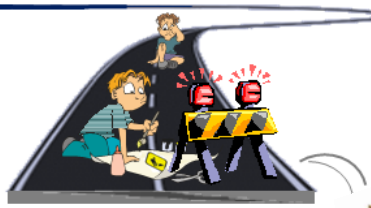
NEWSLETTER



INDICE:

BIBLIOGRAFIA ADHD GENNAIO 2022

Adm Policy Ment Health. 2022 Jan;49:44-58.

STAKEHOLDER-GENERATED IMPLEMENTATION STRATEGIES TO PROMOTE EVIDENCE-BASED ADHD TREATMENT IN COMMUNITY MENTAL HEALTH.

Sibley MH, Ortiz M, Rios-Davis A, et al.

Community implementation of evidence-based practices (EBPs) for Attention Deficit/Hyperactivity Disorder (ADHD) is greatly lacking. A recent randomized community-based trial of an EBP for ADHD (Supporting Teens' Autonomy Daily; STAND) demonstrated suboptimal implementation and effectiveness outcomes. In the present study, we conducted an Innovation Tournament (IT) with agency staff stakeholders (N = 26) to identify barriers to successful implementation of STAND and implementation strategies for a revised service delivery model. We conducted member-checking of agency staff-generated ideas with parents (N = 226) and subsequent querying of additional parent (N = 226) and youth-generated (N = 205) strategies to improve care. Go-Zone plots were utilized to identify strategies with the highest feasibility and importance. Practical barriers (i.e., transportation, scheduling difficulties) and parent/youth engagement were the most commonly cited obstacles to successful implementation of STAND in community contexts. Eighteen "winning" implementation strategies were identified that survived member checking. These were classified as train and educate stakeholders (n = 5; e.g., train agency supervisors to deliver supervision, digitize treatment materials and trainings), engage consumers (n = 9; e.g., begin treatment with rapport building sessions, increase psychoeducation), provide interactive assistance (n = 2; e.g., add group supervision, increase roleplay in supervision), and use of evaluative/iterative strategies (n = 2; e.g., perform fidelity checks, supervisor review of session recordings). Parents and youth desired longer duration of treatment and increased focus on maintenance. Strategies will be developed and tested as part of a pilot effectiveness trial designed to refine STAND's service delivery model.Trial Registration NCT02694939 www.clinicaltrials.gov

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Per la ricerca degli articoli pubblicati nella letteratura scientifica nel mese in esame sono state consultate le banche dati Medline, Embase, PsycINFO e PsycArticle utilizzando le seguenti parole chiave (o i loro sinonimi): 'Attention deficit disorder', 'Attention deficit hyperactivity disorder', 'Infant', 'Child', 'Adolescent', 'Human'. Sono qui riportate le referenze considerate rilevanti e pertinenti.

Adm Policy Ment Health. 2022 Jan;49:29-43.

MIXED-METHOD EXAMINATION OF LATINX TEACHERS' PERCEPTIONS OF DAILY BEHAVIORAL REPORT CARD INTERVENTIONS TO SUPPORT STUDENTS WITH ADHD.

Morrow AS, Villodas MT, Frazier SL, et al.

Daily behavioral report cards (DRC) are an efficacious intervention for children with ADHD, yet there is little information on Latinx teachers' perceptions about ADHD and preferences related to behavioral treatment. The purpose of the current study was to examine the feasibility and acceptability of behavioral consultation with Latinx teachers and students, with a particular focus on the DRC. Participants (n=23) included elementary school teachers (100% Hispanic/Latinx, 96% female) working with predominantly Hispanic/Latinx students. We leveraged a convergent, mixed-method design to evaluate feasibility, acceptability, as well as several potentially associated factors (i.e., perceptual, practical/logistical, individual, and cultural factors). Quantitative and qualitative measures and analyses were guided by the Consolidated Framework for Intervention Research. We found that Latinx teachers' Daily Report Card (DRC) completion rates (80%) were comparable to previous studies with predominantly non-Latinx white teachers and students. Quantitative indicators of acceptability were also similar to the prior literature. Few variables were associated with DRC completion rates, with the exception of teacher self-report of stress and satisfaction, which were both positively associated with completion rates. Qualitative findings expanded quantitative trends; thematic analyses revealed two overarching themes, that (1) teachers' attitudes toward behavioral interventions matter a great deal, and that (2) teachers' perceived behavioral control over DRC implementation depends a lot on the environment. Findings highlight the importance of stakeholders' perspectives, including teachers, in translating research to practice in real world settings

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AJR Am J Roentgenol. 2022 Feb;218:321-32.

NEUROIMAGING IN ATTENTION-DEFICIT/HYPERACTIVITY DISORDER: RECENT ADVANCES.

Firouzabadi FD, Ramezanpour S, Firouzabadi MD, et al.

Attention-deficit/hyperactivity disorder (ADHD) is a common neurodevelopmental condition that leads to impaired attention and impulsive behaviors diagnosed in, but not limited to, children. ADHD can cause symptoms throughout life. This article summarizes the structural (conventional, volumetric, and diffusion tensor imaging) and functional (task-based functional MRI [fMRI], resting-state fMRI, PET, and MR spectroscopy) brain findings in patients with ADHD. Consensus is lacking regarding altered anatomic or functional imaging findings of the brain in children with ADHD, likely because of the heterogeneity of the disorder. Most anatomic studies report abnormalities in the frontal lobes, basal ganglia, and corpus callosum; decreased surface area in the left ventral frontal and right prefrontal cortex; thinner medial temporal lobes; and smaller caudate nuclei. Using fMRI, researchers have focused on the prefrontal and temporal regions, reflecting perception-action mapping alterations. Artificial intelligence models evaluating brain anatomy have highlighted changes in cortical thickness and the shape of the inferior frontal cortex, bilateral sensorimotor cortex, left temporal lobe, and insula. Early intervention and/or normal brain maturation can alter imaging patterns and convert functional imaging studies to a normal pattern. Although imaging findings provide insight into the neuropathophysiology of the disease, no definitive structural or functional pattern defines the disorder from a neuroradiologic perspective

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Appetite. 2022 Jan;168:105665.

ADULT ATTENTION-DEFICIT/HYPERACTIVITY DISORDER AMONG ALCOHOL USE DISORDER INPATIENTS IS ASSOCIATED WITH FOOD ADDICTION AND BINGE EATING, BUT NOT BMI.

El AH, Barrault S, Gateau A, et al.

INTRODUCTION: Attention-deficit/hyperactivity disorder (ADHD) is associated with binge eating (BE), food addiction (FA), and obesity/higher BMI in individuals without alcohol use disorder (AUD). ADHD is highly prevalent in patients with AUD, but it is unknown whether the presence of comorbid AUD might change the nature of the association between ADHD, BE, FA and BMI (food and alcohol may either compete for the same brain neurocircuitry or share vulnerability risk factors). Here, we filled this gap by testing the association between ADHD and FA/BE in adult patients hospitalized for AUD, with the strength of simultaneously

assessing childhood and adult ADHD. We also investigated the association between ADHD and BMI, and the other factors associated with BMI (FA/BE, AUD severity).
METHODS: We included 149 AUD inpatients between November 2018 and April 2019. We assessed both childhood and adulthood ADHD (Wender Utah Render Scale and Adult ADHD Self-Report Scale), FA (modified Yale Food Addiction Scale 2.0), BE (Binge Eating Scale), and BMI and AUD (clinical assessment).
RESULTS: In multivariable analyses adjusted for age, adult ADHD was associated with higher BE scores (p=.048), but not significant BE (9% vs. 7%; p=.70). ADHD was also associated with FA diagnosis and the number or FA symptoms, with larger effect size for adult (ORs: 9.45[95%CI: 2.82-31.74] and 1.38[1.13-1.69], respectively) than childhood ADHD (ORs: 4.45[1.37-14.46] and 1.40[1.13-1.75], respectively). In multivariable analysis, BMI was associated with both significant BE (p < .001) and FA diagnosis (p = .014), but not adult ADHD nor AUD severity.
CONCLUSION: In patients hospitalized for AUD, self-reported adult ADHD was associated with FA and BE, but not BMI. Our results set the groundwork for longitudinal research on the link between ADHD, FA, BE, and BMI in AUD inpatients

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Appl Neuropsychol Child. 2022 Jan;11:18-24.

NEUROPSYCHOLOGICAL CLASSIFICATION BASED ON BRAIN MAPPING PERFORMANCE IN THAI CHILDREN WITH AND WITHOUT ADHD.

Chatthong W, Khemthong S, Wongsawat Y.

This study investigated the cognitive strengths and weaknesses of Attention Deficit Hyperactivity Disorder (ADHD) patients by using quantitative electroencephalography (QEEG) to analyze brain mapping outcomes in relation to neuropsychological assessments. A total of 305 participants with and without ADHD were recruited. The theta relative power of QEEG was analyzed using stepwise multiple regression, and twelve scalp regions were compared between groups using independent t-tests. Increased power was found at the T5 scalp region in the ADHD group and at the F4 region in the non-ADHD group. Decreased power was found at the F7 region in the ADHD group and at the F3 region in the non-ADHD group. Six of the twelve brain locations had significantly higher theta relative power in the ADHD group than in the non-ADHD group. These brain mapping outcomes can be easily translated to neuropsychological functions, such as attention, executive function, memory, spatial ability, and language, to better understand or predict the potential behavior of ADHD patients

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Appl Neuropsychol Child. 2022 Jan;11:1-17.

PSYCHOMETRIC PROPERTIES AND CLINICAL UTILITY OF THE EXECUTIVE FUNCTION INVENTORY FOR CHILDREN AND ADOLESCENTS: A LARGE MULTISTAGE POPULATIONAL STUDY INCLUDING CHILDREN WITH ADHD.

Arruda MA, Arruda R, AnunciaÃ§Ã£o L.

Executive functions (EF) are a set of high order mental abilities that regulate cognition, emotions, and behavior. This study aims to report the construction and validation of a rating scale instrument for EF in children and adolescents aged from 5 to 18 years (EFICA), as well as to report the results of a comparison between children with ADHD and their peers without it. Thus, we conducted a population-based cross-sectional study relying on a sample composed of 3,284 typical children and adolescents accessed to study the psychometric properties of the parents' inventory (EFICA-P) and the teacher's inventory (EFICA-T) within a Structural Equation Modeling framework (SEM). Exploratory and confirmatory analyses were fitted, as well as the Cronbach's alpha and the McDonald's omega reliability indices. The known-groups method was carried out by independent Welch t-tests between untreated ADHD children and their peers. We concluded that the parents' inventory is composed of three dimensions (Cool Index 1, Cool Index 2, and Hot Index): $\chi 2$ (1,649) = 4,607.852 p < .01, CFI = .965, TLI .963, RMSEA = .053, whereas the teachers´ inventory is composed of two dimensions (Cool Index and Hot Index): $\chi 2$ (1,273) = 5,158.240, p < .01, CFI = .991, TLI = .991, RMSEA = .077. The internal consistency of both inventories was >.9. Significant differences between the ADHD groups were found in all domains accessed. These findings indicate that both inventories have a high degree of validity regarding their internal structures, as well as supporting their clinical utility.

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Appl Neuropsychol Child. 2022 Jan;11:81-90.

ATTENTIONAL PROFILE OF ADOLESCENTS WITH ADHD IN VIRTUAL-REALITY DUAL EXECUTION TASKS: A PILOT STUDY.

Camacho-Conde JA, Climent G.

Attention deficit hyperactivity disorder (ADHD) is a neurodevelopmental disorder that is highly prevalent in children and adolescents, with estimated prevalence ranges from 5.9 to 7.1% globally and 1 to 6.8% in Spain. This has commonly been associated with deficits in attention threads and executive functions. This paper aims to study the cognitive-executive performance of adolescents between the ages of 17 and 23 with an ADHD diagnosis, relative to a control group. The total sample consisted of 120 male participants who were given the Nesplora Aquarium test. Dual execution tasks assessed attention, response speed, and inhibition capability. When comparing the experimental and control groups, statistically significant differences were detected in processing speed, selective attention, and cognitive inhibition [general execution (T_correct_n) (p=0.008), attention arousal (T_omission_n) (p=0.008), and processing speed (T_correctreactime_mean) (p=0.008)]. We demonstrate that a new virtual reality tool, designed to measure attention in people over the age of 16 years, is effective at measuring attention and working memory. In addition, item difficulty and discrimination values were also acceptable

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Appl Neuropsychol Child. 2022 Jan;11:35-44.

EXPANDING THE CROSS-CULTURAL PSYCHOLOGICAL ASSESSMENT TOOL BOX WITH IQ TEST SHORT FORMS.

Nuez A, San ML, Gomez-Batista S, et al.

OBJECTIVE: Short forms of standard intelligence tests are useful in clinical and research settings where administration of a full intelligence test is impractical or unnecessary. In cross cultural contexts where few tests are available, including brief intelligence tests, short forms may be particularly useful to meet clinical and research needs. However, there is little cross-cultural research on the validity of short forms. This study evaluated feasibility of short form development for the Spanish version of the Wechsler Intelligence Scale for Children-Fourth Edition (WISC-IV) and examined comparability of short-form IQ estimates in Spanish- and English-speaking children with Attention-Deficit/Hyperactivity Disorder (ADHD).

METHOD: Participants included children with ADHD who were administered the WISC-IV Spanish (n=165) or WISC-IV (n=299). Full Scale IQs (FSIQs) were calculated for two-, three-, four-, and five-subtest short forms. Misclassification rates, mean absolute differences, and intraclass correlation coefficients (ICCs) were used to determine short form accuracy in estimating FSIQ.

RESULTS: The WISC-IV short forms examined had generally strong psychometric properties (e.g., ICCs ranged from .78 to .94) and level of accuracy in estimating FSIQ did not differ across primary language of Spanish or English.

CONCLUSIONS: Findings support feasibility of IQ short form development to help address mental health disparities in research and clinical screening for Spanish- and English-speaking pediatric populations with ADHD

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Arch Clin Neuropsychol. 2021 Dec;36:1438-49.

INFLUENCE OF AUTISM AND OTHER NEURODEVELOPMENTAL DISORDERS ON COGNITIVE AND SYMPTOM PROFILES: CONSIDERATIONS FOR BASELINE SPORT CONCUSSION ASSESSMENT.

Maietta JE, Kuwabara HC, Cross CL, et al.

Objective: The presence of neurodevelopmental disorders (ND) such as attention-deficit/hyperactivity disorder (ADHD) and learning disorders (LD) have demonstrated effects on Immediate Post-concussion Assessment and Cognitive Testing (ImPACT) performance. No current research has directly examined whether autism spectrum disorder (ASD) has similar effects. The current study compared ImPACT cognitive and symptom profiles in athletes with self-reported ASD to other NDs and healthy controls using case-control matching.

Method: The current study compared ImPACT baselines of high school athletes with ASD to athletes with other NDs (ADHD, LD, and co-occurring ADHD/LD) and healthy controls on cognitive composites and symptom reporting. Participants included 435 athletes (87 controls, 87 with ASD, 87 with ADHD, 87 with LD,

and 87 with ADHD/LD) selected from a larger naturalistic sample. Athletes were matched to the ASD group based on age, sex, and sport using randomized case-matched selection from the larger database.
Results: Results revealed that athletes with ASD performed more poorly than healthy controls on the Visual Motor Speed composite. No differences were found for Post-concussion Symptom Scale (PCSS) domain scores. Differences in cognitive and symptom profiles among the athletes with other NDs were also found.
Conclusions: Results elucidate patterns of baseline performance for athletes with ASD, demonstrating that there may not be significant differences between ASD and healthy controls on four of the five ImPACT composites, and no symptom reporting differences. Cognitive and symptom differences found for other NDs should be considered when interpreting baseline performance and for making return-to-play decisions in the absence of baseline assessment

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Autism. 2021.

COGNITIVE, SOCIAL, AND BEHAVIORAL MANIFESTATIONS OF THE CO-OCCURRENCE OF AUTISM SPECTRUM DISORDER AND ATTENTION-DEFICIT/HYPERACTIVITY DISORDER: A SYSTEMATIC REVIEW.

Rosello R, Martinez-Raga J, Mira A, et al.

Attention-deficit/hyperactivity disorder is one of the most common comorbidities in individuals with autism spectrum disorder. However, the clinical implications of the co-occurrence of these two disorders are still poorly understood. Based on a preregistered protocol (PROSPERO CRD42020193880), this systematic review identified 34 articles, published between January 1, 2014, and September 1, 2020, on cognitive, adaptive/social, and behavioral manifestations in children and adolescents with a diagnosis of autism spectrum disorder and attention-deficit/hyperactivity disorder (ASD+). The majority of available studies found a tendency toward a significant poorer cognitive performance in individuals with ASD+ compared with those with autism spectrum disorder alone (ASD). The analysis of social/adaptive processes suggested that ASD+ is associated with lower functioning in comparison with ASD. Finally, individuals with ASD+ were more likely to develop emotional/behavioral difficulties, in particular externalizing problems. Although some studies did not find differences among the two groups, overall co-occurring ASD+ may constitute a distinctive phenotype with a greater likelihood of cognitive, adaptive dysfunction, and mental health symptoms compared with ASD. These results may inform the setting up and implementation of care pathways for individuals with attention-deficit/hyperactivity disorder and autism spectrum disorder. Lay abstract: This work aimed to review recent research on the characteristics of individuals who have both autism spectrum disorder and attention-deficit/hyperactivity disorder due to their high co-occurrence. Thirty-four studies were analyzed and main findings summarized in two content domains focusing on areas that could enhance our understanding of the cognitive and behavioral characteristics of individuals with autism spectrum disorder + attention-deficit/hyperactivity disorder (ASD+). Most of the results suggested that ASD+ is a co-occurring condition associated with more severe impairments in cognitive functioning, adaptive behavior, and increased likelihood to present more emotional/behavioral problems. These results will be helpful to provide improved care plans for individuals with both attention-deficit/hyperactivity disorder and autism spectrum disorder

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Autism Res. 2022 Jan;15:183-91.

SEX DIFFERENCES IN AGE OF DIAGNOSIS OF AUTISM SPECTRUM DISORDER: PRELIMINARY EVIDENCE FROM UGANDA.

Bonney E, Abbo C, Ogara C, et al.

This study was performed to determine (a) the age at which autism spectrum disorder (ASD) is first diagnosed in Ugandan children receiving mental health services, (b) whether age at diagnosis varies by sex and clinical presentation, and (c) the average age of ASD diagnosis in children manifesting comorbid conditions. A retrospective chart review was performed and demographic as well as clinical data were collected from children with ASD diagnoses who attended two mental health clinics in Uganda between 2014 and 2019. Descriptive statistics such as percentages, means, and standard deviations were used to summarize the data. Independent t-test was also performed to determine differences in the mean age of diagnosis between males and females. Two hundred and thirty-seven (156 males, 81 females) children with ASD were identified. The average age of ASD diagnosis was (6.9±4.0) years. A statistically significant difference in age of ASD diagnosis was found between males and females ($t = -2.106$, $p = 0.036$), such that on average females received a diagnosis at least 1 year later than males. Of the 237 participants, 53.6% were identified with ASD

only, 16.0% had ASD and ADHD, 10.5% were diagnosed with ASD and epilepsy, and 7.2% had a diagnosis of complex ASD. The results confirm delays in access to ASD diagnosis and suggest that females are more likely to receive a ASD diagnosis later than males within the Ugandan context. ASD awareness should be intensified to improve public or professional knowledge about ASD to enhance early identification in Uganda

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Basic Clin Neurosci. 2021;12:693-702.

EFFECT OF NEUROFEEDBACK TRAINING ON AGGRESSION AND IMPULSIVITY IN CHILDREN WITH ATTENTION-DEFICIT/HYPERACTIVITY DISORDER: A DOUBLE-BLINDED RANDOMIZED CONTROLLED TRIAL.

Dashbozorgi Z, Ghaffari A, Esmaili SK, et al.

Introduction: Aggression and impulsivity are some of the behavioral symptoms of Attention-Deficit/Hyperactivity Disorder (ADHD). Neurofeedback (NF) training has been suggested as a promising treatment in these children. This study aimed to investigate the effect of NF training on aggression and impulsivity in schoolchildren with ADHD.

Methods: A total of 40 male elementary school children with ADHD (aged 11.17-¦0.97 years) were randomized into the NF and sham groups. The NF group received 12 NF training sessions, each taking about 60 minutes for six consecutive weeks (twice a week), based on the Hammond protocol. The subjects' parents were questioned to evaluate the outcomes, including aggression and impulsivity, using the Buss-Perry Aggression Questionnaire (BPAQ) and Barratt Impulsiveness Scale (BIS).

Results: After the intervention, in the NF group, the BPAQ score changed from 87.60-¦9.33 to 81-¦7.23 and the BIS score from 94.7-¦7.25 to 88.05-¦5.4, which were significant (P=0.001). The results indicated the large effect size of NF on aggression and impulsivity in ADHD.

Conclusion: Our findings suggest NF training as a clinically applicable method for decreasing aggression and impulsivity, also support concurrent use of medication and NF training in children with ADHD

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BioMed Research International. 2021;2021.

MEDIATING EFFECT OF MOTOR COMPETENCE ON THE RELATIONSHIP BETWEEN PHYSICAL ACTIVITY AND QUALITY OF LIFE IN CHILDREN WITH ATTENTION DEFICIT HYPERACTIVITY DISORDER.

Li R, Liang X, Liu F, et al.

This study examined the mediating role of motor competence in the association between physical activity (PA) and quality of life (QoL) and the moderating role of age in the indirect relationship between PA and QoL in children with ADHD. Eighty-six children aged 6-12 years old (M age=8.45, SD=1.40, 17.4% girls) with the diagnosis of ADHD were recruited in this study. Participants wore a wGT3X-BT accelerometer on their wrist for seven consecutive days to measure PA. Motor competence was measured by the Test of Gross Motor Development-Third Edition (TGMD-3). Quality of life (QoL) was assessed by the parent-reported Chinese version of the Pediatric Quality of Life Inventory. MVPA was positively associated with object control skills but was not directly related to QoL. Using the bootstrapping method, the indirect effect of object control was found between MVPA and social functioning (0.10, 95%CI=0.01,0.21), school functioning (0.09, 95%CI=0.01,0.18), and overall QoL (0.07, 95%CI=0.01,0.16), supporting the full mediation effect. Moderated mediation analysis further revealed that age strengthened the indirect effect from MVPA to social and school functioning via object control. Findings of this study indicated that MVPA is positively associated with object control skills, which in turn, is related to psychological aspects of QoL in children with ADHD. Age was found to moderate the indirect mediation paths. The findings may inform future expeditions on designing an effective intervention that helps to improve MC and QoL in children with ADHD

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BMC Psychiatry. 2021 Dec;21.

INTERPERSONAL TRAUMA AND ITS RELATION TO CHILDHOOD PSYCHOPATHIC TRAITS: WHAT DOES ADHD AND ODD ADD TO THE EQUATION?

Marshall JJ, Sörman K, Durbeej N, et al.

Background: Childhood trauma has demonstrated associations with callous-unemotional traits (e.g., reflecting lack of remorse and guilt, unconcern about own performance). Less is known about associations between trauma and multiple domains of child psychopathic traits. There has also been limited focus on the

role of co-occurring disorders to psychopathy traits among children, namely, attention-deficit hyperactivity disorder (ADHD) and oppositional defiant disorder (ODD) and how they interact with childhood trauma.
Methods: We examined to what degree childhood interpersonal trauma can predict parent-rated psychopathic traits in a large population based Swedish twin sample (N = 5057), using a stringent definition of interpersonal trauma occurring before age 10. Two hundred and fifty-one participants met the interpersonal trauma criteria for analysis. The study explored the additional impact of traits of attention-deficit hyperactivity disorder (ADHD) and oppositional defiant disorder (ODD).
Results: Linear regressions demonstrated statistically significant but clinically negligible effects of interpersonal trauma on total and subscale scores of parent-rated psychopathic traits. When exploring interaction effects of ADHD and ODD into the model, the effect increased. There were interaction effects between ODD and trauma in relation to psychopathic traits, suggesting a moderating role of ODD. Having been exposed to trauma before age 10 was significantly associated with higher parent rated psychopathy traits as measured by The Child Problematic Traits Inventory-Short Version (CPTI-SV), however the explained variance was small (0.3–0.9%).
Conclusions: The results challenge the notion of association between interpersonal trauma and youth psychopathic traits. They also highlight the need to gain an improved understanding of overlap between psychopathic traits, ADHD and ODD for clinical screening purposes and the underlying developmental mechanisms

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BMJ Open. 2022;12.

SLEEP: INTERVENTION WITH WEIGHTED BLANKETS FOR CHILDREN WITH ATTENTION DEFICIT HYPERACTIVITY DISORDER (ADHD) AND SLEEP PROBLEMS: STUDY PROTOCOL FOR A RANDOMISED CONTROL TRIAL .

Larsson I, Aili K, Nygren JM, et al.

Introduction and objectives Children with attention deficit hyperactivity disorder (ADHD) have an increased risk of sleep problems. Weighted blankets are one possible non-pharmacological intervention for these problems in this group of children. However, the effectiveness of weighted blankets is insufficiently investigated. This study aims to investigate the effectiveness of weighted blankets in terms of sleep, health-related outcomes and cost-effectiveness as well as to explore children's and parents' experiences of a sleep intervention with weighted blankets.
Methods and analysis This study is a randomised placebo-controlled crossover trial comparing the effect of weighted fibre blankets (active) with fibre blankets without weight (control). Children aged 6-13 years, recently diagnosed with uncomplicated ADHD with verified sleep problems, were included in the study. The study period is 4 weeks for each condition, respectively, and then an 8-week follow-up. A total of 100 children diagnosed with ADHD and sleep problems will enter the study. The primary outcomes are sleep and cost per quality-adjusted life years. The secondary outcomes are health-related quality of life, ADHD symptoms, psychological distress and anxiety. Interviews with a subsample of the participating children and parents will be conducted for exploring the experiences of the intervention.
Ethics and dissemination Ethical approval of the trial has been obtained from the Swedish Ethical Review Authority (number 2019 - 2158) and conforms to the principles outlined in the Declaration of Helsinki (WMA, 2013). Results will be reported as presentations at peer-review conferences, in articles in peer-review journals and meetings with healthcare providers.
Trial registration number NCT04180189

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Br J Clin Psychol. 2022 Mar;61:93-111.

CAN ATTACHMENT PREDICT CORE AND COMORBID SYMPTOMS OF ATTENTION-DEFICIT/HYPERACTIVITY DISORDER BEYOND EXECUTIVE FUNCTIONS AND EMOTION REGULATION?

Frick MA, Darling RP, Brocki KC.

OBJECTIVE: Previous findings propose an association between attachment and symptoms of attention-deficit/hyperactivity disorder (ADHD). However, the predictive ability of attachment beyond deficits in executive functioning (EF) and emotion regulation is understudied.
METHOD: Using a dimensional perspective, we examined the longitudinal role of attachment on ADHD and comorbid symptoms, accounting for EF and emotion regulation. The sample consisted of 84 children (aged

8-13 years), oversampled for ADHD symptoms (42% had a diagnosis of ADHD). We assessed attachment with the Child Attachment Interview, EF with laboratory tests, and emotion regulation with parental ratings. Parents and teachers rated symptoms at baseline (T1) and at follow-up 2 years later (T2).
RESULTS: Attachment insecurity was positively correlated with ADHD symptoms at T2 but with no unique contribution to symptoms beyond EF and emotion regulation. In contrast, poor EF and emotion regulation contributed to more ADHD and ODD/CD symptoms at T2. Poor emotion regulation contributed to more anxiety at T2.
CONCLUSIONS: The results have important implications for understanding the mechanisms underpinning symptom expression in middle childhood/early adolescence and may guide the search for tailored interventions to reduce and prevent symptoms.
PRACTITIONER POINTS: Executive functions and emotion regulation should be explored as targets for intervention in personalized treatment. The current results do not support attachment as a target for intervention at a group level, although this does not rule out that individuals/families with attachment difficulties may benefit from training programmes promoting secure attachment bonds

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Br J Educ Psychol. 2022 Mar;92:82-104.

INATTENTION, HYPERACTIVITY/IMPULSIVITY, AND ACADEMIC COMPETENCE: FINDINGS FROM THREE COHORTS.

Tan TX, Liu Y, Damjanovic V, et al.

BACKGROUND: Attention-deficit hyperactivity disorder (ADHD) is a risk for learning. Because ADHD commonly includes behaviours of inattention and behaviours of hyperactivity/impulsivity, how the two types of behaviours independently affect children's academic competence remains poorly understood.
AIMS: To investigate the impact of behaviours of inattention and behaviours of hyperactivity/impulsivity on Chinese students' academic competence.
SAMPLES: Parents of 167 preschoolers (Cohort 1), parents of 313 first graders (Cohort 2), and 1,003 high school students (Cohort 3).
METHODS: The ADHD-RS-IV Preschool version (Cohort 1), ADHD-RS-IV Home version (Cohort 2), and BASC-SRP (Cohort 3) were used to measure behaviours of inattention and hyperactivity/impulsivity. Academic competence was operationalized as school readiness (Cohort 1), math and language arts scores at two time points provided by school (Cohort 2), and self-reported academic performance (Cohort 3). Multiple regressions were performed to investigate the relationship between academic performance and behaviours of inattention alone (Step 1), and behaviours of hyperactivity/impulsivity alone (Step 2), and behaviours of inattention together with behaviours of hyperactivity/impulsivity (Step 3).
RESULTS: For each cohort, both types of behaviours were negatively correlated with academic competence. However, regression analyses showed that in Step 3, behaviours of hyperactivity/impulsivity either failed to predict academic competence or predicted better academic competence. Overall, behaviours of inattention alone accounted for a similar amount of variance in academic competence as did behaviours of inattention and hyperactivity/impulsivity combined.
CONCLUSIONS: Behaviours of inattention presented a risk for academic competence but the effect of behaviours of hyperactivity/impulsivity varied. Implications for instructional strategies for behaviours of inattention were discussed

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Brain Imaging Behav. 2022 Feb;16:69-77.

COMBINING NEUROIMAGING AND BEHAVIOR TO DISCRIMINATE CHILDREN WITH ATTENTION DEFICIT-HYPERACTIVITY DISORDER WITH AND WITHOUT PRENATAL ALCOHOL EXPOSURE.

O'Neill J, O'Connor MJ, Kalender G, et al.

In many patients, ostensible idiopathic attention deficit-hyperactivity disorder (ADHD) may actually stem from covert prenatal alcohol exposure (PAE), a treatment-relevant distinction. This study attempted a receiver-operator characteristic (ROC) classification of children with ADHD into those with PAE (ADHD+PAE) and those without (ADHD-PAE) using neurobehavioral instruments alongside magnetic resonance spectroscopy (MRS) and diffusion tensor imaging (DTI) of supraventricular brain white matter. Neurobehavioral, MRS, and DTI endpoints had been suggested by prior findings. Participants included children aged 8-13 years, 23 with ADHD+PAE, 19 with familial ADHD-PAE, and 28 typically developing (TD) controls. With area-under-the-

curve (AUC) >0.90, the Conners 3 Parent Rating Scale Inattention (CIn) and Hyperactivity/Impulsivity (CHp) scores and the Behavioral Regulation Index (BRI) of the Behavior Rating Inventory of Executive Function (BRIEF2) excellently distinguished the clinical groups from TD, but not from each other (AUC<0.70). Combinations of MRS glutamate (Glu) and N-acetyl-compounds (NAA) and DTI mean diffusivity (MD), axial diffusivity (AD), radial diffusivity (RD), and fractional anisotropy (FA) yielded "good" (AUC>0.80) discrimination. Neuroimaging combined with CIn and BRI achieved AUC 0.72 and AUC 0.84, respectively. But neuroimaging combined with CHp yielded 14 excellent combinations with AUC0.90 (all p <0.0005), the best being Glu·AD·RD·CHp/(NAA·FA) (AUC 0.92, sensitivity 1.00, specificity 0.82, p <0.0005). Using Cho in lieu of Glu yielded AUC 0.83. White-matter microstructure and metabolism may assist efforts to discriminate ADHD etiologies and to detect PAE, beyond the ability of commonly used neurobehavioral measures alone

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Brain Imaging Behav. 2022 Feb;16:54-68.

ABNORMAL HEMISPHERIC ASYMMETRY OF BOTH BRAIN FUNCTION AND STRUCTURE IN ATTENTION DEFICIT/HYPERACTIVITY DISORDER: A META-ANALYSIS OF INDIVIDUAL PARTICIPANT DATA.

He N, Palaniyappan L, Linli Z, et al.

Aberration in the asymmetric nature of the human brain is associated with several mental disorders, including attention deficit/hyperactivity disorder (ADHD). In ADHD, these aberrations are thought to reflect key hemispheric differences in the functioning of attention, although the structural and functional bases of these defects are yet to be fully characterized. In this study, we applied a comprehensive meta-analysis to multimodal imaging datasets from 627 subjects (303 typically developing control [TDCs] and 324 patients with ADHD) with both resting-state functional and structural magnetic resonance imaging (MRI), from seven independent publicly available datasets of the ADHD-200 sample. We performed lateralization analysis and calculated the combined effects of ADHD on each of three cortical regional measures (grey matter volume - GMV, fractional amplitude of low frequency fluctuations at rest -fALFF, and regional homogeneity -ReHo). We found that compared with TDC, 68%,73% and 66% of regions showed statistically significant ADHD disorder effects on the asymmetry of GMV, fALFF, and ReHo, respectively, (false discovery rate corrected, q=0.05). Forty-one percent (41%) of regions had both structural and functional abnormalities in asymmetry, located in the prefrontal, frontal, and subcortical cortices, and the cerebellum. Furthermore, brain asymmetry indices in these regions were higher in children with more severe ADHD symptoms, indicating a crucial pathoplastic role for asymmetry. Our findings highlight the functional asymmetry in ADHD which has (1) a strong structural basis, and thus is likely to be developmental in nature; and (2) is strongly linked to symptom burden and IQ and may carry a possible prognostic value for grading the severity of ADHD

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Brain Sciences. 2021;11.

ACTIGRAPHY-DERIVED SLEEP PROFILES OF CHILDREN WITH AND WITHOUT ATTENTION-DEFICIT/HYPERACTIVITY DISORDER (ADHD) OVER TWO WEEKSΓÇöCOMPARISON, PRECURSOR SYMPTOMS, AND THE CHRONOTYPE.

Ziegler M, Kaiser A, Igel C, et al.

Although sleep problems are common in children with ADHD, their extent, preceding risk factors, and the association between neurocognitive performance and neurobiological processes in sleep and ADHD, are still largely unknown. We examined sleep variables in school-aged children with ADHD, addressing their intra-individual variability (IIV) and considering potential precursor symptoms as well as the chronotype. Additionally, in a subgroup of our sample, we investigated associations with neurobehavioral functioning (n = 44). A total of 57 children (6-12 years) with (n = 24) and without ADHD (n = 33) were recruited in one center of the large ESCAlife study to wear actigraphs for two weeks. Actigraphy-derived dependent variables, including IIV, were analyzed using linear mixed models in order to find differences between the groups. A stepwise regression model was used to investigate neuropsychological function. Overall, children with ADHD showed longer sleep onset latency (SOL), higher IIV in SOL, more movements during sleep, lower sleep efficiency, and a slightly larger sleep deficit on school days compared with free days. No group differences were observed for chronotype or sleep onset time. Sleep problems in infancy predicted later SOL and the total number of movements during sleep in children with and without ADHD. No additional effect of sleep problems, beyond ADHD symptom severity, on neuropsychological functioning was found. This study highlights the importance of screening children with ADHD for current and early childhood sleep disturbances

in order to prevent long-term sleep problems and offer individualized treatments. Future studies with larger sample sizes should examine possible biological markers to improve our understanding of the underlying mechanisms

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Brain Sciences. 2022;12.

MUSICAL PERFORMANCE IN ADOLESCENTS WITH ADHD, ADD AND DYSLEXIAΓÇöBEHAVIORAL AND NEUROPHYSIOLOGICAL ASPECTS.

Gro C, Serrallach BL, et al.

Research has shown that dyslexia and attention deficit (hyperactivity) disorder (AD(H)D) are characterized by specific neuroanatomical and neurofunctional differences in the auditory cortex. These neurofunctional characteristics in children with ADHD, ADD and dyslexia are linked to distinct differences in music perception. Group-specific differences in the musical performance of patients with ADHD, ADD and dyslexia have not been investigated in detail so far. We investigated the musical performance and neurophysiological correlates of 21 adolescents with dyslexia, 19 with ADHD, 28 with ADD and 28 age-matched, unaffected controls using a music performance assessment scale and magnetoencephalography (MEG). Musical experts independently assessed pitch and rhythmic accuracy, intonation, improvisation skills and musical expression. Compared to dyslexic adolescents, controls as well as adolescents with ADHD and ADD performed better in rhythmic reproduction, rhythmic improvisation and musical expression. Controls were significantly better in rhythmic reproduction than adolescents with ADD and scored higher in rhythmic and pitch improvisation than adolescents with ADHD. Adolescents with ADD and controls scored better in pitch reproduction than dyslexic adolescents. In pitch improvisation, the ADD group performed better than the ADHD group, and controls scored better than dyslexic adolescents. Discriminant analysis revealed that rhythmic improvisation and musical expression discriminate the dyslexic group from controls and adolescents with ADHD and ADD. A second discriminant analysis based on MEG variables showed that absolute P1 latency asynchrony |R-L| distinguishes the control group from the disorder groups best, while P1 and N1 latencies averaged across hemispheres separate the control, ADD and ADHD groups from the dyslexic group. Furthermore, rhythmic improvisation was negatively correlated with auditory-evoked P1 and N1 latencies, pointing in the following direction: the earlier the P1 and N1 latencies (mean), the better the rhythmic improvisation. These findings provide novel insight into the differences between music processing and performance in adolescents with and without neurodevelopmental disorders. A better understanding of these differences may help to develop tailored preventions or therapeutic interventions

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Brain Sciences. 2022;12.

UTILIZING COGNITIVE TRAINING TO IMPROVE WORKING MEMORY, ATTENTION, AND IMPULSIVITY IN SCHOOL-AGED CHILDREN WITH ADHD AND SLD.

Wiest GM, Rosales KP, Looney L, et al.

Students use of working memory (WM) is a key to academic success, as many subject areas and various tasks school-aged children encounter require the ability to attend to, work with, and recall information. Children with poor WM ability typically struggle with academic work compared to similar-aged peers without WM deficits. Further, WM has been shown to be significantly correlated with inattention and disorganization in those with ADHD, and WM deficits have also been identified as a potential underpinning of specific learning disorder (SLD). As an intervention technique, the use of computerized cognitive training has demonstrated improved attention and working memory skills in children with WM deficits, and children that have completed cognitive training protocols have demonstrated performance improvements in reading and math. The current study aimed to examine the effectiveness of cognitive training (conducted in a clinical setting) for students diagnosed with ADHD and SLD. Using paired-samples t-tests and a psychometric network modeling technique, results from data obtained from a sample of 43 school-aged children showed (1) that attention and working memory improved following cognitive training and (2) that cognitive training might be related to cognitive structural changes found pre-to post-training among the variables being measured. Implications for clinical practice and school-based interventions are discussed

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Cereb Cortex. 2021;31:5526-35.

ASSOCIATIONS BETWEEN TASK-RELATED MODULATION OF MOTOR-EVOKED POTENTIALS AND EEG EVENT-RELATED DESYNCHRONIZATION IN CHILDREN WITH ADHD.

Ewen JB, Puts NA, Mostofsky SH, et al.

Children with attention-deficit/hyperactivity disorder (ADHD) have previously shown a decreased magnitude of event-related desynchronization (ERD) during a finger-tapping task, with a large between-group effect. Because the neurobiology underlying several transcranial magnetic stimulation (TMS) measures have been studied in multiple contexts, we compared ERD and 3 TMS measures (resting motor threshold [RMT], short-interval cortical inhibition [SICI], and task-related up-modulation [TRUM]) within 14 participants with ADHD (ages 8-12 years) and 17 control children. The typically developing (TD) group showed a correlation between greater RMT and greater magnitude of alpha (10-13 Hz, here) ERD, and there was no diagnostic interaction effect, consistent with a rudimentary model of greater needed energy input to stimulate movement. Similarly, inhibition measured by SICI was also greater in the TD group when the magnitude of movement-related ERD was higher; there was a miniscule diagnostic interaction effect. Finally, TRUM during a response-inhibition task showed an unanticipated pattern: in TD children, the greater TMS task modulation (TRUM) was associated with a smaller magnitude of ERD during finger-tapping. The ADHD group showed the opposite direction of association: Greater TRUM was associated with larger magnitude of ERD. Prior EEG results have demonstrated specific alterations of task-related modulation of cortical physiology, and the current results provide a fulcrum for multimodal study

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Child Adolesc Psychiatr Clin N Am. 2022 Jan;31:149-66.

SCHOOL-BASED INTERVENTIONS FOR ELEMENTARY SCHOOL STUDENTS WITH ATTENTION-DEFICIT/HYPERACTIVITY DISORDER.

Dupaul GJ, Gormley MJ, Daffner-Deming M.

Children with attention-deficit/hyperactivity disorder experience significant academic, social, and behavioral impairments in elementary school settings. Although psychopharmacologic treatments can improve symptomatic behaviors, these rarely are sufficient for enhancing school performance. Thus, medication should be supplemented by one or more school interventions, including behavioral strategies, academic interventions, behavioral peer interventions, organizational skills training, and self-regulation strategies. Although all of these school interventions have been found effective, classroom behavioral strategies, organizational skills training, and self-regulation strategies have the strongest empirical support. Clinicians should collaborate with school mental health professionals to encourage implementation of effective school interventions across school years

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Child Adolesc Ment Health. 2022.

SHORT RESEARCH ARTICLE: IMPACT OF A PROLONGED LOCKDOWN ON THE SYMPTOMS OF PAEDIATRIC ADHD AND COMMON ASSOCIATED DISORDERS.

Pech de Laclause A, et al.

Objective: Our objective is to explore the change in the severity of ADHD, ODD and anxiety during a two-month lockdown among children in France and the moderating role of behavioural regulation.

Method: In 235 children with ADHD, the symptom severity of ADHD, ODD and anxiety was investigated one and two months after the beginning of lockdown, and one month after its end. Behavioural regulation skills were estimated with the Behaviour Regulation Index.

Results: ADHD, ODD and anxiety scores were increasing or decreasing depending on BRI.

Conclusion: Baseline behavioural regulation skills may act as a moderating factor for the persistence of ADHD, ODD and anxiety symptoms related to the lockdown

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Child Adolesc Psychiatry Ment Health. 2021;15.

PREVALENCE OF MULTIMODAL TREATMENT IN CHILDREN AND ADOLESCENTS WITH ADHD IN GERMANY: A NATIONWIDE STUDY BASED ON HEALTH INSURANCE DATA.

Riedel O, Klau S, Langner I, et al.

Background: Attention-deficit hyperactivity disorder (ADHD) ranks top among neurodevelopmental disorders in children and adolescents. Due to a large number of unfavorable outcomes including psychiatric comorbidities, school problems, and lower socioeconomic status, early and effective treatment of ADHD is essential. Multimodal treatment has become the gold standard in ADHD management, comprising pharmacotherapy and psychosocial interventions, e.g., psychotherapy. Yet, little is known about the prevalence of multimodal treatment in routine care.

Methods: Based on German health claims data for the years 2009-2017, we identified children and adolescents aged 3-17 years diagnosed with ADHD and characterized them cross-sectionally (per calendar year) in terms of treatment status and psychiatric comorbidities. The detection of pharmacotherapy was based on dispensations of drugs to treat ADHD (e.g., methylphenidate); psychotherapeutic treatment was based on corresponding billing codes. Multimodal treatment was assumed if ADHD medication and psychotherapeutic treatment were coded within the same calendar year. Psychiatric comorbidities were based on outpatient and inpatient diagnoses. Prevalences of ADHD and proportions of different treatment options were calculated and standardized by age and sex.

Results: In 2017, 91,118 children met the study criteria for ADHD (prevalence: 42.8/1000). Of these, 25.2% had no psychiatric comorbidity, 28.8% had one, 21.6% had two, and 24.5% had three or more. Regarding overall treatment status, 36.2% were treated only pharmacologically, 6.5% received multimodal treatment, and 6.8% were treated with psychotherapy only (neither treatment: 50.2%). With increasing numbers of psychiatric comorbidities, the proportions of patients with multimodal treatment increased from 2.2% (no psychiatric comorbidities) to 11.1% (three or more psychiatric comorbidities) while the proportions of untreated (from 56.8% to 42.7%) or only pharmacologically treated patients (38.4% to 35.0%) decreased. From 2009 to 2017, prevalences were stable and the proportion of patients with only pharmacotherapy decreased from 48% to 36.5%. Concurrently, the proportion of patients with neither pharmacotherapy nor psychotherapy increased from 40.5% to 50.2%. The fraction of patients with multimodal treatment ranged between 6.5% (2017) and 7.4% (2013).

Conclusions: Multimodal treatment, although recommended as the standard of treatment, is rather the exception than the rule. It is, however, increasingly common in ADHD patients with psychiatric comorbidities

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Child Neuropsychol. 2022 Jan;28:120-42.

HETEROGENEITY OF THE ATTENTIONAL SYSTEM'S EFFICIENCY AMONG VERY PREMATURELY BORN PRE-SCHOOLERS.

Walczak-KozÅ‚owska T, et al.

Very preterm birth increases the risk of ADHD as well as other neurodevelopmental disorders. Deficits within the attentional system were previously signaled in preterm children; however, studies lacked in consideration of an intragroup differentiation. Thus, this study aimed to verify whether deficits in the attentional mechanisms are inter-individually differentiated among very prematurely born children and if so, which biomedical and non-biomedical factors are associated with the profile of deficits within the attentional system. We tested the efficiency of attentional processes among 5-year-old children with the Attention Network Task - Child Version. The results have indicated that 26% of very preterm children presented with the suboptimal functioning of the attentional system (more than 1 SD below mean score of full-term children in attentional alerting and orienting), whereas 74% were characterized by the normal efficiency of attention. The profile of attentional deficits observed among very preterm preschoolers was associated with significantly lower birth weight and decreased family living standard. Very prematurely born children are thus a relatively heterogeneous group in terms of the efficiency of attentional system and deficits apply to only some of those children. Early developmental support aimed at enhancing attentional functioning should be addressed to children with lower birth weight in the first place

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Child Neuropsychol. 2021.

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, et al.

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 with posttraumatic stress symptoms, while externalizing behavior problems were associated with ADHD symptoms. Implications for clinical practice and future research are discussed

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Child Neuropsychol. 2021;27:1117-32.

PSYCHOMETRIC PROPERTIES OF A NEW ADHD SCREENING QUESTIONNAIRE: PARENT REPORT ON THE (POTENTIAL) UNDERLYING EXPLANATION OF INATTENTION IN THEIR SCHOOL-AGED CHILDREN.

Keulers EHH, Hurks PPM.

The present study examined psychometric properties of a recently developed parent report screening questionnaire, i.e., Parent ADHD Screening questionnaire: Signaling the Core explanation underlying behavioral symptoms (PASSC). The PASSC aims to measure (1) ADHD symptoms and (2) what parents view to be the main underlying explanation(s) of these symptoms. The PASSC questions 3 (potential) underlying explanations based on the triple pathway model (TPM): i.e., time, cognition and/or motivation problems. Parents of 1166 Dutch children aged 4-12 filled in the PASSC, as well as 2 questionnaires measuring time, cognition and motivation (i.e., the FTF and the SPSRQ-C). Reliability of the PASSC is good, indicated by high internal consistency of the sumscores. Principal component analyses supported the distinction between inattention and hyperactivity-impulsivity symptoms as defined in the DSM-5, and the distinction between the 3 TPM explanations given by parents for inattention, but not for hyperactivity-impulsivity symptoms. The majority of parents selected one and the same explanation for inattention problems of their child, most often being cognition (31.2%) and motivation (28.2%). PASSC validity was further supported by positive associations between the explanation sumscores for inattention symptoms and other parent questionnaires measuring the same constructs (i.e., time, cognition and motivation; convergent validity), although we found no evidence for discriminant validity. Groups (based on age group, sex and ADHD diagnosis) differed on the PASSC sumscores in the expected directions. Concluding, the PASSC is a promising tool to assess a child's ADHD symptoms as well as the parent view on (potential) explanation(s) of inattention

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Child Care Health Dev. 2021 Nov;47:805-15.

IN-PERSON VICTIMIZATION, CYBER VICTIMIZATION, AND POLYVICTIMIZATION IN RELATION TO INTERNALIZING SYMPTOMS AND SELF-ESTEEM IN ADOLESCENTS WITH ATTENTION-DEFICIT/HYPERACTIVITY DISORDER.

Fogleman ND, McQuade JD, Mehari KR, et al.

Background: There is mixed evidence for whether in-person victimization and cyber victimization are differentially linked to internalizing symptoms and self-esteem among adolescents with attention-deficit/hyperactivity disorder (ADHD). The goals of the present study were to (1) evaluate in-person victimization and cyber victimization in relation to internalizing symptoms (i.e., anxiety and depression) and self-esteem and (2) examine differences in internalizing symptoms and self-esteem between in-person

victimization, cyber victimization, and polyvictimization (i.e., both in-person victimization and cyber victimization).
Methods: Participants were 78 adolescents (ages 13–17 years) diagnosed with ADHD who completed ratings of in-person victimization, cyber victimization, anxiety, depression, and self-esteem. Parents completed ratings of their adolescent's anxiety and depression.
Results Adolescents with ADHD reported experiencing higher rates of in-person victimization (64%) than cyber victimization (23%) in the last 30 days. In addition, 22% reported that they experienced polyvictimization. In-person victimization was associated with higher adolescent-reported anxiety symptoms, whereas cyber victimization was associated with higher parent-reported depressive symptoms; both were associated with lower adolescent-reported self-esteem. Adolescents who reported polyvictimization reported the highest anxiety and depressive symptoms and the lowest self-esteem.
Conclusions: Approximately one quarter of adolescents with ADHD report experiencing polyvictimization in the past month. Findings indicate that in-person victimization and cyber victimization are each uniquely associated with lower self-esteem and differentially associated with co-occurring internalizing symptoms among adolescents with ADHD. Polyvictimization is especially linked to higher internalizing symptoms and lower self-esteem. Longitudinal studies are needed to better understand the directionality of these associations

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Clin Child Psychol Psychiatry. 2022 Jan;27:136-44.
AN ANALYSIS OF ADMISSIONS TO A REFUGEE CHILD MENTAL HEALTH UNIT IN THE CONTEXT OF THE COVID-19 PANDEMIC.
Ã œnver H, PerdahlÄ± FN.
BACKGROUND: To examine the admissions to a refugee child outpatient mental health unit in the COVID-19 pandemic and to compare them with the pre-pandemic period.
METHODS: This retrospective observational study, planned through the hospital information system and patient files, included the 1-year number of outpatient unit admissions, sociodemographic, and clinical data.
RESULTS: Before the COVID-19 pandemic (March 2019-February 2020), a total of 2322 patients (local and refugee) applied to the same unit, and 236 (10.1%) of these patients were refugees. Since the commencement of the COVID-19 pandemic in Turkey (March 2020-February 2021), 1209 patients applied, and 10.4% (n = 126) of them were refugees. While 19.66 ± 6.31 refugees applied per month in the pre-pandemic period, this number decreased to 10.50 ± 5.31 during the pandemic period (p = 0.01). During the pandemic period, there was a significant decrease in the number of female refugee patient admissions. In addition, while admissions for external disorders increased significantly during the pandemic period (x(2) = 13.99, p = 0.001), admissions for internal disorders decreased significantly (x(2) = 4.54, p = 0.03).
CONCLUSIONS: The decrease in the mental health unit demands with the pandemic may lead to negative consequences in the long term. To determine mental health and psychological needs of patients during the outbreak will greatly contribute to the pandemic management process

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Clin Child Psychol Psychiatry. 2022 Jan;27:244-58.
HOME DIRECT-TO-CONSUMER TELEHEALTH SOLUTIONS FOR CHILDREN WITH MENTAL HEALTH DISORDERS AND THE IMPACT OF COVID-19.
Norman S, Atabaki S, Atmore K, et al.
Delivery of mental health treatment in the home can close gaps in care. Telehealth also provides access to healthcare that has been disrupted due to the COVID-19 pandemic. In 2016, a home direct-to-consumer telehealth program was initiated. Mental health encounters made up a significant portion of all telehealth encounters and COVID-19 had a significant impact on accelerating the utilization of telehealth. Telemental health has been more successful at meeting targeted volumes than the overall health system. Of all the mental health diagnoses before and during COVID-19, attention deficit hyperactivity disorder, Autism Spectrum Disorder, and Anxiety Disorder were most common. The direct-to-consumer telehealth program saved patients a significant amount of travel miles and associated time, based on data from the period before COVID-19. Payment reimbursement for direct-to-consumer telehealth professional services was similar to

reimbursement for in-person visits. This program demonstrates direct-to-consumer telehealth is a feasible and acceptable care modality for a variety of youth mental health disorders

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Clin J Sport Med. 2022 Jan;32:40-45.

VESTIBULAR/OCULAR MOTOR SCREENING IS INDEPENDENTLY ASSOCIATED WITH CONCUSSION SYMPTOM SEVERITY IN YOUTHS.

Babicz MA, Woods SP, Cirino P, et al.

OBJECTIVE: To examine the independent contributions of the Vestibular/Ocular Motor Screening (VOMS) to concussion symptom severity in youths while controlling for computerized neurocognitive screening performance, demographics, and medical history.

STUDY DESIGN: Cross-sectional.

SETTING: Concussion specialty clinic.

PARTICIPANTS: A retrospective review of 278 concussed youths clinical charts resulted in a total of 158 participants (16.5 ± 2.8 years, 46.8% women, 4.3 ± 3.3 days post-injury) when exclusionary criteria (ie, neurological or substance use disorders, age >21, >14 days since injury, and missing/incomplete data) were applied.

INDEPENDENT VARIABLES: Vestibular/Ocular Motor Screening items and computerized neurocognitive test scores.

MAIN OUTCOME MEASURES: Standardized postconcussion symptom scale scores.

RESULTS: At the univariate level, all VOMS items were positively associated with concussion symptom severity at small to medium effect sizes (r range 0.26-0.42). Women and individuals with a concussion history and/or Attention Deficit Disorder/Attention Deficit Hyperactivity Disorder diagnosis reported higher VOMS item scores (Ps < 0.10). In a multiple hierarchical regression, the contribution of VOMS item scores was significant and explained 9.6% of the variance in concussion symptom severity after adjustment for sex, baseline VOMS symptom ratings, and ImPACT scores [F(6, 141) = 3.90, P = 0.001]. Vertical saccades (b = 2.22, P = 0.003) and vertical vestibulo-ocular reflex (VOR; b = -1.46, P = 0.004) VOMS items significantly contributed to concussion symptom severity in the multivariable model.

CONCLUSIONS: Findings from this study provide support for the independent contributions of the VOMS items, particularly vertical saccades and vertical VOR, to acute concussion symptom severity in youths. Further work is warranted for a comparison of the VOMS to the full gold standard of concussion testing (ie, clinical interview, physical examination, balance testing, and neurocognitive assessment)

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Clin EEG Neurosci. 2021.

A CASE STUDY ON EEG ANALYSIS: EMBEDDING ENTROPY ESTIMATIONS INDICATE THE DECREASED NEURO-CORTICAL COMPLEXITY LEVELS MEDIATED BY METHYLPHENIDATE TREATMENT IN CHILDREN WITH ADHD.

Çetin FH, et al.

Objective: Complexity analysis is a method employed to understand the activity of the brain. The effect of methylphenidate (MPH) treatment on neuro-cortical complexity changes is still unknown. This study aimed to reveal how MPH treatment affects the brain complexity of children with attention deficit hyperactivity disorder (ADHD) using entropy-based quantitative EEG analysis. Three embedding entropy approaches were applied to short segments of both pre- and post- medication EEG series. EEG signals were recorded for 25 boys with combined type ADHD prior to the administration of MPH and at the end of the first month of the treatment.

Results: In comparison to Approximate Entropy (ApEn) and Sample Entropy (SampEn), Permutation Entropy (PermEn) provided the most sensitive estimations in investigating the impact of MPH treatment. In detail, the considerable decrease in EEG complexity levels were observed at six cortical regions (F3, F4, P4, T3, T6, O2) with statistically significant level (p <.05). As well, PermEn provided the most meaningful associations at central lobes as follows: 1) The largeness of EEG complexity levels was moderately related to the severity of ADHD symptom detected at pre-treatment stage. 2) The percentage change in the severity of opposition as the symptom cluster was moderately reduced by the change in entropy.

Conclusion: A significant decrease in entropy levels in the frontal region was detected in boys with combined type ADHD undergoing MPH treatment at resting-state mode. The changes in entropy correlated with pre-treatment general symptom severity of ADHD and conduct disorder symptom cluster severity

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Cortex. 2022;147:157-68.

ELECTROPHYSIOLOGICAL SIGNATURES OF INHIBITORY CONTROL IN CHILDREN WITH TOURETTE SYNDROME AND ATTENTION-DEFICIT/HYPERACTIVITY DISORDER.

Morand-Beaulieu S, Smith SD, Ibrahim K, et al.

Tourette syndrome (TS) and attention-deficit/hyperactivity disorder (ADHD) frequently co-occur, especially in children. Reduced inhibitory control abilities have been suggested as a shared phenotype across both conditions but its neural underpinnings remain unclear. Here, we tested the behavioral and electrophysiological correlates of inhibitory control in children with TS, ADHD, TS+ADHD, and typically developing controls (TDC). One hundred and thirty-eight children, aged 7-14 years, performed a Go/NoGo task during dense-array EEG recording. The sample included four groups: children with TS only (n = 47), TS+ADHD (n = 32), ADHD only (n = 22), and matched TDC (n = 35). Brain activity was assessed with the means of frontal midline theta oscillations, as well as the N200 and P300 components of the event-related potentials. Our analyses revealed that both groups with TS did not differ from other groups in terms of behavioral performance, frontal midline theta oscillations, and event-related potentials. Children with ADHD-only had worse Go/NoGo task performance, decreased NoGo frontal midline theta power, and delayed N200 and P300 latencies, compared to typically developing controls. In the current study, we found that children with TS or TS+ADHD do not show differences in EEG during a Go/NoGo task compared to typically developing children. Our findings however suggest that children with ADHD-only have a distinct electrophysiological profile during the Go/NoGo task as indexed by reduced frontal midline theta power and delayed N200 and P300 latencies

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Curr Psychol. 2022 Jan;41:417-26.

THE EFFECT OF DRAMA THERAPY ON WORKING MEMORY AND ITS COMPONENTS IN PRIMARY SCHOOL CHILDREN WITH ADHD.

Kejani M, Raeisi Z.

Attention-Deficit/Hyperactivity Disorder (ADHD) is one of the most common neurodevelopmental disorders among children and is correlated with several consequences such as working memory impairment. The present study aimed to determine the effect of drama therapy on working memory and its components in primary school children with ADHD. This study was quasi-experimental with pre-test, post-test, and control group design. The statistical population of this study was primary school students diagnosed with ADHD in Isfahan, Iran, during the academic year of 2017–2018. For the purpose of the present study, 45 students were randomly selected and assigned to experimental (n = 21) and control (n = 24) groups. It should be mentioned that the total number of the experimental group was 24 at the outset of the study; however, the number reduced to 21 due to attrition. The working memory was measured in pre- and post-intervention phases by the working memory subscales of the Wechsler Intelligence Scale for Children-Fourth Edition. The experimental group participated in a 12 session intervention (each 90 min) during 6 weeks, while the control group received no intervention and the collected data were analyzed using MANCOVA. The results revealed a significant difference between the working memory performance of students in the experimental and control groups (p=. 05). The experimental group showed significant changes in their working memory, compared with the control group. In fact, the findings confirm that drama therapy can be effective in improving working memory whose deficit is one of the outcomes of ADHD

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Cyberpsychol Behav Soc Netw. 2022 Jan;25:14-26.

TRENDS, LIMITS, AND CHALLENGES OF COMPUTER TECHNOLOGIES IN ATTENTION DEFICIT HYPERACTIVITY DISORDER DIAGNOSIS AND TREATMENT.

Montaleo Brum AR, Ferreira da SM, Assis SÃ, et al.

Attention deficit hyperactivity disorder (ADHD) is a neurobiological condition that appears during an individual's childhood and may follow her/him for life. The research objective was to understand better how and which computer technologies have been applied to support ADHD diagnosis and treatment. The research used the systematic literature review method: a rigorous, verifiable, and repeatable approach that follows well-defined steps. Six well-known academic data sources have been consulted, including search engines and bibliographic databases, from technology and health care areas. After a rigorous research protocol, 1,239 articles were analyzed. For the diagnosis, the use of machine learning techniques was verified in 61 percent of the articles. Neurofeedback was ranked second with 9.3 percent participation, followed by serious games and eye tracking with 5.6 percent each. For the treatment, neurofeedback was present in 50 percent of the articles, whereas some studies combined both approaches, accounting for 31 percent of the total. Nine percent of the articles reported remote assistance technology, whereas another 9 percent have used virtual reality. By highlighting the leading computer technologies used, their applications, results, and challenges, this literature review breaks ground for further investigations. Moreover, the study highlighted the lack of consensus on ADHD biomarkers. The approaches using machine learning call attention to the probable occurrence of overfitting in several studies, thus demonstrating limitations of this technology on small-sized bases. This research also presented the convergence of evidence from different studies on the persistence of long-term effects of using neurofeedback in treating ADHD

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Cyberpsychol Behav Soc Netw. 2022 Jan;25:5-13.

EFFECTIVENESS OF AVAILABLE TREATMENTS FOR GAMING DISORDERS IN CHILDREN AND ADOLESCENTS: A SYSTEMATIC REVIEW.

Lampropoulou P, Siomos K, Floros G, et al.

In 2020, the prevalence of gaming disorder (GD) was comparable with the prevalence of obsessive-compulsive disorder, thus demonstrating the necessity of addressing Internet gaming disorder (IGD) and GD in general. GD has been introduced as a psychiatric disorder by International Classification of Diseases and paving the way for treatment and prevention interventions. In this review, we researched available treatment interventions in children and adolescents. Î¤he initial search resulted in 972 studies and we ended up with 16 by excluding inappropriate studies according to six inclusion criteria. The studies confirmed that cognitive-behavioral therapy (CBT) or CBT-based interventions are the most used, and in cases of comorbidity, such as depression or attention-deficit/hyperactivity disorder, the appropriate pharmaceutical intervention also was an effective option. Other interventions combined CBT with family therapy or CBT-based therapies that took place in specialized camps. Family as a supportive expedient or even treatment expedient seemed to play a major role. It is remarkable that only little knowledge exists regarding treatment interventions for children aged 8-12 years old. Therefore, more studies need to be carried out for this age range especially, with comparable efficacy to this of other interventions

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Dev Neuropsychol. 2021 Nov;46:555-73.

TRAJECTORIES OF EXECUTIVE FUNCTIONS AND ADHD SYMPTOMS IN PRESCHOOLERS AND THE ROLE OF NEGATIVE PARENTAL DISCIPLINE.

Kühl E, Geeraerts SB, Dekovic M, et al.

In the present study, we investigated whether the longitudinal growth trajectories of executive functions (EF) and Attention-Deficit/Hyperactivity Disorder (ADHD) symptoms are related. In addition, we investigated whether negative discipline moderated these longitudinal relations. The sample consisted of predominantly clinically referred preschoolers (N = 248, age 42–66 months at Time 1; 79.0% boys). Assessment occurred three times: at baseline, at 9 months, and at 18 months. EF was assessed with five EF tasks. ADHD symptoms (Child Behavior Checklist 1.5–5) were reported by parents. Groups of medium to high and low negative discipline were based on mother- and father-reports (Parenting Practices Inventory). Growth curve models showed that EF generally increased and ADHD symptoms generally decreased over time. Parallel

process models showed that there was no relation between the change in EF and the change in ADHD symptoms over time, suggesting no co-development. However, higher EF at baseline was related to lower ADHD symptoms at baseline. This was irrespective of whether children were exposed to high or low negative discipline. Overall, the results suggest that, while EF and ADHD symptoms are related, they develop independently across the preschool years

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Environ Res. 2022;206.

THE RELATIONSHIP BETWEEN PERSISTENT ORGANIC POLLUTANTS AND ATTENTION DEFICIT HYPERACTIVITY DISORDER PHENOTYPES: EVIDENCE FROM TASK-BASED NEURAL ACTIVITY IN AN OBSERVATIONAL STUDY OF A COMMUNITY SAMPLE OF CANADIAN MOTHER-CHILD DYADS.

Sussman TJ, Baker BH, Wakhloo AJ, et al.

Background: Prenatal exposure to persistent organic pollutants (POPs), widespread in North America, is associated with increased Attention Deficit/Hyperactivity Disorder (ADHD) symptoms and may be a modifiable risk for ADHD phenotypes. However, the effects of moderate exposure to POPs on task-based inhibitory control performance, related brain function, and ADHD-related symptoms remain unknown, limiting our ability to develop interventions targeting the neural impact of common levels of exposure.

Objectives: The goal of this study was to examine the association between prenatal POP exposure and inhibitory control performance, neural correlates of inhibitory control and ADHD-related symptoms.

Methods: Prospective data was gathered in an observational study of Canadian mother-child dyads, with moderate exposure to POPs, including polychlorinated biphenyls (PCBs) and polybrominated diphenyl ethers (PBDEs), as part of the GESTation and the Environment (GESTE) cohort in Sherbrooke, Quebec, Canada. The sample included 87 eligible children, 46 with maternal plasma samples, functional magnetic resonance imaging (fMRI) data of Simon task performance at 9-11 years, and parental report of clinical symptoms via the Behavioral Assessment System for Children 3 (BASC-3). Simon task performance was probed via drift diffusion modeling, and parameter estimates were related to POP exposure. Simon task-based fMRI data was modeled to examine the difference in incongruent vs congruent trials in regions of interest (ROIs) identified by meta analysis.

Results: Of the 46 participants with complete data, 29 were male, and mean age was 10.42 -¦ 0.55 years. Increased POP exposure was associated with reduced accuracy (e.g. PCB molar sum rate ratio = 0.95; 95% CI [0.90, 0.99]), drift rate (e.g. for PCB molar sum +¦ = 0.42; 95% CI [-0.77, 0.07]), and task-related brain activity (e.g. in inferior frontal cortex for PCB molar sum +¦ = 0.35; 95% CI [-0.69, 0.02]), and increased ADHD symptoms (e.g. hyperactivity PCB molar sum +¦ = 2.35; 95%CI [0.17, 4.53]), supporting the possibility that prenatal exposure to POPs is a modifiable risk for ADHD phenotypes.

Discussion: We showed that exposure to POPs is related to task-based changes in neural activity in brain regions important for inhibitory control, suggesting a biological mechanism underlying previously documented associations between POPs and neurobehavioral deficits found in ADHD phenotypes

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Epilepsy Behav. 2022;128.

SLEEP DISORDERS AND ADHD SYMPTOMS IN CHILDREN AND ADOLESCENTS WITH TYPICAL ABSENCE SEIZURES: AN OBSERVATIONAL STUDY.

Thieux M, Duca M, Putois B, et al.

Objective: To assess the occurrence of sleep disorders (SD) and attention deficit hyperactivity disorder (ADHD) symptoms in children with typical absence seizures (TAS) compared to control children and to evaluate the impact of epilepsy-related factors on sleep and attention in children with TAS.

Methods: The Sleep Disturbance Scale for Children (SDSC) and the ADHD rating scale were filled in by parents of a cohort composed by 82 children aged from 5 to 15.6 years, 49% of boys (41 with TAS with a syndromic diagnosis of childhood absence epilepsy and 41 controls). For children with TAS, the Pediatric Epilepsy Side Effects Questionnaire was completed. Statistical analyses were conducted in order to compare sleep and attention scores between groups. In children with TAS, a correlation was computed between these scores. Logistics regression models were conducted to identify predictors of excessive diurnal sleepiness and inattention in children with TAS.

Results: Compared to controls, children with TAS had higher total scores for subjective sleep (mean 42.9 vs 38.3, p = 0.05) and attention disorders (mean 16.8 vs 11.6, p = 0.01), especially for excessive diurnal sleepiness (mean 3.9 vs 3.2, p = 0.02) and inattention (mean 9.3 vs 5.6, p = 0.003) components. In children with TAS, sleep problems were significantly under-reported by parents. Sleep disorders symptoms as breathing-related sleep disturbance, excessive diurnal sleepiness or naps at or after 7 years of age were reported. Subjective sleep and attention disorders were significantly correlated (r = 0.43, p = 0.01). Subjective excessive diurnal sleepiness may be the result of a polytherapy (p = 0.05) or a side effect of anti-seizure medication (ASM) (p = 0.03) but children without medication side effects also reported subjective SD. In children with TAS, the risk of inattention symptoms was increased in boys (p = 0.02), with a high BMI (p = 0.05), or with ASM side effects (p = 0.03).
Conclusions: This study demonstrates that children with TAS are at risk of sleep and attention disorder symptoms. If attention disorders in a context of epilepsy are now widely assessed and identified, sleep disorders are still under-estimated. An accurate identification and management of sleep disorders could improve academic performances, quality of life, and seizure management in children with TAS

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Eur Child Adolesc Psychiatry. 2022 Jan;31:39-49.

HEADACHE AND MENTAL DISORDERS IN A NATIONALLY REPRESENTATIVE SAMPLE OF AMERICAN YOUTH.

Hommer R, Lateef T, He JP, et al.

The objective of this study is to examine the association between headache and mental disorders in a nationally representative sample of American youth. We used the National Comorbidity Survey-Adolescent Supplement to assess sex-specific prevalence of lifetime migraine and non-migraine headache using modified International Headache Society criteria and examine associations between headache subtypes and DSM-IV mental disorders. Adolescent report (n=10,123) was used to identify headache subtypes and anxiety, mood, eating, and substance use disorders. ADHD and behavior disorder were based on parent report (n=6483). Multivariate logistic regression analyses controlling for key demographic characteristics were used to examine associations between headache and mental disorders. Headache was endorsed by 26.9% (SE=0.7) of the total sample and was more prevalent among females. Youth with headache were more than twice as likely (OR 2.74, 95% CI 1.94-3.83) to meet criteria for a DSM-IV disorder. Migraine, particularly with aura, was associated with depression and anxiety (adjusted OR 1.90-2.90) and with multiple classes of disorders. Adolescent headache, particularly migraine, is associated with anxiety, mood, and behavior disorders in a nationally representative sample of US youth. Headache is highly prevalent among youth with mental disorders, and youth with headache should be assessed for comorbid depression and anxiety that may influence treatment, severity, and course of both headache and mental disorders

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Eur Child Adolesc Psychiatry. 2021;30:1523-31.

EARLY REGULATORY PROBLEMS AND PARENTING: LIFE-LONG RISK, VULNERABILITY OR SUSCEPTIBILITY FOR ATTENTION, INTERNALIZING AND EXTERNALIZING OUTCOMES?

Jaekel J, Sorg C, Breeman L, et al.

Multiple or persistent crying, sleeping, or feeding problems in early childhood (regulatory problems, RPs) predict increased risk for self-regulation difficulties. Sensitive parenting may protect children from trajectories of dysregulation. Considering self-regulation from a life-course perspective, are children with early multiple and/or persistent RPs affected similarly by parenting as those without (main effects model, ME), or are they more vulnerable (diathesis-stress, DIA-S), or more susceptible (differential susceptibility theory, DST) to variations in sensitive parenting at age 6 years? Participants (N = 302) were studied prospectively from birth to 28 years. RPs were assessed from 5 to 56 months. Sensitive parenting was observed at 6 years. Attention regulation was observed at 8 and 28 years. Internalizing and externalizing problems were rated by parents at 8 years, and by adults at 28 years. Confirmatory-comparative modelling tested whether associations of sensitive parenting with outcomes at 8 and 28 years among individuals with early multiple and/or persistent RPs (n = 74) versus those without (n = 228) were best explained by ME, DIA-S, or DST models. Best fitting models differed according to age at assessment. For childhood attention regulation, the statistically parsimonious DIA-S provided the best fit to the data. At age 28, two additive main effects (ME, RP group and sensitive parenting) fit best. DIA-S and ME explained internalizing and externalizing problems. Using a

comprehensive life-span approach, DIA-S and ME models but not DST explained how early RPs and sensitive parenting predicted attention, internalizing, and externalizing outcomes. Individuals with early RPs are vulnerable to insensitive parenting

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Eur Child Adolesc Psychiatry. 2021;30:1449-62.

MATERNAL SERUM VITAMIN B12 AND OFFSPRING ATTENTION-DEFICIT/HYPERACTIVITY DISORDER (ADHD).

Sourander A, Silwal S, Upadhyaya S, et al.

Maternal Vitamin B12 deficiency during pregnancy is associated with offspring neuropsychiatric disorders. Few previous studies examining this association with attention-deficit/hyperactivity disorder (ADHD) report inconsistent findings. The study examines the association between maternal serum Vitamin B12 levels and offsprings risk of ADHD. This study is based on the Finnish Prenatal Study of ADHD with a nested case-control design. All the singleton children born in Finland between January 1998 and December 1999 and diagnosed with ADHD were included in the study. A total of 1026 cases were matched with an equal number of controls on sex, date of birth and place of birth. Maternal Vitamin B12 levels were assessed using a chemiluminescence microparticle immunoassay and archived from maternal serum banks, collected during the first and early second trimester of pregnancy. Lower maternal Vitamin B12 levels when analyzed as a continuous variable was not associated with offspring ADHD (aOR 0.97, 95% CI 0.79-1.18, p = 0.75). No significant associations were seen in the lowest quintile of Vitamin B12 levels (aOR 0.96, 95% CI 0.73-1.27, p = 0.80). This is the first study examining maternal sera Vitamin B12 levels during early pregnancy and offspring ADHD. The result suggests that Vitamin B12 deficiency during early pregnancy has specificity for some disorders but not with offspring ADHD

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Eur Child Adolesc Psychiatry. 2021;30:1503-21.

DO COGNITIVE INTERVENTIONS FOR PRESCHOOLERS IMPROVE EXECUTIVE FUNCTIONS AND REDUCE ADHD AND EXTERNALIZING SYMPTOMS? A META-ANALYSIS OF RANDOMIZED CONTROLLED TRIALS.

Pauli-Pott U, Mann C, Becker K.

Many interventions targeting executive function (EF) development in the preschool period, where malleability might be particularly high, have been created and evaluated. We conducted a meta-analysis of randomized controlled trials (RCTs) on the effects of these interventions on (a) EFs in preschool children from the general population as well as preschool children with (symptoms of) attention-deficit hyperactivity disorder (ADHD) and oppositional defiant disorder (ODD), and (b) ADHD and ODD symptoms in preschool children with ADHD/ODD (symptoms). Literature search yielded 35 RCTs. Risk of bias of the individual studies was assessed. A random-effects model was used. Moderator effects were tested using mixed model analyses. The overall effects on EFs were: d = 0.46 (95% CI 0.30-0.61) for working memory (WM), d = 0.30 (95% CI 0.21-0.38) for inhibitory control (IC), d = 0.33 (95% CI 0.04 to 0.71) for reward-related IC, and d = 0.47 (95% CI 0.28-0.66) for flexibility. In children with ADHD/ODD, mean effects were d = 0.64 (95% CI 0.31-0.96) for WM and d = 0.46 (95% CI 0.07-0.84) for IC. Studies on reward-related IC and FL were lacking. Effects on ODD and ADHD symptoms were d = 0.40 (95% CI 0.23 to 1.03) and d = 0.28 (95% CI 0.08 to 0.64), respectively. Interventions targeting multiple EFs and using interpersonal cognitive scaffolding approaches showed large and statistically significant effects on ADHD and ODD symptoms. In preschool children of the general population and in those with ADHD/ODD (symptoms), interventions led to an improvement of EF performance. In children with ADHD and ODD, cognitive scaffolding interventions were most effective in terms of reducing ADHD and ODD symptoms. However, more well-controlled studies need to be conducted before any firm conclusions can be drawn

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Eur Child Adolesc Psychiatry. 2021;30:1391-400.

PARENTAL POSITIVE REGARD AND EXPRESSED EMOTION-PREDICTION OF DEVELOPING ATTENTION DEFICIT, OPPOSITIONAL AND CALLOUS UNEMOTIONAL PROBLEMS BETWEEN PRESCHOOL AND SCHOOL AGE.

Pauli-Pott U, Bauer L, Becker K, et al.

Parental expressed emotion and positive reinforcement are assumed to affect the development of oppositional and callous-unemotional behaviors in children at risk of attention deficit hyperactivity disorder

(ADHD). As longitudinal research on this issue is scarce, we analyzed the respective links between preschool and school age. 138 five-year-old (m = 58.2, s = 6.2-ámonths) children (59% boys) with elevated ADHD symptoms (according to screening) were assessed at the ages of five and eight years. At 5-áyears, maternal expressed emotion (using the Five Minute Speech Sample) and positive regard of child (using a standardized at-home observation procedure) were assessed. At 5 and 8-áyears, symptoms of ADHD, oppositional defiant disorder (ODD), and callous-unemotional (CU) behaviors were measured using a multi-informant approach. Multiple linear regression analyses revealed that positive regard specifically predicted a decrease in ODD symptoms between preschool and school age. The expression of high negative emotion specifically predicted an increase in CU behaviors. The development of ADHD symptoms was not predicted by parenting. Knowledge on these specific links can help to elaborate diagnostic and counseling processes in preschoolers with high ADHD symptoms. Underlying mechanisms and the role of neurocognitive deficits of the preschool child should be further analyzed

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Eur Child Adolesc Psychiatry. 2022.

SLEEP DISTURBANCES IN ADHD: INVESTIGATING THE CONTRIBUTION OF POLYGENIC LIABILITY FOR ADHD AND SLEEP-RELATED PHENOTYPES.

Lewis KJS, Martin J, Gregory AM, et al.

Sleep disturbances are common in attention deficit hyperactivity disorder (ADHD) and associated with poor outcomes. We tested whether, in children with ADHD, (1) polygenic liability for sleep phenotypes is over- or under-transmitted from parents, (2) this liability is linked to comorbid sleep disturbances, and (3) ADHD genetic risk is associated with comorbid sleep disturbances. We derived polygenic scores (PGS) for insomnia, chronotype, sleep duration, and ADHD, in 758 children (5ΓÇô18-áyears old) diagnosed with ADHD and their parents. We conducted polygenic transmission disequilibrium tests for each sleep PGS in complete parentΓÇôoffspring ADHD trios (N = 328) and an independent replication sample of ADHD trios (N = 844). Next, we tested whether insomnia, sleep duration, and ADHD PGS were associated with co-occurring sleep phenotypes (hypersomnia, insomnia, restless sleep, poor sleep quality, and nightmares) in children with ADHD. Children's insomnia and chronotype PGS did not differ from mid-parent average PGS but long sleep duration PGS were significantly over-transmitted to children with ADHD. This was supported by a combined analysis using the replication sample. Insomnia, sleep duration, and ADHD PGS were not associated with comorbid sleep disturbances. There is weak evidence that children with ADHD over-inherit polygenic liability for longer sleep duration and do not differentially inherit polygenic liability for insomnia or chronotype. There was insufficient evidence that childhood sleep disturbances were driven by polygenic liability for ADHD or sleep traits, suggesting that sleep disturbances in ADHD may be aetiologically different to general population sleep phenotypes and do not index greater ADHD genetic risk burden

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Eur Neuropsychopharmacol. 2021;53:S20-S21.

P.0027 AN ANALYSIS OF PARENT AND YOUTH REPORTS ON THE WORLD HEALTH ORGANIZATION ADHD SELF-REPORT SCALE FOR ADOLESCENTS (ASRS-A).

Fernandez-Quintana A, Sonnby K, Nilsson K, et al.

Introduction: Severe limitations of children and adolescent self-report measures of mental health have been noted [1]. Therefore, previous studies suggest that both adolescent self-reports and parent ratings of ADHD symptoms are required to effectively evaluate the presence of ADHD [2]. However, different informants often provide discrepant ratings [3]. When assessing ADHD, it's been noted that parental and youth ADHD reports are not interchangeable [4]. To the best of our knowledge, no studies have compared alternative cut-off scores for the adolescent and parent versions of the ASRS.

Aims: To analyse the correlation between parents and self-reports on the ASRS-A. To identify new, alternative cut-off scores for adolescents and parents in order to optimize the detection and identification of ADHD.

Methods: Retrospective study of 111 adolescent psychiatric outpatients recruited in two middle-sized Swedish towns between 2011 and 2013. Mean age 15.7 years, 60.4% girls, ADHD overall prevalence 51.35%, at least one comorbid disorder 70.3%. Exclusion criteria: Intellectual disability. Inadequate Swedish language skills of either child or parent. The ASRS-A was administered as part of a regular intake procedure

at the Child and Adolescent Mental Health clinics (CAMHS). The Kiddie Schedule of Affective Disorders (K-SADS) interview was conducted within 14 days of questionnaire completion (M = 3.65, SD = 3.62) and interviewers were unaware of ASRS-A results. Adolescents reported on the ASRS-A whereas their parents reported on the parental version of the questionnaire (ASRS-A-P). Two new, gender-specific cut-offs based on predefined criteria were obtained for each group (screening: highest possible sensitivity with at least 50% specificity, diagnosis: highest possible specificity with at least 50% sensitivity).
Results: Mean ARSR-A score 34.3 points (median: 36.0, SD=13.5). Internal consistency for the ASRS-A (Cronbach's +¦=.93 for the total sample,.95 for girls and.89 for boys). Area under the curve (AUC) for the total sample:.74, (95% CI=0.65-0.83, p <0.001), boys:.70 (95% CI=0.52-0.88, p=0.027) and girls:.80 (95% CI=0.69-0.91, p <0.001)
Conclusion: Parental ratings on the ASRS are more accurate than adolescents' self-reports. The alternative cut-offs for the ASRS-A and ASRS-A-P discussed in our study could be considered as a clinical tool in the screening and diagnostic process for adolescents referred to CAMHS due to suspect ADHD. No conflict of interest

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Eur Neuropsychopharmacol. 2021;53:S464-S465.

P.0632 THE ADDED VALUE OF COGNITIVE BEHAVIORAL THERAPY ON QUALITY OF LIFE IN COMBINATION WITH PHARMACOTHERAPY IN ADULTS WITH ADHD.

Wettstein R, Klabbers Y, Romijn E, et al.

BACKGROUND ADHD has been associated with a reduced quality of life in children, adolescents and adults [1]. Treatment options for ADHD in adults consist of psycho-education, cognitive behavioral therapy (CBT), pharmacotherapy or a combination thereof [2]. Although ADHD is associated with a decreased quality of life, current studies do not yet provide insights into the additive effects of CBT and pharmacotherapy regarding the quality of life in adults with ADHD. AIM In this study, we investigated the effect of CBT combined with pharmacotherapy on the quality of life in adults with ADHD compared to pharmacotherapy alone.
METHOD In this multicenter cohort study all participants were offered CBT at baseline, except for those with complex comorbidities (e.g., severe post-traumatic stress disorder or personality disorders) and no form of randomization was applied. Pharmacotherapy was applied according to the Dutch treatment guidelines for adults with ADHD. The CBT was based on the treatment protocol developed by Safren [3] and participants who accepted CBT received a maximum of 16 CBT sessions (one hour/week). The Adult ADHD Quality-of-Life scale (AAQoL) is a self-assessment questionnaire that measures the impact of ADHD on the quality of life in different life domains related to the daily functioning of adults with ADHD [4]. The AAQoL has been validated in American and European adults with ADHD [5]. The AAQoL provides insight into 4 life domains; life productivity (LP), psychological health (PH), life outlook (LO) and relationships (R). The AAQoL was conducted at baseline and at the end of treatment.
RESULTS A total of 627 participants were included, 305 participants where included in the medication only group and 322 participants in the combination group (CBT and medication). A total of 39 and 42 participants were excluded in the medication and combination group, respectively. No significant differences were found in gender or age between groups at baseline. The average improvement in the AAQoL total score in the medication group was 26.81(17.12) and in the combination group 25.45(16.33) and showed no significant difference (t(543) = 0.96, p = 0.34). At baseline the average total score in the medication group was 45.5(12.37) and 42.22(12.73) in the combination group (t(543)=2.86, p = 0.004). The average total score at the end of treatment in the medication and combination group was 72.31(12.99) and 67.67(12.45), respectively (t(543)=426, p <0.001). Post Hoc analysis showed no effect on the average improvement in the AAQoL total score when correcting for age, gender, overall treatment time or number of CBT sessions.
CONCLUSION To our knowledge, this is the first study to describe the effect of the addition of CBT to ADHD pharmacotherapy on the quality of life in adults. Contrary to our expectations, there was no significant effect of the addition of CBT to pharmacotherapy on the quality of life. No conflict of interest

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Eur Neuropsychopharmacol. 2021;53:S240-S241.

P.0330 MAXIMUM DOWNWARD SLOPES OF SLEEP SLOW WAVES AS A POTENTIAL MARKER OF ATTENTION DEFICIT HYPERACTIVITY DISORDER CLINICAL PHENOTYPES.

Fasano A, Biancardi C, Masi G, et al.

Background: Sleep problems are a common finding in children with Attention Deficit and Hyperactivity Disorder (ADHD) [1], possibly due to shared pathophysiology. However, only few significant differences in the macrostructure of the sleep EEG have emerged between ADHD and healthy children (HC) [2,3]. On the other hand, Slow Waves (SW) alterations may offer microstructural electroencephalographic markers of unstable sleep as well as disordered cortical maturation in ADHD [4]. Here, we focus on the SW slope as an accurate marker of the underlying neuronal synchronization [5] and possible predictive parameter of psychiatric comorbidities and neuropsychological dimensions in ADHD.

Methods: 70 children (mean age 8.76, SD 2.77) with ADHD, with no epilepsy and no intellectual disabilities, were included in this retrospective study. Patients underwent psychiatric and neurologic evaluation and were assessed through the Child Behavior Checklist for children (CBCL 6-18) (52/70 patients), the CPRS-R (Conners' Parent Rating Scale Revised) (47/70 patients), the Wechsler Intelligence Scale for Children (WISC-IV) (21/70 patients) and a standard 10-20 EEG (all patients). We analyzed the EEG signal during naps, extracting the slopes of SW in the NREM phase via a custom script developed in MATLAB (MathWorks, Natick, MA) environment. We grouped descendent slopes according to the SW negative peak amplitude by using bins of 10 -V, from 0 -V to 100 -V. Afterwards, we measured associations between the clinical scores and the maximum downward slopes (MDS) via a generalized linear regression model, including age, sex and psychopharmacotherapy as potential confounders. To correct for multiple comparisons we estimated the null distribution of the beta regression values by means of a permutation procedure (n=2000 rearrangements of the observations) for each dependent variable, channel and amplitude bin. Significance thresholds were set at p=0.05. We evaluated potential clusters of associations by selecting only the groups of channels consisting of more than two contiguous electrodes on the scalp and only for channels presenting significance for at least two consecutive amplitude bins.

Results: Our results show, sorted by degree of significance: 1) A negative association between the Processing Speed Index scores and the MDS (0ΓÇô30-ÁV) in a large cluster of anterior and temporal right areas. 2) A positive association between the Processing Speed Index scores and the MDS (20-50-V) in a large cluster of temporal and posterior left areas. 3) A positive association between autistic traits and the MDS (50-90-V) in a large cluster of anterior and temporal left areas. 4) A negative association between internalizing symptoms, derived through the CBCL 6-18 scales, and the MDS (040-V) in temporal and posterior left areas. 5) A positive association between comorbid multiple anxiety disorder and the MDS (50-60-V) in posterior and temporal left areas.

Conclusions: Numerous associations emerge between the local MDS and psychiatric comorbidity, and neuropsychological and behavioral dimensions of ADHD. Consistent cluster localization and lateralization among SW amplitudes put forward the idea that alterations in local cortical synchronization, revealed by MDS, could underlie specific neurodevelopmental trajectories resulting in different clinical phenotypes of ADHD. No conflict of interest

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Eur Neuropsychopharmacol. 2021;53:S238-S239.

P.0328 ADULT BIPOLAR DISORDER AND ATTENTION DEFICIT/HYPERACTIVITY DISORDER - A COMMON COMORBIDITY?

Aichholzer M, Schiweck C, Arteaga-Henriquez G, et al.

Background: Bipolar disorder (BD) is a common affective disorder characterized by the occurrence of depressive, manic and hypomanic episodes. Depending on how narrowly diagnostic criteria are applied, the prevalence varies between 1 and 3% [1,2]. Attention deficit/hyperactivity disorder (ADHD) is a common neurodevelopmental disorder with an onset mainly in childhood and often persisting over the lifespan. It is accompanied by numerous comorbidities, one of them being adult BD. The possible combination of ADHD and BD makes an exact diagnosis due to similar symptoms such as irritability, mood swings or problems concentrating in the clinical context difficult. Despite the high comorbidity of both diseases, up until now the extent of comorbidity has not been investigated.

Aims: With this systematic review and meta-analysis, we aim to a) assess the extent of comorbidity between ADHD and adult BD, b) analyse whether BD diagnosis occurs earlier in patients with comorbid ADHD.

Methods: A systematic literature search, including articles up to 14th of October 2020, was conducted. Thereby PRISMA guidelines were followed [3]. The following article inclusion criteria were defined: a) articles report about participants with a primary diagnosis of BD or ADHD, b) assessment of comorbidity of BD or ADHD according to the Diagnostic and Statistical Manual of Mental Disorders or International Classification of Disease criteria, c) minimum age of 15 years for participants with BD. To quantify comorbidity rates random-effects meta-analysis of proportions was conducted. Sources of heterogeneity were investigated and the raw mean difference for BD age of onset was assessed in function of comorbid ADHD.
Results: Our meta-analysis of in total 71 study with 646766 participants showed that about one in thirteen adults with lifetime ADHD had BD (7.95%; 95% CI: 5.31-11.06) and roughly one in six adults with lifetime BD had ADHD (17.11%; 95% CI: 13.05- 21.59%). The variation between studies in heterogeneity of comorbidity could only partially be explained by circumstantial factors like different quality of the studies, use of different diagnostic systems, varying sample sizes, geographical location and cultural influences. The age of symptom onset in ADHD patients was earlier than in pure BD patients without an ADHD diagnosis (-=3.96 years; 95% CI: 2.65-5.26, p<0.001).
Conclusion: There is a high degree of comorbidity of ADHD and BD. The extent of comorbidity is clearly more prevalent than suspected by chance. However, those comorbidity rates have to be interpreted under the consideration of several influencing factors: differences in study methods, cultural differences, geographical differences, quality of individual studies. Despite these limitations clinicians should be aware of the high degree of comorbidity while treating and diagnosing patients with the respective disorders. To improve patient care in the long run one has also keep in mind that BD might occur earlier in ADHD patients

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Eur Neuropsychopharmacol. 2021;53:S467-S468.

P.0635 INFLUENCE OF AGE ON PLACEBO RESPONSE IN CHILDREN AND ADOLESCENTS WITH ADHD: A META-REGRESSION ANALYSIS OF 58 STUDIES.

Castells X, Barshini M, Cunill R.

Introduction: Placebo response in Attention Deficit Hyperactivity Disorder (ADHD) has increased over the past two decades. High placebo response in randomized, placebo-controlled, clinical trials (RPCCTs) can reduce drug-placebo differences thereby diminishing the likelihood of new medicines becoming available. The identification of factors that influence placebo response could improve RPCCT design. Age could be one such factor, as placebo response is related with expectations, which are likely to be higher in older patients.
Aim of the study: Our study aims to determine the relationship between placebo response and age in children and adolescents with Attention Deficit Hyperactivity Disorder (ADHD).
Methods: We performed a meta-analysis of RPCCTs investigating the efficacy of pharmacological interventions for ADHD. Data were retrieved from the Minerva database) [1], a comprehensive database of ADHD clinical trials. Placebo response using an 18-item, clinician-rated, DSM-based ADHD rating scale and study design-, patient- and intervention-related covariates were downloaded from the Minerva database. Data were pooled using a random effects model. The relationship between patient age and placebo response was studied by means of univariate and multivariate meta-regression. In the multivariate model we included as moderators those covariates found to be related with placebo response in other studies, namely: baseline ADHD severity, number of study centres, treatment duration, probability of receiving placebo and publication date [2, 3, 4]. The statistical analysis was performed with Comprehensive Meta-Analysis-« software.
Results: 58 RPCCTs were included, with 3,577 patients receiving placebo. Most (73.3%) patients were male, had an average age of 11.1 years, and a mean baseline ADHD severity of 39.7. The mean treatment duration was 8.1 weeks, the probability of receiving placebo was 37.3%, and the mean number of study centres was 23.8. The pooled placebo response was -9.2 ranging from -16.5 to -1.6). Age was associated with placebo response (coefficient = -1.0 (SE = 0.2), p-value < 0.0001, R2 = 0.43). This relationship did not change significantly after adjusting for the effect of baseline ADHD severity, number of study centres, treatment duration, probability of receiving placebo and publication date.

Conclusions: Using an 18-item, clinician-rated, DSM-based ADHD rating scale in children and adolescents with ADHD, we found that placebo response increases 1.0 point with every year of age. Age explains 43% of between-study placebo response variability. These findings must be interpreted with caution as we analysed aggregated data, which are prone to ecological bias [5]. Studies analysing individual patient data are required to confirm our results. No conflict of interest

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Eur Neuropsychopharmacol. 2021;53:S236-S237.

P.0326 RESPONSE INHIBITION-RELATED BRAIN ACTIVATION MEDIATES THE ASSOCIATION BETWEEN GENETIC LIABILITY TO ATTENTION-DEFICIT/HYPERACTIVITY DISORDER AND ITS CORE SYMPTOMS.

Saracaydin G, Ruisch H, van Rooij D, et al.

Background: Dysfunctional response inhibition (RI) and aberrant neural activity commonly present in not only people with attention-deficit/hyperactivity disorder (ADHD) but also their unaffected first-degree relatives, proposing impaired RI as a candidate endophenotype in ADHD [1,2,3]. Polygenic risk score allows us to estimate individuals' genetic liability to ADHD and to explore their associations with ADHD symptoms as well as with behavioral and neural correlates of response inhibition [4].

Aims: We had three aims: first, to explore whether polygenic risk score for ADHD (PRS-ADHD) was associated with ADHD symptoms, and behavioral performance and brain activation during RI; second, to explore whether behavioral performance and brain activation during RI was associated with ADHD symptoms; and third, to determine whether behavioral performance and brain activation during RI mediated the association between PRS-ADHD and ADHD symptoms.

Methods: Event-related functional magnetic resonance imaging data (fMRI) during a performance-adjusted stop-signal task and genetic data were available for 454 participants (age: 8-29, 178 with ADHD). Summary statistics from the genome-wide association study of ADHD (19,099 cases, 34,194 controls) conducted by the Psychiatric Genomics Consortium [5] were used as the discovery set to calculate PRS-ADHD. Task fMRI was preprocessed following ICA-AROMA pipeline. Mean reaction time (MRT), intra-individual coefficient of variation of reaction time (ICV) and stop-signal reaction time were calculated as behavioral outcomes of the task. Inattention and hyperactivity-impulsivity symptoms of ADHD were assessed using Conners' Parent Rating Scale. The associations between PRS-ADHD, ADHD symptoms, task outcomes, and RI-related neural activity were tested using linear mixed regression. Mediation analyses of the linear mixed regression models were conducted to explore the effects of possible mediators. We included age, sex, genetic principal components, recruitment centre as confounding factors, and familial relations as random-effect term. Finally, we used false-discovery-rate (q<=0.05) to correct for multiple comparisons.

Results: Significant associations between PRS-ADHD and ADHD symptoms were partially mediated by mean reaction time (MRT) and intra-individual coefficient of variation (ICV). PRS-ADHD was associated with hypoactivation in the left inferior frontal gyrus (IFG) during successful inhibition, hyperactivation in the left temporal pole and parahippocampal gyrus and right putamen during failed inhibition, and hyperactivation in the left IFG and right basal ganglia during failed versus successful inhibition. The association between PRS-ADHD and symptoms of hyperactivity-impulsivity was partially mediated by the left temporal pole and parahippocampal activity during failed inhibition.

Conclusions: Our findings support the polygenic nature of ADHD and further corroborate RI-related neural activity as a possible endophenotype of ADHD. Mediation analyses indicated that common genetic risk variants of ADHD were associated with RI-related neural activity which in turn mediated their relation with hyperactivity-impulsivity symptoms. Besides, the significant associations of MRT and ICV with PRS-ADHD, and their mediatory effects on the relation between PRS-ADHD and ADHD symptoms suggest that genetic liability to ADHD might influence attention regulation on the behavioral level. No conflict of interest

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Eur Neuropsychopharmacol. 2021;53:S241-S242.

P.0331 NEURAL CORRELATES OF REACTIVE AGGRESSION IN ADULT ATTENTION-DEFICIT/HYPERACTIVITY DISORDER.

Jakobi B, Hoogman M, Arias-Vasquez A, et al.

Even though it is not part of the core diagnostic criteria of ADHD, emotion dysregulation is highly prevalent and has recently been considered a constitutional component of adult ADHD. One important example of emotion dysregulation is reactive aggression, having a significant impact on the social and occupational

outcome. Despite the high impact on the quality of life, our understanding of the co-occurrence of reactive aggression with ADHD and the underlying mechanisms is limited. Neural circuits engaged in reactive aggression as a behavioral manifestation of ED overlap with structurally and functionally implicated brain regions in ADHD and are linked together in functional neuroimaging studies on children and adolescents. However, research on the neural circuits underlying emotion dysregulation in adults with persistent ADHD is clearly underrepresented, does not cover subliminal facial emotion processing nor integrate behavioral impairments such as ratings of reactive aggression. In this study, we aim to identify the neural correlates of emotion dysregulation in adults with persistent ADHD during implicit emotion regulation processes. Therefore, we assessed reactive aggression with the reactive proactive aggression questionnaire (RPQ) and acquired functional MRI during the presentation of angry, happy and fearful faces in a dynamic facial expression task in 78 adults with ADHD and 78 control subjects. We analyzed the associations of whole-brain activity with levels of reactive aggression and further investigated relationships with symptoms and impairments (assessed with the diagnostic interview for adult ADHD, DIVA 2.0). While reactive aggression scores were associated with ADHD diagnoses, no different activation pattern reflecting altered emotion processing in general was found between adults with or without ADHD. However, investigating the brain activities associated with reactive aggression in both groups showed an interaction of group and reactive aggression scores. While some structures were implicated in both groups, showing lower activity in the control group in association with low reactive aggression scores and higher activity in the ADHD group in association with high reactive aggression, we found high levels of activity in the right Insula, the limbic system and middle and superior frontal areas to be specifically relevant for high reactive aggression scores in the ADHD group. Furthermore, this limbic activity was associated with more hyperactive/impulsive symptoms. These results suggest a differential mechanism underlying reactive aggression in ADHD as compared to healthy subjects. Emotional hyperreactivity in the limbic system and insula as well as more effortful top down regulation from medial frontal areas might thus both contribute to emotionally dysregulated behavior as measured by reactive aggression. The implication of these areas in the altered neurodevelopment and the association with one of the core symptoms (hyperactivity/impulsivity) of ADHD might point towards a neurodevelopmental liability of participants with ADHD to experience emotion regulation issues, with subjects showing pronounced hyperactive symptoms being particularly vulnerable. No conflict of interest

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Front Psychiatry. 2021;12.

ATTENTION DEFICIT/HYPERACTIVITY DISORDER SYMPTOMS IMPAIR ADAPTIVE AND SOCIAL FUNCTION IN CHILDREN WITH AUTISM SPECTRUM DISORDER.

Liu Y, Wang L, Xie S, et al.

Background: Autism spectrum disorder (ASD) often co-exists with attention deficit/hyperactivity disorder (ADHD), which may aggravate functional impairment. However, it is unclear how comorbid ADHD symptoms influence the adaptive behavior and social interaction deficits of children with ASD.

Methods: The study enrolled 340 children (ranging from 2 to 14 years) with ASD, with comorbid ASD and ADHD, or with typical development (TD). A psychological evaluation involving adaptive behavior and social function was conducted using the Vineland Adaptive Behavior Scale, Second Edition (VABS-II) and the Social Responsiveness Scale (SRS).

Results: There was a high prevalence of ADHD symptoms (46.6%) in children with ASD, and children with ASD + ADHD presented the worse profile of ASD symptoms. The ASD + ADHD group had higher scores on VABS and lower scores on SRS in comparison with the ASD alone group and TD group. The regression analysis revealed that ASD symptoms and ADHD symptoms were significantly associated with greater impairments in adaptive behavior and social function. The ADHD symptoms were responsible for an additional 0.8% of the variance in adaptive behavior, and 9.5% of the variance in social function.

Conclusions: More severe ASD symptoms and greater impairment in adaptive function and social ability were found in children with ASD and comorbid ADHD, highlighting the need to identify ADHD comorbidities early on in children with ASD and to reduce their negative impact on functioning

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Front Psychiatry. 2021;12.

RESTING-STATE FMRI TO IDENTIFY THE BRAIN CORRELATES OF TREATMENT RESPONSE TO MEDICATIONS IN CHILDREN AND ADOLESCENTS WITH ATTENTION-DEFICIT/HYPERACTIVITY DISORDER: LESSONS FROM THE CUNMET STUDY.

Pereira-Sanchez V, Franco AR, de Castro-Manglano P, et al.

Neuroimaging research seeks to identify biomarkers to improve the diagnosis, prognosis, and treatment of attention-deficit/hyperactivity disorder (ADHD), although clinical translation of findings remains distant. Resting-state functional magnetic resonance imaging (R-fMRI) is increasingly being used to characterize functional connectivity in the brain. Despite mixed results to date and multiple methodological challenges, dominant hypotheses implicate hyperconnectivity across brain networks in patients with ADHD, which could be the target of pharmacological treatments. We describe the experience and results of the Cl+¡nica Universidad de Navarra (Spain) Metilfenidato (CUNMET) pilot study. CUNMET tested the feasibility of identifying R-fMRI markers of clinical response in children with ADHD undergoing naturalistical pharmacological treatments. We analyzed cross-sectional data from 56 patients with ADHD (18 treated with methylphenidate, 18 treated with lisdexamfetamine, and 20 treatment-naive patients). Standard preprocessing and statistical analyses with attention to control for head motion and correction for multiple comparisons were performed. The only results that survived correction were noted in contrasts of children who responded clinically to lisdexamfetamine after long-term treatment vs. treatment-naive patients. In these children, we observed stronger negative correlations (anticorrelations) across nodes in six brain networks, which is consistent with higher across-network functional segregation in patients treated with lisdexamfetamine, i.e., less inter-network interference than in treatment-naive patients. We also note the lessons learned, which could help those pursuing clinically relevant multidisciplinary research in ADHD en route to eventual personalized medicine. To advance reproducible open science, our report is accompanied with links providing access to our data and analytic scripts

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Front Psychiatry. 2021;12.

MULTIMODAL INTERVENTIONS ARE MORE EFFECTIVE IN IMPROVING CORE SYMPTOMS IN CHILDREN WITH ADHD.

Ning K, Wang T.

Objective: To investigate the effect of sensory integration training combined with EEG biofeedback on core symptoms in children with ADHD.

Methods: Fifty-two children with attention-deficit, hyperactive-impulsive and combined ADHD were selected. They were randomly divided into control group, sensory integration training group, EEG biofeedback group, and sensory integration training + EEG biofeedback group, and after 4 months of intervention, concentration time and impulsive- hyperactivity and hyperactivity index scores on the PSQ scale were assessed.

Results: Compared with that before the intervention, the attention time was significantly increased ($P < 0.01$), and the impulsive-hyperactivity and hyperactivity index scores were significantly decreased ($P < 0.05$, $P < 0.01$). After the intervention, the attention time was significantly higher than that of the control group ($P < 0.05$, $P < 0.01$), the attention time of the multimodal intervention group was significantly higher than that of the single intervention group ($P < 0.01$), and the impulsive-hyperactivity and hyperactivity index scores were significantly lower than those of the single intervention group ($P < 0.05$).

Conclusion: Multimodal intervention can significantly improve the concentration level of children with ADHD, and significantly improve the behavioral symptoms of impulsive-hyperactivity and hyperactivity. Multimodal interventions were more effective than single interventions in improving core symptoms in children with ADHD. The results of this study provide a reference for related research and practical application

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Front Psychiatry. 2021;12.

FAILURE OF HEALTHCARE PROVISION FOR ATTENTION-DEFICIT/HYPERACTIVITY DISORDER IN THE UNITED KINGDOM: A CONSENSUS STATEMENT.

Young S, Asherson P, Lloyd T, et al.

Background: Despite evidence-based national guidelines for ADHD in the United Kingdom (UK), ADHD is under-identified, under-diagnosed, and under-treated. Many seeking help for ADHD face prejudice, long

waiting lists, and patchy or unavailable services, and are turning to service-user support groups and/or private healthcare for help.
Methods: A group of UK experts representing clinical and healthcare providers from public and private healthcare, academia, ADHD patient groups, educational, and occupational specialists, met to discuss shortfalls in ADHD service provision in the UK. Discussions explored causes of under-diagnosis, examined biases operating across referral, diagnosis and treatment, together with recommendations for resolving these matters.
Results: Cultural and structural barriers operate at all levels of the healthcare system, resulting in a de-prioritization of ADHD. Services for ADHD are insufficient in many regions, and problems with service provision have intensified as a result of the response to the COVID-19 pandemic. Research has established a range of adverse outcomes of untreated ADHD, and associated long-term personal, social, health and economic costs are high. The consensus group called for training of professionals who come into contact with people with ADHD, increased funding, commissioning and monitoring to improve service provision, and streamlined communication between health services to support better outcomes for people with ADHD.
Conclusions: Evidence-based national clinical guidelines for ADHD are not being met. People with ADHD should have access to healthcare free from discrimination, and in line with their legal rights. UK Governments and clinical and regulatory bodies must act urgently on this important public health issue

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Front Psychiatry. 2021;12.
ALTERED FUNCTIONAL CONNECTIVITY IN A TRIPLE-NETWORK MODEL IN AUTISM WITH CO-OCCURRING ATTENTION DEFICIT HYPERACTIVITY DISORDER.
Wang K, Li K, Niu X.
Purpose: This study aimed to explore alterations in functional connectivity (FC) within and between default mode network (DMN), central executive network, and salience network in autism spectrum disorder (ASD) with co-occurring attention deficit hyperactivity disorder (ADHD).
Method: A total of 135 individuals' date of the Autism Brain Imaging Data Exchange II was used to compare the ASD+ADHD group with the ASD group in relation to the abnormal within-network and between-network connectivity of the ASD group relative to the TD group; consequently, the correlation analysis between abnormal FC and behavior was performed.
Results: The ASD+ADHD group exhibited decreased within-network connectivity in the precuneus of the ventral DMN compared with the ASD group. Among the three groups, the ASD+ADHD group showed lower connectivity, whereas the ASD group had higher connectivity than the TD group, although the effect of the separate post hoc test was not significant. Meanwhile, the ASD+ADHD group showed increased between-network connectivity between the ventral DMN and dorsal DMN and between the ventral DMN and left executive control network, compared with the ASD and TD groups.
Conclusion: Dysfunction of DMN in the triple-network model is the core evidence for ASD with co-occurring ADHD

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Indian J Pediatr. 2022.
BURDEN OF ATTENTION DEFICIT HYPERACTIVITY DISORDER (ADHD) IN INDIAN CHILDREN: A SYSTEMATIC REVIEW AND META-ANALYSIS.
Chauhan A, Sahu JK, Singh M, et al.
Objective: To determine the pooled prevalence of attention deficit hyperactivity disorder (ADHD) in Indian children.
Methods: The searching of published literature was conducted in-ádifferent databases (PubMed, Ovid SP, and EMBASE). The authors also tried to acquire information from the unpublished literature about the prevalence of ADHD. A screening was done to include eligible original studies, community or school-based, cross-sectional or cohort, reporting the prevalence of ADHD in children aged 18 y in India. Retrieved data were analyzed using STATA MP12 (Texas College station).
Results: Of 729 studies retrieved by searching different databases, 183 studies were removed as duplicates, and 546 titles and abstracts were screened. After screening, 19 studies were included for quantitative analysis. Subgroup analysis was conducted with respect to their setting (school-based/community-based).

Fifteen studies performed in a school-based setting showed 75.1 (95% CI 56.0-94.1) pooled prevalence of ADHD per 1000 children of 4-19 y of age. In community-based settings, the pooled prevalence per 1000 children surveyed was 18.6 (95% CI 8.8-28.4). The overall pooled prevalence of ADHD was observed as 63.2 (95% CI 49.2–77.1) in 1000 children surveyed. Significant heterogeneity was observed in the systemic review.
Conclusions: ADHD accounts for a significant health burden, and understanding its burden is crucial for effective health policy-making for educational intervention and rehabilitation

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Innov Clin Neurosci. 2021;18:28-32.
ENERGY DRINK USE IN ADOLESCENTS WITH AND WITHOUT ADHD: TRENDS AND INFLUENCES.
Narine C, Weller J, Mathieson K.
Objective: We sought to determine the frequency, reasons for, and factors associated with energy drink consumption in adolescents with or without attention deficit hyperactivity disorder (ADHD).
Design: Anonymous surveys were completed by 115 adolescents and their parents prior to appointments at two separate outpatient clinics (pediatric and psychiatric) over a three-month period. Trained staff provided surveys to be completed by adolescents and their parents on a voluntary basis, and all data was self-reported. Care was given to ensure adolescents and their parents completed surveys independently from each other.
Results: A total of 114 adolescent surveys and 100 parent surveys were included in analysis. There was a statistically significant association between parent and adolescent consumption of energy drinks. The mean number of energy drinks consumed in the past month was lower among adolescents than among parents. The most common reason among all respondents for energy drink consumption was to promote wakefulness.
Conclusion: This survey found that adolescents with parents who consumed energy drinks were more likely to drink energy drinks themselves. Trends indicate that consumption of energy drinks is increasing in the adolescent population, with potential for serious adverse events resulting from high caffeine content, warranting the need for public health awareness

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Int J Environ Health Res. 2022 Jan;32:232-41.
ASSOCIATION BETWEEN FLUORIDE EXPOSURE AND BEHAVIOURAL OUTCOMES OF SCHOOL-AGE CHILDREN: A PILOT STUDY IN CHINA.
Wang A, Duan L, Huang H, et al.
To assess the association between fluoride exposure and children's behavioural outcomes, we recruited 325 resident school-age children (7-13 years old) lived in Tongxu County of Henan Province in China. We measured urinary fluoride (UF) concentrations using the ion-selective electrode method. Children's behavioural outcomes were assessed by Conners' Parent Rating Scale-Revised, including conduct problems, learning problems, psychosomatic problems, impulsive-hyperactive, anxiety, and ADHD index. It turned out that each 1.0 mg/L increment in UF concentration corresponded with an elevation in the psychosomatic problem score of 4.01 (95% CI: 2.74, 5.28) and a 97% (OR = 1.97, 95% CI: 1.19, 3.27) increase in the prevalence of psychosomatic problems after adjusting for potential influencing factors. The sensitivity analysis results were consistent with those observed in our preliminary analysis. Our study suggests that fluoride exposure is positively related to the behavioural problem in school-age children, psychosomatic problem in particular

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Int J Environ Res Public Health. 2021;18.
PARENTS' EXPERIENCES OF WEIGHTED BLANKETS IMPACT ON CHILDREN WITH ATTENTION-DEFICIT/HYPERACTIVITY DISORDER (ADHD) AND SLEEP PROBLEMS A QUALITATIVE STUDY.
Larsson I, Aili K, Nygren JM, et al.
Sleep disturbances are common among children with attention-deficit/hyperactivity disorder (ADHD). While pharmacological treatment has increased dramatically, parents often prefer non-pharmacological interventions. Research on experiences of weighted blankets and their effect in sleep improvement is scarce. The aim of this study was to explore parents experiences of weighted blankets for children with ADHD and

sleep problems, and the impact on their children's sleep. The explorative design was based on qualitative content analysis. Interviews were conducted with a purposeful sample of 24 parents of children with ADHD and sleep problems, after complet-ing a sleep intervention with weighted blankets for 16 weeks. Parents reported that children sleeping with weighted blankets: (1) achieved satisfactory sleep, including improved sleep onset latency, sleep continuity, and sleep routines; (2) achieved overall well-being, including improved relaxation and reduced anxiety; and (3) mastered everyday life, including improved balance in life, family function, and participation in school and leisure activities. This study brings forward novel aspects of the effects of improved sleep among children with ADHD. The findings contribute to the understanding of potential positive effects of an intervention with weighted blankets critical for clinical practice to improve sleep, well-being, and everyday life of children with ADHD and their families

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Int J Environ Res Public Health. 2022;19.

A CASE STUDY IN ATTENTION-DEFICIT/HYPERACTIVITY DISORDER: AN INNOVATIVE NEUROFEEDBACK-BASED APPROACH.

Cabaleiro P, Cueli M, et al.

In research about attention-deficit/hyperactivity disorder (ADHD) there is growing interest in evaluating cortical activation and using neurofeedback in interventions. This paper presents a case study using monopolar electroencephalogram recording (brain mapping known as MiniQ) for subsequent use in an intervention with neurofeedback for a 10 year old girl presenting predominantly inattentive ADHD. A total of 75 training sessions were performed, and brain wave activity was assessed before and after the intervention. The results indicated post-treatment benefits in the beta wave (related to a higher level of concentration) and in the theta/beta ratio, but not in the theta wave (related to higher levels of drowsiness and distraction). These instruments may be beneficial in the evaluation and treatment of ADHD

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Int J Psychophysiol. 2022;172:17-23.

EARLY DETECTION AND TREATMENT OF ATTENTION DEFICITS IN PRETERM AND AT TERM INFANTS WITH RISK FACTORS FOR BRAIN DAMAGE.

Harmony T, et al.

Cognitive deficits in infants born preterm and infants at term with risk factors for brain damage are a common outcome. Attention deficits in preterm infants are related to the development of attention-deficit/hyperactivity disorder (ADHD), and therefore, there is a need for earlier evaluations and treatment procedures that are implemented before the presence of signs of ADHD.

Methods: We studied preterm (74%) and term infants with the Infant Scale of Selective Attention (ISSA, Escala de Evaluación de la Atención Selectiva (EEAS), in Spanish). This scale evaluates both visual- and auditory-orienting attention. Two groups participated, one with attention deficits (n = 26) and another with regular performance (n = 36). An early attention-stimulation program (EASP) was implemented in the infant group with attention deficits from three to eight months of age. All infants underwent magnetic resonance imaging (MRI), and visual and auditory evoked responses were assessed.

Results: All infants had prenatal and perinatal risk factors for brain damage and abnormal MRI findings, and the majority had abnormalities compatible with white matter injury. However, there were four infants with porencephalic cysts; 3 of them were in the treated group. At the beginning of the treatment, ISSA values showed differences between groups. These differences persisted for five months in the visual test and up to the sixth month in the auditory evaluation. Afterward, there were no significant differences, indicating that infants with attention deficits had satisfactorily responded to the treatment.

Conclusions: The ISSA is helpful for the early evaluation of visual and auditory attention. Infants with attention deficits react well enough after six months of EASP.

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Int J Psychophysiol. 2022;173:38-44.

DEFAULT MODE NETWORK CONNECTIVITY AND ATTENTION-DEFICIT/HYPERACTIVITY DISORDER IN ADOLESCENCE: ASSOCIATIONS WITH DELAY AVERSION AND TEMPORAL DISCOUNTING, BUT NOT MIND WANDERING.

Broulidakis MJ, Golm D, Cortese S, et al.

Background: Attention-deficit/hyperactivity disorder (ADHD) has been associated with reduced resting state connectivity in the core subsystem of the default mode network (DMN; medial prefrontal cortex posterior cingulate cortex). However, the neuropsychological consequences of this hypoconnectivity remain to be determined. Building on recent theoretical models of DMN function, we tested the association between DMN hypo-connectivity and three neuropsychological processes previously implicated in ADHD: (i) excessive task-unrelated spontaneous thought (i.e., mind-wandering); (ii) sub-optimal decision-making due to exaggerated temporal discounting; and (iii) delay aversion ΓÇô a heightened emotional response to the imposition or experience of delay.

Methods: Twenty male adolescents with a clinical diagnosis of ADHD and 18 typically developing adolescents (all aged 11-16 years) underwent a resting-state fMRI scan to assess DMN connectivity. An experimental paradigm was used to assess temporal discounting and self-report questionnaires were used to measure mind wandering and delay aversion.

Results: ADHD was significantly associated with DMN hypo-connectivity specifically in the core subsystem, elevated levels of mind-wandering, delay aversion, and temporal discounting. Mediation analysis suggested that DMN hypoconnectivity mediated the link between ADHD and delay aversion.

Conclusion: The results provide initial evidence that disturbances in the DMN may impair ability to regulate delay-related negative affect in adolescents with ADHD

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Ir J Med Sci. 2022 Feb;191:313-20.

ADHD STIMULANT MEDICATION MISUSE AND CONSIDERATIONS FOR CURRENT PRESCRIBING PRACTICE: A LITERATURE REVIEW.

Carolan D.

BACKGROUND: Stimulant medications have been prescribed to effectively treat childhood Attention Deficit Hyperactivity Disorder (ADHD) since the 1960's, with improved outcomes observed in the three core symptom domains. Over the course of these decades researchers and clinicians have debated the issue of negative outcomes with regard to later development of substance use disorders (SUD) for these children. AIMS: To chronicle the development of medical and scientific opinion on the subject of SUD outcomes in ADHD and to appraise most recently published research in this sphere.

METHODS: A systematic search of the literature was conducted over 4 databases. Removal of duplicates, application of exclusion criteria and inclusion of publications identified through manual and citation-based search yielded 9 papers.

RESULTS: Prescriptions for stimulant medications are increasing worldwide and in tandem the prevalence of stimulant misuse. Much research focuses on non-medical stimulant misuse as a study aid; however, they are also used as recreational drugs with action on dopaminergic neurotransmitter pathways implicated in addiction disorders. Considering the risks and benefits of stimulant prescribing on later SUD development research in recent decades has produced inconsistent results. Current research supports the hypothesis of improved SUD outcomes for young people treated early and intensely, with poorer outcomes for those with less robust treatment histories.

CONCLUSIONS: Consideration of the impact that variable treatment trajectories may have on the risk of later SUD development is recommended, with further research potentially leading to the development of different management pathways based on an individual's multivariate treatment profile

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J Affect Disord. 2022 Feb;298:190-93.

MENTAL HEALTH CONDITIONS IN LESBIAN, GAY, BISEXUAL, TRANSGENDER, QUEER AND ASEXUAL YOUTH IN BRAZIL: A CALL FOR ACTION.

Terra T, Schafer JL, Pan PM, et al.

BACKGROUND: Lesbian, Gay, Bisexual, Transgender, Queer, and Asexual (LGBTQA+) youth have a greater chance of experiencing stressful life events when compared to cisgender heterosexual peers, which

can lead to mental health problems. We aimed to estimate the prevalence of mental disorders among LGBTQA+ youths from two large cities in Brazil.
METHODS: Participants were 13-22 years old youths from the 3rd wave of the Brazilian High-Risk Cohort for Psychiatric Disorders (n = 1475). Mental disorders were assessed using the Development and Well-Being Behavior Assessment. Sexual orientation and gender identity were assessed using a self-report confidential questionnaire. Data were analyzed through logistic regressions (adjusting for sociodemographic) using sampling weights to account for attrition and our oversampling high-risk design.
RESULTS: 15.18% of the sample described themselves as LGBTQA+. The LGBTQA+ group presented higher rates of anxiety disorders (30.14% vs. 13.37%; OR = 3.37; 95%CI:2.51-4.50), depressive disorders (27.75% vs. 15.34%; OR = 2.17; 95%CI:1.60-2.93) and post-traumatic stress disorder (4.98% vs. 2.25%; OR = 4.20; 95%CI:2.24-7.82), if compared with the cisgender heterosexual group. No difference was found for conduct disorders (2.97% vs. 5.21%; OR = 0.82; 95%CI:0.35-1.65) or attention deficit hyperactivity disorder (5.92% vs. 3.28%; OR = 1.56; 95%CI:0.83-2.79).
LIMITATIONS: Although recruitment was performed at 57 schools in the two cities, sampling was non-probabilistic and included only urban areas, which might bias prevalence estimates and group comparisons.
CONCLUSIONS: Our results elucidate the mental health disparities between LGBTQA+ people and cisgender heterosexuals in Brazil. It highlights the need to promote the inclusion of this population in policy formulation and support actions to mitigate the suffering related to sexual orientation and gender identity

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J Affect Disord. 2022 Jan;297:169-75.
OVERWEIGHT IN MOOD DISORDERS: EFFECTS ON MORBIDITY AND TREATMENT RESPONSE.
Miola A, Pinna M, Manchia M, et al.
OBJECTIVE: As it is not clear how body-mass index (BMI) may relate to diagnosis, symptom-severity, illness-course, and treatment-response among psychiatric patients, we related BMI to psychiatric diagnosis and to selected clinical and demographic factors in major affective disorder subjects.
METHODS: We analyzed mean BMI levels vs. diagnosis, and evaluated selected risk factors for association with overweight and obesity among subjects with DSM-5 major affective disorders.
RESULTS: In 1884 subjects, BMI ranged from 23.4 kg/m(2) with anxiety disorders to 27.6 with psychotic disorders, and averaged 24.1 among 1469 affective disorder subjects. Mood-disorder subjects with BMI 25 (overweight/obese) were more likely: men, older, married, with more children and siblings, less education, lower socioeconomic status, engaged less in physical exercise, smoked more, and lived in less densely populated areas. They also were more likely to have: BD than MDD, familial mood disorders, no co-occurring ADHD, higher serum triglyceride levels, more time depressed and less improvement in depression ratings with treatment.
CONCLUSIONS: Risk of being overweight or obese was greatest with psychoses, least with anxiety, personality, and minor depressive disorders, and intermediate with major mood disorders. Several plausible risk factors for high BMI were identified in mood disorder subjects, including male sex and with BD > MDD. Striking were selectively greater prospective morbidity and decreased treatment-response for depression vs. mania with BMI 25

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J Affect Disord. 2022 Feb;299:707-14.
GENERALIZED ANXIETY DISORDER AMONG ADULTS WITH ATTENTION DEFICIT HYPERACTIVITY DISORDER.
Fuller-Thomson E, Carrique L, MacNeil A.
BACKGROUND: Research has identified a link between Attention-Deficit Hyperactivity Disorder (ADHD) and Generalized Anxiety Disorder (GAD). The aims of this study were to investigate the relationship between ADHD and GAD, and to identify significant correlates of GAD among those with ADHD.
METHODS: Data were derived from the nationally representative 2012 Canadian Community Health Survey-Mental Health. The sample included 6,989 respondents aged 20-39, of whom 682 had GAD. Bivariate and logistic regression analyses were conducted to determine the degree to which the association between ADHD and GAD was attenuated by demographics, socioeconomic status, social support, spirituality, childhood adversities, depression, and substance abuse/dependence. Additional analyses were conducted using the subsample of those diagnosed with ADHD (n = 272) to determine factors associated with GAD.

RESULTS: 1 in 9 respondents with GAD had ADHD, in comparison to 1 in 33 of those without GAD. The age-sex-race adjusted odds of GAD were four-fold for those with ADHD in comparison to those without ADHD. After adjusting for all covariates, the odds of GAD were still more than double for those with ADHD. Factors associated with GAD among those with ADHD include being female, having an income <$40,000, having fewer close relationships, and having a lifetime history of depression.
LIMITATIONS: Cross-sectional design prohibits causal inferences. CONCLUSION: The high co-morbidity between ADHD and GAD emphasizes the need for targeted intervention to support these often overlapping disorders

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J Am Acad Child Adolesc Psychiatry. 2022 Jan;61:32-33.
EDITORIAL: ON THE SAFETY OF LONG-TERM METHYLPHENIDATE TREATMENT OF ATTENTION-DEFICIT/HYPERACTIVITY DISORDER IN EARLY CHILDHOOD.
Vitiello B.
The clinical manifestations of attention-deficit/hyperactivity disorder (ADHD) often emerge before 6 years of age, and an early onset can portend a more marked and severe clinical course. Given that untreated ADHD can have a negative impact on educational attainment and social functioning, early treatment is indicated, as it might translate into better distal outcomes. For this age group, the current recommendation from clinical guidelines and ADHD experts is to administer behavioral therapy as first-line treatment. Because only limited information has been available on the possible safety implications of long-term pharmacological treatment at young ages, the use of methylphenidate is reserved for cases with impairing ADHD symptoms unresponsive to psychosocial intervention.(1)

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J Am Acad Child Adolesc Psychiatry. 2022 Jan;61:34-36.
EDITORIAL: SAFER USE OF ANTIPSYCHOTICS IN YOUTH (SUAY): SHOULD TREATMENT BE GUIDED BY SYMPTOMS?
Edelsohn GA, Abright AR.
Child and adolescent psychiatrists have company as they wrestle with clinical decision making regarding when it is appropriate to prescribe an antipsychotic. Pediatricians face a similar challenge in trying to determine under what circumstances to prescribe an antibiotic. Both classes of medications are powerful and can be lifesaving, but they are not without the risk of associated adverse events and cumulative exposure. Concerns regarding the widespread use of antipsychotics in children and adolescents have been supported by national trends indicating predominance of prescriptions for conditions (attention-deficit/hyperactivity disorder, conduct disorder, oppositional defiant disorder, and impulsive aggression)(1,2) other than those approved by the U.S. Food and Drug Administration (psychotic disorders, bipolar disorder with mania, irritability associated with autism spectrum disorder, and tic disorders); the risks of weight gain, diabetes mellitus, and other adverse effects to which youths appear to be more vulnerable than adults(3); and potential disparities related to the absence of race and ethnicity in large administrative datasets.(4) Previous studies of antipsychotic prescribing patterns predate the widespread use of the diagnosis of disruptive mood dysregulation disorder. A recent study found that 58.9% of youths given a diagnosis of disruptive mood dysregulation disorder were prescribed antipsychotics compared with 51% of youths with a diagnosis of bipolar disorder.(5) In this issue of the Journal, Penfold et al.(6) report on a novel approach to antipsychotic prescribing focused on symptoms rather than diagnoses developed as the initial phase of a pragmatic clinical trial, Targeted and Safer Use of Antipsychotics in Youth (SUAY), funded by the National Institute of Mental Health and designed to test the effectiveness of targeted interventions on the use of antipsychotics for youth 4 to 17 years old in large health care systems. We offer some perspectives on differences that distinguish this approach; the process used in its development; and its promise, potential pitfalls, and policy and clinical implications

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J Am Acad Child Adolesc Psychiatry. 2022 Jan;61:80-92.

LONG-TERM TREATMENT WITH EXTENDED-RELEASE METHYLPHENIDATE TREATMENT IN CHILDREN AGED 4 TO <6 YEARS.

Childress AC, Foehl HC, Newcorn JH, et al.

OBJECTIVE: To investigate long-term (12-month) safety and symptom control of extended-release methylphenidate (MPH-MLR) in children aged 4 to <6 years after treatment optimization.

METHOD: A total of 90 children aged 4 to <6 years with attention-deficit/hyperactivity disorder (ADHD) were enrolled from 2 MPH-MLR studies. Treatment-emergent adverse events (TEAEs) and ADHD symptom control were assessed in the safety population (n=89) and modeled with mixed model analyses.

RESULTS: Most TEAEs (89.9%) were rated by investigators as of mild or moderate severity. One serious AE was reported (unrelated to study drug). Ten children discontinued because of TEAEs. Two discontinued because of weight loss; no significant increase in the rate of underweight children from baseline to endpoint was observed. Overall, 18% lost weight and 18% reported decreased appetite. Weight and height z scores and obesity rates decreased significantly from baseline to endpoint. Insomnia was reported (9%); none of these children discontinued. Sleep quality did not change significantly. Hypertension was reported (6.7%); none of these children dropped out. Diastolic, but not systolic, blood pressure increased significantly during the follow-up. Control of ADHD symptoms was maintained throughout follow-up.

CONCLUSION: These data contribute to the understanding of the long-term safety of an extended-release stimulant in children 4 to <6 years of age. The observed risk of a TEAE-related discontinuation was âˆ¼11%. TEAEs were not dose related, and most were of mild to moderate severity. Symptom control was maintained through the year-long study.

CLINICAL TRIAL REGISTRATION INFORMATION: A 12-Month Open Label Safety Study of Aptensio XR® in Children Ages 4-5 Years Diagnosed With ADHD (EF004); https://clinicaltrials.gov; NCT02677519

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J Atten Disord. 2022 Feb;26:549-62.

PHYSICAL HEALTH, MEDIA USE, AND MENTAL HEALTH IN CHILDREN AND ADOLESCENTS WITH ADHD DURING THE COVID-19 PANDEMIC IN AUSTRALIA.

Sciberras E, Patel P, Stokes MA, et al.

OBJECTIVE: To examine the impact of COVID-19 restrictions among children with attention-deficit/hyperactivity disorder (ADHD).

METHODS: Parents of 213 Australian children (5-17 years) with ADHD completed a survey in May 2020 when COVID-19 restrictions were in place (i.e., requiring citizens to stay at home except for essential reasons).

RESULTS: Compared to pre-pandemic, children had less exercise (Odds Ratio (OR)=0.4; 95% CI 0.3-0.6), less outdoor time (OR=0.4; 95% 0.3-0.6), and less enjoyment in activities (OR=6.5; 95% CI 4.0-10.4), while television (OR=4.0; 95% CI 2.5-6.5), social media (OR=2.4; 95% CI 1.3-4.5), gaming (OR=2.0; 95% CI 1.3-3.0), sad/depressed mood (OR=1.8; 95% CI 1.2-2.8), and loneliness (OR=3.6; 95% CI 2.3-5.5) were increased. Child stress about COVID-19 restrictions was associated with poorer functioning across most domains. Most parents (64%) reported positive changes for their child including more family time.

CONCLUSIONS: COVID-19 restrictions were associated with both negative and positive impacts among children with ADHD

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J Clin Neurophysiol. 2022 Feb;39:135-48.

BIOMARKERS OBTAINED BY TRANSCRANIAL MAGNETIC STIMULATION IN NEURODEVELOPMENTAL DISORDERS.

Jannati A, Ryan MA, Kaye HL, et al.

Transcranial magnetic stimulation (TMS) is a method for focal brain stimulation that is based on the principle of electromagnetic induction where small intracranial electric currents are generated by a powerful fluctuating magnetic field. Over the past three decades, TMS has shown promise in the diagnosis, monitoring, and treatment of neurological and psychiatric disorders in adults. However, the use of TMS in children has been more limited. We provide a brief introduction to the TMS technique; common TMS protocols including single-pulse TMS, paired-pulse TMS, paired associative stimulation, and repetitive TMS; and relevant TMS-derived neurophysiological measurements including resting and active motor threshold, cortical silent period, paired-

pulse TMS measures of intracortical inhibition and facilitation, and plasticity metrics after repetitive TMS. We then discuss the biomarker applications of TMS in a few representative neurodevelopmental disorders including autism spectrum disorder, fragile X syndrome, attention-deficit hyperactivity disorder, Tourette syndrome, and developmental stuttering

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J Clin Psychiatry. 2022 Jan;83.

EARLY-LIFE INJURIES AND THE DEVELOPMENT OF ATTENTION-DEFICIT/HYPERACTIVITY DISORDER.

Wimberley T, Brikell I, Pedersen EM, et al .

Objective: To estimate phenotypic and familial association between early-life injuries and attention-deficit/hyperactivity disorder (ADHD) and the genetic contribution to the association using polygenic risk score for ADHD (PRS-ADHD) and genetic correlation analyses.

Methods: Children born in Denmark between 1995-2010 (n=786,543) were followed from age 5 years until a median age of 14 years (interquartile range: 10-18 years). Using ICD-10 diagnoses, we estimated hazard ratios (HRs) and absolute risks of ADHD by number of hospital/emergency ward-treated injuries by age 5. In a subset of ADHD cases and controls born 1995 to 2005 who had genetic data available (n=16,580), we estimated incidence rate ratios (IRRs) for the association between PRS-ADHD and number of injuries before age 5 and the genetic correlation between ADHD and any injury before age 5.

Results: Injuries were associated with ADHD (HR=1.61; 95% CI, 1.55-1.66) in males (HR=1.59; 1.53-1.65) and females (HR=1.65; 1.54-1.77), with a dose-response relationship with number of injuries. The absolute ADHD risk by age 15 was 8.4% (3+ injuries) vs 3.1% (no injuries). ADHD was also associated with injuries in relatives, with a stronger association in first- than second-degree relatives. PRS-ADHD was marginally associated with the number of injuries in the general population (IRR=1.06; 1.00-1.14), with a genetic correlation of 0.53 (0.21-0.85).

Conclusions: Early-life injuries in individuals and their relatives were associated with a diagnosis of ADHD. However, even in children with the most injuries, more than 90% were not diagnosed with ADHD by age 15. Despite a low positive predictive value and that the impact of unmeasured factors such as parental behavior remains unclear, results indicate that the association is partly explained by genetics, suggesting that early-life injuries may represent or herald early behavioral manifestations of ADHD

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J Dtsch Dermatol Ges. 2022 Jan;20:7-15.

ADVERSE PSYCHOCUTANEOUS EFFECTS OF PRESCRIPTION STIMULANT USE AND ABUSE: A SYSTEMATIC REVIEW.

Moattari CR, Frana K .

Although rare, psychocutaneous disorders induced by prescription stimulants have been reported throughout the literature. A systematic review was conducted to identify all case reports and case series of prescription stimulant-induced trichotillomania, tactile hallucinations, and delusional infestation. A total of 22 case reports were identified and relevant information was analyzed. Patients presenting with trichotillomania and tactile hallucinations induced by prescription stimulants were typically pediatric male patients being treated for attention deficit hypersensitivity disorder. Symptoms resolved after discontinuation of the offending medication. Patients presenting with delusional infestation secondary to stimulant use or abuse were typically adults who were misusing or abusing stimulant medication. Although symptoms typically improved or resolved after decreasing or discontinuing medication, several patients required the use of antipsychotic medication. While the observational nature of case reports and small number of patients limits meaningful analysis of trends and comparison, this study demonstrates that physicians, especially dermatologists and psychiatrists, should be aware of the potential for prescription stimulants to precipitate adverse psychocutaneous disorders in a minority of individuals

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J Intellect Disabil Res. 2022 Jan;66:121-32.

CAREGIVER-REPORTED EXECUTIVE FUNCTIONING AND ASSOCIATED ADAPTIVE AND CHALLENGING BEHAVIOUR IN CHILDREN WITH HISTORIES OF DEVELOPMENTAL DELAY.

Barton H, McIntyre LL.

BACKGROUND: Deficits in executive functioning (EF) have been measured in individuals with developmental disabilities, such as autism spectrum disorder and attention-deficit/hyperactivity disorder, through the use of behaviour rating scales and performance-based assessment. Associations between EF and variables such as challenging and adaptive behaviour have been observed; however, limited research exists on EF profiles in children with heterogeneous developmental delay or with intellectual disability (ID) or the impact of EF on adaptive and challenging behaviour with this population.
METHODS: The present study sought to examine the EF profile of 93 children (75 male and 18 female) previously identified with developmental delay in early childhood. EF was assessed using the Behaviour Rating Inventory of Executive Function, Second Edition (BRIEF-2). Children were categorised into an ID group (n = 14) or no ID group (n = 79) based on scores from cognitive and adaptive behaviour assessments. EF profiles were investigated and compared by group. In addition, the impact of EF on both adaptive behaviour and challenging behaviour was measured using hierarchical linear regressions.
RESULTS: Statistically significant differences in caregiver-reported EF were not observed between groups; however, both the ID and the no ID group scores were elevated as reported by their caregivers. For the overall sample, caregiver-EF accounted for significant variance in both adaptive (22%) and challenging (68%) behaviour after accounting for child age and sex.
CONCLUSIONS: Results indicated deficits in EF for children with and without ID. The significance of EF was accounted for in both adaptive and challenging behaviour for all children in the sample. Future research could elucidate the role of adaptive and challenging behaviour in understanding EF variability among children with histories of developmental delay

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J Interpers Violence. 2022 Feb;37:NP2177-NP2205.

SEXUAL CRIME AGAINST SCHOOLCHILDREN WITH DISABILITIES: A NATIONWIDE PROSPECTIVE BIRTH COHORT STUDY.

Christoffersen MN.

Numerous studies have shown that the rate of sexual victimization against children with disabilities is higher than the rate for children without disabilities. The study focuses on examining sexual crime against children with disabilities and explaining differences in victimization to elucidate to what extent types of disability, family disadvantages, gender, high-risk behavior, and location influence adolescents' risk of sexual victimization. Data are based on a national study of reported sexual crime against children in Denmark aged between 7 and 18 years using total birth cohorts (N = 679,683). The statistical analysis is a discrete-time Cox model. An extended list of potential risk factors was included in the analysis to adjust for confounding. The potentially confounding risk factors were collected independently from various population-based registers, for example, employment statistics, housing statistics, education statistics, income compensation benefits, and population statistics (e.g., gender, age, location). Hospital records with information on types of disability based on the national inpatient register and national psychiatric register were collected independently of the collection of law enforcement records about reported sexual offenses under the Danish Central Crime Register. Among total birth cohorts, 8,039 persons or 1.18%. were victims of a reported sexual crime once or several times. Children with intellectual disabilities were more likely to be victimized of a reported sexual crime than non-disabled children were: attention-deficit/hyperactivity disorder (ADHD), odds ratio: 3.7 (3.5-3.9); mental retardation, odds ratio: 3.8 (3.6-4.0); and autism, odds ratio: 3.8 (3.6-4.0). This contrasts with children with speech disability, stuttering, and dyslexia who were less likely to be victimized when adjusted for family vulnerability and other confounding risk factors. Intellectual disability and family vulnerability, for example, parental substance abuse, parental violence, family separation, the child in care, and parental unemployment, indicate an increased risk of being a victim of a sexual crime, while speech disability seems to be ensuring protection

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J Marital Fam Ther. 2022 Jan;48:83-106.

FAMILY-BASED TREATMENTS FOR ATTENTION-DEFICIT/HYPERACTIVITY DISORDER: A REVIEW OF FAMILY FUNCTIONING OUTCOMES IN RANDOMIZED CONTROLLED TRIALS FROM 2010 TO 2019.

Babinski DE, Sibley MH.

This review details advances in randomized controlled trials of family-based treatments for attention-deficit/hyperactivity disorder (ADHD) conducted in the United States from 2010 to 2019, and the impact of these treatments on the domain of family functioning. Twenty-two studies were included in the review and three types of family treatments, integrated parent-child treatments, parent-directed treatments, and youth treatments with adjunctive parent involvement, were identified for children and adolescents. Studies point to considerable advancements in consideration of understudied and diverse populations, and results of the review show all three types of family interventions for ADHD should be considered well-established interventions addressing family functioning. Practical guidelines are offered, and future directions for research are discussed

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J Med Econ. 2022 Jan;25:193-205.

ECONOMIC BURDEN OF ATTENTION-DEFICIT/HYPERACTIVITY DISORDER AMONG CHILDREN AND ADOLESCENTS IN THE UNITED STATES: A SOCIETAL PERSPECTIVE.

Schein J, Adler LA, Childress A, et al.

OBJECTIVE: To provide a comprehensive evaluation of the economic burden associated with attention-deficit/hyperactivity disorder (ADHD) among children and adolescents from a US societal perspective.

MATERIALS AND METHODS: Direct healthcare costs of children (5-11 years) and adolescents (12-17 years) with ADHD were obtained using claims data from the IBM MarketScan Research Databases (01/01/2017-12/31/2018). Direct non-healthcare and indirect costs were estimated based on literature and government publications. Each cost component was estimated using a prevalence-based approach, with per-patient costs extrapolated to the national level.

RESULTS: The total annual societal excess costs associated with ADHD were estimated at $19.4 billion among children ($6,799 per child) and $13.8 billion among adolescents ($8,349 per adolescent). Education costs contributed to approximately half of the total excess costs in both populations ($11.6 billion [59.9%] in children; $6.7 billion [48.8%] in adolescents). Other major contributors to the overall burden were direct healthcare costs ($5.0 billion [25.9%] in children; $4.0 billion [29.0%] in adolescents) and caregiving costs ($2.7 billion [14.1%] in children; $1.6 billion [11.5%] in adolescents).

LIMITATIONS: Cost estimates were calculated based on available literature and/or governmental publications due to the absence of a single data source for all costs associated with ADHD. Thus, the quality of cost estimates is limited by the accuracy of available data as well as the study populations and methodologies used by different studies.

CONCLUSION: ADHD in children and adolescents is associated with a substantial economic burden that is largely driven by education costs, followed by direct healthcare costs and caregiver costs. Improved intervention strategies and policies may reduce the clinical and economic burden of ADHD in these populations

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J Nerv Ment Dis. 2022 Jan;210:6-25.

A RETROSPECTIVE EVALUATION ON DEMOGRAPHIC, PHENOMENOLOGICAL, AND COMORBIDITY FEATURES OF PEDIATRIC OBSESSIVE-COMPULSIVE DISORDER.

Efe A, et al.

The impacts of sex, age of onset, phenotype, and comorbidity on clinical features were explored in a large clinical sample with pediatric obsessive-compulsive disorder (p-OCD) (n = 457), along with concomitant specific features in the framework of different symptom dimensions/phenotypes, by a retrospective cross-sectional evaluation design. The most prevalent phenotype was obsession/checking (almost half), and the clinical features belonging to different phenotypes varied among sexes, age of onset, severity, and comorbidities. The contamination and aggressive obsessions, along with the compulsions such as cleaning and repeating routine activities, were the most prevalent symptoms, which were prevalently accompanied by generalized anxiety disorder, attention deficit hyperactivity disorder, and depression. Females with OCD

were likely prone to exhibit comorbid internalizing disorders, whereas males were prone to externalizing. This recent study on a large Turkish clinical sample of p-OCD followed up within 5 years, highlighting separate evidence on subtyping of p-OCD in phenotype and comorbidity frame

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J Pediatr Surg. 2022 Mar;57:462-68.

POST-INJURY OUTCOMES OF CHILDREN WITH BEHAVIORAL HEALTH DISORDERS.

Traynor MD, Jr., Watkins RD, Zielinski MD, et al.

BACKGROUND: The impact of Behavioral Health Disorders (BHDs) on pediatric injury is poorly understood. We investigated the relationship between BHDs and outcomes following pediatric trauma.

METHODS: We analyzed injured children (age 5-15) from 2014 to 2016 using the Pediatric Trauma Quality Improvement Program. The primary outcome was in-hospital mortality. Univariable and multivariable analyses compared children with and without a comorbid BHD.

RESULTS: Of 69,305 injured children, 3,448 (5%) had a BHD. These 3,448 children had a median of 1 [IQR: 1, 1] BHD diagnosis: ADHD (n = 2491), major psychiatric disorder (nÂ =Â 1037), drug use disorder (n = 250), and alcohol use disorder (n = 29). A higher proportion of injured children with BHDs suffered intentional and penetrating injury. Firearm injuries were more common for BHD patients (3% vs 1%, p<0.001). Children with BHDs were more likely to have an ISS>25 compared to children without (5% vs 3%, p<0.001). While median LOS was longer for BHD patients (2 [1, 3] vs 2 [1, 4], p<0.001), mortality was similar (1% vs 1%, p = 0.76) and complications were less frequent (7% vs 8%, p = 0.002). BHD was associated with lower risk of mortality (OR 0.45, 95%CI [0.30, 0.69]) after controlling for age, sex, race, trauma type, and injury intent and severity.

CONCLUSION: Children with BHDs experienced lower in-hospital mortality risk after traumatic injury despite more severe injury upon presentation. Intentional and penetrating injuries are particularly concerning, and future work should assess prevention efforts in this vulnerable group

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J Sleep Res. 2022 Feb;31:e13426.

SLEEP MICROSTRUCTURE IN ATTENTION DEFICIT HYPERACTIVITY DISORDER ACCORDING TO THE UNDERLYING SLEEP PHENOTYPES.

Miano S, Castelnovo A, Bruni O, et al.

The analysis of sleep microstructure in attention deficit hyperactivity disorder (ADHD) revealed an under-representation of the EEG slow component during NREM sleep. Previous studies either excluded or did not characterize objectively sleep disorders, which notoriously affect sleep architecture. The present study aimed to investigate the cyclic alternating pattern in a real clinical sample of children with ADHD, in whom sleep disorders could be considered. Twenty-seven consecutively enrolled drug-naïve children (mean age, 10.53 years; nine females) and 23 controls (mean age, 10.22 years; 11 females) underwent a full sleep investigation, including attended video-polysomnography. Visual cyclic alternating pattern analysis was performed in a blinded way. Children with ADHD had one or more sleep disorders (a narcolepsy-like phenotype was found in two cases, sleep onset insomnia in three cases, arousal disorder in one case, movement disorder phenotype in six cases and obstructive sleep apnea in 11 cases, and six children had sleep-related epileptiform discharges). Children with ADHD and normal controls showed a similar microstructure with a cyclic alternating pattern rate of about 50%. Children with obstructive sleep apnea had a significantly higher cyclic alternating pattern rate during stage N3. Despite not reaching statistical differences, a lower cyclic alternating pattern rate and A1 index were found in children without epileptic abnormalities/obstructive sleep apnea. Our analysis might allow differentiation of the "primary form" of ADHD associated with a decrease of NREM instability from those forms associated with sleep apnea and epileptic activity

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J Trauma Dissociation. 2022 Jan;23:68-78.

DISSOCIATIVE EXPERIENCES ASSOCIATED WITH INTERNET GAMING DISORDER AFTER CONTROLLING FOR CHILDHOOD TRAUMA AND ADHD DIAGNOSIS.

Kandeer A, Åžen B, Tekdemir R, et al.

The aim of this study was to investigate the relationships among childhood trauma, dissociative experiences, and internet gaming disorder (IGD) in young adults diagnosed with attention deficit hyperactivity disorder (ADHD) and age- and gender-matched controls. Forty participants diagnosed with ADHD at a university hospital psychiatric outpatient clinic and 40 healthy controls completed a test battery that included a sociodemographic form as well as the Adult ADHD Severity Rating Scale (ASRS), Childhood Trauma Questionnaire (CTQ), Dissociative Experiences Scale (DES), Somatoform Dissociation Questionnaire (SDQ), and Internet Gaming Disorder Scale - Short Form (IGDS9-SF). The CTQ ($t = -4.61$, $p < .01$), DES ($t = -4.71$, $p < .01$), SDQ ($t = -2.40$, $p < .01$), and IGDS9-SF ($t = -4.89$, $p < .01$) scores were significantly higher in the ADHD group than in the control group. A hierarchical regression analysis that explained 50% of unique variance in internet gaming disorder (IGD) indicated that being male ($\beta = 0.41$, $t = 4.61$, $p < .001$) and having an ADHD diagnosis ($\beta = 0.48$, $t = 5.49$, $p < .001$) are robust predictors. Additionally, the DES score, which indicates the severity of psychoform dissociation ($\beta = 0.34$, $t = 2.43$, $p = .017$), was found to be significantly associated with IGD after controlling for ADHD diagnosis and childhood trauma. While excessive gaming may increase dissociative symptoms, the mental state of dissociative experiences may be a predisposing factor for IGD; however, further studies are needed to investigate these claims

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JAMA Network Open. 2022;5.

EXPLORATION OF SLEEP PARAMETERS, DAYTIME HYPERACTIVITY/INATTENTION, AND ATTENTION-DEFICIT/HYPERACTIVITY DISORDER POLYGENIC RISK SCORES OF CHILDREN IN A BIRTH COHORT IN JAPAN.

Takahashi N, Okumura A, Nishimura T, et al.

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JAMA Pediatr. 2021;175:957-65.

MEDICATION USE IN THE MANAGEMENT OF COMORBIDITIES AMONG INDIVIDUALS WITH AUTISM SPECTRUM DISORDER FROM A LARGE NATIONWIDE INSURANCE DATABASE.

Feroe AG, Uppal N, et al.

Importance: Although there is no pharmacological treatment for autism spectrum disorder (ASD) itself, behavioral and pharmacological therapies have been used to address its symptoms and common comorbidities. A better understanding of the medications used to manage comorbid conditions in this growing population is critical; however, most previous efforts have been limited in size, duration, and lack of broad representation.

Objective: To use a nationally representative database to uncover trends in the prevalence of co-occurring conditions and medication use in the management of symptoms and comorbidities over time among US individuals with ASD.

Design, Setting, and Participants: This retrospective, population-based cohort study mined a nationwide, managed health plan claims database containing more than 86 million unique members. Data from January 1, 2014, to December 31, 2019, were used to analyze prescription frequency and diagnoses of comorbidities. A total of 26722 individuals with ASD who had been prescribed at least 1 of 24 medications most commonly prescribed to treat ASD symptoms or comorbidities during the 6-year study period were included in the analysis. Exposures: Diagnosis codes for ASD based on International Classification of Diseases, Ninth Revision, and International Statistical Classification of Diseases and Related Health Problems, Tenth Revision.

Main Outcomes and Measures: Quantitative estimates of prescription frequency for the 24 most commonly prescribed medications among the study cohort and the most common comorbidities associated with each medication in this population.

Results: Among the 26 722 individuals with ASD included in the analysis (77.7% male; mean [SD] age, 14.45 [9.40] years), polypharmacy was common, ranging from 28.6% to 31.5%. Individuals' prescription regimens changed frequently within medication classes, rather than between classes. The prescription frequency of a specific medication varied considerably, depending on the coexisting diagnosis of a given

comorbidity. Of the 24 medications assessed, 15 were associated with at least a 15% prevalence of a mood disorder, and 11 were associated with at least a 15% prevalence of attention-deficit/hyperactivity disorder. For patients taking antipsychotics, the 2 most common comorbidities were combined type attention-deficit/hyperactivity disorder (11.6%-17.8%) and anxiety disorder (13.1%-30.1%).
Conclusions and Relevance: This study demonstrated considerable variability and transiency in the use of prescription medications by US clinicians to manage symptoms and comorbidities associated with ASD. These findings support the importance of early and ongoing surveillance of patients with ASD and co-occurring conditions and offer clinicians insight on the targeted therapies most commonly used to manage co-occurring conditions. Future research and policy efforts are critical to assess the extent to which pharmacological management of comorbidities affects quality of life and functioning in patients with ASD while continuing to optimize clinical guidelines, to ensure effective care for this growing population.

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J Affective Disord. 2022;300:179-88.

A NOVEL CIS-REGULATORY VARIANT MODULATING TIE1 EXPRESSION ASSOCIATED WITH ATTENTION DEFICIT HYPERACTIVITY DISORDER IN HAN CHINESE CHILDREN.

Chen X, Yao T, Cai J, et al.

Background: The genetic factors of attention deficit hyperactivity disorder (ADHD) are far from fully elucidated. This study aims to get additional insight into the genetic structure of ADHD.
Methods: First, a transcriptome-wide association study and summary data-based Mendelian randomization analysis were performed to identify ADHD susceptibility genes. Then, genetic variants influencing the expression of the identified susceptibility genes were tested for association with ADHD risk in a sample of Han Chinese children (543 cases and 560 controls). Dual-luciferase reporter gene assays and electrophoretic mobility shift assays were performed to verify the transcriptional regulatory functions of the identified ADHD-associated variants. Additionally, real-time quantitative polymerase chain reaction was applied to quantify the expression levels of target genes in blood samples.
Results: Both TIE1 and MED8 were identified as ADHD susceptibility genes. Furthermore, we first found the G allele of rs3768046 was significantly associated with an increased risk of ADHD (recessive model: GG vs AA+AG, OR= 1.659, 95% CI= (1.262, 2.181); additive model: GG vs GA vs AA, OR= 1.493, 95% CI= (1.179, 1.890)). Additionally, in vitro functional experiments revealed that rs3768046 might alter TIE1 expression by affecting the binding sites of transcription factors. Moreover, the expression level of TIE1 in the blood samples of patients was significantly higher than that of controls.
Limitations: Given the moderate statistical power of this study, it is necessary to verify our findings in other larger samples.
Conclusions: Together, this study presents the first systematic evidence of TIE1 with potential implications for the genetic basis of ADHD

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J Child Adolesc Psychopharmacol. 2021 Dec;31:697-98.

THE IMPACT OF THE COVID-19 PANDEMIC ON THE MENTAL HEALTH OF YOUTH WITH DEVELOPMENTAL DISABILITIES.

Valicenti-McDermott M, Rivelis E, Bernstein C, et al.

The COVID-19 pandemic represents a major life stressor for those with developmental disabilities. Given challenges related to developmental disabilities, mental health concerns are often overlooked in this population, as usually the focus of treatment is on daily living skills. Youth with developmental disabilities and attention-deficit/hyperactivity disorder (ADHD) are particularly vulnerable to the distress caused by the pandemic, and might display increased emotional/behavioral problems. The objective of this study was to examine the impact of the pandemic on anxiety, depression, externalizing behaviors, and suicidal ideation in youth with developmental disabilities and ADHD receiving weekly psychotherapy. Results showed that the COVID-19 pandemic and lockdown impacted internalizing and externalizing behaviors of youth with developmental disabilities. Children with developmental disabilities and ADHD receiving psychotherapy reported increased levels of hyperactivity and anxiety and were unlikely to progress in psychotherapy during

lockdown, and those taking psychotropic medication struggled most. Strategies to improve the well-being of youth with developmental disabilities and ADHD as well as their parents during lockdown are strongly recommended

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J Child Adolesc Psychopharmacol. 2021;31:685-91.

A Retrospective Examination of the Impact of Pharmacotherapy on Parent-Child Interaction Therapy.

Wang C, Hu Y, Nakonezny PA, et al.

Objective: Parent-child interaction therapy (PCIT) is an evidence-based approach for children aged 2-7 years with disruptive behavior problems. This study examined the effectiveness of PCIT with and without concurrent pharmacotherapy.

Methods: A convenience sample was collected from a retrospective chart review of preschool-Aged children treated with PCIT at the Mayo Clinic Young Child Clinic between 2016 and 2020. Quantitative and qualitative data were abstracted from all patients. The sample was divided into two groups based on psychotropic medications status (medicated and unmedicated) at the initiation of PCIT. Effectiveness of treatment was assessed with the change in Eyberg Child Behavior Inventory (ECBI) score. The change over time in ECBI score was compared between the two PCIT groups with and without concurrent pharmacotherapy using a linear mixed model.

Results: Of the 62 youth, 38.71% were females. Mean age was 4.71 -¦ 1.17 years. The mean baseline ECBI score was 148.74 -¦ 30.86, indicating clinically significant disruptive behaviors. The mean number of PCIT sessions was 6.59 -¦ 3.82. There was no statistically significant difference in ECBI scores between the two groups at pre-PCIT (medication group: 149.68, standard error [SE] = 11.61 vs. unmedicated group: 147.92, SE = 10.93, p = 0.8904) and at post-PCIT (medication group: 116.27 [SE = 11.89] vs. unmedicated group: 128.86 [SE = 11.57], p = 0.3464). There was a statistically significant improvement in ECBI scores for both groups after completing therapy (medication group =-33.41 [-22.32%], SE = 6.27, p < 0.0001; d = 1.144; unmedicated group =-19.06 [-12.88%], SE = 5.78, p = 0.0022; d = 1.078).

Conclusions: PCIT reduced disruptive behaviors in this sample of young children regardless of concurrent pharmacotherapy. Future prospective studies should consider one particular pharmacological agent and long-Term outcomes of treatment. PCIT and certain pharmacological treatments could have complex and important bidirectional priming effects for both treatments

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J Clin Child Adolesc Psychol. 2021 Nov;50:763-79.

Effectiveness of specific techniques in behavioral teacher training for childhood ADHD: A randomized controlled microtrial.

Staff AI, van den Hoofdakker BJ, van der Oord S, et al.

Objective: Behavioral teacher training is the most effective classroom-based intervention for children with attention-deficit/hyperactivity disorder (ADHD). However, it is currently unknown which components of this intervention add to its effectiveness and for whom these are effective.

Method: In this microtrial, teachers of 90 children with impairing levels of ADHD symptoms (6–12 years) were randomly assigned to one of three conditions: a short (2 sessions), individualized intervention consisting of either (A) antecedent-based techniques (stimulus control), (B) consequent-based techniques (contingency management) or (C) waitlist. Primary outcome was the average of five daily assessments of four individualized problem behaviors, assessed pre and post intervention and three months later. Moderation analyses were conducted to generate hypotheses on child, teacher and classroom factors that may contribute to technique effectiveness.

Results: Multilevel analyses showed that both antecedent- and consequent-based techniques were equally and highly effective in reducing problem behaviors compared to the control condition (Cohen's d =.9); effects remained stable up to three months later. Child's age and class size were moderators of technique effectiveness. For younger children, consequent-based techniques were more effective than antecedent-based techniques, whereas for older children the effect was in the opposite direction. Further, beneficial effects of antecedent-based techniques increased when the number of students per class decreased, whilst effectiveness of consequent-based techniques did not depend on class size.

Conclusions: This study shows that both antecedent- and consequent-based techniques are highly effective in reducing problem behavior of children with ADHD. Interventions may be adapted to the child's age and class size

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J Clin Child Adolesc Psychol. 2021 Nov;50:888-903.

WHICH TECHNIQUES WORK IN BEHAVIORAL PARENT TRAINING FOR CHILDREN WITH ADHD? A RANDOMIZED CONTROLLED MICROTRIAL.

Hornstra R, van der Oord S, Staff AI, et al.

Objective: Behavioral parent training (BPT) is an evidence-based intervention for children with attention-deficit/hyperactivity disorder (ADHD), but little is known about the effects of separate techniques parents learn in BPT.

Method: In a three-armed randomized controlled microtrial including parents of 92 children (4–12 years) with ADHD, we examined the efficacy of two sessions parent training involving either stimulus control techniques (antecedent-based condition (AC)) or contingency management techniques (consequent-based condition (CC)), compared to a waitlist. Primary outcome was daily parent-rated problem behaviors, secondary outcomes were parent-rated symptoms of ADHD and oppositional defiant disorder (ODD), and mental health-care consumption. Measures were completed at baseline (T0), immediately after the training (T1), at two weeks (T2) and three months (T3) follow-up. We also explored whether child and parent characteristics moderated treatment effects.

Results: Compared to the waitlist, in the AC, daily rated problem behaviors improved at T1 (d= .56) and T2 (d= .65); in the CC, these behaviors only improved at T2 (d= .53). Daily rated problem behaviors within both conditions remained stable between T2 and T3. In the AC compared to the other conditions, inattention symptoms decreased at T1 and T2. For both active conditions compared to waitlist, hyperactivity-impulsivity symptoms decreased only at T2 and ODD symptoms did not decrease. No moderators were identified. Mental health-care consumption after training was low and did not differ between the active conditions.

Conclusions: Brief training of parents in antecedent- or consequent-based techniques improves problem behaviors of children with ADHD. Antecedent-based techniques appear to be especially important to target inattention

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J Clin Child Adolesc Psychol. 2021 Nov;50:746-62.

RESTING-STATE EEG CONNECTIVITY IN YOUNG CHILDREN WITH ADHD.

Furlong S, Cohen JR, Hopfinger J, et al.

Objective: Attention-deficit/hyperactivity disorder (ADHD) is a highly prevalent and impairing neurodevelopmental disorder. While early childhood is a crucial time for early intervention, it is characterized by instability of ADHD diagnosis. Neural correlates of ADHD have potential to improve diagnostic accuracy; however, minimal research has focused on early childhood. Research indicates that disrupted neural connectivity is associated with ADHD in older children. Here, we explore network connectivity as a potential neural correlate of ADHD diagnosis in early childhood.

Method: We collected EEG data in 52 medication-naïve children with ADHD and in 77 typically developing controls (3–7 years). Data was collected with the EGI 128 HydroCel Sensor Net System, but to optimize the ICA, the data was down sampled to the 10-10 system. Connectivity was measured as the synchronization of the time series of each pair of electrodes. Subsequent analyses utilized graph theoretical methods to further characterize network connectivity.

Results: Increased global efficiency, which measures the efficiency of information transfer across the entire brain, was associated with increased inattentive symptom severity. Further, this association was robust to controls for age, IQ, SES, and internalizing psychopathology.

Conclusions: Overall, our findings indicate that increased global efficiency, which suggests a hyper-connected neural network, is associated with elevated ADHD symptom severity. These findings extend previous work reporting disruption of neural network connectivity in older children with ADHD into early childhood

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Journal of Clinical Medicine. 2022;11.

GENDER-RELATED CLINICAL CHARACTERISTICS IN CHILDREN AND ADOLESCENTS WITH ADHD.

De Rossi P, Pretelli I, Menghini D, et al.

Attention Deficit/Hyperactivity Disorder (ADHD) is the most frequently diagnosed neu-rodevelopmental disorder in school-age children, and it is usually associated with a significant impairment in global functioning. Traditionally, boys with ADHD are more likely to be referred for clinical assessments due to a higher prevalence of externalizing symptoms. However, as regards gender-related differential clinical characteristics between boys and girls with ADHD, further investigation is warranted in light of conflicting results found in currently available literature. In fact, a more precise clinical characterization could help increase appropriate diagnoses and treatment planning. In this context, we carried out a retrospective observational study on 715 children and adolescents diagnosed with ADHD from 2018 to 2020 at our center, in order to describe their gender-related clinical characteristics. Boys displayed higher average IQs, but they were comparable to girls in functional impairments and adaptive skills. Girls displayed higher scores on the Attention Problems subscale of the CBCL 6ΓÇô18 and on several CPRS-R:L subscales, suggesting higher general ADHD symptom severity. Boys showed higher scores on CBCL 6-18 subscales, such as withdrawn/depressed, internalizing, and obsessive-compulsive problems. In conclusion, girls showed more severe ADHD features and lower IQ in clinically referred settings, while boys showed more internalizing problems and obsessive-compulsive symptoms

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Journal of Clinical Medicine. 2022;11.

INHIBITORY CONTROL IN CHILDREN WITH TOURETTE SYNDROME IS IMPAIRED IN EVERYDAY LIFE BUT INTACT DURING A STOP SIGNAL TASK.

Ritter M, Vangkilde SA, Maigaard K, et al.

Tourette Syndrome (TS) has previously been associated with deficits in inhibitory control (IC). However, studies on IC in individuals with TS have produced conflicting results. In the present study, we investigated IC, comparing the Stop Signal Reaction Time (SSRT) measure with parent and teacher ratings of daily life IC in 169 children aged 8ΓÇô12 (60 with TS, 60 typically developing controls, 27 with attention-deficit/hyperactivity disorder (ADHD), and 22 with TS + ADHD). We further investigated associations of IC with TS and ADHD symptom severity. Children with TS showed intact SSRT performance, but impairments in daily life IC, as reported by parents and teachers. For the latter, we observed a staircase distribution of groups, with the healthy controls presenting with the best IC, followed by TS, TS + ADHD, and finally ADHD. Dimensional analyses indicated a strong association between ADHD severity and both measures of IC. Our results indicate that children with TS are not impaired in a laboratory-based measure of IC, although some difficulties were evident from measures of everyday behaviour, which may in part be due to parents and teachers interpreting tics as disinhibited behaviour. Comorbid ADHD or the severity of subthreshold ADHD symptomatology appeared to account for IC deficits

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Journal of Comprehensive Pediatrics. 2021;12.

ANALYSIS OF ASSOCIATION BETWEEN THE EFFECTS OF METHYLPHENIDATE AND DRD4 GENE POLYMORPHISMS IN PATIENTS WITH ATTENTION DEFICIT HYPERACTIVITY DISORDER.

Amiri S, Farhang S, Khaniani MS, et al.

Background: Drug treatment is one of the most important treatments for attention deficit hyperactivity disorder (ADHD). The DRD4 gene is a transporter and receptor coding gene of dopamine and is one of the most important genes under investigation in the disorder and etiology of ADHD. In this study, the association between rs3758653 C/T and VNTR exon 3 repetition polymorphisms of the DRD4 gene and the effects of methylphenidate were investigated in patients with ADHD disorder consuming methylphenidate.

Methods: The descriptive-analytical study was performed on 122 patients (5 - 18 years old) with ADHD who were treated with methylphenidate. DNA was extracted using salting out method. Subsequently, the rs3758653 polymorphism in the 5UTR region of DRD4 gene was genotyped by PCR-RFLP method, and the VNTR fragment in exon III of DRD4 gene was investigated by electrophoresis gel on acrylamide gel method. After eight weeks from the start of drug treatment with methylphenidate, the intensity of symptoms was

evaluated using the Conners scale. Finally, all data from questionnaires and information that were resulted from laboratory findings were analyzed using ANOVA and repeated measure analysis.
Results: Of the 122 patients under study, 15 patients (12.3%) were responded to the drug treatment, and 107 patients (87.7%) were not responded. The significant differences were not revealed in genotype, and allele frequencies of between rs3758653 (C/T) and exon III 3 VNTR repeats polymorphisms of the DRD4 gene and responder and non-responder of ADHD groups to the drug treatment.
Conclusions: The results showed that the reduction of ADHD symptoms with drug treatment is not related to DRD4 sub-types in patients with ADHD

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J Dev Behav Pediatr. 2021 Dec;42:695-703.

ADHERENCE TO CHILD ATTENTION-DEFICIT/HYPERACTIVITY DISORDER TREATMENT GUIDELINES IN MEDICAL HOMES—RESULTS FROM A NATIONAL SURVEY.

AlRasheed RM, Martin-Herz SP, Glidden DV, et al.

Objective: Having primary care delivered through a medical home is believed to improve mental health care delivery to children. Children with attention-deficit/hyperactivity disorder (ADHD) are commonly treated in pediatric practices, yet little is known about ADHD treatment patterns in medical homes. Our objective was to assess for treatment variation depending on parent-perceived medical home (PPMH) status. We hypothesized that having a PPMH would be associated with receiving ADHD treatments recommended by clinical guidelines.
Methods: We used the 2016 National Survey of Children's Health—a nationally representative cross-sectional survey of children in the United States. Analyses included an unweighted sample of 4,252, representing 5.4 million children aged 3 to 17 years with parent-reported ADHD. Child characteristics were analyzed using descriptive statistics. Associations between ADHD treatment types and PPMH status were assessed using a multinomial logistic regression, adjusting for child characteristics.
Results: Having a PPMH was associated with increased prevalence odds of children's receipt of medications alone for ADHD (vs no treatment). The prevalence odds of receiving behavioral treatment alone (vs medications alone) for ADHD decreased by 43% when children had a PPMH (95% confidence interval, 0.38–0.85, p = 0.01). PPMH status was not associated with a statistically significant difference in prevalence odds of receiving combination treatment (vs medications alone) for pediatric ADHD.
Conclusion: Having a PPMH was associated with children's receipt of ADHD medications alone, but not behavioral treatments. Our findings suggest that medical homes may need further improvement to ensure that children with ADHD receive treatments as recommended by clinical guidelines

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J Dev Behav Pediatr. 2022 Jan;43:1-8.

COMPARISON OF ATTENTION-DEFICIT HYPERACTIVITY DISORDER IN TYPICALLY DEVELOPING CHILDREN AND CHILDREN WITH DOWN SYNDROME.

Esbensen AJ, Epstein JN, Vincent LB, et al.

Objective: This study aimed to evaluate attention-deficit hyperactivity disorder (ADHD) symptom patterns among children with Down syndrome (DS) with or without ADHD and typically developing (TD) children with ADHD.
Methods: Parents and teachers rated symptoms of inattention, hyperactivity, and general behavioral concerns for 22 children with DS and comorbid diagnoses of ADHD (DS + ADHD), 66 gender-matched and age-matched children with DS with no diagnosis of ADHD (DS - ADHD), and 66 gender-matched and age-matched TD children with ADHD (TD + ADHD). Children with DS were recruited from the community. TD children with ADHD were recruited from a specialty clinic evaluating for ADHD.
Results: Parents tended to report higher scores of inattention and hyperactivity for TD children with ADHD compared with children with DS and no ADHD. Although mean ADHD symptom summary scores were not significantly different in DS + ADHD and DS - ADHD, specific parent-report items (e.g., distractibility and being 'on the go') did tend to differentiate these groups. By contrast, teachers tended to report higher inattention and hyperactivity scores for DS + ADHD compared with both DS - ADHD and TD + ADHD. Specific teacher-reported items tending to differentiate DS + ADHD and DS - ADHD included difficulties following through on tasks, avoiding tasks, leaving one's seat, and excessive talking.

Conclusion: Variability in response patterns between parent and teacher reports for children with and without DS highlights the need to evaluate ADHD symptoms across environments. Our findings also suggest specific items that may particularly be helpful in distinguishing children with DS who do and do not have ADHD, although replication is needed

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J Neurosci Rural Pract. 2022;13:95-100.

A Retrospective Analysis of Psychiatric Presurgical Evaluation of Children and Adolescents Evaluated for Epilepsy Surgery in a Comprehensive Epilepsy Care Unit of Mumbai.

Sawant NS, Singh SS, Mahajan S, et al.

Background Epilepsy being one of the most prevalent neurological diseases in children is associated with psychopathology and academic concerns. Epilepsy surgery is considered for refractory epilepsy at some centers in India and hence this study was undertaken to find out prevalence and type of psychopathology in children and adolescents with refractory epilepsy before epilepsy surgery.

Methods All data were analyzed from the records of patients undergoing preepilepsy surgery protocol workup in comprehensive center of epilepsy care at a general municipal hospital in Mumbai. A record of 150 children and adolescents in the age group of 3 to 18 years over a period of 10 years was taken and all details of demographics, epilepsy, and psychopathology were recorded.

Results The mean age for our sample was 11.4 -¦ 3.4 years and a male preponderance was seen. Majority (80%) of the children were pursuing education. The duration of seizure disorder was approximately 4.41 + 2.36 years and complex partial seizures were seen commonly in 50% of the children. Both magnetic resonance imaging (MRI) and video electroencephalography (VEEG) findings revealed right sided lateralization followed by left in majority of the patients. Psychopathology was seen in 70 (46%) patients with mental retardation, hyperkinetic disorders affecting attention and activity and oppositional defiant disorder, and unspecified mental disorder due to underlying brain damage being the type of International Classification of Disease-10th Revision (ICD-10) disorders seen. Patients with psychopathology showed a left-sided predominance on their MRI and VEEG findings for laterality of the epileptogenic focus as compared with right side.

Conclusion Refractory seizures and associated psychopathology impact family life, friendships, and academics and worsen prognosis and quality of life. Screening for psychopathology in children with epilepsy would therefore lead to better outcomes especially prior to epilepsy surgery

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Journal of Neurotrauma. 2022;39:86-92.

Children with ADHD Have a Greater Lifetime History of Concussion: Results from the ABCD Study.

Cook NE, Karr JE, Iverson GL .

This case-control study using baseline data from the population cohort Adolescent Brain Cognitive Development (ABCD) Study compared lifetime history of concussion between children with and without attention-deficit/hyperactivity disorder (ADHD). We hypothesized that children with ADHD would have a greater lifetime history of concussion than children without ADHD. Children were recruited from schools across the United States, sampled to provide strong generalizability to the US population. The current sample included 10,585 children (age: mean = 9.9; standard deviation = 0.6; range 9-10 years; 48.9% girls; 64.6% White), including 1085 with ADHD and 9500 without ADHD. The prevalence of prior concussion among children with ADHD was 7.2% (95% CI: 6.6-7.8%) compared with 3.2% (3.1-3.3%) among children without ADHD, meaning current ADHD status was associated with twice the odds of experiencing a prior concussion [2 = 44.54; p < 0.001; odds ratio = 2.34 (1.81-3.03)]. No significant differences were observed in proportion of boys and girls with ADHD who had a prior concussion history. The number of current ADHD symptoms were not meaningfully associated with prior concussion history. Lower socioeconomic status was associated with lower rates of reported concussion, but not differentially in association with ADHD. ADHD is associated with twice the lifetime prevalence of prior concussion before age 11 among children from the general U.S. population. Boys and girls with ADHD did not differ in proportions with prior concussion and concussion history was not related to the number of ADHD symptoms reported by parents

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J Psychopathol Behav Assess. 2021 Dec;43:778-92.

DO PARENT AND TEACHER RATINGS OF ADHD REFLECT THE SAME CONSTRUCTS? A MEASUREMENT INVARIANCE ANALYSIS.

Jungersen CM, Lonigan CJ.

Discrepancies between parent and teacher ratings of problem behaviors related to Attention-Deficit/Hyperactivity Disorder (ADHD) are reported frequently. Previous studies have hypothesized that these discrepancies are the results of various informant biases and have evaluated whether the rating scales are measuring behaviors the same way across informants. The purpose of this study was to evaluate if two rating scales of ADHD behavior, the Strengths and Weaknesses of ADHD Symptoms and Normal Behavior Rating Scale (SWAN) and the Conners' Teacher Rating Scale-15 (CTRS-15), reflected the same underlying constructs across parent and teacher report. Measurement invariance analyses were conducted using parent and teacher report data from a sample of 1645 preschool to fifth-grade children (age range 46 to 169 months) that was comprised of roughly equal number of boys and girls and had racial/ethnic diversity similar to the community (i.e., 61% White, 22% Black/African American; 4% Hispanic/Latino). Although it was hypothesized that both rating scales would demonstrate measurement invariance across parent and teacher report, at least partial weak measurement invariance was only supported for the CTRS-15 across all grade groups. These results indicate that the meaning of any rating discrepancies on the SWAN are unknown because it is not reflective of the same underlying constructs across parents and teachers across all of the examined grade groups. In general, these results have potentially important implications regarding research on ADHD symptoms and related behaviors, and raise questions regarding the utility and measurement of ADHD symptoms

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J Am Acad Child Adolesc Psychiatry. 2022 Jan;61:66-79.

PREDICTORS OF TREATMENT ENGAGEMENT AND OUTCOME AMONG ADOLESCENTS WITH ATTENTION-DEFICIT/HYPERACTIVITY DISORDER: AN INTEGRATIVE DATA ANALYSIS.

Sibley MH, Coxe SJ, Stein MA, et al.

Objective: To identify patient- and treatment-level factors that predict intervention engagement and outcome for adolescents with attention-deficit/hyperactivity disorder (ADHD), guiding efforts to enhance care.

Method: Integrative data analysis was used to pool data from 4 randomized controlled trials of adolescent ADHD treatment with participants (N = 854) receiving various evidence-based behavioral therapy packages in 5 treatment arms (standard [STANDARD], comprehensive [COMP], engagement-focused [ENGAGE]), community-based usual care (UC), or no treatment (NOTX). Participants also displayed varying medication use patterns (negligible, inconsistent, consistent) during the trial. Regression and latent growth curve analyses examined treatment- and patient-level predictors of engagement and outcome.

Results: Compared with COMP, ENGAGE was associated with higher parent engagement in behavioral therapy (d = 1.35-1.73) when delivered in university, but not community, clinics. Under some conditions, ENGAGE also predicted youth engagement in behavioral therapy (d = 1.21) and lower likelihood of negligible medication use (odds ratio = 0.49 compared with NOTX). UC was associated with poorer parent engagement compared with COMP (d = -0.59) and negligible medication use (odds ratio = 2.29) compared with NOTX. Compared with COMP, ENGAGE (in university settings) was consistently associated with larger ADHD symptom improvements (d = 0.41-0.83) at 6-month follow-up and sometimes associated with larger grade point average (d = 0.68) and parent–teen conflict (d = 0.41) improvements. Consistent medication use during behavioral therapy was associated with larger improvements in ADHD symptoms (d = 0.28) and parent–teen conflict (d = 0.25-0.36). An ADHD+internalizing clinical profile predicted larger improvements in grade point average (d = 0.45). Family adversity predicted poorer parent and youth engagement (rate ratio = 0.90-0.95), negligible medication use (odds ratio = 1.22), and smaller improvements in grade point average (d = -0.23). African American race predicted smaller improvements in parent–teen conflict (d = -0.49).

Conclusion: Engagement-focused behavioral therapy and consistent medication use most frequently predicted stronger clinical engagement and outcomes for adolescents with ADHD. Youths who are African American or who experience family adversity may demonstrate treatment-related disparities for certain outcomes; youths with ADHD+internalizing symptoms may demonstrate excellent academic outcomes following behavioral therapy. Data sharing: The full ADHD TIDAL dataset is publicly available through the

National Data Archive (https://nda.nih.gov), including a data dictionary. The study protocol is also publicly available: https://doi.org/10.1186/s12888-020-02734-6

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J Can Acad Child Adolesc Psychiatry. 2021 Nov;30:292-96.

A CASE OF CONSTIPATION AND GASTROINTESTINAL RETENTION OF LISDEXAMFETAMINE DIMESYLATE CAPSULES IN AN 11-YEAR-OLD.

Hameed U, Khan A, Gomaa H, et al.

Attention deficit hyperactivity disorder (ADHD) has a worldwide prevalence of 5.29% and stimulant medications are considered first-line treatment. Common adverse events with these medications include decreased appetite, increased sleep latency, tics, abdominal pain, and weight loss. Lisdexamfetamine dimesylate (LDX) is a stimulant used for treating ADHD and may lead to gastrointestinal, among other adverse effects. In this report, we present a case of constipation and retention of LDX capsules in the gastrointestinal tract. An 11-year-old male with a diagnosis of ADHD was being treated with once daily LDX 30 mg in our clinic. After about ten weeks of treatment, he was brought to an emergency department due to epigastric pain and constipation. An abdominal X-ray was significant for the presence of approximately 20 capsules in the large intestine. He was admitted to the pediatric gastroenterology service. Following management with two saline enemas, fewer capsules were seen on repeat X-ray. The patient was observed overnight, advised to discontinue LDX and discharged home in a stable condition. LDX may be associated with constipation and retention of intact capsules in the gastrointestinal tract. Further research is warranted to exclude the risk of sympathomimetic toxidrome if intact LDX capsules simultaneously disintegrate in the gastrointestinal tract

Le trouble de déficit de l'attention avec hyperactivité (TDAH) a une prévalence mondiale de 5,29 % et les médicaments stimulants sont considérés le traitement de première intention. Les effets indésirables communs de ces médicaments sont notamment un appétit réduit, le délai d'endormissement accru, les tics, la douleur abdominale, et la perte de poids. Le dimésylate de lisdexamfétamine (LDX) est un stimulant utilisé pour traiter le TDAH et peut entraîner un effet gastrointestinal, entre autres effets. Dans cette étude, nous présentons un cas de constipation et de rétention de capsules de LDX dans le tractus gastro-intestinal. Un garçon de 11 ans ayant reçu un diagnostic de TDAH était traité par LDX 30 mg une fois par jour dans notre clinique. Après environ 10 semaines de traitement, il a été amené à un service d'urgence en raison de douleur épigastrique et de constipation. Une radiographie abdominale a révélé la présence de quelque 20 capsules dans le gros intestin. Il a été hospitalisé dans un service de gastro-entérologie pédiatrique. Après une prise en charge avec deux lavements de solution salée, moins de capsules étaient visibles à la radiographie répétée. Le patient aété gardé sous observation pour la nuit, on lui a conseillé de cesser le LDX et il a eu son congé à la maison dans un état stable. Le LDX peut être associé à la constipation et à la rétention de capsules intactes dans le tractus gastro-intestinal. Il faut d'autre recherche pour exclure le risque d'un toxidrome sympathomimétique si des capsules de LDX intactes se désintègrent simultanément dans le tractus gastro-intestinal

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J Youth Adolesc. 2021 Dec;50:2519-32.

CHILDHOOD ADHD SYMPTOMS, PARENT EMOTION SOCIALIZATION, AND ADOLESCENT PEER PROBLEMS: INDIRECT EFFECTS THROUGH EMOTION DYSREGULATION.

McQuade JD, Breaux R, Mordy AE, et al.

Although parent reactions to children's negative emotions are important to the development of adolescent social and emotional functioning, there is a lack of research examining this aspect of parenting in samples that include youth with attention-deficit/hyperactivity disorder (ADHD). This study addresses this gap in the research by examining the independent effects of childhood ADHD symptoms and parent reactions to negative emotions in the longitudinal prediction of adolescent emotion dysregulation and peer problems. A sample of 124 youth (52% female) with and without clinical elevations in ADHD symptoms were assessed in childhood (8–12 years; M = 10.50) and followed up 5–6 years later in adolescence (13–18 years; M = 16.15). Path models tested the direct effects of childhood ADHD symptoms, supportive parent reactions, and non-supportive parent reactions on adolescent peer problems (friendship quality, deviant peer affiliation, peer aggression) and the indirect effects via adolescent emotion dysregulation. Emotion dysregulation mediated

the effects of greater ADHD symptoms and of less parent supportive reactions on adolescent peer problems; parent reactions also independently predicted specific adolescent peer problems. Even for youth with clinical elevations in ADHD symptoms, parent reactions to children's negative emotions may be important in understanding adolescent emotion dysregulation and peer problems

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Kobe J Med Sci. 2021;67:E125-E136.

OFFERING NEUROFEEDBACK AS AN INTERVENTION FOR CHILDREN WITH ATTENTION DEFICIT/HYPERACTIVITY DISORDER IN INDONESIA: A FEASIBILITY STUDY.

Subandriyo APEP, Jongsma MLA, Wijaya DA, et al.

BACKGROUND: EEG Neurofeedback training is an accepted non-pharmacological therapy for attention deficit/hyperactivity disorder (ADHD). Although stimulant medication is known to decrease ADHD symptoms, possible adverse effects, concerns about prolonged drug use on neural development, and problems related to the compliance with the medications are often reported. In Indonesia, research on the feasibility of EEG Neurofeedback to treat ADHD is still lacking. The current study aimed to investigate whether setting up an EEG neurofeedback training program for children with ADHD would be feasible in Indonesia.

METHODS: Nine children (aged 6-12 years) participated in the study. ADHD was diagnosed using the Vanderbilt ADHD Diagnostic Rating Scale (VADRS). Children received twenty-five sessions of sensorimotor rhythm (SMR) neurofeedback training twice a week. Each session consisted of a 3-minute baseline, followed by 5*3 minutes of training. IQ scores and VADRS scores were collected at baseline, after completion of the intervention, and at 3 months follow-up, while school reports were provided by the schools. The EEG spectral content was determined for all 25 training sessions. In addition, a Go/No-Go Task, was administered at the first 5 training sessions, and at session 10, 15, 20 and 25.

RESULTS AND CONCLUSION: An overview of all the collected data is provided descriptively, given the small group size. One child dropped-out during the training because of parental request, but the remaining eight children completed the full intervention program. Descriptive data suggested improvement with respect to both the ADHD symptomatology and performance IQ. These findings are in line with previous studies. Although a control arm was not included, we propose that the abovementioned SMR neurofeedback protocol may still be offered as a suitable non-pharmacological intervention for children with ADHD in Indonesia and deserves further research

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Lancet Psychiatry. 2022 Feb;9:137-50.

GLOBAL, REGIONAL, AND NATIONAL BURDEN OF 12 MENTAL DISORDERS IN 204 COUNTRIES AND TERRITORIES, 1990-2019: A SYSTEMATIC ANALYSIS FOR THE GLOBAL BURDEN OF DISEASE STUDY 2019.

Anon.

Background: The mental disorders included in the Global Burden of Diseases, Injuries, and Risk Factors Study (GBD) 2019 were depressive disorders, anxiety disorders, bipolar disorder, schizophrenia, autism spectrum disorders, conduct disorder, attention-deficit hyperactivity disorder, eating disorders, idiopathic developmental intellectual disability, and a residual category of other mental disorders. We aimed to measure the global, regional, and national prevalence, disability-adjusted life-years (DALYS), years lived with disability (YLDs), and years of life lost (YLLs) for mental disorders from 1990 to 2019.

Methods: In this study, we assessed prevalence and burden estimates from GBD 2019 for 12 mental disorders, males and females, 23 age groups, 204 countries and territories, between 1990 and 2019. DALYs were estimated as the sum of YLDs and YLLs to premature mortality. We systematically reviewed PsycINFO, Embase, PubMed, and the Global Health Data Exchange to obtain data on prevalence, incidence, remission, duration, severity, and excess mortality for each mental disorder. These data informed a Bayesian meta-regression analysis to estimate prevalence by disorder, age, sex, year, and location. Prevalence was multiplied by corresponding disability weights to estimate YLDs. Cause-specific deaths were compiled from mortality surveillance databases. The Cause of Death Ensemble modelling strategy was used to estimate death rate by age, sex, year, and location. The death rates were multiplied by the years of life expected to be remaining at death based on a normative life expectancy to estimate YLLs. Deaths and YLLs could be calculated only for anorexia nervosa and bulimia nervosa, since these were the only mental disorders identified as underlying causes of death in GBD 2019.

Findings: Between 1990 and 2019, the global number of DALYs due to mental disorders increased from 80·8 million (95% uncertainty interval [UI] 59·5-105·9) to 125·3 million (93·0-163·2), and the proportion of global DALYs attributed to mental disorders increased from 3·1% (95% UI 2·4-3·9) to 4·9% (3·9-6·1). Age-standardised DALY rates remained largely consistent between 1990 (1581·2 DALYs [1170·9-2061·4] per 100 000 people) and 2019 (1566·2 DALYs [1160·1-2042·8] per 100 000 people). YLDs contributed to most of the mental disorder burden, with 125·3 million YLDs (95% UI 93·0-163·2; 14·6% [12·2-16·8] of global YLDs) in 2019 attributable to mental disorders. Eating disorders accounted for 17 361·5 YLLs (95% UI 15 518·5-21 459·8). Globally, the age-standardised DALY rate for mental disorders was 1426·5 (95% UI 1056·4-1869·5) per 100 000 population among males and 1703·3 (1261·5-2237·8) per 100 000 population among females. Age-standardised DALY rates were highest in Australasia, Tropical Latin America, and high-income North America.

Interpretation: GBD 2019 showed that mental disorders remained among the top ten leading causes of burden worldwide, with no evidence of global reduction in the burden since 1990. The estimated YLLs for mental disorders were extremely low and do not reflect premature mortality in individuals with mental disorders. Research to establish causal pathways between mental disorders and other fatal health outcomes is recommended so that this may be addressed within the GBD study. To reduce the burden of mental disorders, coordinated delivery of effective prevention and treatment programmes by governments and the global health community is imperative.

Funding: Bill & Melinda Gates Foundation, Australian National Health and Medical Research Council, Queensland Department of Health, Australia

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Lancet Psychiatry. 2022 Jan;9:23-34.

ASSOCIATION OF SCHOOL ABSENCE AND EXCLUSION WITH RECORDED NEURODEVELOPMENTAL DISORDERS, MENTAL DISORDERS, OR SELF-HARM: A NATIONWIDE, RETROSPECTIVE, ELECTRONIC COHORT STUDY OF CHILDREN AND YOUNG PEOPLE IN WALES, UK.

John A, Friedmann Y, DelPozo-Banos M, et al.

BACKGROUND: Poor attendance at school, whether due to absenteeism or exclusion, leads to multiple social, educational, and lifelong socioeconomic disadvantages. We aimed to measure the association between a broad range of diagnosed neurodevelopmental and mental disorders and recorded self-harm by the age of 24 years and school attendance and exclusion.

METHODS: In this nationwide, retrospective, electronic cohort study, we drew a cohort from the Welsh Demographic Service Dataset, which included individuals aged 7-16 years (16 years being the school leaving age in the UK) enrolled in state-funded schools in Wales in the academic years 2012/13-2015/16 (between Sept 1, 2012, and Aug 31, 2016). Using the Adolescent Mental Health Data Platform, we linked attendance and exclusion data to national demographic and primary and secondary health-care datasets. We identified all pupils with a recorded diagnosis of neurodevelopmental disorders (ADHD and autism spectrum disorder [ASD]), learning difficulties, conduct disorder, depression, anxiety, eating disorders, alcohol or drugs misuse, bipolar disorder, schizophrenia, other psychotic disorders, or recorded self-harm (our explanatory variables) before the age of 24 years. Outcomes were school absence and exclusion. Generalised estimating equations with exchangeable correlation structures using binomial distribution with the logit link function were used to calculate odds ratios (OR) for absenteeism and exclusion, adjusting for sex, age, and deprivation.

FINDINGS: School attendance, school exclusion, and health-care data were available for 414 637 pupils (201 789 [48·7%] girls and 212 848 [51·3%] boys; mean age 10·5 years [SD 3·8] on Sept 1, 2012; ethnicity data were not available). Individuals with a record of a neurodevelopmental disorder, mental disorder, or self-harm were more likely to be absent or excluded in any school year than were those without a record. Unadjusted ORs for absences ranged from 2·1 (95% CI 2·0-2·2) for those with neurodevelopmental disorders to 6·6 (4·9-8·3) for those with bipolar disorder. Adjusted ORs (aORs) for absences ranged from 2·0 (1·9-2·1) for those with neurodevelopmental disorders to 5·5 (4·2-7·2) for those with bipolar disorder. Unadjusted ORs for exclusion ranged from 1·7 (1·3-2·2) for those with eating disorders to 22·7 (20·8-24·7) for those with a record of drugs misuse. aORs for exclusion ranged from 1·8 (1·5-2·0) for those with learning difficulties to 11·0 (10·0-12·1) for those with a record of drugs misuse.

INTERPRETATION: Children and young people up to the age of 24 years with a record of a neurodevelopmental or mental disorder or self-harm before the age of 24 years were more likely to miss

school than those without a record. Exclusion or persistent absence are potential indicators of current or future poor mental health that are routinely collected and could be used to target assessment and early intervention. Integrated school-based and health-care strategies to support young peoples' engagement with school life are required.
FUNDING: The Medical Research Council, MQ Mental Health Research, and the Economic and Social Research Council.
TRANSLATION: For the Welsh translation of the abstract see Supplementary Materials section

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Mol Psychiatry. 2022.

THE EFFECTS OF STIMULANT DOSE AND DOSING STRATEGY ON TREATMENT OUTCOMES IN ATTENTION-DEFICIT/HYPERACTIVITY DISORDER IN CHILDREN AND ADOLESCENTS: A META-ANALYSIS.

Farhat LC, Flores JM, Behling E, et al.

Clinical guidelines currently recommend practitioners titrate stimulant medications, i.e., methylphenidate (MPH) and amphetamines (AMP), to the dose that maximizes symptom control without eliciting intolerable adverse events (AEs) when treating attention-deficit/hyperactivity disorder (ADHD) in school-aged children/adolescents. However, robust evidence-base regarding the effects of doses and dosing strategies of stimulants on clinical outcomes in the treatment of children/adolescents with ADHD is currently lacking and stimulants are often underdosed in clinical practice. To address this gap and provide rigorous evidence-base in relation to the dose and dosing strategy of stimulants, we conducted the largest systematic review and dose response meta-analysis examining change in ADHD symptoms (efficacy), and treatment discontinuations due to AEs (tolerability) and any reason (acceptability). We conducted one-stage random-effects dose response meta-analyses examining MPH and AMP separately, stratifying trials based on fixed-dose and flexible-dose design. Daily doses of stimulants were converted to MPH- and AMP-equivalent doses by adjusting for different pharmacokinetics across formulations. We also conducted pairwise meta-analyses to provide indirect comparisons between flexible-dose versus fixed-dose trials. Our study included 65 RCTs involving 7 877 children/adolescents. Meta-analyses of fixed-dose trials for both MPH and AMP demonstrated increased efficacy and increased likelihood of discontinuation due to AEs with increasing doses of stimulants. The incremental benefits of stimulants in terms of efficacy decreased beyond 30 mg of MPH or 20 mg of AMP in fixed-dosed trials. In contrast, meta-analyses of flexible-dose trials for both MPH and AMP demonstrated increased efficacy and reduced likelihood of discontinuations for any reason with increasing stimulant doses. The incremental benefits of stimulants in terms of efficacy remained constant across the FDA-licensed dose range for MPH and AMP in flexible-dose trials. Our results suggest that flexible titration as needed, i.e., considering the presence of ADHD symptoms, and tolerated, i.e., considering the presence of dose-limiting AEs, to higher doses of stimulants is associated with both improved efficacy and acceptability because practitioners can increase/reduce doses based on control of ADHD symptoms/dose-limiting AEs. Although fixed-dose trials that are required by the FDA are valuable to characterize dose-dependency, they may underestimate the true potential benefit of trialing dose-increases of stimulants in clinical practice by not allowing dose adjustment based on response and tolerability. Additional research is required to investigate potential long-term effects of using high doses of stimulants in clinical practice

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Nord J Psychiatry. 2022 Jan;76:71-79.

DYSREGULATION PROFILE (DP) AS A TRANSDIAGNOSTIC PSYCHOPATHOLOGICAL FACTOR IN CLINICALLY REFERRED CHILDREN - COMPARISONS BETWEEN DISORDERS AND LATENT STRUCTURE.

Wang B, Becker A, Kaelble C, et al.

BACKGROUND: Dysregulation Profile (DP) describes the psychopathological construct of concurrent impairments in the ability to regulate emotion, behaviour, and cognition measured by the Child Behaviour Checklist (CBCL). Such transdiagnostic dimensions of psychopathology play an important role in addition to core symptoms of psychiatric diagnosis in clinical practice. Evaluation of DP in children with different mental disorders may improve our understanding and treatment of both contents.
METHODS: 911 clinically referred children between 6 and 18 years were investigated. The sample consisted of five 'pure' disorders groups, that is, tic disorder (TIC), anxiety disorder, obsessive compulsive disorder, depression, Attention Deficit Hyperactivity Disorder (ADHD), and two comorbid disorder group, that is,

ADHD+TIC and ADHD+oppositional defiant disorder (ODD). DP level and latent structure were compared across groups.
RESULTS: The rate of severe/abnormal dysregulation rates varied from 15% to 44% when the 210 cut-off was used, and 5% to 18% when stringent cut-off was used (i.e. 70 on all DP-subscales). The most affected population were children with comorbid ADHD with ODD/TIC, while least were those with TIC only. Five different latent phenotypes of DP were found.
CONCLUSION: DP above clinical cut-off level widely exists in clinically referred children in parallel to core symptoms of their diagnosis, especially among children with comorbidities. During clinical assessment it would be worth to clarify the role of DP-related problems within the general psychosocial impairment of the patient to improve a personalized approach

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Obesity. 2021;29:114-15.
IMPACT OF COVID-19 ON BMI IN PEDIATRIC PATIENTS WITH OVERWEIGHT/OBESITY AND ADHD.
Healy J, Dodd C, Lim C.
Background: The COVID-19 pandemic caused abrupt changes to children's lifestyles, such as changes in school, activities, and access to medical care. Children with attention deficit hyperactivity disorder (ADHD) may have experienced additional impacts due to these changes. The disruption of receiving school lunches and physical activity at school, and other and out-of- home activities could lead to changes in weight status for pediatric patients. The purpose of this study was to examine changes in BMI for pediatric patients with both overweight/obesity (OV/OB) and ADHD before and during the COVID-19 pandemic.
Methods: De-Identified patient data from the only academic medical center in Mississippi was extracted from 2019-2021 using the Patient Cohort Explorer application. Participants included 100 patients between 6 and 16 years old with ADHD and a BMI at or above 25 who were randomly selected with documented outpatient encounters before March 2020 and after June 2020. Paired-sample t-tests were conducted to compare BMI before and during the COVID-19 pandemic.
Results: For pediatric patients with both OV/OB and ADHD, results revealed significant differences in BMI during the COVID-19 pandemic [Before COVID-19 M = 30.42, SD = 4.67; during COVID-19 M = 32.20, SD = 4.85; $t(99) = -8.084$, $p < .001$]. Additional analyses revealed racial disparities related to change in BMI ($t(91) = -2.22$, $p = 0.029$), where patients identified as African American had a significantly higher change in BMI [BMI Change M(SD) = 2.28(1.97)] compared to patients who were Caucasian [BMI Change M(SD) = 1.26(2.43)].
Conclusions: Pediatric patients with both OV/OB and ADHD had an increase in BMI since the start of the COVID-19 pandemic. The disruptions of school and home routines and changes in lifestyle behaviors could potentially explain the increase in BMI. It is important for health-care providers to monitor changes in BMI during the pandemic, as well as for researchers to identify disparities related to observed health outcomes

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Pilot and Feasibility Studies. 2022;8.
THE FEASIBILITY OF A STRATEGY FOR THE REMOTE RECRUITMENT, CONSENTING AND ASSESSMENT OF RECENT REFERRALS: A PROTOCOL FOR PHASE 1 OF THE ON-LINE PARENT TRAINING FOR THE INITIAL MANAGEMENT OF ADHD REFERRALS (OPTIMA).
Kostyrka-Allchorne K, Ballard C, Byford S, et al.
Background: In the UK, children with high levels of hyperactivity, impulsivity and inattention referred to clinical services with possible attention-deficit/hyperactivity disorder (ADHD) often wait a long time for specialist diagnostic assessment. Parent training (PT) has the potential to support parents during this difficult period, especially regarding the management of challenging and disruptive behaviours that often accompany ADHD. However, traditional face-to-face PT is costly and difficult to organise in a timely way. We have created a low-cost, easily accessible PT programme delivered via a phone app, Structured E-Parenting Support (STEPS), to address this problem. The overall OPTIMA programme will evaluate the efficacy and cost-effectiveness of STEPS as a way of helping parents manage their children behaviour while on the waitlist. To ensure the timely and efficient evaluation of STEPS in OPTIMA, we have worked with children's health services to implement a remote strategy for recruitment, screening and assessment of recently referred families. Part of this strategy is incorporated into routine clinical practice and part is OPTIMA specific.

Here, we present the protocol for Phase 1 of OPTIMA a study of the feasibility of this remote strategy, as a basis for a large-scale STEPS randomised controlled trial (RCT).
Methods: This is a single arm observational feasibility study. Participants will be parents of up to 100 children aged 5-11 years with high levels of hyperactivity/impulsivity, inattention and challenging behaviour who are waiting for assessment in one of five UK child and adolescent mental health or behavioural services. Recruitment, consenting and data collection will occur remotely. The primary outcome will be the rate at which the families, who meet inclusion criteria, agree in principle to take part in a full STEPS RCT. Secondary outcomes include acceptability of remote consenting and online data collection procedures; the feasibility of collecting teacher data remotely within the required timeframe, and technical difficulties with completing online questionnaires. All parents in the study will receive access to STEPS.
Discussion: Establishing the feasibility of our remote recruitment, consenting and assessment strategy is a pre-requisite for the full trial of OPTIMA. It can also provide a model for future trials conducted remotely

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PLoS ONE. 2021;16.

ENHANCING NEURAL MARKERS OF ATTENTION IN CHILDREN WITH ADHD USING A DIGITAL THERAPEUTIC.

Gallen CL, Anguera JA, Gerdes MR, et al.

Attention deficit hyperactivity disorder (ADHD) is a prevalent neurodevelopmental condition characterized by diminished attentional control. Critically, these difficulties are related to negative consequences in real-life functioning both during development and into adulthood. There is now growing evidence that modulating the underlying neural circuits related to attention can improve behavior and brain function in children with ADHD. We have previously shown that game-based digital therapeutics targeting a key neural marker of attention midline frontal theta (MFT) yield positive effects on attentional control in several populations. However, the effects of such digital therapeutics in children with ADHD and no other comorbidities has not been yet examined. To address this gap, we assessed a sample of 25 children with ADHD (8-12 years old) on neural, behavioral, and clinical metrics of attention before and after a 4-week at-home intervention on an iPad targeting MFT circuitry. We found that children showed enhancements on a neural measure of attention (MFT power), as well as on objective behavioral measures of attention and parent reports of clinical ADHD symptoms. Importantly, we observed relationships between the neural and behavioral cognitive improvements, demonstrating that those children who showed the largest intervention-related neural gains were also those that improved the most on the behavioral tasks indexing attention. These findings provide support for using targeted, digital therapeutics to enhance multiple features of attentional control in children with ADHD.
Study registration: ClinicalTrials.gov registry (NCT03844269) https://clinicaltrials.gov/ct2/show/NCT03844269

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Psychiatr Invest. 2021;18:1188-97.

RELIABILITY AND VALIDITY OF THE KOREAN VERSION OF THE PARENTAL STRESS SCALE FOR CHILDREN WITH ATTENTION-DEFICIT/HYPERACTIVITY DISORDER.

Park SY, Kim JH, Jeong MY, et al.

Objective This study standardizes the Parental Stress Scale (PSS) for Republic of Korean parents of children with attention-deficit/hy-peractivity disorder (ADHD) and verifies its reliability and validity.
Methods Data from 160 parents of children with ADHD who completed the following self-reported questionnaires were analyzed: the Korean ADHD Rating Scales, the Patient Health Questionnaire-9, the StateΓÇôTrait Anxiety Inventory, the PSS, and the Global Assessment of Recent Stress Scale. All scale items were measured for reliability and validity, and the appropriate factors for measuring stress in Korean parents with ADHD children were extracted.
Results Exploratory and confirmatory factor analyses derived two sub-factors and 11 items. Goodness of fit was confirmed, and the scale was deemed suitable for explaining stress in parents of children with ADHD.
Conclusion In this study, the validity and reliability of the K-PSS-ADHD were investigated. We expect that the K-PSS-ADHD will be used as a basis for future studies on stress in parents of children with ADHD

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Psychiatry Res. 2022;309.

NEAR-INFRARED SPECTROSCOPY (NIRS)-NEUROFEEDBACK AS A TREATMENT FOR CHILDREN WITH ATTENTION DEFICIT HYPERACTIVITY DISORDER (ADHD).

Wu WJ, Cui LB, Cai M, et al.

The present study aimed to assess the efficacy of Near-infrared spectroscopy (NIRS) real-time neurofeedback (NF) vs. atomoxetine (AT) in children with attention deficit hyperactivity disorder (ADHD). A parallel-group study was conducted to enroll children with ADHD between 8 and 12 years of age. Participants were assigned into the NIRS group and AT group as their wish. Subjects in the NIRS group received 12 sessions of NF training within 6 weeks, and subjects in the AT group were given oral medication. Changes in Swanson, Nolan, and Pelham-V rating scales (SNAP-IV), and performance of Go/No-Go and N-back working memory tasks at week 3, 6 and 8 were evaluated. Forty-nine patients completed the study, including 18 ADHD in the NIRS group and 31 in the AT group. Total scores of SNAP-IV significantly decreased from baseline to week 3, week 6, and week 8 in both groups. Patients in the NIRS group showed significant lower scores on the inattention subscale of SNAP-IV at week 3 and week 6, compared to the AT group. NIRS group had a shorter reaction time during the Go/No-Go task at week 6 and fewer errors during 2-back than the AT group at week 3. The findings revealed that NIRS real-time NF is more efficacious relative to AT in improving behavioral performance, highlighting its potential role and advantages in treating patients with ADHD

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QJM. 2020;113:i78-i79.

INCIDENCE OF ATTENTION-DEFICIT/HYPERACTIVITY DISORDER IN LEARNING DISABLED CHILDREN, A SYSTEMATIC REVIEW.

Mohamed HA, Khodeir MS, El-sady SR.

Background: Children diagnosed with learning disability (LD) have a high incidence of psychiatric comorbidities especially Attention-Deficit/Hyperactivity Disorder (ADHD). These comorbidities are either a direct consequence of the same deficits in the central processing patterns that generate the learning problems, or they tend to stress the role of frustration and failure in academic achievement. These difficulties are claimed to move a vicious circle that leads the child towards ever-greater cognitive and social-emotional impoverishment.

Aim: The aim of this work is to conduct a systematic review of ADHD as a comorbid condition in learning disabled children to determine its incidence in learning disabled children in order to estimate the size of the problem to be able to delineate an efficient program in therapeutic intervention later.

Study design: This was a systematic review.

Methods: Two electronic databases (PubMed and Science Direct) were searched for articles. Relevant studies were further evaluated and studies that met inclusion criteria were reviewed.

Results: The literature search yielded 593 studies. Twenty-eight articles were further evaluated to be included. Five studies met all inclusion criteria and were chosen for review. The studies provide prevalence of ADHD in learning disabled children. We have found higher scores of ADHD in learning disabled children than in the normal population, in all the included studies. The studies reviewed demonstrated the effect of this comorbidity and the importance of its diagnosis for improvement of prognosis of the learning disability.

Conclusion: The current systematic review determines the probable prevalence of the ADHD in learning disabled children

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QJM. 2020;113:i151-i152.

FOLLOW UP STUDY ON ATTENTION DEFICIT HYPERACTIVITY DISORDER PATIENTS WITH AND WITHOUT COMORBID MOOD DISORDERS RECEIVING NON STIMULANT MEDICATION.

Shaker N, Helmy D, Adel A, et al.

Background: Irritability is common in Attention deficit hyperactivity disorder (ADHD) which is sometimes associated with Mood symptoms. Results from community samples suggest that 4.3-23.5% of those with ADHD meet Disruptive mood dysregulation disorder diagnostic criteria.

The Aim of this study: To compare the prognostic outcome of ADHD symptoms in ADHD children with comorbid mood disorders compared to those without comorbid mood disorders receiving non-stimulant medication.

Patients and Methods: This is An observational prognostic prospective study in which two groups of ADHD patients were included in the study, group 1 includes 40 ADHD patients without comorbid mood disorders and group 2 includes 40 ADHD patients with comorbid mood disorders, they were assessed using; The Kiddie Schedule for Affective Disorder and Schizophrenia for School Age Children Rating scales as Conners' Parent Rating Scale-Revised Long Version, Pediatric behavior rating scale and Children Depression Inventory.
Results: ADHD symptoms (hyperactivity and inattention) were found to be improved regarding the hyperactivity in a statistically significant way in the mood group after 1 week of receiving non stimulant medications, while there was no significant change in the non-mood group, Also there was significant improvement of the inattention symptoms among the two groups after receiving non stimulant medication. Meanwhile severity of depressive symptoms showed an improvement in the mood group while there was no change in severity in the non-mood group. As regards the irritability symptoms it showed insignificant change in both groups among the two follow-ups.
Conclusion: There is a more significant decrease in inattention symptoms in ADHD children with comorbid mood disorder who received non-stimulant treatment for one week more than the children without comorbid mood disorder. Moreover the depressive symptoms decreases among patients with ADHD and mood disorders after one week of receiving non-stimulant treatment

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QJM. 2020;113:i87.
ASSESSMENT OF THE POSSIBLE ASSOCIATION BETWEEN PHTHALATE EXPOSURE AND ATTENTION DEFICIT HYPERACTIVITY DISORDER IN EGYPTIAN CHILDREN.
Mohamed SR, Mohammed NEA, Elzohairy EAM, et al.
Background: Attention Deficit Hyperactivity Disorder (ADHD) is one of the most common neuropsychiatric disorders of childhood. Phthalates are industrial chemicals often used in personal care products and to soften plastics in toys and household items such as food containers, and medical devices. Animal studies have reported that the phthalate compound might cause hyperactivity and impulsivity in rats. However, the relation between phthalates and ADHD in human is still controversial.
Objective: The aim of our study is to investigate the possible association between urinary phthalate metabolite levels and attention deficit disorder, learning disability in 6-12-years old children.
Methods: Urine samples were obtained from 80 children. All children were selected from the attendants of Abu elreesh child psychiatry outpatient clinic, Cairo University. subjects were divided into two main groups Group A consisted of 50 children with Attention-deficit/hyperactivity disorder (ADHD) diagnosed by psychiatric consultant and Group B consisted of 30 normal children. In urine, mono butyl phthalate (MBP) metabolite were measured with high performance liquid chromatography (HPLC).
Results: The mean concentration of MBP level was (15.539 -¦ 8.316) for cases (group A) and (8.085 -¦ 2.426) for controls (group B) with significant difference between groups. Also there was significant correlation with processing milk, plastic containers, toys, cosmetics, wall, and floor material containing phthalate exposure and higher level of (MBP) in urine of group A.
Conclusion: The present study showed association between phthalate metabolites in urine and symptoms of ADHD among school-age children

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QJM. 2020;113:i212.
TIC DISORDERS IN CHILDREN WITH EPILEPSY: EFFECT ON BEHAVIOR AND QUALITY OF LIFE.
ELagouza IA, Deifalla SM, Hossameldin A.
Idiopathic Epilepsy in children is associated with several comorbidities. Tics and other deviant behaviors are some of them which could negatively impact the family quality of life. The current study aimed at comparing quality of life and behavioral test results in children with epilepsy and tics versus those with epilepsy only.
Patients and Methods: Sixty patients with idiopathic epilepsy aged from 4 to 18 years participated in the current study. Group I included 30 patients with idiopathic epilepsy and tic disorders aged 10.1+/-3.2 years and group II 30 with epilepsy only aged 10.1+/-3.1 years. The Arabic version of the Pediatric quality of life inventory 4.0 (PedsQ 4.0), the Arabic translation of the Child Behavior Checklist (CBCL) scores were used and Conner's parent rating scale were used. The results were compared between the 2 participating groups.

Results: Group I patients had worse total quality of life scores for both the child's and parent's scores compared to group II patients ($p<0.05$). CBCL scores were significantly higher in group I regarding most of the internalizing and externalizing domains yet the total score was non-significantly higher in group I compared to group II ($p=0.05$). Group I patients had higher total Conner's score compared to group II; ($p=0.045$). Furthermore, those with ADHD in group I was 70% compared to 50% in group II.
Conclusion: Tic disorders in the context of idiopathic epilepsy should be addressed seriously as they are associated with other behavioral defects that require intervention to achieve better quality of life

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QJM. 2020;113:i218.

THE PSYCHO PHENOTYPIC PROFILE OF AN EGYPTIAN SAMPLE OF PATIENTS WITH ADHD.

Zaky EA, Zahra SS, Abdelaziz AW, et al.

Objectives: The current study aimed to investigate the psychophenotypic profile of an Egyptian sample with ADHD cases.
Subjects & Methods: Eighty cases diagnosed as ADHD (according to the DSMV) were enrolled in the current study. They were selected sequentially from those following up in the child and adolescent clinic, children hospital, Ain shams University.
Results: The ages of the enrolled sample ranged between 4&12 years. Males were (86%) and Female (14%) with ratio 7:1. Consanguinity rate was (25%) while positive family history was (12%). Perinatal insult was detected in (22%). Inattentive ADHD was seen in 90% of cases while combined type in 10%. According to Conner's parents' scale (5%) had mild, (25%) moderate and (70%) severe ADHD symptoms. Comorbid conditions were seen as follows; Delayed language development (30%), stuttering (9%), delayed bladder control (15%), pica (2%), polyphagia (2%), sleep disorders [nightmares (4%), insomnia (9%), somnambulism (3%)], poor academic performance (95%), dyslexia (15%), dysgraphia (18%), conduct disorder (5%) and aggression (12%).
Conclusion: The current study delineated that there are so many phenotypic variation in Egyptian ADHD cases. This high-lightened the importance of individual assessment of such cases in order to configure the subtype, severity and identification of possible comorbidity. This enable the clinicians to individualize a treatment plan for each patient aiming at better outcome

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QJM. 2020;113:i145.

COMORBIDITY AND CLINICAL IMPACTS OF ATTENTION-DEFICIT/ HYPERACTIVITY DISORDER (ADHD) IN CHILD AND ADOLESCENT WITH EPILEPSY.

Khalifa OS, Ahmed NS, Nada MA, et al.

Aims and objectives: To highlight the comorbidity and clinical impacts of ADHD in Egyptian children and adolescent with epilepsy regarding its different characteristics and effect on quality of life.
Patients and Methods: A cross-sectional study of 115 children with epilepsy was carried out and assessed for ADHD prevalence using the DSM5 criteria, Conner's Parent Rating Scale for ADHD, Wechsler Intelligence Scale for Children and Quality of Life in Childhood Epilepsy Questionnaire: QOLCE-55.
Results: 36 founded to have ADHD (31.3%) and 79 non-ADHD (68%), the inattention type was the most common by 19 child (52.7%) , 15 (41.6%) child with combined type and only 2 (5.5%) child with hyperactive type, The factors that were significantly associated with the co-morbidity were Lower age of onset of 1st seizure with nearly statically significant ratio (P value 0.051), the seizure presence in last 3 months group (P value 0.03), epileptic EEG abnormalities in the most recent EEG (P value 0.01), lower IQs (P value 0.002).and There was no statically significant association with sex, type of epilepsy, history of febrile seizure. There was strong statically significant decrease in quality of life with ADHD comorbidity (P value 0.001), and decrease school attendance between ADHD and non-ADHD groups (P value 0.015).
Conclusion: ADHD is a common comorbidity in epileptic children with about 2\3 of ADHD children were not diagnosed, and severe effect on quality of life, so frequent assessment for ADHD in epileptic children is mandatory

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QJM. 2020;113:i150-i151.

CORRELATION OF PSYCHOPATHOLOGY AND WHITE MATTER ABNORMALITIES IN FATHERS OF CHILDREN WITH ADHD: CROSS SECTIONAL STUDY.

Effat SM, Elshahawy H, Sakr HM, et al.

Background: Attention-deficit/hyperactivity disorder (ADM)) is one of the most common neurobehavioral disorders of childhood. Children with ADHD may experience significant adaptation problems because their functional level and behavior may not correspond to their chronological age or expected development level. ADHD is a chronic disease, the symptoms of which can persist into adulthood and become lifelong.

Aim of the work: evaluating the biological substrate in fathers of children with ADHD, assessing rate of occurrence of ADHD among fathers of children with ADHD. Subjects and

Methods: This descriptive observational cross-sectional study was conducted on 40 children with a diagnosis of Attention Deficit Hyperactivity Disorder (ADHD) according to the DSNI-IV criteria who attended to the Child and Adolescent Outpatient clinics of the Institute of Psychiatry, Ain Shams University Hospital.

Results: Prevalence rate of diagnosis of adult ADHD among fathers of children with ADHD (6 to 12) years old was 60%, 20% with mixed hyperactive-inattentive type, 15%.predominantly hyperactive-impulsive type and 25% predominantly inattentive type. There were statistically significant differences between ADHD group of children's fathers in comparison to Non-ADHD group, as the mean ADC of right and left middle cerebellar peduncle, was lower in ADHD group which indicates absence of abnormalities in white matter integrity in those areas.

Conclusion: prevalence rate of adult ADHD among fathers was 60%. There were no abnormalities in white matter integrity in group of fathers with diagnosis of adult ADHD

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Res Dev Disabil. 2022 Mar;122:104156.

EXAMINING THE EFFECTS OF ADHD SYMPTOMS AND PARENTAL INVOLVEMENT ON CHILDREN'S ACADEMIC ACHIEVEMENT.

Condo JS, Chan ESM, Kofler MJ.

OBJECTIVE: Our understanding of the role of parental involvement in academic outcomes for children with ADHD is limited, with mixed evidence suggesting a positive association between parental involvement and academic achievement for pediatric ADHD but limited evidence regarding how this varies based on ADHD symptom severity, ADHD symptom domains, or co-occurring ODD symptoms. In this context, the present study aimed to examine the effects of parental involvement, ADHD symptoms, and comorbid ODD on children's overall, reading, and math achievement.

METHOD: A well-characterized clinically-evaluated sample of 162 children recruited through a university-based children's learning/behavioral health clinic and community resources (ages 8-13; 50 girls; 69% Caucasian/Non-Hispanic) were administered standardized academic achievement tests, with parents and teachers completing measures of parental involvement and ADHD symptoms, respectively.

RESULTS: Inattention, but not hyperactivity-impulsivity, was associated with lower academic achievement in all tested models ($\hat{\imath}^2$= -.16 to -.22, all p < .03). Surprisingly, parental involvement had significant negative associations with math and overall academic achievement ($\hat{\imath}^2$= -.13 to -.26, both p< .05) and did not moderate the relations between ADHD symptoms and academic achievement in any tested model. Comorbid ODD symptoms did not significantly predict academic achievement or interact with parental involvement in any tested model. These findings were robust to control for child IQ, age, sex, SES, anxiety, and depression.

CONCLUSION: Parental involvement may not serve as a protective factor against academic underachievement for children with clinically elevated ADHD symptoms, and may predict lower rather than higher academic achievement for clinically evaluated children in general

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Res Dev Disabil. 2022 Feb;121:104155.

PSYCHOMETRIC VALIDATION OF BARKLEY'S ADULT SLUGGISH COGNITIVE TEMPO (SCT) RATINGS SCALE -TURKISH VERSION AND DISTINGUISHING SCT FROM ATTENTION DEFICIT-HYPERACTIVITY DISORDER (ADHD) AMONG TURKISH ADULTS.

Gul A, Gul H.

BACKGROUND & AIMS: SCT is characterized by sluggishness, daydreaming, lethargy/ apathy, slowed behavior/thinking, and mental confusion. For a long time these symptoms were thought to be a part of ADHD but then studies revealed that SCT is a different phenomenon in some cultures. In this study. we aimed to examine the validity and reliability of Barkley's Adult SCT Ratings Scale, and to determine if SCT is an independent factor from ADHD in Turkish adults like in other cultures.

METHODS: 274 Medical School students/trainees enrolled the study (Age: 18-35, 70.4 % female). Data was collected via an online survey including SCT and ADHD rating scales.

RESULTS: Exploratory factor analysis demonstrated that the scale consisted of two factors: Daydreaming and Sluggishness.The model demonstrated a good-fit (Ï‡(2) = 43.642, p = 0.001; Ï‡(2)/df = 2.425, GFI = 0.962,RMSEA = 0.072). As expected, there were positive and significant associations between SCT total, Daydreaming, Sluggishness, and ADHD-Inattention scores (r = 0.645, 0.664, 0.382; respectively), but all SCT items loaded within SCT factors and distinquished from ADHD factors. Cronbach's alpha values were: 0.87 for SCT-total, 0.87 for Daydreaming; 0.79 for Sluggishness.

CONCLUSION & IMPLICATIONS: Our study provides a valid and reliable SCT screening tool for Turkish adults and increases our confidence in the transcultural generalizability of SCT

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Sleep Science. 2021;14:49-55.

COMPARATIVE ANALYSIS OF SLEEP PATTERNS AND ATTENTION COMPONENTS IN HIGH SCHOOL AND COLLEGE ADOLESCENTS.

Diogo FMC, Galina SD, de Oliveira MLC, et al.

Adolescence is a phase with physiological and behavioral changes. One of them occurs in the sleep-wake cycle pattern, manifested by a phase delay. However, morning school start time can decrease sleep duration during weekdays, impairing adolescent cognitive performance and wellbeing. Adolescents of different ages and educational level might suffer the impact of academic demand on sleep-wake cycle and cognition differently. Thus, the aim of this study is to compare the sleep habits and quality, sleepiness upon awakening and attention components among adolescents in the first years of high school and college. 71 adolescents participated in the study (45 girls and 26 boys), 44 enrolled in high school morning classes (G1 - 15.5-¦0.7 years), from a private school, and 27 college students enrolled in morning classes (G2 - 18.8-¦1.04 years), from biosciences courses from a public institution. The groups did not differ in bedtime, get up time, time in bed and sleep irregularity. However, both groups showed differences according to the day of the week, bedtime and get up time became later and time in bed extended on weekends. G1 presented worse sleep quality and regarding attention, showed higher percentage of omissions in all components and worse performance in sustained attention (ANOVA, $p<0.05$). The poorer sleep quality of high school adolescents and reduced attention may have a negative effect on school performance. Additional studies are needed to investigate the causes of these differences between these two educational levels

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Tobacco Induced Diseases. 2021;19.

ASSOCIATION BETWEEN E-CIGARETTE USE AND PARENTS' REPORT OF ATTENTION DEFICIT HYPERACTIVITY DISORDER AMONG US YOUTH.

Kaplan B, Marcell AV, Kaplan T, et al.

INTRODUCTION There is paucity of literature that evaluates e-cigarette use rates among the youth with attention deficit hyperactivity disorder (ADHD). The aim of this study is to compare the rates of cigarette only, e-cigarette only, dual use, and initiation age of regular use and trying to quit cigarettes or e-cigarettes among the youth with and without ADHD.

METHODS We used Population Assessment of Tobacco and Health (PATH) study Wave 3 (2015-2016) youth data, a nationally representative cross-sectional study in the US. The main outcome was tobacco use status of youth and ADHD diagnosis was based on parent report.

RESULTS The survey included 11801 youth (50%, 12-14 years; 49% female). Compared to youth without ADHD, the relative risk ratio (RRR) was 1.79 (95% CI: 1.02-3.21) for cigarette only use, 1.41 (95% CI: 1.01-2.21) for e-cigarette only use, 3.40 (95% CI: 1.69-6.84) for dual use, 1.75 (95% CI: 0.92-3.35) for cigarette and other product(s) use, 1.48 (95% CI: 0.58-3.77) for e-cigarette and other product(s) use, and 3.37 (95% CI: 1.88-6.17) for poly use among youth with ADHD, after adjusting for age group, sex, and race/ethnicity.
CONCLUSIONS Cigarette only use, e-cigarette only use, dual use of cigarettes and e-cigarettes, and poly use of cigarettes, e-cigarettes, and other product(s) were significantly associated with parent report of an ADHD diagnosis. It is critical for healthcare providers to be screening youth for e-cigarette use, especially youth who are diagnosed with ADHD

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Trials. 2022 Feb;23:124.

EFFICACY OF COGNITIVE BEHAVIORAL THERAPY ON AGGRESSIVE BEHAVIOR IN CHILDREN WITH ATTENTION DEFICIT HYPERACTIVITY DISORDER AND EMOTION DYSREGULATION: STUDY PROTOCOL OF A RANDOMIZED CONTROLLED TRIAL.

Vacher C, Romo L, Dereure M, et al.

BACKGROUND: Attention deficit hyperactivity disorder (ADHD) is frequently associated with emotional dysregulation (ED). ED is characterized by excessive and inappropriate emotional reactions compared to social norms, uncontrolled and rapid shifts in emotion, and attention focused on emotional stimuli. Few studies have evaluated non-pharmacological interventions to improve ED in children with ADHD. The current randomized controlled trial assesses the efficacy of a cognitive behavioral therapy (CBT) intervention compared with a theater-based intervention (TBI) in children with ADHD and ED.
METHODS: Sixty-eight 7- to 13-year-old children with ADHD and ED will be recruited and randomly assigned to the CBT or TBI group. CBT aims to reduce ED by teaching anger management strategies. TBI seeks to reduce ED by improving emotion understanding and expression through mimics and movement. In both groups, children participate in 15 1-h sessions, and parents participate in 8 sessions of a parent management program. The primary outcome measure is the change in the "Aggression" sub-score of the Child Behavior Checklist (CBCL). Secondary outcome measures include overall impairment (Children's Global Assessment Scale, Strengths and Difficulties Questionnaire), personality profile (Hierarchical Personality Inventory for Children), executive function (Behavioral Rating Inventory of Executive Function), quality of life (Kidscreen-27), parental stress (Parenting Stress Index, 4th edition), parental depression (Beck Depression Inventory-II), and impact of child disorders on the quality of the family life (Parental Quality of Life and Developmental Disorder).
DISCUSSION: Children with ADHD and ED are at risk of functional impairment and poor outcomes and have specific therapeutic needs. This randomized controlled trial wants to assess non-pharmacological treatment options for this population.
TRIAL REGISTRATION: Clinicaltrials.gov. NCT03176108 . Registered on June 5, 2017

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Trials. 2022 Jan;23:83.

THIRD-GENERATION COGNITIVE BEHAVIORAL THERAPY VERSUS TREATMENT-AS-USUAL FOR ATTENTION DEFICIT AND HYPERACTIVITY DISORDER: A MULTICENTER RANDOMIZED CONTROLLED TRIAL.

Crouzet L, Gramond A, Suehs C, et al.

BACKGROUND: This study aims to compare improvements in attention deficit and hyperactivity disorder (ADHD) symptom severity between a group of ADHD children and parents undergoing a new therapeutic program based on third-generation cognitive behavioral therapy (Hyper-mCBT) and a similar group undergoing treatment-as-usual with the Barkley program.
METHODS: Two hundred forty-eight children diagnosed with ADHD will be randomly assigned to either a Hyper-mCBT program or a Barkley program. This is a multicenter randomized (1:1), 2 parallel-group, superiority trial with evaluator blinding and stratification according to center and methylphenidate treatment. The Hyper-mCBT program consists in a series of 16 simultaneous-but-separate therapy sessions for parents and for children.
DISCUSSION: More effective psychotherapeutic approaches are needed for ADHD children. Pharmacotherapy seems to be more effective in reducing ADHD symptoms but it is not always helpful, it

carries side effects, and it is rejected by many parents/professionals. Results for psychotherapy programs for ADHD are inconsistent although several studies have shown clinical improvements. This trial will substantiate encouraging preliminary results of an innovative psychotherapy program for both parents and children.
TRIAL REGISTRATION: ClinicalTrials.gov NCT03437772 . Registered on February 19, 2018. Sponsor number: PHRC-N/2016/JLC-01. RCB identification: 2017-A01349-44

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West Indian Medical Journal. 2021;69:416-20.
EFFECT OF USING METHYLPHENIDATE ON SALIVARY FLOW RATE AND SALIVARY BUFFERING CAPACITY IN CHILDREN WITH ATTENTION-DEFICIT/HYPERACTIVITY DISORDER.
Kalyoncu IO, Kurel S, Tanboga I.
Objective: Most drugs used to treat attention-deficit/hyperactivity disorder treatment can affect saliva secretion. Methylphenidate is the most commonly prescribed drug for the treatment of attention-deficit/hyperactivity disorder and was approved for use in children over the age of 6 years. However, limited information is available on the use and long-term adverse effects of methylphenidate in preschool children (< 6 years). We explored the effects of methylphenidate on salivary flow rate and salivary buffering capacity during treatment for attention-deficit/ hyperactivity disorder.
Methods: Children who were diagnosed with attention-deficit/hyperactivity disorder by expert psychiatrists, under medical treatment, and those who had no other systemic diseases were included. Stimulated saliva samples were collected before prescription of methylphenidate and after 15 days, 30 days and 3 months of regular drug intake. The samples were analysed for Streptococcus mutans, as well as salivary buffering capacity and salivary flow rate. Twenty children (age range, 6-15 years) with attention-deficit/hyperactivity disorder were included.
Results: The mean salivary buffering capacity value at month 3 was significantly lower than that at baseline and at day 15. Regarding the distribution according to salivary flow rate, statistically significant differences were found between baseline and the first month and between baseline and month 3 These results indicate that methylphenidate consumption in children with attention-deficit/hyperactivity disorder leads to reduced salivary buffering capacity and salivary flow rate after 3 months of follow-up.
Conclusion: Parents should be informed about necessary preventive dental treatments to minimize the negative oral and dental effects of long-term drug use in children

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World J Biol Psychiatry. 2022.
A NOVEL GENETIC VARIANT POTENTIALLY ALTERING THE EXPRESSION OF MANBA IN THE CEREBELLUM ASSOCIATED WITH ATTENTION DEFICIT HYPERACTIVITY DISORDER IN HAN CHINESE CHILDREN.
Chen X, Yao T, Cai J, et al.
Objectives: To obtain additional insight into the genetic factors of attention deficit hyperactivity disorder (ADHD).
Methods: First, we performed a transcriptome-wide association study (TWAS) integrating human cerebellum-specific variant-expression/splicing correlations to identify ADHD susceptibility genes. Then, the associations between expression/splicing quantitative trait loci (eQTLs/sQTLs) of the transcriptome-wide significant genes and ADHD were observed in a case-control study of Han Chinese children. Furthermore, dual luciferase reporter gene assays were performed to validate the regulatory function of ADHD risk variants. Additionally, the transcription level of target genes in blood was detected by real-time quantitative polymerase chain reaction (RT-qPCR) assay.
Results: TWAS identified that the genetically regulated expression of MANBA in the cerebellum was significantly associated with ADHD risk. Furthermore, we observed a higher risk of ADHD and more severe clinical symptoms in subjects harbouring heterozygous (TC) or mutant homozygous (TT) genotypes of MANBA rs1054037 than CC carriers. The dual luciferase reporter gene assay revealed that the mutation of rs1054037(C > T) potentially upregulated MANBA expression by eliminating the binding site for hsa-miR-5591-3P. Finally, RT-qPCR showed that MANBA expression in blood samples of patients was significantly higher than that of controls.
Conclusions: Taken together, these results suggest a role of MANBA in the development of ADHD

P.0330
Maximum downward slopes of sleep slow waves as a potential marker of attention deficit hyperactivity disorder clinical phenotypes

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Background: Sleep problems are a common finding in children with Attention Deficit and Hyperactivity Disorder (ADHD) [1], possibly due to shared pathophysiology. However, only few significant differences in the macrostructure of the sleep EEG have emerged between ADHD and healthy children (HC) [2,3]. On the other hand, Slow Waves (SW) alterations may offer microstructural electroencephalographic markers of unstable sleep as well as disordered cortical maturation in ADHD [4]. Here, we focus on the SW slope as an accurate marker of the underlying neuronal synchronization [5] and possible predictive parameter of psychiatric comorbidities and neuropsychological dimensions in ADHD.

Methods: 70 children (mean age 8.76, SD 2.77) with ADHD, with no epilepsy and no intellectual disabilities, were included in this retrospective study. Patients underwent psychiatric and neurologic evaluation and were assessed through the Child Behavior Checklist for children (CBCL 6-18) (52/70 patients), the CPRS-R (Conners' Parent Rating Scale – Revised) (47/70 patients), the Wechsler Intelligence Scale for Children (WISC-IV) (21/70 patients) and a standard 10-20 EEG (all patients). We analyzed the EEG signal during naps, extracting the slopes of SW in the NREM phase via a custom script developed in MATLAB (MathWorks, Natick, MA) environment. We grouped descendent slopes according to the SW negative peak amplitude by using bins of 10 μV, from 0 μV to 100 μV. Afterwards, we measured associations between the clinical scores and the maximum downward slopes (MDS) via a generalized linear regression model, including age, sex and psychopharmacotherapy as potential confounders. To correct for multiple comparisons we estimated the null distribution of the beta regression values by means of a permutation procedure (n=2000 rearrangements of the observations) for each dependent variable,

channel and amplitude bin. Significance thresholds were set at p=0.05. We evaluated potential clusters of associations by selecting only the groups of channels consisting of more than two contiguous electrodes on the scalp and only for channels presenting significance for at least two consecutive amplitude bins.
Results: Our results show, sorted by degree of significance: 1) A negative association between the Processing Speed Index scores and the MDS (0–30μV) in a large cluster of anterior and temporal right areas. 2) A positive association between the Processing Speed Index scores and the MDS (20–50μV) in a large cluster of temporal and posterior left areas. 3) A positive association between autistic traits and the MDS (50–90μV) in a large cluster of anterior and temporal left areas. 4) A negative association between internalizing symptoms, derived through the CBCL 6-18 scales, and the MDS (0–40μV) in temporal and posterior left areas. 5) A positive association between comorbid multiple anxiety disorder and the MDS (50–60μV) in posterior and temporal left areas.
Conclusions: Numerous associations emerge between the local MDS and psychiatric comorbidity, and neuropsychological and behavioral dimensions of ADHD. Consistent cluster localization and lateralization among SW amplitudes put forward the idea that alterations in local cortical synchronization, revealed by MDS, could underlie specific neurodevelopmental trajectories resulting in different clinical phenotypes of ADHD.

No conflict of interest

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Research paper

Overweight in mood disorders: Effects on morbidity and treatment response

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ABSTRACT

Objective: As it is not clear how body-mass index (BMI) may relate to diagnosis, symptom-severity, illness-course, and treatment-response among psychiatric patients, we related BMI to psychiatric diagnosis and to selected clinical and demographic factors in major affective disorder subjects.
Methods: We analyzed mean BMI levels vs. diagnosis, and evaluated selected risk factors for association with overweight and obesity among subjects with DSM-5 major affective disorders.
Results: In 1884 subjects, BMI ranged from 23.4 kg/m^2 with anxiety disorders to 27.6 with psychotic disorders, and averaged 24.1 among 1469 affective disorder subjects. Mood-disorder subjects with BMI $\geq$ 25 (overweight/obese) were more likely: men, older, married, with more children and siblings, less education, lower socioeconomic status, engaged less in physical exercise, smoked more, and lived in less densely populated areas. They also were more likely to have: BD than MDD, familial mood disorders, no co-occurring ADHD, higher serum triglyceride levels, more time depressed and less improvement in depression ratings with treatment.
Conclusions: Risk of being overweight or obese was greatest with psychoses, least with anxiety, personality, and minor depressive disorders, and intermediate with major mood disorders. Several plausible risk factors for high BMI were identified in mood disorder subjects, including male sex and with BD > MDD. Striking were selectively greater prospective morbidity and decreased treatment-response for depression vs. mania with BMI $\geq$ 25.

1. Introduction

Excess body-weight is often associated with major mood disorders (McIntyre et al., 2006; Simon et al., 2008; Allison et al., 2009; de Wit et al. 2010; Gariepy et al., 2010; Brumpton et al., 2013; Carey et al., 2014; Rivera et al., 2019). Several hypotheses have been proposed to explain the association. They include: [a] sedentary lifestyle, and [b] poor eating habits (Schuch et al., 2017; Vancampfort et al., 2017], [c] consumption of alcohol and cigarette-smoking (Vancampfort et al., 2015), as well as [d] pathophysiological disturbances of the hypothalamic-pituitary-adrenocortical axis (Pasquali and Vicennati 2000; Belanoff et al., 2001), [e] altered function of glucocorticoid receptors (Holsboer 2000), [f] dysregulation of interacting inflammatory, metabolic, and endocrine systems (Soczynska et al., 2011), and [g] the presence of shared genetic susceptibility (Amare et al., 2017; Hagenaars et al., 2020; Strawbridge et al., 2021). In addition, being overweight or obese increases psychological distress, which can lead to mood disturbances (Atlantis and Ball 2008), and to treatment with mood-altering medicines which can add to increased appetite and weight (Shah et al., 2006; Baldessarini 2013; Gill et al., 2020). Psychologically, obesity is a strongly stigmatized condition leading to experiences of discrimination including bullying and body-shaming which can lead to loss of self-esteem, impaired quality of life, and limited job opportunities, which can result in depression and anxiety and may contribute to treatment non-adherence (Puhl and Heuer 2009; Papadopoulos and Brennan 2015; Phelan et al., 2015; Busetta et al., 2018). Interestingly, a large German telephone survey involving 3003 participants, considered current body-weight associated with experiences of discrimination. The overall prevalence of weight-based discrimination was 7.3% ranging from 5.6% among participants of average or low body-weight to 38% in

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those with severe obesity (Sikorski et al., 2016). These findings add to evidence that obesity represents a global concern, though its prevalence varies markedly among countries: approximately 9.8% in Italy versus 38.2% in the US (OECD 2017).

Excessive weight-gain frequently complicates the course of bipolar disorder (BD) in particular, probably owing in part to complex medical regimens often used for its treatment (Bond et al. 2018; Morris et al., 2019). Obese BD patients may experience greater illness severity, with more frequent, severe, and prolonged depressive episodes, greater functional impairment, and more suicide attempts than average-weight BD patients (Fagiolini et al., 2003, 2004, 2005; Wang et al., 2006; Calkin et al., 2009; Goldstein et al., 2011). Obesity in BD also has been associated with inferior response to mood-stabilizers, including lithium and anticonvulsants (Calkin et al., 2009; Kemp et al., 2010; McElroy et al., 2016), as well as reduced adherence to pharmacotherapy (Kemp 2014), and an adverse impact on psychotherapy (Peters et al., 2016).

The relationship between depression and obesity may be bidirectional. A meta-analysis of longitudinal studies supported a specific association between major depressive disorder (MDD) and obesity, in which obesity at baseline increased risk of depression at follow-up, and MDD increased the odds of developing obesity (Luppino et al., 2010). That review also found that obesity predicted onset of MDD at a younger age, and a less favorable clinical course of the disorder.

Several studies found that ratings of depression symptom-severity with the Hamilton Depression Rating Scale (HDRS) or Montgomery-Åsberg Depression Rating Scale (MADRS) scores were similar among average-weight and obese patients (Papakostas et al., 2006; Khan et al., 2007; Oskooilar et al., 2009; Uher et al., 2009). Other cross-sectional epidemiologic surveys found higher depressive symptom ratings among overweight or obese subjects (Simon et al., 2006, 2008; Zavala et al., 2018). Still others found *lower* HDRS total scores among obese or overweight MDD patients compared to those with healthy body-mass index (BMI) (Kloiber et al., 2007; Dreimüller et al., 2019). Overweight and obesity has been associated particularly with atypical forms of major depression with psychomotor slowing and increased appetite (Hasler et al., 2004; Lasserre et al., 2014).

Studies that investigated demographic variables, including sex, age, and socioeconomic status as moderators between depression and obesity also have yielded inconsistent results (de Wit et al. 2010; Puzhko et al., 2020). Similarly uncertain findings were reported in studies of the impact of BMI on treatment responses in depressive disorders (Papakostas et al., 2006; Khan et al., 2007; Kloiber et al., 2007; Uher et al., 2009; Toups et al., 2013; Lin et al., 2014; McIntyre et al., 2015; Iniesta et al., 2016; Woo et al., 2016a, 2016b; Green et al., 2017; Jha et al., 2018; Dreimüller et al., 2019; Puzhko et al., 2020).

In general, accumulating evidence indicates that obesity and mood disorders are linked and probably share a range of clinical, neurobiological, genetic and environmental factors (Milaneschi et al., 2019). However, the nature of the association, and in particular, the relationship between BMI and treatment response among patients diagnosed with mood disorders, and associated consequences remain inadequately understood. In response to the considerable inconsistency in observations related to the relationships just reviewed, the present study aimed to assess again the prevalence of being overweight or obese in subjects with specific affective disorders compared with those affected by other psychiatric disorders. It also aimed to clarify relationships of excessive bodyweight to selected demographic and clinical variables in a large cohort of subjects with MDD and BD, including measures of morbidity and response to treatment.

2. Methods

2.1. Subjects and clinical assessment

The study sample included a large cohort of adult patients clinically diagnosed with DSM-5 psychiatric disorders evaluated and followed for several years at the Lucio Bini Psychiatric Center in Cagliari, a specialized outpatient clinic for the diagnosis, treatment and research, particularly for affective disorders. Excluded were patients who seek psychiatric care for eating disorders, anorexia or bulimia. Consenting adult participants all underwent systematic initial and repeated diagnostic evaluations during follow-up by the same clinical expert (LT), based on semi-structured interviews. All clinical data acquired were recorded systematically and converted to digitized form, with diagnoses updated to meet DSM-5 criteria (APA 2013). Participants provided written informed consent at clinic entry for collection and analysis of their data to be presented anonymously in aggregate form for research purposes, in accordance with the requirements of Italian law and following review by a local ethical committee. Required data were entered into a computerized database in anonymized form to protect subject identity.

2.2. Measures

Body-weight was measured with calibrated medical scales and recorded at baseline before starting treatment, as weight per height-squared (kg/m^2). Categorical definitions of BMI as healthy (18.5–24.9), overweight (25.0–29.9), and obese ($\geq$30.0), followed WHO and US NIH guidelines, consistent with previous reports (NIH 1998; Papakostas et al. 2005; Khan et al., 2007; Jensen et al., 2014; WHO 2021). Severity of depressive symptoms was assessed using the 21-item Hamilton Depression Rating Scale ($HDRS_{21}$) (Williams 1988), and [hypo] manic symptoms with the Young Mania rating Scale (YMRS) (Young et al., 1978).

2.3. Statistical analysis

Data are presented as means with 95% confidence intervals (CI) or standard deviation (SD). Sociodemographic and clinical data were compared across groups with healthy (BMI 18.5–24.9) vs. elevated BMI ($\geq$ 25 kg/m^2) using contingency tables (χ^2 or Fisher's exact test) for categorical measures, analysis of variance (*t*-test) for continuous measures, and bivariate linear regression (*r*) to analyze relationships between improvement in symptom rating-scale measures and BMI. Preliminary bivariate analyses were considered without adjustment for multiple comparisons prior to selecting factors for stepwise entry into multivariable logistic modeling to generate Odds Ratios (OR) and their CI to test for factors that were significantly and independently associated with being overweight (BMI $\geq$ 25 kg/m^2). Analyses employed commercial software: *Statview.5* (SAS Institute, Cary, NC) for spreadsheets, and *Stata.13* (StataCorp, College Station, TX) for analyze.

3. Results

3.1. BMI among diagnostic groups

Mean values of BMI among nine diagnostic groups involved a total of 1895 subjects (Table 1). Mean BMI values ranged from 22.5 [CI: 21.8–23.1] kg/m^2 for subjects with minor depression or dysthymia to 27.4 [25.1–29.6] kg/m^2 for those diagnosed with psychotic disorders (delusional, schizophrenia). Risk of obesity (BMI $\geq$ 30 kg/m^2) with psychotic or schizoaffective disorders (34.2% [19.6–51.4]) was 3.40-times greater than with affective disorders (10.4% [8.90–12.1]; χ^2 = 29.3, $p < 0.0001$). A relatively small proportion of subjects (8.16% [6.98–9.51]) across diagnoses had unusually low BMI (< 18.5 kg/m^2), which was most often associated with anxiety disorders and minor depression or dysthymia (Table 1).

Among the 1362 major affective disorder subjects, BMI averaged 24.3 [CI: 24.1–24.5] kg/m^2; their proportions in BMI groups were: <18.5 (7.29% [5.88–8.70]), 18.5–24.9 (54.6% [51.9–57.7]), 25.0–29.9 (27.2% [24.9–29.7]), and $\geq$ 30 kg/m^2 (11.0% [9.40–12.8]), so that 38.2% [33.9–42.5] were overweight or obese (BMI $\geq$ 25 kg/m^2). Among

Table 1
Body-mass index (BMI) vs. diagnostic groups.

Disorders	Subjects (n)	Mean BMI (kg/m^2) [95% CI]	Proportions (%) at Defined BMI Levels [95% CI]			
			Low (<18.5)	Average (18.5–24.9)	Overweight (25.0–29.9)	Obese (≥ 30)
Psychoses	38	27.4 [25.1–29.6]	5.26 [0.64–17.7]	36.8 [21.8–54.0]	23.7 [11.4–40.2]	34.2 [19.6–51.4]
Schizoaffective	11	26.9 [23.2–30.6]	0.00 [0.00–0.00]	63.6 [30.8–89.1]	0.00 [0.00–0.00]	36.4 [10.9–69.2]
Bipolar-I	331	24.9 [24.4–25.4]	3.63 [1.89–6.25]	51.4 [45.8–56.9]	32.6 [27.6–38.0]	12.4 [9.04–16.4]
ADHD	68	24.8 [23.7–25.9]	5.88 [1.63–14.4]	52.9 [40.4–65.2]	29.4 [19.0–41.7]	11.8 [5.22–21.9]
Substance abuse	26	24.6 [22.8–26.3]	7.69 [0.95–25.1]	42.3 [23.4–63.1]	38.5 [20.2–59.4]	11.5 [2.45–30.2]
Bipolar-II	387	24.3 [23.8–24.7]	6.98 [4.65–9.99]	55.3 [50.2–60.3]	25.3 [21.1–30.0]	12.4 [9.29–16.1]
Major depressive	631	23.9 [23.5–24.2]	9.35 [7.19–11.9]	55.5 [51.5–59.4]	25.7 [22.3–27.3]	9.51 [7.33–12.1]
Cyclothymia	13	23.7 [20.9–26.4]	0.00 [0.00–0.00]	69.2 [38.6–90.9]	23.1 [5.04–53.8]	7.69 [0.19–36.0]
Obsessive-compulsive	24	23.5 [22.0–25.0]	8.33 [1.03–27.0]	58.3 [42.7–83.6]	33.3 [15.6–55.3]	0.00 [0.00–0.00]
Anxiety	249	23.4 [22.9–23.9]	12.4 [8.62–17.2]	55.0 [48.6–61.3]	25.7 [20.4–31.6]	6.83 [4.03–10.7]
Personality	11	23.1 [20.3–25.9]	9.09 [0.23–41.3]	63.6 [30.8–89.1]	27.3 [6.02–61.0]	0.00 [0.00–0.00]
Minor dep/dysthymia	106	22.5 [21.8–23.1]	11.3 [5.98–18.9]	70.8 [61.1–79.2]	14.2 [8.14–22.3]	3.77 1.04–9.38[]
Totals	1895	24.1 [23.9–24.3]	8.16 [6.98–9.51]	55.1 [52.8–573]	26.4 [24.428.4]	10.5 [9.16–12.0]

Data are ranked by BMI (kg/m^2); $N = 1895$, among diagnoses with $N \geq 10$ subjects. Among all 1362 major affective disorder subjects, BMI averaged 24.2 [23.0–23.5] kg/m^2; their proportions in BMI groups were: *< 18.5* (7.20% [5.88–8.70]); *18.5–24.9* (54.6% [51.9–57.7]), *25.0–29.9* (27.2% [24.9–29.7]), and *≥ 30* kg/m^2 (11.0% [9.40–12.8]). Risk of obesity (BMI ≥ 30 kg/m^2) among 49 subjects with psychotic or schizoaffective disorders, BMI averaged 27.3 [25.4–27.2] kg/m^2, or greater than with major affective disorders (*t*-score = 20.7, $p < 0.0001$); and proportions in BMI groups were: *< 18.5* (4.08% [0.50–14.0]); *18.5–24.9* (42.9% [28.8–57.8]), *25.0–29.9* (18.4% [8.76–32.0]), and *≥ 30* kg/m^2 (34.7% [21.7–49.6]), so that risk of obesity with psychotic or schizoaffective disorders was 3.15-times greater that with major affective disorders ($\chi^2 = 25.4$, $p < 0.0001$). *Abbreviations: ADHD* (attention deficit-hyperactivity disorder); *dep*, depression.

731 BD (BD-I, BD-II, and cyclothymic disorder) subjects, BMI averaged 24.6 [24.3–24.9] kg/m^2 with 5.34% [3.82–7.22] underweight (≤ 18.5), 53.8% [56.5–63.8] at healthy weight (18.5–24.9), 28.6% [25.3–32.0] overweight (25.0–29.9), and 12.3% [10.0–14.9] obese (≥ 30 kg/m^2). With the 631 MDD subjects (Table 1), BMI was 2.85% lower (23.9 [23.5–24.2]; $t = 2.86$, $p = 0.002$) than with BD subjects, and the proportion at healthy bodyweight was 55.5% [51.5–59.4]; 25.7% [22.3–49.3] were overweight, and 9.51% [7.33–12.1] were obese, so that the risk of obesity was similar with BD and MDD ($\chi^2 = 2.72$, $p = 0.10$).

3.2. Characteristics of mood disorder subjects

Demographic and clinical data (Table 2) were obtained for 1469 adult participants with a mood disorder (BD or MDD), including a similar proportion with BD ($n = 731$; 49.8%), and MDD ($n = 631$; 50.2%). Overall, age averaged 48.5 [47.6–49.4] years; 62.0% [59.4–64.5] were women, 25.3% [23.1–27.6] were educated at least through high school, 61.3% [58.8–63.8] were or had been married, and 9.40% [7.82–11.2] were of relatively low socioeconomic status. Subjects were followed clinically over an average of 7.99 [7.19–8.79] years. Distributions of BMI among mood-disorder subjects and for those diagnosed with BD and MDD are summarized in the preceding paragraph.

3.3. Correlates of overweight and obesity

We compared major affective disorder subjects to determine associations of excessive (BMI ≥ 25 kg/m^2; $n = 841$) vs. healthy body-weight (BMI 18.5–24.9 kg/m^2; $n = 521$) with selected characteristics (Table 2). Men were more likely to be overweight or obese (BMI ≥ 25) than women, as well as being obese in particular (12.4% [9.75–15.4] vs. 9.01% [7.23–11.1]; $\chi^2 = 38.6$, $p < 0.0001$; not shown). In addition, mood-disorder subjects with elevated BMI were more likely have married, with more children and more siblings, less education, and of lower socioeconomic status (SES). Overweight or obese subjects also engaged much less in current physical exercise, smoked more cigarettes/day, and lived in less densely populated areas (Table 2).

Concerning clinical factors, BD subjects were more likely to be overweight or obese than those diagnosed with MDD, and overweight subjects were more likely to have co-occurring ADHD. They also were older and had been ill longer than subjects of healthy weight (Table 2). The only notable identified metabolic difference between subjects with high BMI was higher serum concentrations of triglycerides (but not other lipids or glucose).

Overweight or obese major affective disorder patients were more likely to receive lithium, mood-stabilizing anticonvulsants, or antipsychotics but were less likely to participate in psychotherapy (Table 2). Moreover, during treatment, higher BMI was associated selectively with a greater proportion of total time depressed, with no significant association with risk of mania or hypomania ("[*Hypo*]mania") or its response to treatment (Table 2 footnotes).

3.4. Effects of low BMI

In contrast to being overweight or obese, major affective disorder subjects with unusually low BMI (< 18.5 kg/m^2) did not differ from those with healthy BMI (18.5–24.9 kg/m^2) with respect to depressions/year,%-time depressed, or improvement in $HDRS_{21}$ ratings with treatment (mean: $t = 1.13$; $p = 0.267$; not shown).

3.5. BMI and treatment outcome

We assessed%-improvement in $HDRS_{21}$ depression scores between intake and during prospective follow-up at an average of 12.7 weeks from baseline evaluation. Such improvement was highly significantly less among overweight mood-disorder subjects (Table 2). In addition, we compared symptomatic improvement among healthy (18.5–24.9), overweight (25.0–29.9), or obese (> 30 kg/m^2) mood-disorder subjects (Fig. 1). Improvement declined highly significantly with increased BMI overall based on linear regression (slope = –0.608 [–1.015 to –0.201], $p = 0.003$). In addition, across the levels of BMI, from underweight to obese, there was a highly significant decline in $HDRS_{21}$ improvement with increasing BMI (*t*-score = 2.14, $p = 0.003$); this effect was significant for the contrast of healthy weight vs. overweight ($p = 0.003$) and vs. obesity ($p = 0.02$) by Fisher post-hoc tests (Fig. 1).

3.6. Multivariable modeling

With multivariable logistic regression analysis, we tested for factors that significantly and independently differentiated overweight or obese (BMI ≥ 25 kg/m^2) from healthy-weight (BMI 18.5–24.9 kg/m^2) subjects (Table 3). Factors associated with overweight and obesity ranked: male sex, older current age, less physical activity, lower socioeconomic status

Table 2
Factors associated with being overweight or obese with a major affective disorder.

Factor	Over-weight or Obese (BMI ≥ 25 kg/m^2)	Healthy Weight (BMI 18.5–24.9 kg/m^2)	*t*-score or χ^2	*p*-value
Major affective disorder subjects (n)	521	841	—	—
BMI (kg/m^2)	28.7 [28.4–29.0]	21.4 [21.3–21.6]	46.9	<0.0001
Regular exercise (%)	11.7 [9.00–14.9]	26.5 [23.4–29.7]	39.7	<0.0001
Sex (%)			37.3	<0.0001
Men (n = 787)	48.6 [44.2–53.0	51.5 [47.0–55.8]		
Women (n = 1108)	32.0 [28.8–35.2]	68.1 [6648–71.2]		
Marital status (%)			24.0	<0.0001
Ever married	70.9 [70.4–78.1]	57.9 [54.5–61.3		
Never married	29.1 [25.2–33.2]	42.1 [38.7–45.5]		
Current age (years)	53.1 [51.7–54.5]	46.8 [45.6–48.0]	6.80	<0.0001
Children/person	1.27 [1.14–1.40]	0.831 [0.756–0.906]	6.28	<0.0001
Total years ill	21.3 [20.0–22.6]	17.1 [16.2–18.0]	5.33	<0.0001
Siblings (n)	2.89 [2.73—3.05]	2.43 [2.25–2.6]1	3.83	0.0001
Serum triglycerides (mg/dL) [a]	129 [117–141]	101 [92.6–109]	3.84	0.0002
Time depressed (%) [b]	18.6 [16.1–21.1]	13.8 [12.2–15.4]	3.29	0.001
Low SES (%)	12.8 [9.85–16.4]	7.32 [5.52–9.49]	9.64	0.002
Smoking (cigarettes/day)	9.42 [6.34–8.50]	7.54 [6.84–8.24]	3.00	0.003
HDRS improvement (%) [b]	59.0 [55.7–62.3]	64.7 [62.2–67.1]	2.73	0.006
Psychotherapy used (%)	33.3 [28.8–38.1]	41.6 [38.0–45.3]	7.59	0.006
Ever psychiatrically hospitalized (%)	43.6 [34.4–53.1]	29.6 [23.5–36.4]	6.44	0.01
Co-occurring ADHD (%)	27.2 [23.2–31.5]	21.0 [18.2–24.1]	6.09	0.01
Home population/km^2	810 [728–892]	942 [878–1006]	2.50	0.01
Educated < high school	78.6 [74.8–82.0]	72.8 [69.6–75.8]	5.71	0.02
Mood disorder (%)			4.69	0.03
Bipolar	40.9 [37.3–44.6]	59.1 [55.4–62.7		
Major depressive	35.2 [31.5–39.0]	64.8 [61.0–68.5]		

Data are proportions (%) or means with 95% CI. **a**. Other metabolic measures did not differ significantly by BMI status (including cholesterol, creatinine, glucose, and thyroid stimulating hormone). **b**. Morbidity was followed prospectively for 7.99 [7.19–8.79] years. Additional factors that did *not* differ significantly between overweight and normal-weight subjects included: family history of mood disorder, employment status, early physical abuse, polarity of first-lifetime episode, suicidal ideation or acts, misuse of alcohol or other substances, agitation or anxiety at intake, use of lithium and serum lithium levels, use of mood-stabilizing anticonvulsants or antipsychotics, and notably, initial $HDRS_{21}$ depression ratings, as well as episodes of depression or mania or hospitalizations per year, or%-time in mania assessed prospectively.

(SES), less improvement in $HDRS_{21}$ ratings of depression severity with treatment, and more time depressed under prospective observation.

4. Discussion

This analysis of prospectively collected data yielded several noteworthy findings. The overall prevalence of being overweight or obese (BMI ≥ 25 kg/m^2) in the study sample (36.9%) is strikingly similar to the rate of 35.3% reported in the Italian general population (ISS 2017). Too, prevalence for obesity was very similar: 9.8% for the Italian general population and 10.5% in the study sample. It is possible that, despite the many problems associated with psychiatric illnesses, sustained efforts at the study site to include a psychoeducational approach to diet, exercise, and weight-control may have been effective.

We also found that BMI level and risk of being obese (BMI ≥ 30 kg/m^2) was much greater with psychotic or schizoaffective disorders than anxiety, minor depressive, and personality disorders, and intermediate with major affective disorders (Table 1). Among subjects diagnosed with a major affective disorder, being overweight or obese (BMI ≥ 25 kg/m^2) was significantly, 1.51-times more likely among men (48.6%) than women (32.0%), and significantly 1.16-times more prevalent with BD (40.9%) than with MDD (35.2%) (Table 2). Other studies have found

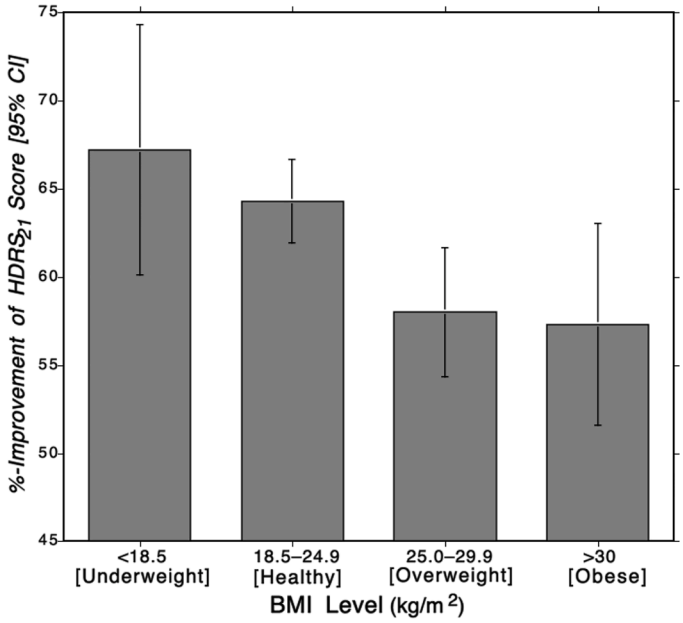

Fig. 1. Improvement (%) in $HDRS_{21}$ depression ratings in 1001 major affective disorder subjects treated for depression for 12.7 [CI: 10.9–14.5) weeks] vs. BMI levels: *underweight* (< 18.5); *healthy* (18.5–24.9), *overweight* (25.0–29.9), or *obese* (> 30 kg/m^2). Percent $HDRS_{21}$ improvement declined highly significantly with increased BMI overall (by linear regression: slope = –0.608 [–1.015 to –0.201], p = 0.003). In addition, across the four levels of BMI shown, there was a highly significant decline in $HDRS_{21}$ improvement with increasing BMI (t-score = 2.14, p = 0.003); this effect was significant for the contrast of healthy weight vs. overweight (p = 0.003) and vs. obesity (p = 0.02) by Fisher post-hoc tests.

Table 3
Multivariable logistic regression model of factors associated with being overweight or obese among subjects with major affective disorders.

Factor	OR [95% CI]	χ^2	*p*-value
Men > women	2.37 [1.64–3.42]	21.1	< 0.0001
Older current age	1.02 [1.01–1.03]	13.0	0.0003
Lack of regular exercise	2.24 [1.37–3.65]	10.4	0.001
Lower SES	2.27 [1.32–3.93]	8.68	0.003
Less HDRS improvement	1.01 [1.00–1.02]	6.03	0.01
% of Time depressed	1.01 [1.01–1.02]	5.13	0.02

Other factors shown in Table 2 were not significantly associated with BMI ≥ 25 kg/m^2. Data are from N = 597 subjects with bipolar or major depressive disorders treated for depression for an average of 12.7 [10.9–14.5] weeks. Data are ranked by significance. Other factors tested in Table 2, including diagnosis of bipolar vs. major depressive disorder, were not significantly related to high BMI.

higher BMI in association with MDD (Simon et al., 2008; Li et al., 2017; Zavala et al., 2018). We also found that having a mood disorder and being overweight or obese was associated with: ever being married, lacking regular exercise, having more children and siblings, being older and ill longer, more cigarette smoking, higher serum triglyceride levels, not having co-occurring ADHD, living in a less densely populated area, having lower socioeconomic status and less education (Table 2). Some of these factors may contribute to less physical activity. Notably, too, being overweight or obese (but not with unusually low BMI, < 18.5 kg/m^2) was associated selectively with being depressed more of the time and responding less well to treatment for depression, but with neither of these effects with respect to [hypo]mania (Table 2).

Previous studies have documented increased risk of being overweight or obese among subjects with a severe mental illness compared to the general population, and also found higher rates with schizophrenia than with major mood disorders (Correll et al., 2015; Choinard et al. 2016). These associations accord with our finding of similarly highest BMI with psychotic and schizoaffective disorders and lesser levels with major affective disorders (Table 1).

Older current age, longer years of illness, lack of regular physical activity, lower socioeconomic status, and less education are plausibly associated with risk of becoming overweight or obese (Table 2), and are consistent with previous studies (Palinkas et al., 1996; Everson et al., 2002; Beydoun and Wang, 2010; Devaux et al., 2011; Sander et al., 2018; Garber 2019; Gianfredi et al., 2020).

The present finding that risk of developing elevated BMI ≥ 25 kg/m^2 was somewhat greater among men than women with mood disorders accords with data for the Italian general population indicating a 1.6-fold higher prevalence of overweight and obesity in men than women (44.0% vs. 27.3%) (ISS 2017), again strikingly similar to our findings (48.6% vs. 32.0%). However, other studies have found higher risks of being overweight among women with BD in other locations (Ösby et al., 2001; Garcia-Portilla et al., 2008; Goldstein et al., 2011). Mechanisms underlying sex differences in risks of overweight and obesity may be related to immune-inflammatory processes (de Carvalho-Ferreira et al. 2015; Birur et al., 2017) or effects of sex hormones (Bromberger et al., 2010). Another possibility is that the over-representation of women in many studies of psychiatric illnesses risks the artifact of reporting the proportion of women among overweight individuals, rather than the rate of being overweight among women. In the present study, we found a prevalence of elevated BMI (> 25 kg/m^2) of 32.0% among women with mood disorders (Table 2), but a higher proportion of women (51.5%) among overweight subjects. However, this potential artifact does not appear in several previous relevant reports (Garcia-Portilla et al., 2008; Goldstein et al., 2011; Li et al., 2017; Zavala et al., 2018).

Particularly notable findings in the present study include indications of selectively greater risk of time in depression than in [hypo]mania with overweight or obesity, as well as less improvement with treatment of ratings of depression, but not mania. Generally, more severe illness has been associated with obesity in previous studies of subjects diagnosed with either MDD (Lin et al., 2014; Dreimüller et al., 2019; Milaneschi et al., 2019) or BD (Fagiolini et al., 2003; Calkin et al., 2009; Bond et al., 2019). However, the apparently selective associations of overweight with depression in both MDD and BD found in the present study are interesting though as yet unexplained.

Interpretation of the observed associations with overweight and obesity is not straightforward. It is quite plausible that psychiatric illness may lead to weight-gain, perhaps through associated cultural and lifestyle factors of reduced physical activity, unhealthy diet, as well as taking psychotropic medicines with tendencies to promote weight-gain through increased appetite and decreased activity (Elmslie et al., 2001; Hasler et al., 2004; Shah et al. 2006; Rege 2008; Taylor et al., 2012; Vancampfort et al., 2012; Lasserre et al., 2014). Indeed, one can consider being overweight an indication of the presence of weight-promoting factors such as decreased activity and increased appetite. Alternatively, it may be that being overweight increases psychiatric morbidity through mechanisms that need to be better defined. If the causal direction is from obesity to psychiatric morbidity, it is notable that there may be a special association of obesity with depression. Since subjects diagnosed with BD had higher BMI than with MDD (Table 1) and were more likely to be overweight or obese (Table 2), it seems unlikely to be relevant that subjects with periods of [hypo]mania may eat less and expend more calories. In fact, even BD patients were found to spend 86% of their 45% of their total ill time in depression (Forte et al., 2015). Of particular interest, the association of being overweight or obese with more depression and less improvement with its treatment suggest that being overweight may both selectively increase risk of depression and render usual treatments for depression less effective.

5. Limitations

This study relied on BMI at intake as an indication of being overweight or obese and as a primary measure to associate with selected risk factors and clinical outcomes. Additional measures of interest were not recorded routinely, including repeated measures of BMI, details of diet and eating habits, waist-circumference, molecular markers of inflammation, measures of insulin-resistance, and doses of drugs likely to increase risk of weight-gain, notably, antipsychotics. It is also important to note that this study, based on Italian and Sardinian participants may not generalize to other locations or cultures. Although comparisons with a healthy control group would have been ideal, the aim of this study was to compare the role of BMI in patients with psychiatric disorders, and especially with BD or MDD.

6. Conclusions

This study added evidence of marked differences in BMI among psychiatric diagnoses, with highest values associated with diagnoses of schizophrenia or schizoaffective disorder, lowest with anxiety, personality, and minor depressive or dysthymic disorders, and intermediate with major affective disorders. Among subjects with major mood disorders, we identified several risk factors for being overweight. They included male sex, a diagnosis of bipolar disorder over major depression, lack of co-occurring attention disorder, having less education, lower socioeconomic status, living in larger families, as well as being less active physically. In contrast to several earlier studies, we found greater risk of being overweight among men than women with mood disorders, paralleling the regional general population. A striking finding was evidence of greater illness severity and a higher proportion of time in depression, as well as less treatment response for depression in bipolar disorder as well as major depressive disorder, but no differences with respect to [hypo]mania—all in association with being overweight. To what extent mood disorders increase risk for obesity, or that obesity may have a contributary or adverse impact on mood disorders, perhaps selectively for depression, remains to be clarified. However, the similarity of our findings to the Italian general population indicates that attention given to control of appetite and engagement in physical exercise at the study site has been effective in persons with major affective disorders.

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CRediT authorship contribution statement

Alessandro Miola: Data curation, Writing – original draft, Writing – review & editing. **Marco Pinna:** Data curation, Writing – original draft, Writing – review & editing. **Mirko Manchia:** Writing – original draft, Writing – review & editing. **Leonardo Tondo:** Supervision, Formal analysis, Writing – review & editing. **Ross J. Baldessarini:** Writing – original draft, Writing – review & editing, Supervision, Formal analysis.

Declaration of Competing Interest

No conflict of interest to declare.

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Gender-Related Clinical Characteristics in Children and Adolescents with ADHD

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Abstract: Attention Deficit/Hyperactivity Disorder (ADHD) is the most frequently diagnosed neurodevelopmental disorder in school-age children, and it is usually associated with a significant impairment in global functioning. Traditionally, boys with ADHD are more likely to be referred for clinical assessments due to a higher prevalence of externalizing symptoms. However, as regards gender-related differential clinical characteristics between boys and girls with ADHD, further investigation is warranted in light of conflicting results found in currently available literature. In fact, a more precise clinical characterization could help increase appropriate diagnoses and treatment planning. In this context, we carried out a retrospective observational study on 715 children and adolescents diagnosed with ADHD from 2018 to 2020 at our center, in order to describe their gender-related clinical characteristics. Boys displayed higher average IQs, but they were comparable to girls in functional impairments and adaptive skills. Girls displayed higher scores on the Attention Problems subscale of the CBCL 6–18 and on several CPRS-R:L subscales, suggesting higher general ADHD symptom severity. Boys showed higher scores on CBCL 6–18 subscales, such as withdrawn/depressed, internalizing, and obsessive-compulsive problems. In conclusion, girls showed more severe ADHD features and lower IQ in clinically referred settings, while boys showed more internalizing problems and obsessive-compulsive symptoms.

Keywords: ADHD; gender; characteristics; boys; girls; CBCL; CPRS

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1. Introduction

Attention deficit and hyperactivity disorder (ADHD) is one of the most common neurodevelopmental disorders diagnosed in early childhood and adolescence. According to DSM-5, it is characterized by altered and unusual levels of inattention and hyperactivity compared to what is observed in typical child development [1]. ADHD symptoms usually determine functional impairment in familiar, academic, and social context.

ADHD worldwide prevalence in school-age children is 5.3% [2]. In Italy, a prevalence range between 1.1% and 3.1% is estimated among children and adolescents aged 5 and 17 years, with boys displaying a prevalence rate 1.2–7.6 higher than girls [3]. It may be noticed that this is lower than the estimated worldwide prevalence, and this is probably due to methodological and cultural factors that are addressed within the Italian prevalence study [3].

A representative Danish survey based on health registry data collected from 1995 to 2010 reported that ADHD incidence rates increased by a factor of approximately 12 during this period. Furthermore, it was also reported that the male-to-female ratio decreased from 7.5:1 to 3:1 among school-age children and from 8.1:1 to 1.6:1 among

adolescents [4]. These data probably reflect an increased awareness of ADHD symptoms, globally, and specifically in girls. In other countries, it is assumed that girls are still underdiagnosed [5].

Traditionally, boys are more likely to be referred, diagnosed, and treated for ADHD symptoms than girls. This seemed to depend on gender differences in symptomatology: for example, males would have more disruptive/externalizing symptoms [6,7], which would alert diagnostic evaluations earlier than females.

This was confirmed by a recent publication, as boys showed higher impulsivity compared to girls while girls displayed higher levels of inattention compared to boys. However, the same study found no differences in the hyperactivity and distractibility levels of boys and girls [8], suggesting that gender differences in ADHD phenotypical presentations should be better studied in order to overcome the diagnostic/therapeutic gap described above.

As regards a gender-specific comorbidity pattern in ADHD, the available literature generally supports a higher prevalence rate of externalizing disorders (conduct disorder, oppositional defiant disorder) and symptoms (e.g., aggression, rule-breaking) in boys, and a higher prevalence rate of internalizing disorders (e.g., anxiety) in girls [9,10].

In this context, our aim is to describe gender-related clinical characteristics of 715 children and adolescents diagnosed with ADHD from 2018 to 2020 in a retrospective observational study. Our results will be discussed in light of the existing international literature, in order to provide additional pieces of evidence, helping to reduce the significant gender-related differences in timely and effectively diagnosing and treating of ADHD in developmental age.

2. Materials and Methods

2.1. Participants

In this retrospective study, 715 drug-naïve children and adolescents with ADHD who attended the Child and Adolescents Neuropsychiatry Unit of the Bambino Gesù Children's Hospital (Rome, Italy) for a first diagnosis were recruited over the course of 3 years (from January 2018 to December 2020).

Children and adolescents (mean age (years) = 9.4, SD = 2.9; 108 girls with ADHD and 607 boys with ADHD) received their first diagnosis of ADHD by experienced developmental psychiatrists and neuropsychologists, according to the fifth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) criteria [1].

Only patients without comorbidities were selected from all the cases assessed at our center and finally entered in the final sample of 715 children and adolescents previously described in detail. This choice was made in order to increase homogeneity in results, as the comorbid group was too small and heterogeneous due to the presence of multiple/complex comorbid conditions. Furthermore, patients were included in the study if they met the following criteria: (a) the absence of neurological and neurosensory deficit; (b) the absence of autism spectrum disorder; (c) the absence of past drug treatment; (d) the absence of intellectual disability.

Psychiatric diagnoses were based on developmental history, extensive clinical examination, and the Schedule for Affective Disorders and Schizophrenia for School-Age Children—Present and Lifetime Version, DSM-5 [11], a semi-structured interview that assesses the presence of psychopathological disorders according to a DSM-5 classification.

All participants and parents were informed about assessment instruments and treatment options. Written informed consent was obtained from parents. The study was conformed to the Declaration of Helsinki.

2.2. Instruments

Global functioning was assessed with the Children's Global Assessment Scale (C-GAS) [12]. The C-GAS estimates the overall severity of disturbance (range = 0–100).

Scores over 90 indicate superior functioning, whereas scores under 70 suggest impaired global functioning.

IQ was measured by using the Wechsler Intelligence Scale for Children-IV (WISC-IV) [13] or Colored Progressive Matrices or Standard Progressive Matrices (CPM, SPM) [14]. The global IQ was considered in the analysis (M = 100, SD = 15).

The adaptive skills were evaluated by means of The Adaptive Behavior Assessment System—Second Edition (ABAS-II) [15] or the Vineland Adaptive Behavior Scales—Second Edition (Vineland II) [16]. ABAS-II provides a comprehensive norm-referenced assessment of the adaptive skills. The norm-referenced standard scores of ABAS-II of the General Adaptive Composite (GAC) was considered in the analysis (M = 100, SD = 15). The Vineland II also measures personal and social skills needed in an individual's everyday life. The Adaptive Behavior Composite was considered in the analysis (M = 100, SD = 15).

Conners' Parent Rating Scales Long Version Revised (CPRS-R:L) [17] was used to assess behaviors related to ADHD. It is completed by parents to obtain a measure of hyperactivity and inattention symptoms for ADHD; it comprises 14 subscales. It generates a T-score for each subscale. The cutoff for T-scores for clinical significance is >70 (very elevated) and T-scores from 60–70 are considered as high averages or elevated.

The Child Behavior Checklist for Ages 6–18 years (CBCL 6–18) [18] is completed by parents and is a questionnaire of child and adolescent behaviors and emotions. It generates a T-score for each subscale. According to normative data, a T-score above 64 is considered significant for the three broadband scales, whereas for the syndrome scales, the cut-off for clinical significance is 70.

2.3. Statistical Analysis

When data were normally distributed and the assumption of homogeneity was not violated, parametric tests were computed. The Shapiro–Wilk test was used to test the normality of the data and Levene's test for the homogeneity of variances. Student's t-tests were used to compare the boys vs. girls groups on age, IQ, ABAS-II, and C-GAS.

Multivariate analysis of variance (MANOVA) was used to compare the boys and girls groups on CBCL scales and on CPRS-R:L scales. Considering that the two groups differed in IQ, MANCOVA on CBCL scales and on CPRS-R:L scales were conducted, also controlling for IQ. The Fisher LSD test was used for post-hoc analyses on CPRS-R:L subscales, CBCL 6–18 subscales, Group x CPRS-R:L subscales, and on Group x CBCL 6–18 subscale effects. Box's M test was used to check the equality of multiple variance–covariance matrices.

The statistical software SPSS Version 22 (IBM Corporation, 2017) was used for analyses.

3. Results

Boys with ADHD did not differ from girls with ADHD for age in years ($t_{711} = -0.75$, $p = 0.45$; boys: M = 9.48, SD = 2.89, range = 6–18; girls: M = 9.87, SD = 11.12, range = 6–16), global functioning (C-GAS) ($t_{458} = -0.72$, $p = 0.46$; boys: M = 52.93, SD = 7.15; girls: M = 53.63, SD = 6.57) and adaptive skills ($t_{670} = 0.43$, $p = 0.66$; boys: M = 71.74, SD = 16.14; girls: M = 70.98, SD = 15.58). However, boys with ADHD displayed higher IQ compared to girls ($t_{547} = 2.08$, $p = 0.03$; boys: M = 105.34, SD = 18.00; girls: M = 100.71, SD = 20.36).

ADHD symptoms (CPRS-R:L) of boys and girls were compared by means of a MANCOVA with 14 CPRS-R:L subscales, within factor and group (boys vs. girls) as between, controlling for IQ (to take into account the difference in IQ between boys and girls with ADHD). The group effect was not significant ($F_{1, 525} = 52.16$, $p = 0.06$; boys: M = 67.02, SD = 10.23; girls: M = 69.98, SD = 10.43), while CPRS-R:L subscale effect ($F_{13, 6825} = 25.51$, $p < 0.0001$; $\eta^2_p = 0.04$), and the Group x CPRS-R:L subscale interaction effect ($F_{13, 6825} = 6.87$, $p < 0.00001$; $\eta^2_p = 0.01$) were both significant. Post-hoc analysis (Fisher LSD test) on CPRS-R:L subscales effect demonstrated that all participants showed higher scores in the ADHD index (mean = 78.23, SD = 0.82) than all other CPRS-R.L subscales ($p < 0.001$), with the exception of the DSM IV hyperactive/impulsive subscale (mean = 76.69, SD = 0.88).

All participants showed higher scores in the DSM IV hyperactive/impulsive subscale (mean = 76.69, SD = 0.88) than all other CPRS-R.L subscales ($p < 0.001$), with the exception of the DSM-IV inattentive subscale (mean = 76.62, SD = 0.86).

Post-hoc analysis (Fisher LSD test) on Group x CPRS-R:L subscale effects showed that girls displayed higher scores than boys in several CPRS-R:L subscales, see Table 1. Box's M test was non-significant ($p > 0.001$).

Table 1. Results of comparison between boys and girls with ADHD in CPRS-R:L scores.

CPRS-R:L Subscale	Boys	Girls	Fisher LSD Test
	Mean (SD)	Mean (SD)	*p*-Value
Oppositional	67.26 (16.15)	67.70 (15.20)	0.81
Cognitive problems/inattention	72.04 (14.33)	78.84 (15.31)	0.0002
Hyperactivity	70.34 (15.38)	75.61 (18.14)	0.004
Anxious/shy	57.45 (14.40)	57.84 (13.88)	0.83
Perfectionism	55.71 (14.00)	55.61 (12.42)	0.95
Social problems	65.39 (18.64)	62.41 (17.12)	0.1
Psychosomatic problems	56.14 (15.77)	54.42 (13.66)	0.35
ADHD Index	74.45 (13.22)	82.00 (14.75)	0.00004
Global index restless/impulsive	70.45 (13.85)	75.57 (14.43)	0.005
Global index emotional liability	62.08 (16.37)	61.94 (14.45)	0.94
Global index total	70.09 (14.85)	73.94 (14.02)	0.045
DSM-IV inattentive	73.21 (14.54)	80.02 (15.03)	0.0002
DSM IV hyperactive/impulsive	69.72 (14.28)	74.45 (16.36)	0.01
DSM IV total	73.84 (14.13)	79.54 (15.74)	0.002

To evaluate differences between boys and girls in behavioral and emotional symptoms (CBCL 6–18), a MANCOVA was conducted with 20 CBCL 6–18 subscales, within factor and group (boys vs. girls), as between factor, controlling for IQ (to take into account the difference in IQ between boys and girls with ADHD). No group effect was found ($F_{1, 482} = 29.62$, $p = 0.34$). However a significant CBCL 6–18 subscale effect, ($F_{19, 9158} = 14.49$, $p < 0.0001$; $\eta^2_p = 0.02$), and interaction Group x CBCL 6–18 subscale effects ($F_{19, 9158} = 2.60$, $p = 0.0001$; $\eta^2_p = 0.005$) were found. Post-hoc analysis (Fisher LSD test) on the CBCL 6–18 subscale effect documented higher scores in attention problems (mean = 68.47, SD = 9.44) than in ADHD problems (mean = 67.69, SD = 8.23), and total problems (mean = 66.41, SD = 8.59; p always < 0.001). Post-hoc analysis also showed higher scores in affective problems (mean = 64.98, SD 9.00) than social problems (mean = 64.18, SD = 8.52), anxiety problems (mean = 64.05, SD = 7.89), thought problems (mean = 63.46, SD = 9.32), oppositional–defiant problems (mean = 63.29, SD = 8.44), anxious/depressed (mean = 63.19, SD = 9.01), conduct problems (mean = 62.91, SD = 8.87), internalizing problems (mean = 62.48, SD = 9.65), rule-breaking behavior (mean = 62.26, SD = 8.33), withdrawn/depressed (mean = 62.14, SD = 9.51), obsessive-compulsive problems (mean = 61.70, SD = 9.87), sluggish cognitive tempo (mean = 60.71, SD = 8.24), somatic complains (mean = 58.91, SD = 7.81), and somatic problems (mean = 57.32, SD = 7.93; p always <0.05).

Post-hoc analysis (Fisher LSD test) on Group x CBCL 6–18 subscale effects showed that boys displayed higher scores in several subscales, see Table 2. Box's M test was non-significant ($p > 0.001$).

Table 2. Results of comparison between boys and girls with ADHD on CBCL 6–18 scores.

CBCL 6–18 Subscale	Boys Mean (SD)	Girls Mean (SD)	Fisher LSD Test *p*-Value
Anxious/depressed	63.49 (9.04)	61.39 (8.62)	0.06
Withdrawn/depressed	62.57 (9.54)	59.66 (8.96)	0.01
Somatic complaints	58.84 (7.82)	59.29 (7.75)	0.69
Social problems	64.27 (8.43)	63.57 (9.03)	0.53
Thought problems	63.56 (9.28)	62.87 (9.56)	0.54
Attention problems	68.07 (9.48)	70.76 (8.90)	0.01
Rule-breaking behavior	62.36 (8.52)	61.61 (7.08)	0.50
Aggressive behavior	65.99 (10.71)	65.02 (8.68)	0.39
Internalizing	62.82 (9.38)	60.46 (10.90)	0.03
Externalizing	64.29 (9.50)	64.04 (8.19)	0.82
Total problems	66.51 (8.67)	65.83 (8.16)	0.54
Affective problems	65.15 (9.10)	63.92 (8.36)	0.28
Anxiety problems	64.14 (7.96)	63.47 (7.51)	0.55
Somatic problems	57.26 (7.91)	57.61 (8.07)	0.75
ADHD Problems	67.38 (8.37)	69.47 (7.15)	0.06
Oppositional defiant problems	63.42 (8.58)	62.49 (7.57)	0.41
Conduct problems	62.76 (9.09)	63.78 (7.43)	0.36
Sluggish cognitive tempo	60.82 (8.30)	60.00 (7.80)	0.46
Obsessive-compulsive problems	61.44 (9.87)	59.08 (9.65)	0.03
Post-traumatic stress problems	66.35 (8.91)	65.25 (8.87)	0.33

4. Discussion

This retrospective observational study investigated gender-related clinical characteristics on a group of 715 children and adolescents at their first diagnostic assessment for ADHD. On the epidemiological level, our results are in line with international literature [19–21], with a male to female ratio of approximately 6:1.

Our results showed that boys and girls with ADHD differed for IQ, but they were comparable for functional impairments or adaptive skills. Taking into account the difference in IQ, comparisons between girls and boys on behavioral and psychopathological characteristics showed that girls with ADHD obtained higher scores on the Attention Problems subscale of the CBCL 6–18 and on several CPRS-R:L subscales, suggesting higher general ADHD symptom severity. However, boys showed higher scores on CBCL 6–18 subscales, such as withdrawn/depressed, internalizing, obsessive-compulsive problems, related to mood and internalizing problems.

Previous findings have suggested that clinically diagnosed males and females usually showed similar symptom severity, except for higher inattention in females [22–24]. Our findings partially confirmed this evidence, as females in our sample displayed, besides inattention, higher general ADHD symptom severity.

This could be at least partially explained by a referral bias, as it is possible that only the most severe girls were referred for early assessment and diagnosis at our ward, because predominantly inattentive aspects were generally harder to detect and less disturbing in the classroom or at home [25]. Moreover, our findings differed from previous studies, which found more mood and internalizing symptoms in girls than in boys [26,27].

However, recent findings by Slobodin and Davidovitch [8] are in line with our study, as they found more psychiatric internalizing co-occurring symptoms in boys as compared to girls. Alternatively, it is possible that the externalizing symptoms of boys were associated with elevated levels of emotional dysregulation [28,29] and, therefore, described as anxiety and depression.

As already mentioned, in our sample, boys with ADHD displayed a slightly higher IQ than girls. In turn, girls showed more pronounced ADHD features. However, this did not reflect higher functional impairments or deficits in adaptive skills in girls as compared to boys. With respect to this, on the one hand, the difference in IQ could be accounted for by the fact that girls are more frequently assessed, diagnosed, and treated either when they present

with extremely severe ADHD global symptoms or when they suffer from prominently impaired inattention [30]. On the other hand, it is possible that girls with ADHD are (or become) better than boys at camouflaging or compensating their struggles [31], so that their functioning levels, as reported by parents or assessed by clinicians, may appear in our sample as comparable to boys, despite the significant difference in IQ and symptom levels.

Therefore, a picture emerged where the most significant differences between boys and girls with ADHD, within the clinically referred population, were quintessentially on behavioral and emotional symptoms. Among these differential symptomatological features, we found significantly higher levels of obsessive-compulsive symptoms in boys than in girls. The obsessive-compulsive dimension is usually characterized by intrusive thoughts and the need for compulsion. Further, it is usually associated with an inhibited temperament that is generally characterized by behavioral restraint, withdrawal, and avoidance of novel stimuli [32,33]. At the same time, compulsions could be associated with an impulsive and risky behavioral profile [34].

Finally, ADHD and obsessive-compulsive dimensions share some common neurobiological features, including dysfunctions in cortical–striatal–pallidal–thalamic circuits [35], and are more frequently present in boys during childhood [36]. In this light, it seems reasonable that our boys with ADHD, characterized by higher levels of internalizing symptoms, also displayed higher levels of obsessive-compulsive symptoms. Furthermore, obsessive-compulsive symptoms in boys with ADHD have to be carefully assessed as they could transiently increase during initial phases of up-titration, in case of methylphenidate treatment [37].

Traditionally, evidence emerging from studies on gender-related clinical characteristics in the normal population is usually consistent with a higher prevalence of internalizing symptoms, such as behavioral inhibition, worry, and anxiety symptoms, in girls [38,39]. This is in line with data on clinically diagnosable psychiatric disorders within the general population [40]. Furthermore, a recent study showed a specific association between internalizing behaviors and microstructural brain characteristics in typically developing girls [41]. Conversely, in our study, internalizing symptoms are more pronounced in boys, raising the possibility that ADHD may exacerbate or anticipate internalizing problems, such as anxiety and depression, by conferring boys a vulnerability based on difficulties in global and relational functioning.

The main limitation of our study is that we did not assess characteristics in the general population that were not clinically referred, where ADHD seems to be more represented in females than it usually is in clinical samples [30]. For this reason, our study may suffer from a selection bias towards a group of girls with severe ADHD, and this could have had a significant impact on our comparison of clinical differential characteristics of girls and boys with ADHD.

Another potential limitation is that consistent and reliable information on ADHD diagnosis of the parents or other clinically significant data regarding parents were not available in our dataset. This is also because ADHD is rarely diagnosed in adults in Italy, and it was rarely diagnosed in developmental age when the parents of our patients were children. Therefore, it is possible that at least part of the parents have undiagnosed persistent adult ADHD.

We acknowledge that our paper reports on a much-studied topic in ADHD; for this reason, its originality for readers may be considered limited. Nonetheless, we reckon that it provides a very large sample of drug-naïve children and adolescents with ADHD at their first evaluation/diagnosis. Furthermore, our results highlight the fact that internalizing symptoms in a clinically referred sample may be more pronounced in boys, which is, in our opinion, something that should not be overlooked by clinicians in order to properly tailor multimodal treatment strategies to patients.

As for the potential differential impact of pharmacological and non-pharmacological treatments on gender-based clinical characteristics, follow-up studies on the same sample are ongoing. These studies will also help understand the potential gender-related impacts

of treatment after 3 and 6 months of methylphenidate in the most severe cases needing pharmacological treatment.

Finally, a distinct paper on age dependence of psychopathological characteristics of children and adolescents with ADHD is in preparation. In that context, the hypothesis that the aforementioned characteristics could differ by age within each gender group will be tested.

5. Conclusions

In conclusion, our study provided evidence that girls showed more severe ADHD features and lower IQ in a clinically referred setting, while boys showed more prominent internalizing problems and obsessive-compulsive symptoms.

Our results are important for clinicians, to consider evaluating and treating young children with ADHD. Indeed, girls with ADHD who are clinically referred for evaluation may display significantly severe presentations, particularly inattention, in which pharmacological treatment with methylphenidate is often warranted. On the other hand, internalizing symptoms should not be overlooked in boys with ADHD, as they could be specifically targeted by cognitive–behavioral treatment along with ADHD symptoms.

Further studies with longitudinal designs are needed in order to establish whether (and how) pharmacological and non-pharmacological treatments for ADHD could positively impact gender-based differential clinical characteristics in the modeling of the developmental trajectory of the disorder.

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Institutional Review Board Statement: All procedures were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards. The study was approved by the Ethics Committee of the Bambino Gesù Children Hospital (2541_OPBG_2021). Data were retrospectively selected and completely de-identified at the time of the study. The privacy rights of human subjects were always observed.

Informed Consent Statement: Informed consent was obtained from all individual participants included in the study.

Data Availability Statement: The data presented in this study are available upon request from the corresponding author. The data are not publicly available due to privacy and ethical restrictions.

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Autismo. Tre mozioni alla Camera per un maggiore impegno del Governo nella diagnosi e il trattamento superando le differenze regionali

Lo prevedono le mozioni di iniziativa 5 Stelle, Pd e Italia Viva in discussione alla Camera. In Italia un bambino su 67 nella fascia di età dai 7 ai 9 anni presenta un disturbo dello spettro autistico; molto spesso si tratta di maschi, con un'incidenza del 4,4 per cento in più rispetto alle femmine. Per gli estensori delle mozioni il problema non è la mancanza di leggi o programmazione, quello che manca è la loro piena applicazione e la grande difformità nell'assistenza tra una Regione e l'altra.

15 FEB - E' iniziata ieri alla Camera la discussione generale su alcune mozioni per sollecitare il Governo ad un'azione più incisiva per la diagnosi e il trattamento dei disturbi dello spettro autistico.

Le mozioni sono tre: una del Movimento 5 Stelle, una del Pd ed una di Italia Viva.

Tutte e tre indicano diversi punti sui quali è richiesto l'intervento del Governo partendo da una tesi comune: ad oggi si fa ancora troppo poco per l'autismo.

In Italia, secondo i dati dell'Osservatorio nazionale per il monitoraggio dei disturbi dello spettro autistico riportati in Aula durante la presentazione delle mozioni da uno degli estensori la 5 Stelle **Virginia Villani,** un bambino su 67 nella fascia di età dai 7 ai 9 anni presenta un disturbo dello spettro autistico; molto spesso si tratta di maschi, con un'incidenza del 4,4 per cento in più rispetto alle femmine. Si tratta di persone e delle loro famiglie che ancora troppo spesso devono combattere da soli per difendere il proprio diritto a una vita piena e dignitosa.

Per Villani, del resto, il problema non sono le leggi o gli atti di programmazione che non mancano, quello che manca è una loro piena applicazione, soprattutto in maniera omogenea tra una regione e l'altra.

Sul tema è intervenuto anche **Paolo Siani**, primo firmatario della mozione del PD che ha sottolineato come "la differenza nei servizi fra le varie regioni è ancora una volta molto diversa al sud rispetto al nord: le disuguaglianze in salute sono insopportabili, e avere accesso ai servizi in alcune regioni commissariate e con piani di rientro enormi è impresa difficilissima. Così come è molto difficile, per i professionisti sanitari, dare prestazioni in un contesto di forte contrazione del personale, e l'area della neuropsichiatria infantile in particolare è in grave sofferenza da anni, resa adesso evidentissima dalla pandemia".

La discussione sulle mozioni dovrebbe riprendere oggi, sempre in Aula, dove se ne è aggiunta una terza, sempre dello stesso tenore a prima firma **Lisa Noja** di Italia Viva.

Di seguito tutte le richieste al Governo delle tre mozioni: ***Mozione (1-00543) "Villani, Nappi, Barbuto, Manzo, Penna, Bella, Grippa, Del Sesto, Segneri, Melicchio, Lorefice, Del Monaco, Sportiello, Provenza, Federico, Misiti, Ianaro, D'Uva, Grillo, Ricciardi, Ruggiero, Flati, Invidia, Grimaldi, Bonafede, D'Arrando, Barzotti, Ciprini, Olgiati, Tuzi, Sut, Masi, Micillo, Orrico, Spadafora, Sarti, Mammì".***

Impegna il Governo a:

1) ad adottare iniziative di competenza al fine di prevedere la creazione di Poli ad alta specializzazione per una diagnosi accurata e completa attraverso l'istituzione di équipe multidisciplinari e interdisciplinari per una presa in carico attraverso il modello bio-psico-sociale al fine di evitare l'inadeguatezza della presa in carico delle persone autistiche e delle loro famiglie che determina, e ha troppo spesso determinato, i casi di acuzie e post acuzie, aumentati e amplificati in modo preoccupante durante il periodo della pandemia da Covid-19 anche con i trattamenti sanitari obbligatori;

2) ad adottare iniziative di competenza per garantire percorsi ospedalieri dedicati con personale formato a gestire le persone autistiche complesse e, in generale, le persone non collaboranti e/o non autosufficienti per le cure mediche e le indagini cliniche, prendendo spunto dalla Rete D.a.m.a. – Disabled Advanced Medical Assistance, prevedendo, per tali percorsi, la presenza del caregiver familiare e/o dell'assistente domiciliare e/o dell'educatore operatore dedicato, ed estendendo la rete a tutti gli ospedali del territorio nazionale e alle case di cura territoriali che verranno allestite e potenziate grazie ai fondi del Piano nazionale di ripresa e resilienza (Pnrr) approvato a giugno 2021, da destinare a tal fine;

3) ad adottare iniziative di competenza per prevedere che, anche nei pronto soccorso di tutto il territorio nazionale siano predisposti percorsi preferenziali dedicati per la cura delle persone autistiche complesse e, in particolare, per le persone non elaboranti e/o non autosufficienti, anche per gestire in modo adeguato gli eventuali casi di acuzie;

4) ad adottare iniziative per definire, in attuazione dell'intesa sancita in sede di Conferenza unificata del 10 maggio 2018, nell'ambito della stipula del nuovo patto per la salute 2019-2021, di cui all'articolo 1, comma 516, della legge del 30 dicembre 2018, n. 145, un sistema di valutazione secondo indicatori oggettivi e misurabili di garanzia del puntuale adempimenti delle linee di indirizzo su tutto il territorio nazionale, a valere come obiettivo strategico del Servizio sanitario nazionale, per la promozione e il miglioramento della qualità e dell'appropriatezza degli interventi assistenziali nei disturbi dello spettro autistico;

5) ad adottare iniziative affinché sia perfezionata, con l'ausilio dell'Istituto superiore di sanità, l'elaborazione delle linee guida sul trattamento dei disturbi dello spettro autistico in tutte le età della vita, ai sensi dalla legge n. 134 del 2015, e del decreto ministeriale 30 dicembre 2016, nel più breve tempo possibile;

6) ad adottare le iniziative di competenza per provvedere alle necessità dei centri autismo adulti e per promuovere un adeguamento delle competenze in psichiatria nel trattamento di persone nello spettro autistico, che, attualmente, risultano essere vittime di un abuso ricorrente alla farmacoterapia e di diagnosi errate, considerato altresì che tali centri, in continuità con quelli dell'età evolutiva (disturbi Dsm 5), dovrebbe includere équipe multidisciplinari e interdisciplinari per una presa in carico attraverso il modello bio-psico-sociale;

7) ad adottare le iniziative di competenza per sostenere e migliorare la presa in carico domiciliare da parte dei servizi assistenziali, riabilitativi e sociali della persona con esiti da grave cerebrolesione acquisita (Gca) e della sua famiglia, anche attraverso il budget di salute, promuovendo e incrementando, per quanto di competenza su tutto il territorio nazionale, la realizzazione e l'attivazione di servizi territoriali adeguati e capillari affinché ogni persona possa trovare assistenza all'interno della propria regione, nonché sostegni economici, psicologici e di sollievo alle famiglie, valutando altresì a tal fine, l'opportunità di garantire i Lep (livelli essenziali delle prestazioni) che integrano gli interventi socio-sanitari con quelli socio-assistenziali (legge n. 328 del 2000);

8) ad adottare le iniziative di competenza per dare pratica attuazione alla legge n. 328 del 2000 sul «Progetto di vita», affinché, a partire dal profilo funzionale della persona, dai bisogni e dalle legittime aspettative nel rispetto della propria autonomia e capacità di autodeterminazione, si individui sulla base del combinato disposto della Convenzione Onu e della classificazione Icf, quale sia il ventaglio di possibilità, servizi, supporti e sostegni, formali (istituzionali) e informali, che possano permettere alla stessa di migliorare la qualità della propria vita, di sviluppare tutte le sue potenzialità, di poter partecipare alla vita sociale e di avere, laddove possibile, una vita indipendente e di poter vivere in condizioni di pari opportunità rispetto agli altri;

9) ad adottare iniziative di competenza per completare il censimento delle persone autistiche, anche promuovendo una digitalizzazione delle diagnosi e dei bisogni, al fine di tracciare una mappa di servizi, capillarmente distribuiti sui territorio nazionale, a misura delle esigenze e delle prospettive di vita, finalizzando così gli investimenti in funzione non soltanto assistenziale, ma di recupero di un ruolo sociale attivo;

10) ad adottare iniziative di competenza per prevedere l'accesso permanente delle associazioni delle persone autistiche, delle famiglie e dei comitati che svolgono attività di indirizzo per supportare la famiglia nella scelta del luogo di cura e nel percorso da avviare, ai tavoli istituzionali di riferimento e coordinamento, promuovendo, altresì, percorsi di fattiva collaborazione tra gli enti, le associazioni del terzo settore, le famiglie e le persone autistiche, per la promozione e realizzazione di progetti e buone prassi che ridisegnino il welfare sociale italiano finalizzato a garantire pari opportunità e prospettive di vita dignitosa e realizzata a ogni persona indipendentemente dalla condizione di partenza;

11) ad adottare iniziative di competenza per prevedere che in ogni polo diagnostico venga istituito un Pua (punto unico di accesso) per fornire alle famiglie e alle persone autistiche tutte le indicazioni relative alle cure, agli interventi psicoeducativi, indennità, servizi assistenziali e altre utili informazioni alle quali si ha diritto;

12) ad adottare iniziative per rivedere la definizione di Autismo del Dsm 5, che è stato erroneamente inserito nell'allegato al decreto del Presidente del Consiglio dei ministri del 12 gennaio 2017, che ha aggiornato i Lea tra le psicosi prevedendo l'inserimento del disturbo dello spettro autistico all'interno dei disordini del neuro-sviluppo aggiornando, pertanto, i Lea;

13) a riconoscere, attraverso un'iniziativa normativa ad hoc, il ruolo fondamentale del caregiver familiare, cioè di colui che molto spesso si occupa a tempo pieno, in totale solitudine, di un familiare con grave disabilità;

14) ad adottare iniziative per garantire un puntuale aggiornamento della Linea guida 21 sui disturbi dello spettro autistico in età evolutiva dell'Istituto superiore di sanità e il ritiro delle «Raccomandazioni della Linea guida per la diagnosi e il trattamento di bambini e adolescenti con disturbo dello spettro autistico», pubblicate dall'Iss il 25 febbraio 2021, che raccomandano antipsicotici di vecchia generazione in età evolutiva;

15) ad adottare iniziative per prevedere personale competente nelle scuole, ovvero docenti formati, in materia di spettro autistico, di disturbi del neuro-sviluppo e delle disabilità intellettive, che statisticamente sono più del 70 per cento degli alunni disabili e/o con Bes, considerato che la formazione del personale scolastico e parascolastico dovrebbe essere multidisciplinare (scienze dell'apprendimento, scienze sociali e altre) e dovrebbe permettere di approfondire gli aspetti sensoriali, i differenti stili relazionali, comunicativi e cognitivi, stabilendo, altresì, percorsi formativi di una nuova classe di educatori-assistenti-tutor-mediatori neuro-culturali per supportare in modo professionale e competente le persone autistiche nell'arco della vita;

16) ad adottare iniziative per garantire percorsi lavorativi per le persone autistiche in virtù della legge n. 168 del 1999 sul collocamento mirato delle persone disabili applicata principalmente alle disabilità motorie e assicurandone l'operatività capillare in tutto il territorio nazionale, nonché l'accessibilità, di strumenti che facilitino l'inserimento nel mercato del lavoro, come la certificazione delle competenze lavorative (di cui al sistema nazionale di certificazione delle competenze previsto dall'articolo 4, comma 58, della legge n. 92 del 2012);

17) ad adottare iniziative di competenza, in accordo con le regioni, per garantire e prevedere azioni di controllo capillare dei centri diurni e delle strutture residenziali presenti sul nostro territorio per verificarne la corretta gestione e tutela delle persone autistiche, disabili e non autosufficienti seguite, atte a verificare e individuare situazioni segreganti, abusi fisici e/o psicologici, mancata o inadeguata gestione dei programmi psicoeducativi, abilitativi, occupazionali e assistenziali;

18) ad adottare iniziative, anche normative, per trasformare gli attuali servizi per le persone disabili in servizi sociali di qualità, in grado di promuovere l'indipendenza delle persone disabili nei loro luoghi di residenza, anche in aree rurali, promuovendo, in luogo dei tradizionali centri diurni, laboratori delle arti e dei mestieri in grado di promuovere attività occupazionali e/o lavorative, posto che occorre favorire e finanziare la creazione di esperienze di piccole comunità di tipo familiare e modelli di cohousing, villaggi polifunzionali integrati e fattorie sociali polivalenti, andando incontro alle scelte individuali delle persone e delle famiglie interessate, anche attraverso lo snellimento degli iter burocratici e, prevedendo agevolazioni fiscali.

Mozione (1-00584) "Siani, Carnevali, Lorenzin, De Filippo, Rizzo Nervo, Pini, Lepri".

impegna il Governo:

1) ad attivarsi per l'istituzione di una rete scientifica ed epidemiologica coordinata a livello nazionale che, anche in raccordo con analoghe esperienze in ambito europeo o internazionale, promuova studi e ricerche finalizzati a raccogliere dati di prevalenza nazionale aggiornati e il monitoraggio delle traiettorie di sviluppo e della presa in carico delle persone autistiche e il censimento delle buone pratiche terapeutiche ed educative dedicate a questo tema;

2) a utilizzare la mappatura dei servizi effettuata dall'Istituto superiore di sanità su mandato del Ministero della salute per valutare la qualità dei servizi erogati e adottare opportuni adeguamenti affinché sia garantita un'appropriata presa in carico su tutto il territorio nazionale;

3) ad adottare il protocollo di sorveglianza evolutiva sviluppato dall'Istituto superiore di sanità e dalle principali sigle professionali e scientifiche della pediatria, neuropsichiatria infantile e neonatologia, per un efficace coordinamento tra pediatri di base, personale che lavora negli asili nido, neonatologie e unità di neuropsichiatria infantile, al fine di intercettare precocemente l'emergere di anomalie comportamentali in bambini ad alto rischio e nella popolazione generale e per fornire una diagnosi provvisoria a 18 mesi e una diagnosi stabile a 24 mesi di età;

4) a promuovere il lavoro di aggiornamento, da parte dell'Istituto superiore di sanità, delle linee guida sulla diagnosi e sul trattamento dei disturbi dello spettro autistico in tutte le età della vita, per supportare quanto prima i professionisti sanitari nella definizione del percorso diagnostico, terapeutico e riabilitativo più appropriato, condiviso con le persone con disturbo dello spettro autistico e i loro familiari/caregiver, nella formulazione di diagnosi accurate nei bambini e negli adulti e nell'individuazione di terapie adeguate e aggiornate;

5) ad adottare le iniziative di competenza per assicurare nei dipartimenti di salute mentale adeguati percorsi di presa in carico delle persone adulte con disturbi dello spettro autistico, con personale specificatamente formato e aggiornato;

6) ad adottare le iniziative normative necessarie ai fini della revisione dei modelli organizzativi dei servizi ospedalieri di neuropsichiatria dell'età evolutiva, includendo la neuropsichiatria dell'infanzia e dell'adolescenza tra le strutture che devono essere presenti negli ospedali di primo livello, almeno con un'attività di consulenza specialistica diurna, nonché a rivedere gli standard previsti per le unità operative complesse con posti letto di neuropsichiatria dell'infanzia e dell'adolescenza e per le strutture semiresidenziali e residenziali, tenendo conto dell'aumento degli accessi e dei bisogni;

7) a valutare l'opportunità di adottare iniziative per istituire una rete di servizi che sia organizzata in centri con struttura hub e spoke, dove ogni regione individua uno o più centri di riferimento (le regioni sprovviste di centri di alto livello – hub – faranno riferimento ad un centro hub di un'altra regione contigua), prevedendo che il centro hub abbia il compito di supervisione scientifica e tecnica sui centri periferici (spoke), di formazione per il personale, in modo che la diagnosi e la presa in carico terapeutica siano garantite in ogni azienda sanitaria locale e allineate alle più recenti evidenze scientifiche;

8) ad assumere iniziative, per quanto di competenza, volte a favorire il potenziamento, in termini di risorse umane, dei servizi di neuropsichiatria infantile e di dipartimenti di salute mentale, al fine di definire adeguate équipe multidisciplinari e garantire una diagnosi e un trattamento precoce e tempestivo in grado di incidere e migliorare la prognosi;

9) ad adottare iniziative per assicurare una presa in carico precoce di tutto il nucleo familiare e del contesto scolastico e sociale dove vive il bambino, predisponendo, per quanto di competenza, misure

volte all'adozione di terapie personalizzate a seconda delle caratteristiche individuali del bambino che si basino sulla conoscenza della storia naturale del disturbo e della storia individuale di quel disturbo in quel bambino e nel suo contesto;

10) a supportare il mondo associativo e del volontariato, organizzato da persone autistiche e dai loro familiari, per la realizzazione di progetti di vita autonoma, assumendo iniziative per la semplificazione delle procedure per l'assegnazione di beni confiscati alla mafia o di proprietà degli enti locali, quali immobili o terreni, per favorire la realizzazione di attività socio-educative-sportive e, altresì, l'imprenditoria, mediante, ad esempio, la realizzazione di fattorie sociali e dell'orticultura;

11) ad assumere, per quanto di competenza, iniziative volte a garantire la continuità delle attività implementate dal Ministero della salute attraverso il fondo sull'autismo su tutto il territorio nazionale per la diagnosi e gli interventi precoci dirette alle persone nello spettro autistico, oltre a percorsi di inclusione sociale al fine di aumentare le potenzialità di bambini e ragazzi, migliorandone così la qualità della loro vita e delle famiglie;

12) ad adottare le iniziative di competenza per garantire la continuità delle progettualità delle regioni e delle province autonome finalizzate alla definizione e all'implementazione di percorsi differenziati per la formulazione del piano individualizzato e a seguire del progetto di vita basati sui costrutti di «qualità di vita», tenendo conto delle preferenze della persona, delle diverse necessità di supporto, del livello di funzionamento adattivo e dei disturbi associati delle persone nello spettro autistico;

13) ad adottare iniziative per realizzare, attraverso il «budget di salute», quale strumento indispensabile di integrazione tra interventi sociosanitari, educativi, socio-assistenziali, relazionali, occupazionali, percorsi di vita personalizzati (ex articolo 14 della legge n. 328 del 2000), assicurando anche un raccordo tra Ministeri competenti, regioni e comuni, affinché cessi la parcellizzazione e l'inadeguatezza dei servizi rivolti alle persone con disturbi dello spettro autistico e la loro mancata diffusione e distribuzione su tutto il territorio nazionale;

14) ad adottare iniziative, per quanto di competenza, per definire percorsi di abilitazione e di occupazione anche in raccordo con le scuole secondarie di secondo grado e gli enti del terzo settore che hanno già esperienza in materia, come le cooperative sociali di tipo B, al fine di favorire una più ampia inclusione lavorativa delle persone con disturbi dello spettro autistico.

Mozione (1-00585) "Noja, Boschi, Rosato, Marco Di Maio, Fregolent, Ungaro, Occhionero, Vitiello, Baldini, Annibali, Bendinelli, Colaninno, Del Barba, Ferri, Gadda, Giachetti, Librandi, Migliore, Mor, Moretto, Nobili, Paita".

impegna il Governo:

1) ad assumere iniziative, per quanto di competenza, per il tempestivo aggiornamento e la piena applicazione su tutto il territorio nazionale della linea guida n. 21 sul trattamento dei disturbi dello spettro autistico nei bambini e negli adolescenti, nonché per l'elaborazione di linee di indirizzo relative al trattamento dei disturbi dello spettro autistico anche in età adulta, in entrambi i casi facendo esclusivo riferimento ai trattamenti cosiddetti «evidence based», che hanno cioè ricevuto validazione da parte della comunità scientifica internazionale;

2) ad adottare tutte le iniziative normative di competenza volte a potenziare – anche con stanziamenti adeguati a tal fine – i servizi di neuropsichiatria e salute mentale, nonché tutti i servizi di inclusione sociale, con particolare riferimento a quelli educativi volti alla formazione professionale e

all'inserimento lavorativo, specie nel passaggio delle persone con disturbi dello spettro autistico dall'età scolare all'età adulta;

3) ad adottare le iniziative normative di competenza volte ad assicurare che, anche in condizioni di emergenza, non si verifichi l'interruzione dei servizi educativi, socio-sanitari e di assistenza per le persone con disturbi dello spettro autistico e le loro famiglie, nonché siano poste in essere misure volte a garantire alle prime lo svolgimento di attività – scolastiche, educative o di altra natura – necessarie allo sviluppo delle proprie competenze, ad evitare la regressione delle stesse, nonché situazioni di crisi acuta o post-acuta;

4) ad adottare tutte le iniziative normative di competenza affinché sia assicurata la raccolta periodica e su scala nazionale di dati ed evidenze epidemiologiche in materia di persone con disturbi dello spettro autistico, nonché per consentire che – sulla base di tali dati e di uno scambio informativo virtuoso con analoghe esperienze europee e internazionali – siano definiti precisi ed aggiornati target di azione e siano monitorati bisogni e qualità degli interventi di presa in carico delle persone con disturbi dello spettro autistico, anche ai fini dell'accesso a fondi e investimenti;

5) ad adottare le iniziative di competenza volte alla creazione su tutto il territorio nazionale di una rete di centri o poli altamente specializzati nel riconoscimento e nella diagnosi tempestiva e accurata dei disturbi dello spettro autistico, che possano – attraverso il lavoro di équipe multidisciplinari, composte in modo da assicurare la stretta integrazione tra componente sanitaria e componente sociale – prendere efficacemente in carico la persona con disabilità nelle diverse età della vita, nonché i suoi familiari;

6) a promuovere, anche mediante l'adozione del protocollo di sorveglianza evolutiva sviluppato – tra gli altri enti – dall'Istituto superiore di sanità, un coordinamento effettivo ed efficace tra pediatri di libera scelta, operatori degli asili nido e unità di neuropsichiatria infantile, ai fini della corretta decodificazione dei sintomi e della tempestiva diagnosi e presa in carico del bambino con disturbi dello spettro autistico;

7) ad adottare le iniziative di competenza volte a formare le figure professionali di cui al capoverso n. 4) del dispositivo, nonché gli operatori scolastici e i professionisti che operano nei dipartimenti di salute mentale sulla corretta presa in carico di bambini, adolescenti e adulti con disturbi dello spettro autistico, anche al fine di evitare diagnosi errate e l'abuso di farmacoterapia;

8) ad adottare tutte le iniziative normative di competenza volte ad assicurare la progressiva deistituzionalizzazione e a prevenire la futura istituzionalizzazione delle persone con disabilità, in attuazione della legge n. 227 del 2021 e del Piano nazionale di ripresa e resilienza (missioni 5 e 6), mediante la stretta integrazione tra ambito sociale e sanitario e l'attuazione del progetto di vita indipendente, di cui all'articolo 14 della legge n. 328 del 2000, avendo particolare riguardo ai bisogni specifici delle persone con disturbi dello spettro autistico;

9) ad assumere iniziative, per quanto di competenza, volte a garantire, in modo omogeneo su tutto il territorio nazionale, percorsi ospedalieri di presa in carico idonei ad affrontare i bisogni di supporto e assistenza specifici delle persone con disturbi dello spettro autistico e di tutte le persone non collaboranti e/o non autosufficienti, sulla base della ricca esperienza già maturata alla rete D.a.m.a., prevedendo, tra l'altro, l'accompagnamento e la presenza del caregiver, familiare o professionale (ad esempio, educatore, assistente alla comunicazione e altro);

10) ad adottare le iniziative di competenza volte a garantire alle persone con disturbi dello spettro autistico percorsi di effettiva inclusione lavorativa, ai sensi della legge n. 68 del 1999, anche mediante

lo strumento della certificazione delle competenze, di cui alla legge n. 92 del 2012 (articolo 4, comma 58), la promozione di laboratori delle arti e dei mestieri, il rafforzamento dei tirocini e di percorsi di abilitazione e occupazione in raccordo con le istituzioni scolastiche (ad esempio, alternanza scuola-lavoro, percorsi duali), nonché attraverso la formazione delle aziende e degli operatori del tessuto economico territoriale di riferimento sulle differenti competenze delle persone con disturbi dello spettro autistico;

11) a promuovere e supportare iniziative del terzo settore, composto anche di organizzazioni di persone con disturbi dello spettro autistico e loro familiari, che siano volte a realizzare l'inclusione delle persone con disturbi dello spettro autistico, sia sul piano lavorativo, sia sul piano della garanzia della piena accessibilità spazio-temporale (per esempio, della città e dei suoi spazi), prerequisito essenziale all'acquisizione di autonomia da parte di persone con disturbi dello spettro autistico che determinano stereotipie, iper o ipo-reattività in risposta a stimoli sensoriali o interessi apparentemente insoliti verso aspetti sensoriali dell'ambiente;

12) ad adottare, per quanto di competenza, iniziative tese a garantire alle persone con disturbi dello spettro autistico e alle loro famiglie la conoscenza dei servizi, sanitari e sociali presenti sul territorio, anche mediante campagne di informazione;

13) a porre in essere campagne di sensibilizzazione e informazione che, alla luce degli studi scientifici evidence based, diffondano informazioni in materia di disturbi dello spettro autistico attendibili, scientificamente fondate e, soprattutto, volte alla promozione di una cultura non stigmatizzante e inclusiva di tutte le persone con disturbi dello spettro autistico.

15 febbraio 2022

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Iniziativa nell'ambito del Progetto di Neuropsichiatria dell'Infanzia e dell'Adolescenza
(Delibera n. 406 - 2014 del 04/06/2014 Progetti NPI)
Il Progetto è realizzato con il contributo, parziale, della Regione Lombardia
(in attuazione della D.G. sanità n. 3798 del 08/05/2014, n. 778 del 05/02/2015, n. 5954 del 05/12/2016, N. 1077 del 02/02/2017 N. 1938 del 15/02/2019)
Capofila Progetto: UONPIA Azienda Ospedaliera "Spedali Civili di Brescia"
"*Percorsi diagnostico-terapeutici per l'ADHD*".

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