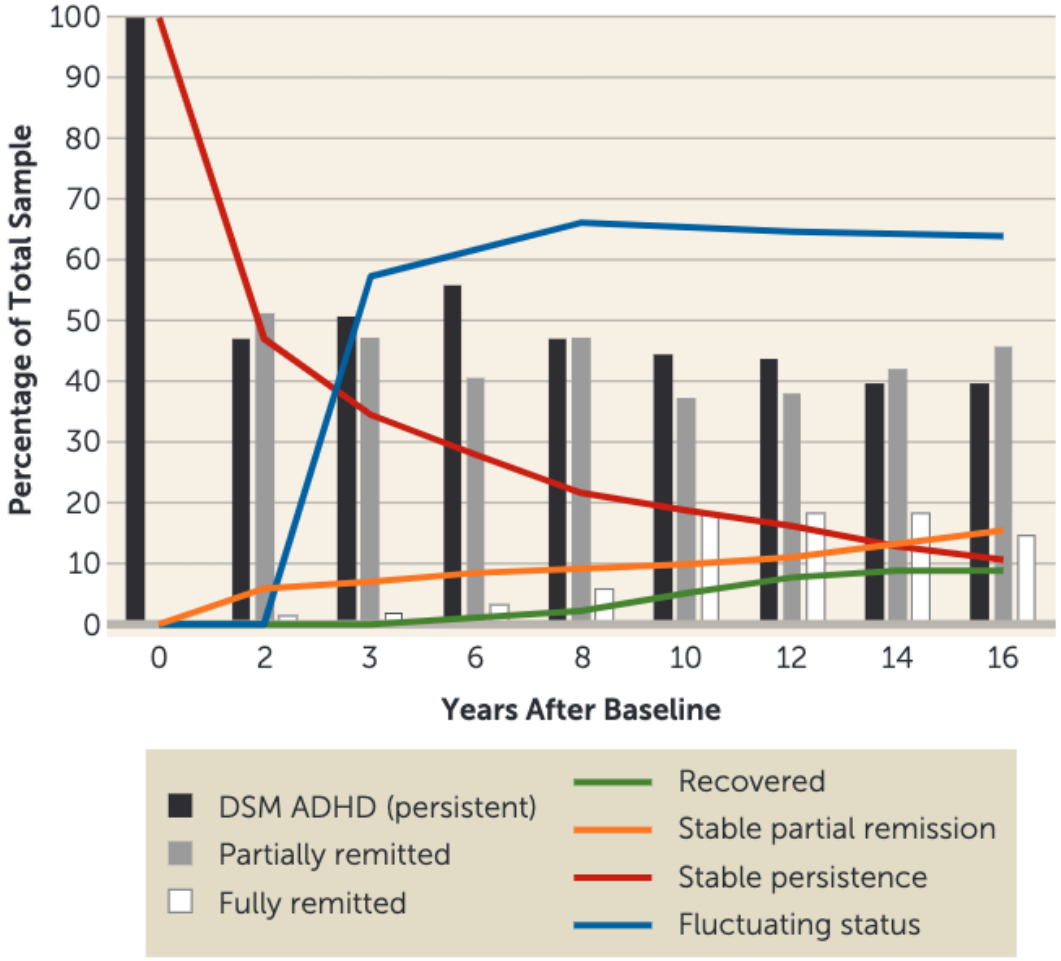
Around 2.5%

Persitence in adulthood



Faraone et al., Psychol Med, 2006

Fluctuating “ADHD”



Sibley et al, Am J Psych, 2022

Diagnosis

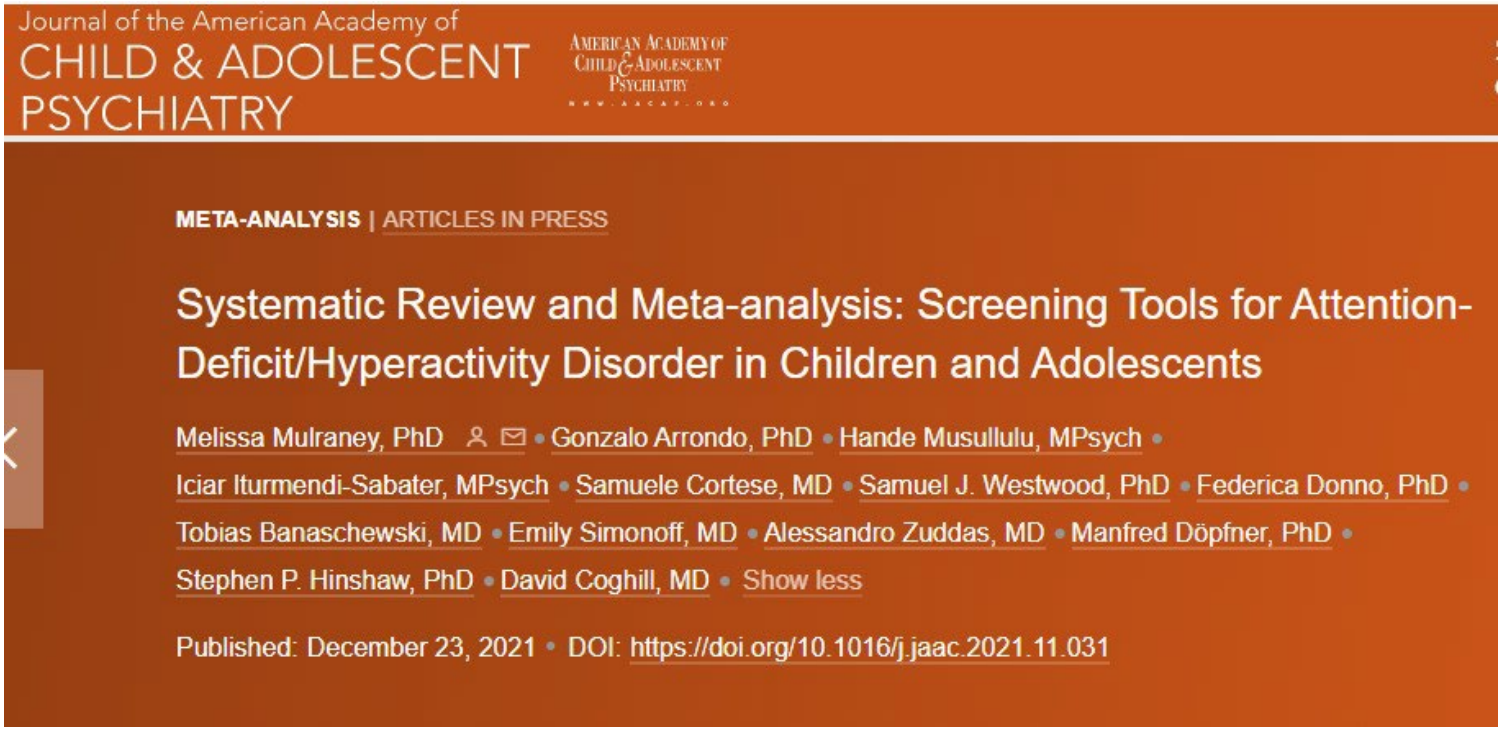
- Interview with parents/caregivers; importance of developmental history
- Psychiatric interview with child; especially relevant for differential diagnoses
- Behavior in doctor's office: not informative for diagnosis
- Importance of information from other sources (e.g., school; questionnaires/rating scales: e.g.: Conners or SNAP-IV questionnaires)

DIAGNOSIS

- **THE BIGGEST MISTAKE**: diagnosis based on behavior in the doctor's office

- **ANOTHER MISTAKE**: diagnosis based on the "Conners"

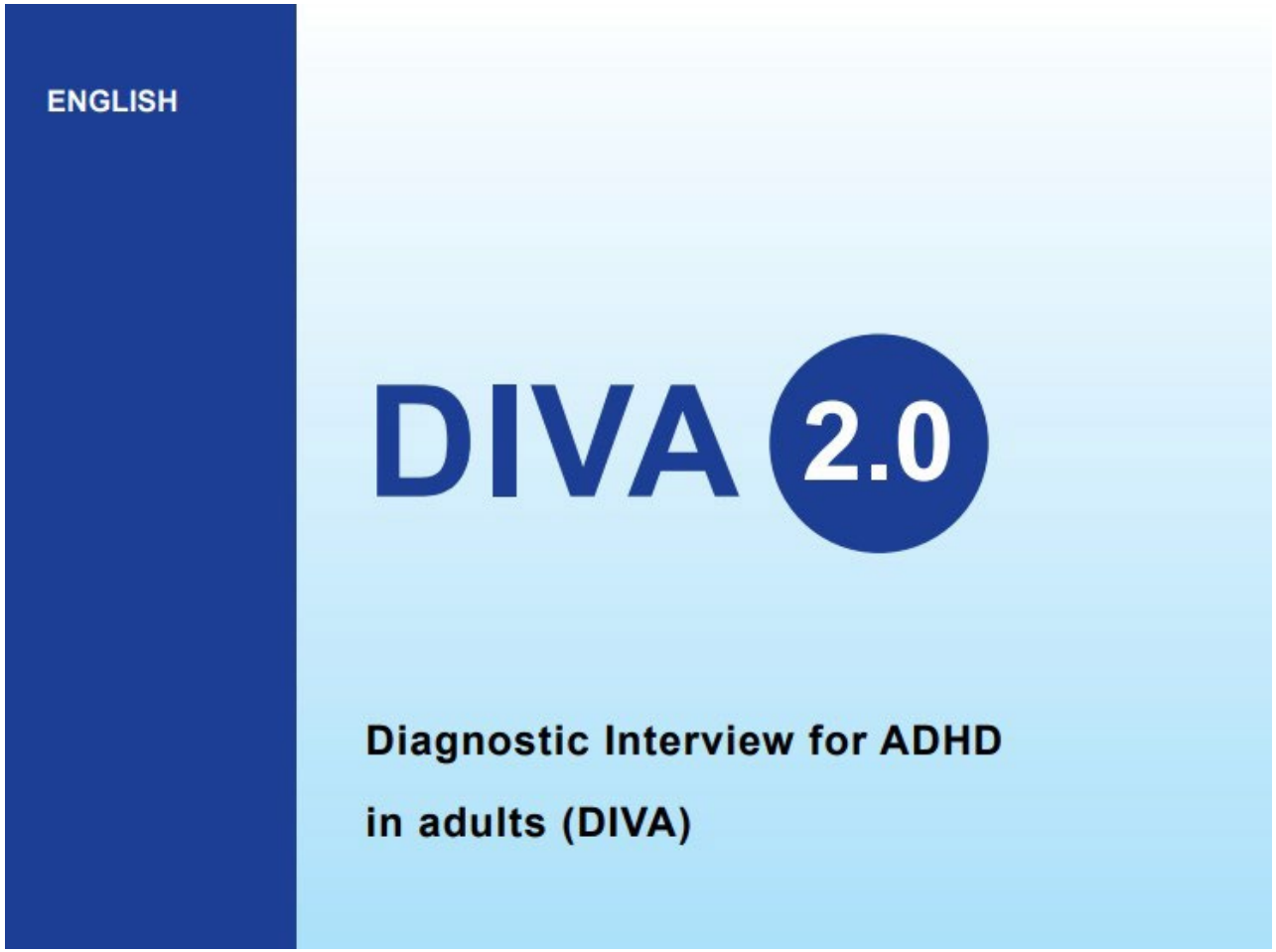




- Achenbach System of Empirically Based Assessment [ASEBA],
- *DSM-IV* symptom scales
- SDQ
- Other Scales

None of the measures met minimal standards for acceptable sensitivity (0.8) and specificity (0.8)

For adults



https://www.advancedassessments.co.uk/resources/ADHD-Screening-Test-Adult.pdf

Objective tools?

- FDA approved (2013): Neuropsychiatric EEG based ADHD assessment Aid)- BUT….no associationism recent meta-analysis!!!
- QbTest??



Biomarkers



Research Reports | Free Access

Candidate diagnostic biomarkers for neurodevelopmental disorders in children and adolescents: a systematic review

Samuele Cortese, Marco Solmi, Giorgia Michelini, Alessio Bellato, Christina Blanner, Andrea Canozzi, Luis Eudave, Luis C. Farhat, Mikkel Højlund, Ole Köhler-Forsberg ... See all authors

First published: 14 January 2023 | https://doi.org/10.1002/wps.21037

No biochemical, neuroimaging, neurophysiological, neuropsychological or genetic biomarker with specificity and sensitivity > 80% replicated in two or more independent studies

https://onlinelibrary.wiley.com/doi/10.1002/wps.21037

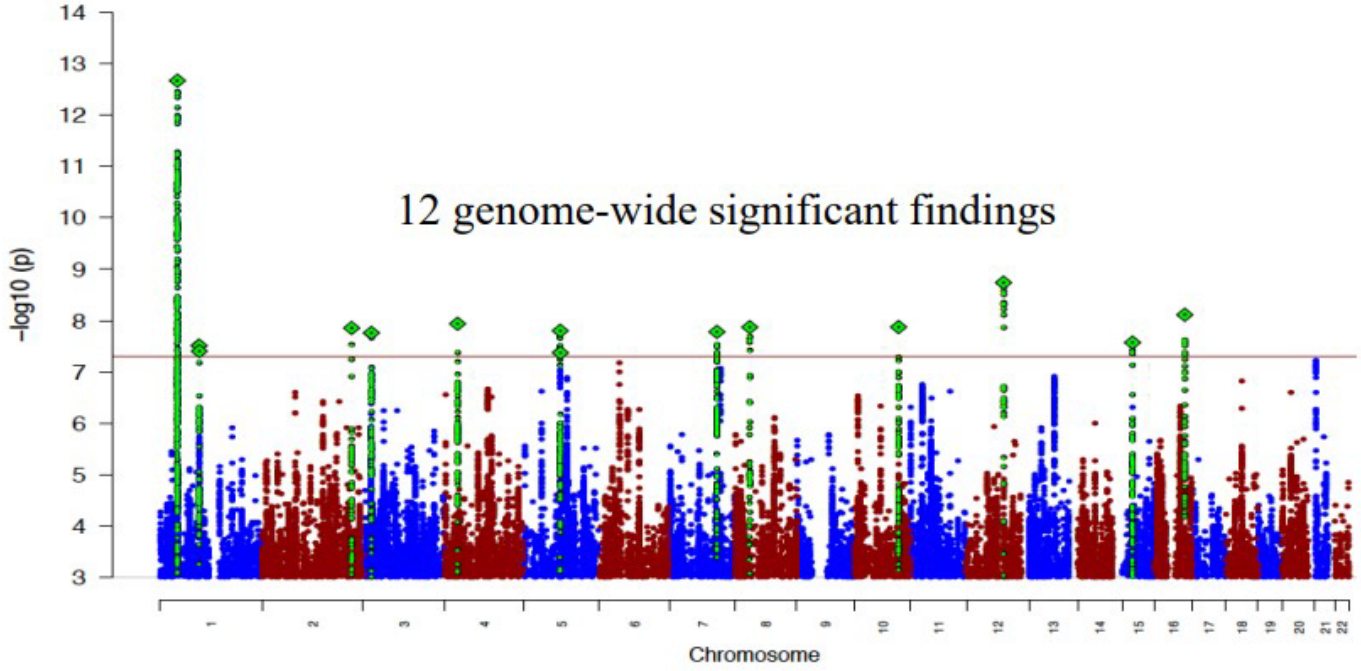
Genome-wide association study (GWAS) meta-analysis of ADHD


Ditte Demontis


Raymond Walters

PGC: 11 ADHD samples: 5.999 cases, 12.699 controls

iPSYCH: 14.584 cases, 22.492 controls



Demontis, Walters, et al, Nature Genetics 2019

Risk factors Level umbrella review

	Source	Number of cases/ total population	Number of study estimates	Study design	Effect metrics	Random effects summary estimate (95% CI)	Random effects p value	I^2	95% prediction interval	Egger p value	Large heterogeneity, small study effect, excess significance bias, or loss of significance under 10% credibility ceiling	AMSTAR 2 quality/ AMSTAR 2 quality when protocol assessment was ruled out
Convincing (class I)												
Maternal pre-pregnancy obesity	Jenabi et al (2019)[58]	40 880/1 464 097	11	Cohort	OR	1·63 (1·49 to 1·77)	p<0·000001	30%	1·35 to 1·95	0·92	None	Critically low/low
Childhood eczema	van der Schans et al (2017)[57]	10 636/54 429	6	Cohort, case-control	OR	1·31 (1·2 to 1·44)	p<0·000001	0%	1·15 to 1·5	0·94	None	Low/high
Hypertensive disorders during pregnancy	Maher et al (2018)[49]	37 128/1 395 605	8	Cohort, case-control	OR	1·29 (1·22 to 1·36)	p<0·000001	0%	1·2 to 1·38	0·73	None	High/high
Preeclampsia	Maher et al (2018)[49]	>1000/NR	6	Cohort, case-control	OR	1·28 (1·21 to 1·35)	p<0·000001	0%	1·19 to 1·39	0·76	None	High/high
Maternal acetaminophen exposure during pregnancy	Gou et al (2019)[55]	>1000/244 940	8	Cohort	RR	1·25 (1·17 to 1·34)	p<0·000001	26%	1·08 to 1·44	0·42	None	Low/high

Kim et al, Lancet psychiatry, 2018

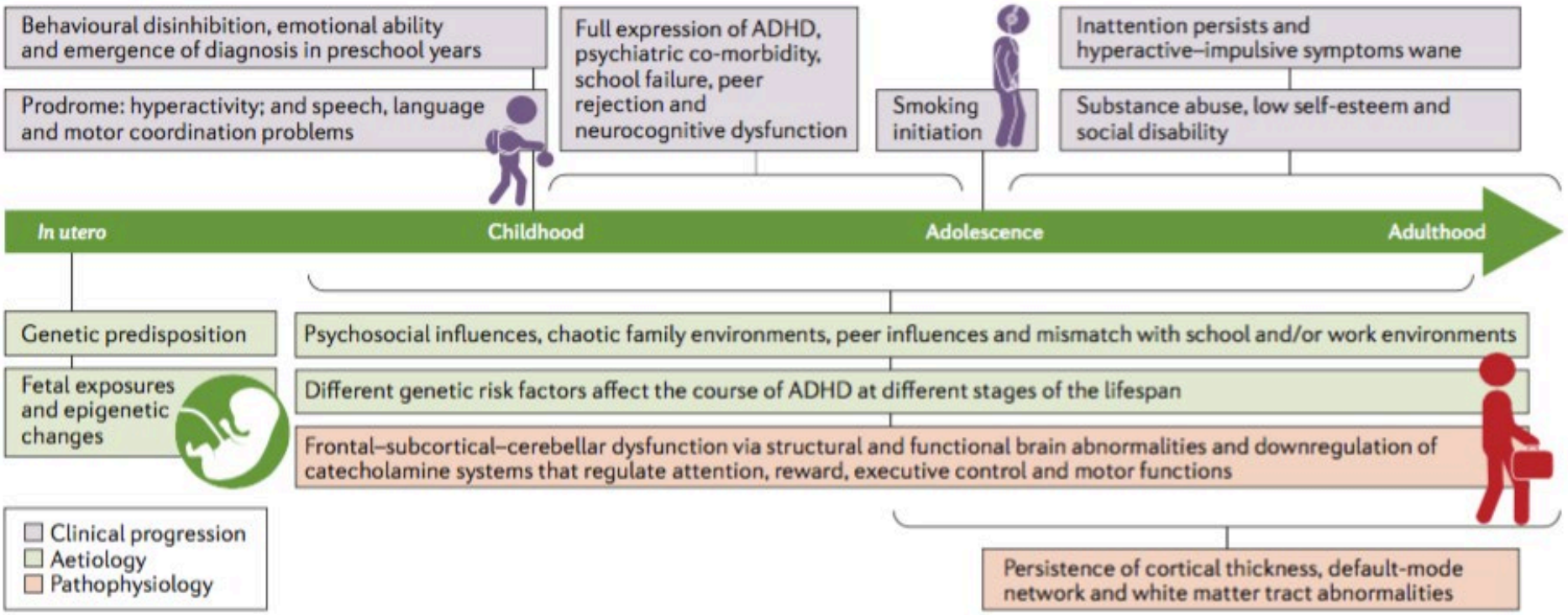
2018 NICE Guidelines

School-age children and adolescents	**Children and young people 5 years and over:** • **Group-based ADHD-focused support** • **If persistent significant impairment in at least one domain of life: medication (order of preference: 1) methylphenidate, 2) lisdexamfetamine (consider dexamphetamine if lisdexamfetamine not well tolerated) 3) atomoxetine or guanfacine** • **If comorbid oppositional defiant disorder or conduct disorder: add in a parent training programme** • **For adolescents: If symptoms still impairing in at least one domain of life after medication treatment: cognitive behavioural therapy**

2018 NICE GUIDELINES (cont'd)

Adults	• First line: medication (order of preference: methylphenidate OR lisdexamfetamine (consider dexamphetamine if lisdexamfetamine not well tolerated) ; atomoxetine; • Non-pharmacological treatment if patient's choice, difficulty adhering to medication, medication ineffective or not tolerated

Evolution (if untreated)



Faraone et al., Nature Reviews Disease Primers, 2015

Impact

- School failure
- Unemployment
- Car accidents
- Traumatic brain injuries
- Suicidal attempts/suicide
- Mortality

Faraone et al, NBR, 2021

ADHD and homeless

(adhd [ti] or attention deficit [ti]) homeless [ti]

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1 Cite Share

[Formula: see text] Relationship of parent-rated and objectively evaluated executive function to symptoms of posttraumatic stress and **attention**-**deficit**/hyperactivity disorder in **homeless** youth.

Lafavor T, Gimbel B, Olsen A, Travis A, Weber R.

Child Neuropsychol. 2022 Aug;28(6):768-790. doi: 10.1080/09297049.2021.2016671. Epub 2021 Dec 26.

PMID: 34957916

2 Cite Share

Comorbidity of **attention** **deficit** hyperactivity disorder with personality disorders in **homeless** people.

Salavera C, Antoñanzas JL, Bustamante JC, Carrón J, Usán P, Teruel P, Bericat C, Monteagudo L, Larrosa S, Tricás JM, Lucha O, Noé R, Jarie L, Cerra R.

BMC Res Notes. 2014 Dec 16;7:916. doi: 10.1186/1756-0500-7-916.

PMID: 25516377 Free PMC article.

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The use of the **ADHD** self-rating scale (ASRS-6) in the **homeless**: psychometric properties, alcohol use, and self-nurse agreement.

Hesse M, Thiesen H.

J Addict Nurs. 2013 Apr-Jun;24(2):108-15. doi: 10.1097/JAN.0b013e3182929447.

PMID: 24621489

4 Cite Share

Attention-**deficit** hyperactivity disorder among **homeless** veterans.

Lomas B, Gartside PS.

Psychiatr Serv. 1997 Oct;48(10):1331-3. doi: 10.1176/ps.48.10.1331.

PMID: 9323755

1997

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Attention-deficit hyperactivity disorder among homeless veterans

B Lomas [1], P S Gartside

Affiliations – collapse

Affiliation

1 Department of Veterans Affairs Medical Center, Cincinnati, Ohio 45220, USA.

PMID: 9323755 DOI: 10.1176/ps.48.10.1331

Abstract

Among 100 participants in a Department of Veterans Affairs domiciliary program for chronic mentally ill homeless veterans who were consecutively referred for psychiatric consultation, 81 who were not psychotic and did not have central nervous system damage were screened for attention-deficit hyperactivity disorder (ADHD). The screening instrument was a four-item questionnaire. Fifty of the 81 participants screened positive, yet none of the patients or their clinicians had considered ADHD a possible influence on their lives. The study results suggest that clinical staff working with homeless veterans should receive better training in recognizing the various presentations of ADHD among adults.

2013

J Addict Nurs. 2013 Apr-Jun;24(2):108-15. doi: 10.1097/JAN.0b013e3182929447.

The use of the ADHD self-rating scale (ASRS-6) in the homeless: psychometric properties, alcohol use, and self-nurse agreement

Morten Hesse [1], Henrik Thiesen

Affiliations + expand

PMID: 24621489 DOI: 10.1097/JAN.0b013e3182929447

Abstract

Background: Attention deficit/hyperactivity disorder (ADHD) is prevalent in homeless populations, but no studies have assessed the psychometric properties of assessment instruments for this population.

Methods: Self-other agreement on the ADHD Self-Rating Scale 6 was studied using a cohort of admissions to an outreach clinic for the homeless (n = 72). Alcohol use was assessed with the fast alcohol screening test. Other drug use was assessed by interview.

Results: For the six-item ASRS-6, the self-nurse correlation was .63 ($p < .001$). Discriminant correlations were low. Higher ASRS-6 scores as rated by both nurse and self-report were associated with illicit drug use but not alcohol problems. Concordance was lower at higher levels of alcohol problems ($p < .05$) CONCLUSION: The observations of experienced nurses converge well with self-reported symptoms of ADHD. Further research is needed to assess the relative contribution of clinical observation and self-report in assessing homeless patients.

2014

› BMC Res Notes. 2014 Dec 16;7:916. doi: 10.1186/1756-0500-7-916.

Comorbidity of attention deficit hyperactivity disorder with personality disorders in homeless people

Carlos Salavera [1], José Luis Antoñanzas, Juan Carlos Bustamante, José Carrón, Pablo Usán, Pilar Teruel, Carmen Bericat, Lucía Monteagudo, Soledad Larrosa, José M Tricás, Orosia Lucha, Raquel Noé, Laurane Jarie, Raquel Cerra

Affiliations + expand

PMID: 25516377 PMCID: PMC4300618 DOI: 10.1186/1756-0500-7-916

Free PMC article

Abstract

Background: Attention deficit hyperactivity disorder (ADHD) is a condition that begins in childhood but can continue into adulthood, and may be the cause of many disadaptive behaviors, as in the case of homeless people, who often display a high incidence of personality disorders. The goal of this study is to analyze the comorbidity of ADHD with axis II disorders in a Spanish homeless population.

Results: The outcomes show high comorbidity between these two kinds of disorders, and that the prevalence of axis II disorders is higher among people with ADHD than among the general population.

Conclusions: From these results we can draw the conclusion that in homeless people ADHD in childhood continues into adulthood, when it is very often observed together with personality disorders. Finally, the implications of this study both for clinical practice and for future lines of research are discussed.

2022

› Child Neuropsychol. 2022 Aug;28(6):768-790. doi: 10.1080/09297049.2021.2016671. Epub 2021 Dec 26.

[Formula: see text] Relationship of parent-rated and objectively evaluated executive function to symptoms of posttraumatic stress and attention-deficit/hyperactivity disorder in homeless youth

Theresa Lafavor [1], Blake Gimbel [1], Aarika Olsen [1], Alicia Travis [1], Rachel Weber [2]

Affiliations – collapse

Affiliations

1 School of Graduate Psychology, Pacific University, Hillsboro, OR, USA.
2 The Compass Clinic, Vancouver, British Columbia, Canada.

PMID: 34957916 DOI: 10.1080/09297049.2021.2016671

Abstract

Compared to their stably housed peers, homeless, and highly mobile (HHM) youth experience disproportionately greater adversity and risk leading to a wide variety of poor developmental outcomes, and targeted interventions have the potential to mitigate such outcomes. A growing literature highlights the need for accurate diagnosis in high-risk populations given the considerable overlap between posttraumatic symptomology and behaviorally based disorders such as ADHD. Objective testing inferring neurobiological and circuit-based abnormalities in posttraumatic stress disorder (PTSD) and ADHD may provide a useful clinical tool to aid accurate diagnosis and treatment recommendations. This novel, exploratory study examined the relation between executive function (EF) as measured by objective testing and parent ratings with symptoms of posttraumatic stress and ADHD in 86 children (age 9 to 11) living in emergency homeless shelters. Parent-rated EF problems suggested broad impairment associated with ADHD symptoms but specific impairment in emotional/behavioral function associated with posttraumatic stress symptoms. While measures of inhibition and shifting EF were strongly associated with symptomology in bivariate correlations, they explained minimal variance in regression models. Internalizing behavior problems were associated

Research areas for the future

- Prevalence
- Mechanisms
- Management