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Acad Pediatr. 2022.

THE ASSOCIATION OF SOCIOECONOMIC VULNERABILITY AND RACE AND ETHNICITY WITH DISEASE BURDEN AMONG CHILDREN IN A STATEWIDE MEDICAID POPULATION.

Hall JM, Chakrabarti C, Mkuu R, et al.

Objective: Individuals enrolled in Medicaid have disproportionately worse health outcomes due to challenges related to Social Determinants of Health. We aim to examine the prevalence of 3 childhood conditions (asthma, type 2 diabetes, and attention deficit hyperactivity disorder [ADHD]) in children within the Texas Medicaid system. In order to recognize the layers of vulnerability, we examine prevalence at the intersection of socioeconomic status with race and ethnicity within this economically challenged population.

Methods: Children ages 0 to 17 were identified from claims and encounter data for all children enrolled in Texas Medicaid in 2017 for at least 6 months. All children were placed into one of 5 quintiles based on their census tract socioeconomic vulnerability. The Rate Ratio statistical test was employed to identify the statistical significance of the disparity in health outcomes related to higher neighborhood vulnerability within each racial or ethnic group.

Results: Asthma for each race and ethnicity group was significantly more prevalent in the higher vulnerability census tracts. Increased vulnerability related to significant increase in type 2 diabetes for Hispanic children, but not for other groups. Diagnosed ADHD prevalence was significantly higher in less vulnerable non-Hispanic white children compared to more vulnerable.

Conclusions: This study found that even among children who receive Medicaid and are thus economically disadvantaged, socioeconomic vulnerability applies an additional burden within racial and ethnic groups to produce disparities in health-related burden. However, the trend of the relationship varied by race and ethnicity group and health condition

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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.

Am J Med Genet B Neuropsychiatr Genet. 2023 Jan;192:3-12.

MULTIVARIATE ANALYSES OF MOLECULAR GENETIC ASSOCIATIONS BETWEEN CHILDHOOD PSYCHOPATHOLOGY AND ADULT MOOD DISORDERS AND RELATED TRAITS.

Akingbuwa WA, Hammerschlag AR, Allegrini AG, et al.

Ubiquitous associations have been detected between different types of childhood psychopathology and polygenic risk scores based on adult psychiatric disorders and related adult outcomes, indicating that genetic factors partly explain the association between childhood psychopathology and adult outcomes. However, these analyses in general do not take into account the correlations between the adult trait and disorder polygenic risk scores. This study aimed to further clarify the influence of genetic factors on associations between childhood psychopathology and adult outcomes by accounting for these correlations. Using a multivariate multivariable regression, we analyzed associations of childhood attention-deficit/hyperactivity disorder (ADHD), internalizing, and social problems, with polygenic scores (PGS) of adult disorders and traits including major depression, bipolar disorder, subjective well-being, neuroticism, insomnia, educational attainment, and body mass index (BMI), derived for 20,539 children aged 8.5-10.5 years. After correcting for correlations between the adult phenotypes, major depression PGS were associated with all three childhood traits, that is, ADHD, internalizing, and social problems. In addition, BMI PGS were associated with ADHD symptoms and social problems, while neuroticism PGS were only associated with internalizing problems and educational attainment PGS were only associated with ADHD symptoms. PGS of bipolar disorder, subjective well-being, and insomnia were not associated with any childhood traits. Our findings suggest that associations between childhood psychopathology and adult traits like insomnia and subjective well-being may be primarily driven by genetic factors that influence adult major depression. Additionally, specific childhood phenotypes are genetically associated with educational attainment, BMI and neuroticism

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Am J Occup Ther. 2022 Nov;76.

WEEKLY CALENDAR PLANNING ACTIVITY (WCPA): VALIDATING A MEASURE OF FUNCTIONAL COGNITION FOR ADOLESCENTS WITH ATTENTION DEFICIT HYPERACTIVITY DISORDER.

Fisher O, Berger I, Grossman ES, et al.

IMPORTANCE: Adolescents with attention deficit hyperactivity disorder (ADHD) often experience difficulties with executive function and participation in life roles. Ecologically valid performance-based tests (PBTs) are needed to assess functional cognition in this population.

OBJECTIVE: To examine the known-groups, concurrent, and ecological validity of a functional cognition PBT, the Hebrew version of the Weekly Calendar Planning Activity (WCPA) Middle/High School Version, among adolescents with and without ADHD.

DESIGN: Cross-sectional between-groups design.

SETTING: Community.

PARTICIPANTS: One hundred two adolescents (ages 12-18 yr), with (n = 52) and without (n = 50) ADHD.

OUTCOMES AND MEASURES: The Hebrew version of the WCPA Middle/High School Version, MOXO-Continuous Performance Test (MOXO-CPT), Behavior Rating Inventory of Executive Function (BRIEF) parent form, and Child and Adolescent Scale of Participation (CASP).

RESULTS: The results showed significant between-groups differences with medium to large effect sizes for scores on most WCPA measures, with the ADHD group receiving significantly lower scores. Significant correlations in the expected direction were found between scores on the MOXO-CPT Attention and Hyperactivity indices and WCPA measures. Significant correlations were also found between most WCPA measures and the BRIEF Global Executive Composite (GEC) and the CASP. Multiple linear regression on the CASP indicated that the WCPA strategy score and the BRIEF GEC were significant predictors in the model.

CONCLUSIONS AND RELEVANCE: Results support the known-groups validity of the WCPA Middle/High School Version between adolescents with and without ADHD. Concurrent and ecological validity were supported by significant associations with measures of cognition and participation. What This Article Adds: These results reinforce the premise that the WCPA Middle/High School Version can be implemented as a valid measure of functional cognition among adolescents with ADHD

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An Pediatr. 2022.

ASSOCIATION BETWEEN ATTENTION-DEFICIT/HYPERACTIVITY SYMPTOMS AND SLEEP IN PRESCHOOLERS.

Gomes R, Sousa B, Gonzaga D, et al.

Introduction: Sleep problems are frequent in children with attention-deficit/hyperactivity disorder (ADHD). Some authors have tried to characterize paediatric sleep habits in Portugal, but none has focused on preschool-age children nor attempted to establish their association with ADHD. We aimed to assess the prevalence of ADHD symptoms in preschool-age children and to study their association with sleep habits.

Material and methods: We conducted a cross-sectional study. We distributed questionnaires to a random sample of caregivers of children enrolled in early childhood education centres in Porto. We collected data on sociodemographic characteristics, television watching and outdoor activities. We assessed ADHD symptoms and sleep habits with the Portuguese versions of the Conners Parents Rating Scale, Revised and the Children's Sleep Habits Questionnaire (CSHQ-PT), respectively.

Results: The study included 381 preschoolers (50.90% male). We found high scores for ADHD symptoms in 13.10%, with a higher prevalence in girls (14.40% vs. 11.85%; P = .276). In the CSHQ-PT, 45.70% of participants had a mean total score greater than 48, which is the cut-off point applied in the screening of sleep disturbances in the Portuguese population. There was a significant association between high scores for ADHD symptoms and a lower maternal education level (P < .001), a shorter sleep duration (P = .049), and higher scores on parasomnias (P = .019) and sleep disordered breathing (P = .002) in CSHQ-PT subscales. Conclusions: ADHD and sleep disorders are common in preschoolers, in Porto, and this study suggests some clinical correlations between them. Since these interactions are complex and far from being elucidated, further studies are paramount to provide guidance for prevention and managing strategies in younger children at risk for ADHD

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Ann Med -Psychol. 2022;180:995-99.

PREVALENCE, diagnosis and medication of hyperactivity/ADHD in France.

Ponnou S.

Introduction: Prevalence estimates for ADHD have therefore been at the core of an international debate in the last two decades. In France, the only available study carried out telephone inquiries in 2008 from a 7912 randomly selected sample of households. The researchers estimated 3.5% children suffered from ADHD, while 2.2% other children were treated with psychostimulants for attention deficit or hyperactivity symptoms without having formally been diagnosed. The use of a rigorous scientific approach and a strong methodology let the authors conclude the prevalence rate of children suffering from ADHD in France ranged from 3.5 to 5.6%. They also noted that among the 3.5% of children who were diagnosed with ADHD, 36.5% were being treated with methylphenidate. Therefore, they estimated 3.48% of children aged 6-12 were effectively treated with psychostimulants. In 2017, a report was issued by the National Agency for Medicines and Health Products Safety using data from The French National Social Security System (SNIIRAM) concerning methylphenidate consumption among children aged 6-11. This report showed 19,613 children aged 6-11 were effectively treated with methylphenidate in 2014. The study also states the prescription rate for methylphenidate increased by 44% between 2008 and 2012, then again by 13% between 2013 and 2014, though 34.2% of the children being treated with methylphenidate are not diagnosed as suffering from ADHD but from other psychiatric pathologies. Our paper compares these two data sets: one concerning ADHD prevalence and the ratio of ADHD children treated with methylphenidate in France, the other regarding the provision of methylphenidate-based medication among children. We highlight the gap between the two

studies results and call for supplementary investigations of the French Healthcare Insurance database as a way to obtain better information on ADHD diagnosis and medication in France.
Methods: Methylphenidate is the only psychostimulant which prescription is authorized in the case of an ADHD diagnosis in France. To determine the prevalence of methylphenidate-based medication use in children aged 6-11, we first collected data concerning methylphenidate consumption from the SNIIRAM database and analyzed them in regard to the 2008 demographic survey issued by the National Institute for Statistics and Economic Studies (INSEE). Using this information and ADHD prevalence data, we secondly inferred an ADHD diagnosis rate in France.
Consequently: Since methylphenidate is the only drug precription in France for ADHD, without any other therapeutic authorization; By taking into account (1) the ratio of children diagnosed ADHD and treated with methylphenidate in France (36.5%) and (2) the data concerning methylphenidate consumption in France (19,613 children aged 6-11 in 2014); It is possible to obtain accurate information on ADHD diagnosis in France from the provision of methylphenidate-based medication. We finally compared the prevalence rate of methylphenidate prescription and the estimation of ADHD diagnosis as reported in the SNIIRAM database, to the psychostimulant consumption level and the ADHD prevalence rate as highlighted in the initial prevalence study.
Results: Figures extracted from the SNIIRAM database show 19,613 children aged 6ΓÇô11 were effectively treated with methylphenidate in 2014. Knowing the prescription rate for this molecule and this population increased by 44% between 2008 and 2012, then again by 13% between 2013 and 2014, we calculated methyphenidate consumption concerned 9555 of children aged 6-11 in 2008. Comparing this number to the National Institute of Statistics and Economic Studies (INSEE) children census, which reported 4,752,571 French children in 20081, one can estimate about 0,2% of children aged 6-11 were effectively given methylphenidate that year. If 9555 of children aged 6ΓÇô11 were treated by methylphenidate in 2008 according to the French National healthcare insurance system, and if 36.5% of ADHD children are treated with methylphenidate in France, then a correct estimate of the number of children who had been diagnosed with ADHD in 2008 would be 9555 + 9.555 +ù 0.635 = 15,622 children. This would mean around 0.3% of this population was diagnosed with ADHD in France in 2008. Discussion: The real methylphenidate consumption rate among 6ΓÇô11 children in France is at best 17 times lower than the estimation initially provided by the Lecendreux et al. prevalence study (0.2% the 6-11 children versus 3.48% of the 6-12 aged children). The discrepancy we highlight in this paper questions conflicts of interest and methodological biases at work in telephone inquiries or in any indirect methodology willing to establish ADHD prevalence rates.
Conclusion: The results we present in this communication support more in-depth investigations of the SNIIRAM database when it comes to determining precise ADHD diagnosis and methylphenidate prescription rates in France. Accessing national, official databases would give researchers relevant information concerning potential variations in diagnosis and prescription rates over time, according to regions and hospitals, the age of the child at the time of diagnosis or treatment initiation, multiple co-morbidities and prescriptions outside of recommendations, associated therapeutic practices (psychotherapy), etc. Such complementary studies could also shed light on the factors contributing to the low rate of prescription drugs in the treatment of ADHD in France

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Arch Dis Child. 2023 Jan;108:66.
ATTENTION-DEFICIT HYPERACTIVITY DISORDER IN PRESCHOOL CHILDREN.
Anon.

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Archives of Physical Medicine and Rehabilitation. 2022;103:e63.

PROMISING EFFECTS OF SOCIOEMOTIONAL SKILLS TRAINING IN BILINGUAL CHILDREN WITH ATTENTION AND BEHAVIORAL CONCERNS.

Williams A, Chung-Fat-Yim A, Marian V, et al.

Research Objectives: Bilingualism is present in every country of the world, class of society, and age group. Yet, monolingual-focused health practices, policies, and research dominate delivery of care, contributing to health disparities. To investigate the role of language in treatment delivery, the present study examined the effect of second language use on socioemotional skills in bilingual children with attention and behavioral concerns.

Design: A two-level (students, schools) cluster randomized controlled design accounted for treatment [Collaborative Life Skills (CLS) versus control] across 23 elementary schools. In addition, four schools received treatment in Spanish (parent group) and combination of Spanish and English (child skills training, classroom intervention). Setting: The CLS program integrates empirically-supported treatments (parent training, classroom intervention, and child skills training) in school settings to encourage accessibility and sustainability. Participants: Students were referred to the program by school staff for substantial inattention, hyperactivity/impulsivity, and/or related academic/social problems. We conducted secondary data analyses on 120 monolingual and 37 bilingual children (Grades 2-5, Mage= 8.32, SDage = 1.08, 28% girls, 35% Latinx, 23% White, 18% Asian, 17% multiracial, 8% Black).

Interventions: Mental health professionals led nine 40-minute child group sessions during school hours. Modules targeted social functioning (e.g., self-control, friendship making, assertion) and independence (e.g., homework skills, routines). Socioemotional skills were taught through didactic instruction, behavioral rehearsal, and in-vivo practice. A reward-based contingency management program was used to manage behaviors and reinforce new skills.

Main Outcome Measures: ADHD symptoms, ADHD impairment. Results: A mixed effects model revealed a treatment (CLS, control) by language status (bilingual, monolingual) interaction. A greater reduction in parent-reported impairment was found for bilingual children compared to monolingual children. Conclusions: Socioemotional skills appear to especially benefit bilingual children with attentional and behavioral concerns. Future studies to understand mechanisms are warranted. Receiving socioemotional skills training in second language may help to down-regulate negative emotions, which may be conducive to learning socioemotional skills in clinical settings. Author(s) Disclosures: No conflicts of interest to disclose

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Asian J Psychiatry. 2023;80.

RISKS OF ATTENTION-DEFICIT/HYPERACTIVITY DISORDER, AUTISM SPECTRUM DISORDER, AND INTELLECTUAL DISABILITY IN CHILDREN DELIVERED BY CAESAREAN SECTION: A POPULATION-BASED COHORT STUDY.

Lin PY, Chen YL, Hsiao RC, et al.

This population-based study investigated the risks of attention-deficit/hyperactivity disorder (ADHD), autism spectrum disorder (ASD), and intellectual disabilities among children delivered by Cesarean section (CS) in comparison with those who were delivered by vaginal delivery (VD). The Taiwan Maternal and Child Health Database from 2004 to 2016 registered 675,718 and 1,208,983 children delivered by CS and by VD, respectively. The results of Cox proportional hazards regression model demonstrated that children delivered by CS had significantly higher risks of ADHD, ASD, and intellectual disability than those delivered by VD after the confounding effects of maternal and child factors were controlled for

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Asian J Psychiatry. 2023;79.

ATYPICAL DEVELOPMENT IN WHITE MATTER MICROSTRUCTURES IN ADHD: A LONGITUDINAL DIFFUSION IMAGING STUDY.

Chiang HL, Tseng WYI, Tseng WL, et al.

Background: In cross-sectional studies, alterations in white matter microstructure are evident in children with attention-deficit/hyperactivity disorder (ADHD) but not so prominent in adults with ADHD compared to typically-developing controls (TDC). Moreover, the developmental trajectories of white matter microstructures in ADHD are unclear, given the limited longitudinal imaging studies that characterize developmental changes in ADHD vs. TDC.

Methods: This longitudinal study acquired diffusion spectrum imaging (DSI) at two time points. The sample included 55 participants with ADHD and 61 TDC. The enrollment/first DSI age ranged from 7 to 18 years, with a five-year mean follow-up time. We examined time-by-diagnosis interaction on the generalized fractional anisotropy (GFA) of 45 white matter tracts, adjusting for confounding factors and correcting for multiple comparisons. We also tested whether the longitudinal changes of microstructures were associated with ADHD symptoms and attention performance in a computerized continuous performance test.

Results: Participants with ADHD showed more rapid development of GFA in the arcuate fasciculus, superior longitudinal fasciculus, frontal aslant tract, cingulum, inferior fronto-occipital fasciculus (IFOF), frontostriatal tract connecting the prefrontal cortex (FS-PFC), thalamic radiation, corticospinal tract, and corpus callosum. Within participants with ADHD, more rapid GFA increases in cingulum and FS-PFC were associated with slower decreases in inattention symptoms. In addition, in all participants, more rapid GFA increases in cingulum and IFOF were associated with greater improvement in attention performance.

Conclusion: Our findings suggest atypical developmental trajectories of white matter tracts in ADHD, characterized by normalization and possible compensatory neuroplastic processes with age from childhood to early adulthood

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Behav Genet. 2022.

ASSOCIATIONS BETWEEN ATTENTION DEFICIT HYPERACTIVITY DISORDER SYMPTOM DIMENSIONS AND DISORDERED EATING SYMPTOMS IN ADOLESCENCE: A POPULATION-BASED TWIN STUDY.

Yilmaz Z, Quattlebaum MJ, Pawar PS, et al.

Although bivariate associations between attention-deficit/hyperactivity disorder (ADHD) and eating disorders in adolescent girls and boys have been previously identified, the mechanistic link underlying the symptom-level associations remains unclear. We evaluated shared genetic and environmental influences on ADHD symptoms and disordered eating in 819 female and 756 male twins from the Swedish TCHAD cohort using bivariate models. Common additive genetic and unique environmental effects accounted for majority of ADHD and disordered eating associations in a differential manner. For girls, the strongest genetic correlation was observed for cognitive/inattention problems-bulimia (0.54), with genetic factors accounting for 67% of the phenotypic correlation. For boys, the strongest genetic correlations were observed for conduct problems-bulimia and hyperactivity-bulimia (~ 0.54), accounting for 83% and 95% of the phenotypic correlation, respectively. As per our findings, the risk of comorbidity and shared genetics highlights the need for preventative measures and specialized treatment for ADHD and disordered eating in both sexes

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Biol Psychiatry. 2023;93:37-44.

INVESTIGATING DIRECT AND INDIRECT GENETIC EFFECTS IN ATTENTION-DEFICIT/HYPERACTIVITY DISORDER USING PARENT-OFFSPRING TRIOS.

Martin J, Wray M, Agha SS, et al.

Background: Attention-deficit/hyperactivity disorder (ADHD) is highly heritable, but little is known about the relative effects of transmitted (i.e., direct) and nontransmitted (i.e., indirect) common variant risks. Using parent-offspring trios, we tested whether polygenic liability for neurodevelopmental and psychiatric disorders and lower cognitive ability is overtransmitted to ADHD probands. We also tested for indirect or genetic nurture

effects by examining whether nontransmitted ADHD polygenic liability is elevated. Finally, we examined whether complete trios are representative of the clinical ADHD population.
Methods: Polygenic risk scores (PRSs) for ADHD, anxiety, autism, bipolar disorder, depression, obsessive-compulsive disorder, schizophrenia, Tourette syndrome, and cognitive ability were calculated in UK control subjects (n = 5081), UK probands with ADHD (n = 857), their biological parents (n = 328 trios), and also a replication sample of 844 ADHD trios.
Results: ADHD PRSs were overtransmitted and cognitive ability and obsessive-compulsive disorder PRSs were undertransmitted. These results were independently replicated. Overtransmission of polygenic liability was not observed for other disorders. Nontransmitted alleles were not enriched for ADHD liability compared with control subjects. Probands from incomplete trios had more hyperactive-impulsive and conduct disorder symptoms, lower IQ, and lower socioeconomic status than complete trios. PRS did not vary by trio status.
Conclusions: The results support direct transmission of polygenic liability for ADHD and cognitive ability from parents to offspring, but not for other neurodevelopmental/psychiatric disorders. They also suggest that nontransmitted neurodevelopmental/psychiatric parental alleles do not contribute indirectly to ADHD via genetic nurture. Furthermore, ascertainment of complete ADHD trios may be nonrandom, in terms of demographic and clinical factors

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BMC Pediatr. 2022 Dec;22:721.

SPINAL MANIPULATION AND MOBILISATION IN THE TREATMENT OF INFANTS, CHILDREN, AND ADOLESCENTS: A SYSTEMATIC SCOPING REVIEW.

Milne N, Longeri L, Patel A, et al.

PURPOSE: To i) identify and map the available evidence regarding effectiveness and harms of spinal manipulation and mobilisation for infants, children and adolescents with a broad range of conditions; ii) identify and synthesise policies, regulations, position statements and practice guidelines informing their clinical use.
DESIGN: Systematic scoping review, utilising four electronic databases (PubMed, Embase, CINHAL and Cochrane) and grey literature from root to 4(th) February 2021.
PARTICIPANTS: Infants, children and adolescents (birth to<18 years) with any childhood disorder/condition.
INTERVENTION: Spinal manipulation and mobilisation
OUTCOME MEASURES: Outcomes relating to common childhood conditions were explored.
METHOD: Two reviewers (A.P., L.L.) independently screened and selected studies, extracted key findings and assessed methodological quality of included papers using Joanna Briggs Institute Checklist forÂ Systematic ReviewsÂ and Research Synthesis, Joanna Briggs Institute Critical Appraisal Checklist for Text and Opinion Papers, Mixed Methods Appraisal Tool and International Centre for Allied Health Evidence Guideline Quality Checklist. A descriptive synthesis of reported findings was undertaken using a levels of evidence approach.
RESULTS: Eighty-seven articles were included. Methodological quality of articles varied. Spinal manipulation and mobilisation are being utilised clinically by a variety of health professionals to manage paediatric populations with adolescent idiopathic scoliosis (AIS), asthma, attention deficit hyperactivity disorder (ADHD), autism spectrum disorder (ASD), back/neck pain, breastfeeding difficulties, cerebral palsy (CP), dysfunctional voiding, excessive crying, headaches, infantile colic, kinetic imbalances due to suboccipital strain (KISS), nocturnal enuresis, otitis media, torticollis and plagiocephaly. The descriptive synthesis revealed: no evidence to explicitly support the effectiveness of spinal manipulation or mobilisation for any condition in paediatric populations. Mild transient symptoms were commonly described in randomised controlled trials and on occasion, moderate-to-severe adverse events were reported in systematic reviews of randomised controlled trials and other lower quality studies. There was strong to very strong evidence for 'no significant effect' of spinal manipulation for managing asthma (pulmonary function), headache and nocturnal enuresis, and inconclusive or insufficient evidence for all other conditions explored. There is insufficient evidence to draw conclusions regarding spinal mobilisation to treat paediatric populations with any condition.

CONCLUSION: Whilst some individual high-quality studies demonstrate positive results for some conditions, our descriptive synthesis of the collective findings does not provide support for spinal manipulation or mobilisation in paediatric populations for any condition. Increased reporting of adverse events is required to determine true risks. Randomised controlled trials examining effectiveness of spinal manipulation and mobilisation in paediatric populations are warranted

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BMC Pediatr. 2022 Dec;22:700.

THE ASSOCIATION BETWEEN DIETARY POLYPHENOL INTAKE AND ATTENTION-DEFICIT HYPERACTIVITY DISORDER: A CASE-CONTROL STUDY.

Darzi M, Abbasi K, Ghiasvand R, et al.

BACKGROUND: Previous research found that diets high in fruits and vegetables improved symptoms of attention deficit hyperactivity disorder (ADHD). Nevertheless, the relationship between dietary polyphenol intake and the risk of ADHD was not assessed.
OBJECTIVE: The purpose of this study was to see if there was a relationship between dietary polyphenol intake and the risk of ADHD in children in preschool and elementary school.
METHODS: A total of 400 children aged 4 to 12 years old participated in this case-control research (200 children with diagnosed ADHD and 200 healthy controls). The presence of ADHD was diagnosed according to the Diagnostic and Statistical Manual of Mental Disorders-V criteria. To calculate dietary polyphenol intake, a 168-item food frequency questionnaire and the Phenol-Explorer database were used.
RESULTS: A significant negative association was observed between one unit increase in dietary polyphenol intake and risk of ADHD (OR: 0.995, 95% CI=0.994 to 0.996, P<0.001) in the crude model. This finding was still significant even after adjusting for body mass index, energy intake, socioeconomic status, gender, and age (OR: 0.992, 95% CI=0.989 to 0.995, P<0.001).
CONCLUSION: We found that the increased dietary intake of polyphenols is associated with a lower risk of ADHD in preschool and school children. Prospective studies are needed to corroborate these observations

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BMC Psychiatry. 2022 Dec;22:767.

MODERATORS OF LONG-TERM TREATMENT OUTCOME WHEN COMPARING TWO GROUP INTERVENTIONS FOR ADOLESCENTS WITH ADHD: WHO BENEFITS MORE FROM DBT-BASED SKILLS TRAINING?

Meyer J, Zetterqvist V, Unenge HcM, et al.

BACKGROUND: Psychosocial interventions for adolescents with attention-deficit/hyperactivity disorder (ADHD), targeting emotional dysregulation and impulsive behaviors, have been requested, but the heterogeneity within this group makes it unlikely that there is one treatment that fits all. The aim of this study was to identify which adolescents with ADHD might have an effect from a structured skills training group (SSTG) based on dialectical behavioral therapy, by exploring pre-treatment characteristics as potential moderators of long-term treatment outcome.
METHODS: This study was based on follow-up data from a randomized controlled trial comparing the SSTG (n=71) to a psychoeducational control intervention (n=57) for adolescents with ADHD (15-18 years old). Clinical characteristics (sex, age, medication status, ADHD presentation, severity of ADHD symptom, psychiatric comorbidity, impairment of emotional dysregulation and functional impairment) were explored as potential moderators of pre-treatment to follow-up change in ADHD symptoms and functional impairment. Moderation analyses were performed using the PROCESS macro for SPSS.
RESULTS: Three moderators (severity of hyperactivity/impulsivity, conduct problems and impairment of emotional dysregulation) were identified in regard to the outcome self-rated change in ADHD symptoms. Participants with elevated pre-scores on these variables had a better effect of the SSTG than of the psychoeducational control intervention. No moderators were found in regard to the parental-rated outcomes.
CONCLUSIONS: The SSTG seems to be beneficial for adolescents with ADHD who perceive pronounced symptoms of hyperactivity/impulsivity, conduct problems and emotional dysregulation. Our findings need to

be confirmed in future trials evaluating dialectical behavioral therapy-based skills training for adolescents with ADHD, where these moderators could be used as criteria for inclusion or stratification.
TRIAL REGISTRATION: https://doi.org/10.1186/ISRCTN17366720 , retrospectively registered

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BMC Psychiatry. 2022;22.

OBJECTIVE ASSESSMENT OF MOTOR ACTIVITY IN A CLINICAL SAMPLE OF ADULTS WITH ATTENTION-DEFICIT/HYPERACTIVITY DISORDER AND/OR CYCLOTHYMIC TEMPERAMENT.

Syrstad VEG, Mjeldheim K, F+©rland W, et al.

Background: Most research on patterns of motor activity has been conducted on adults with mood disorders, but few studies have investigated comorbid attention-deficit/hyperactivity disorder (ADHD) or temperamental factors that may influence the clinical course and symptoms. Cyclothymic temperament (CT) is particularly associated with functional impairment. Clinical features define both disorders, but objective, biological markers for these disorders could give important insights with regard to pathophysiology and classification.
Methods: Seventy-six patients, requiring diagnostic evaluation of ADHD, mood or anxiety disorders were recruited. A comprehensive diagnostic evaluation, including the CT scale of the Temperament Evaluation of Memphis, Pisa, Paris and San Diego Auto-questionnaire (TEMPS-A), neuropsychological tests and actigraphy, was performed. ADHD was diagnosed according to the DSM-IV criteria. There was a range of different conditions in this clinical sample, but here we report on the presence of CT and ADHD in relation to motor activity. Twenty-nine healthy controls were recruited. We analyzed motor activity time series using linear and nonlinear mathematical methods, with a special focus on active and inactive periods in the actigraphic recordings.
Results: Forty patients fulfilled the criteria for ADHD, with the remainder receiving other psychiatric diagnoses (clinical controls). Forty-two patients fulfilled the criteria for CT. Twenty-two patients fulfilled the criteria for ADHD and CT, 18 patients met the criteria for ADHD without CT, and 15 patients had neither. The ratio duration of active/inactive periods was significantly lower in patients with CT than in patients without CT, in both the total sample, and in the ADHD subsample.
Conclusions: CT is associated with objectively assessed changes in motor activity, implying that the systems regulating motor behavior in these patients are different from both healthy controls and clinical controls without CT. Findings suggest that actigraphy may supplement clinical assessments of CT and ADHD, and may provide an objective marker for CT

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BMJ Open. 2022 Dec;12:e064951.

USING AN OBJECTIVE COMPUTER TASK (QBTEST) TO AID THE IDENTIFICATION OF ATTENTION DEFICIT HYPERACTIVITY DISORDER (ADHD) IN THE CHILDREN AND YOUNG PEOPLE SECURE ESTATE (CYPSE): A FEASIBILITY RANDOMISED CONTROLLED TRIAL.

Chitsabesan P, Hall CL, Carter LA, et al.

OBJECTIVES: QbTest has been shown to improve time to decision/diagnosis for young people with attention deficit hyperactivity disorder (ADHD). The aim was to assess the feasibility of QbTest for young people in prison.
DESIGN: Single-centre feasibility randomised controlled trial (RCT), with 1:1 allocation. Concealed random allocation using an online pseudorandom list with random permuted blocks of varying sizes.
SETTING: One Young Offenders Institution in England.
PARTICIPANTS: 355 young people aged 15-18 years displaying possible symptoms of ADHD were assessed for eligibility, 69 were eligible to take part and 60 were randomised.
INTERVENTION: QbTest-a computer task measuring attention, activity and impulsivity.
MAIN OUTCOME MEASURES: Eligibility, recruitment and retention rates and acceptability of randomisation and trial participation.
RESULTS: Of the 355 young people assessed for eligibility, 69 were eligible and 60 were randomised (n=30 QbTest plus usual care; n=30 usual care alone). The study achieved the specified recruitment target. Trial

participation and randomisation were deemed acceptable by the majority of participants. 78% of young people were followed up at 3â€‰months, but only 32% at 6â€‰months, although this was also affected by COVID-19 restrictions. Secondary outcomes were mixed. Participants including clinical staff were mostly supportive of the study and QbTest; however, some young people found QbTest hard and there were issues with implementation of the ADHD care pathway. There were no serious adverse events secondary to the study or intervention and no one was withdrawn from the study due to an adverse event.
CONCLUSIONS: With adaptations, a fully powered RCT may be achievable to evaluate the effectiveness of QbTest in the assessment of ADHD in the Children and Young People Secure Estate, with time to decision (days) as the primary outcome measure. However, further programme developmental work is required to address some of the challenges highlighted prior to a larger trial.
TRIAL REGISTRATION NUMBER: ISRCTN17402196

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Brain Behav. 2022 Dec;12:e2813.

HIGHER SCORES ON AUTONOMIC SYMPTOM SCALES IN PEDIATRIC PATIENTS WITH NEURODEVELOPMENTAL DISORDERS OF KNOWN GENETIC ETIOLOGY.

DiCriscio AS, Wain KE, Smith J, et al.

INTRODUCTION: Features of underlying autonomic dysfunction, including sleep disturbances, gastrointestinal problems, and atypical heart rate, have been reported in neurodevelopmental conditions, including autism spectrum disorder (ASD). The current cross-sectional, between-groups study aimed to quantify symptoms of autonomic dysfunction in a neurodevelopmental pediatric cohort characterized by clinical diagnoses as well as genetic etiology.
METHOD: The Pediatric Autonomic Symptom Scales (PASS) questionnaire was used to assess autonomic features across a group of patients with clinical neurodevelopmental diagnoses (NPD; N = 90) and genetic etiologies. Patients were subdivided based on either having a clinical ASD diagnosis (NPD-ASD; n = 37) or other non-ASD neurodevelopmental diagnoses, such as intellectual disability without ASD, speech and language disorders, and/or attention deficit hyperactivity disorder (NPD-OTHER; n = 53). Analyses focused on characterizing differences between the NPD group compared to previously published reference samples, as well as differences between the two NPD subgroups (NPD-ASD and NPD-OTHER).
RESULTS: Our results indicate higher PASS scores in our NPD cohort relative to children with and without ASD from a previously published cohort. However, we did not identify significant group differences between our NPD-ASD and NPD-OTHER subgroups. Furthermore, we find a significant relationship between quantitative ASD traits and symptoms of autonomic function.
CONCLUSION: This work demonstrates the utility of capturing quantitative estimates of autonomic trait dimensions that may be significantly linked with psychosocial impairments and other core clinical features of ASD

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Brain Res. 2022;1789.

PREDICTING THE PROGNOSIS OF UNILATERAL SPATIAL NEGLECT USING MAGNETIC RESONANCE IMAGING IN PATIENTS WITH STROKE: A SYSTEMATIC REVIEW.

Imura T, Mitsutake T, Hori T, et al.

Accurate prognosis prediction of unilateral spatial neglect (USN) is clinically important for identifying patients with potentially poor recovery who require more intensive rehabilitation and early interdisciplinary support for residual disabilities. Magnetic resonance imaging (MRI)-based neuroimaging can provide clinicians with high-quality and high-resolution neuroanatomical information from the aspects of neuroanatomy, integrity of the neural tract, and neural functional connectivity. Although the application of MRI is expected beneficial for the prognosis prediction of USN, there is still no systematic review of its usefulness, and it has not been standardized in the field of stroke rehabilitation. Therefore, we conducted this systematic review to consolidate evidence on the usefulness of MRI in predicting the prognosis of USN in patients with stroke. We comprehensively searched the Medline, Scopus, and Cumulative Index to Nursing and Allied Health

Literature electronic databases. We identified 6 longitudinal studies that investigated the relationship between MRI-based neuroimaging findings and subsequent recovery of USN through comprehensive database search. All included studies showed the usefulness of MRI-based findings in predicting the prognosis of USN. The findings of this systematic review highlight the importance of a detailed evaluation of affected neural tracts considering with the differences between the USN subtypes, rather than a broad/undetailed classification of the location, for accurate prognosis prediction of USN in patients with stroke. This is the first report to consolidate evidence on the usefulness of MRI in terms of intra- and interhemispheric neural connection in predicting the prognosis of USN in patients with stroke

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Cerebellum. 2022.

EXAMINATION OF CEREBELLAR GREY-MATTER VOLUME IN CHILDREN WITH NEURODEVELOPMENTAL DISORDERS: A COORDINATED ANALYSIS USING THE ACAPULCO ALGORITHM.

Fernandez L, Burmester A, Duque JD, et al.

Alterations in cerebellar morphology relative to controls have been identified in children with autism spectrum disorder (ASD), attention deficit hyperactivity disorder (ADHD), and developmental coordination disorder (DCD). However, it is not clear if common cerebellar regions are affected in each neurodevelopmental disorder and whether cerebellar morphological changes reflect a generic developmental vulnerability, or disorder-specific characteristic. The present study concatenated anatomical MRI scans from five existing cohorts, resulting in data from 252 children between the age of 7 and 12years (ASD = 58, ADHD = 86, DCD = 22, Controls = 86). The ACAPULCO processing pipeline for cerebellar segmentation was conducted on T1-weighted images. A voxel-wise approach with general linear model was used to compare grey-matter volume of the 27 cerebellar lobules between each clinical group and controls. Our findings revealed that the ADHD group showed lower grey-matter volume in the left Crus I part of the executive/non-motor portion of the cerebellum, relative to controls (p = 0.02). This no longer remained significant after controlling for medication status. There were no regions of significant differences in volume of the cerebellar lobules in ASD or DCD compared to controls. Future work will conduct harmonisation of behavioural data (cognitive and motor outcomes) across cohorts, enabling more advanced analyses to identify symptom cluster across neurodevelopmental disorders

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Child Adolesc Psychiatry Ment Health. 2022;16.

DISTANCE LEARNING DURING THE COVID-19 PANDEMIC FOR CHILDREN WITH ADHD AND/OR ASD: A EUROPEAN MULTI-CENTER STUDY EXAMINING THE ROLE OF EXECUTIVE FUNCTION DEFICITS AND AGE.

Thorell LB, Fuermaier ABM, Christiansen H, et al.

Background: One of the COVID-19 pandemic consequences that has affected families the most is school lockdowns. Some studies have shown that distance learning has been especially challenging for families with a child with neurodevelopmental disorders such as ADHD or ASD. However, previous studies have not taken the heterogeneity of these disorders into account. The aim of the present study was therefore to investigate differences between families with a child with ADHD, ASD, or both conditions, and to examine the role of underlying deficits in executive functioning (EF) in both children and parents in relation to negative and positive effects of distance learning.

Methods: Survey data assessing both negative and positive experiences of distance learning were collected from parents with a child aged 5-19years in seven Western European countries: the UK, Germany, Spain, Sweden, the Netherlands, Italy, and Belgium. Altogether, the study included 1010 families with a child with ADHD and/or ASD and an equally large comparison group of families with a child without mental health problems. We included measures of three different types of negative effects (i.e., effects on the child, effects on the parent, and lack of support from school) and positive effects on the family.

Results: Results confirmed that families with a child with ADHD, ASD or a combination of ADHD and ASD showed higher levels of both negative and positive effects of distance learning than the comparison group. However, few differences were found between the clinical groups. Group differences were more pronounced

for older compared to younger children. Regarding the role of both ADHD/ASD diagnosis and EF deficits, primarily children's EF deficits contributed to high levels of negative effects. Parent EF deficits did not contribute significantly beyond the influence of child EF deficits. Families of children with ADHD/ASD without EF deficits experienced the highest levels of positive effects.
Conclusions: School closings during COVID-19 have a major impact on children with EF problems, including children with neurodevelopmental disorders. The present study emphasizes that schools should not focus primarily on whether a student has a neurodevelopmental disorder, but rather provide support based on the student's individual profile of underlying neuropsychological deficits

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Child Adolesc Psychiatry Ment Health. 2022;16.
EMOTION DYSREGULATION IN ADHD AND OTHER NEURODEVELOPMENTAL CONDITIONS: A CO-TWIN CONTROL STUDY.
Astenvald R, Frick MA, Neufeld J, et al.
Background: Emotion dysregulation (ED) is common in attention-deficit/hyperactivity disorder (ADHD) and often results in adverse outcomes. However, ED has been suggested as a transdiagnostic construct, why the specific association between ADHD and ED when adjusting for other mental health conditions needs further investigation. It is also important to determine the aetiological basis of the association between ADHD and ED to inform the theoretical conceptualization of ADHD.
Method: This study used a co-twin control design, including a sample of dizygotic (DZ) and monozygotic (MZ) twins (N = 389; 45.8% females, age = 8ΓÇô31-áyears, MZ twin pairs 57.6%). ED was assessed using the dysregulation profile from the parent-rated Child Behaviour Checklist and its adult version. Regression analyses were used across individuals and within the pairs, while adjusting for diagnoses of autism, intellectual disability, other neurodevelopmental conditions and affective conditions.
Results: ADHD was significantly associated with ED, even when adjusting for age, sex, attention problems and other mental health conditions, and was the diagnosis most strongly associated with ED. Within-pair analyses revealed that twins with ADHD had higher levels of ED compared to their co-twin without ADHD. This association remained within DZ twins and was non-significant in the MZ subsample, with non-overlapping confidence intervals between the DZ and MZ estimates.
Conclusion: ADHD is strongly and in part independently linked to ED, stressing the importance of early detection and treatment of emotional difficulties within this group. The findings from the within-pair analyses indicate a genetic influence on the association between ADHD and ED

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Child Adolesc Psychiatry Ment Health. 2022;16.
THE IMPORTANCE OF FAMILIAL RISK FACTORS IN CHILDREN WITH ADHD: DIRECT AND INDIRECT EFFECTS OF FAMILY ADVERSITY, PARENTAL PSYCHOPATHOLOGY AND PARENTING PRACTICES ON EXTERNALIZING SYMPTOMS.
Jendreizik LT, Hautmann C, von Wirth E, et al.
Background: Children experiencing unfavorable family circumstances have an increased risk of developing externalizing symptoms. The present study examines the direct, indirect and total effects of family adversity, parental psychopathology, and positive and negative parenting practices on symptoms of attention-deficit/hyperactivity disorder (ADHD) and oppositional defiant disorder (ODD) in children with ADHD.
Methods: Data from 555 children (M = 8.9years old, 80.5% boys) who participated in a multicenter study on the treatment of ADHD (ESCAschool) were analyzed using structural equation modeling (SEM).
Results: The SEM analyses revealed that (a) family adversity and parental psychopathology are associated with both child ADHD and ODD symptoms while negative parenting practices are only related to child ODD symptoms; (b) family adversity is only indirectly associated with child ADHD and ODD symptoms, via parental psychopathology and negative parenting practices; (c) the detrimental effect of negative parenting practices on child ADHD and ODD symptoms is stronger in girls than in boys (multi-sample SEM); (d) there are no significant associations between positive parenting practices and child ADHD or ODD symptoms.

Conclusions: Family adversity, parental psychopathology, and negative parenting practices should be routinely assessed by clinicians and considered in treatment planning. Trial registration (18th December 2015): German Clinical Trials Register (DRKS) DRKS00008973

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Child Neuropsychol. 2023 Jan;29:76-95.

DISRUPTED WAITING BEHAVIOR IN ADHD: EXPLORING THE IMPACT OF REWARD AVAILABILITY AND PREDICTIVE CUES.

Furukawa E, Alsop B, Alves H, et al.

Altered motivational processing is purported to contribute to ADHD symptoms. A stronger preference for immediate over delayed reward is well documented in ADHD. However, little attention has been paid to children's capacity to withhold responding until a "better" reward becomes available, and their actions while waiting. Using a novel computer task, we examine the ability of children with and without ADHD to wait to collect a large reward in the presence of a small available reward. The effects of a reward-predicting cue on response times and response choices are also explored. Data from 136 children (6-12â€‰years), 90 with ADHD and 46 typically developing (TD) children, are included. The children could collect a small immediately available reward or wait to access a larger reward after a variable delay, its imminent availability sometimes signaled by a cue. Subsequent probe trials explored the effects of longer waiting times and disruption of the cue-reward association. As expected, children with ADHD collected the small immediately available reward more often than TD children. Importantly, they were more likely to terminate waiting once commenced, collecting the small reward or attempting to collect the large reward early. The cue decreased their response time but disrupted their waiting when it no longer consistently predicted reward. Children with ADHD were more likely to abandon efforts to wait, especially when wait times were extended and when expected rewards failed to appear. Behavioral interventions for ADHD should take into account reduced waiting capacity that extends beyond children's preference for immediate reward

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Clin Case Stud. 2022.

THE IMPACT OF MATERNAL DEPRESSION ON INTERNET-PARENT□ÇôCHILD INTERACTION THERAPY FOR CHILD ATTENTION-DEFICIT/HYPERACTIVITY DISORDER: A CASE STUDY.

Druskin LR, Victory EJ, Han RC, et al.

Conduct disorders and attention-deficit/hyperactivity disorder (ADHD) are highly comorbid, with an estimated prevalence rate of 51.5% for children between 2-17years of age (Centers for Disease Control and Prevention, 2020). Parent-Child Interaction Therapy (PCIT) is an empirically supported behavioral parent training program for children with disruptive behavior. PCIT research consistently demonstrates decreases in disruptive behaviors and increases in positive parenting strategies among families of young children with ADHD; however, PCIT has yet to become widely recognized as a treatment for ADHD. This case study presents the treatment of a 6-year-old boy with ADHD and severe behavior problems. The case was further impacted by the single mother's depressive symptoms and internet delivery of PCIT during the COVID-19 pandemic. Findings from this case report documented an improvement in disruptive child behaviors and emotion regulation and increased positivity during parent-child interactions, despite worsening maternal depressive symptoms. This case study highlights the utility of PCIT to improve child disruptive behaviors and ADHD symptoms in the midst of several complicating factors

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CNS Neurosci Ther. 2022.

DIFFERENT FUNCTIONAL ALTERATION IN ATTENTION-DEFICIT/HYPERACTIVITY DISORDER ACROSS DEVELOPMENTAL AGE GROUPS: A META-ANALYSIS AND AN INDEPENDENT VALIDATION OF RESTING-STATE FUNCTIONAL CONNECTIVITY STUDIES.

Liu N, Liu Q, Yang Z, et al.

Background: Attention-deficit/hyperactivity disorder (ADHD) is a highly complex and heterogeneous disorder. Abnormal brain connectivity in ADHD might be influenced by developmental ages which might lead to the lacking of significant spatial convergence across studies. However, the developmental patterns and mechanisms of ADHD brain connectivity remain to be fully uncovered.

Methods: In the present study, we searched PubMed, Scopus, Web of Science, and Embase for seed-based whole-brain resting-state functional connectivity studies of ADHD published through October 12th, 2020. The seeds meeting inclusion criteria were categorized into the cortex group and subcortex group, as previous studies suggested that the cortex and subcortex have different temporal patterns of development. Activation likelihood estimation meta-analysis was performed to investigate the abnormal connectivity in different age groups (all-age group, younger: <12 years, older: 12 years). Moreover, significant convergence of reported foci was used as seeds for validation with our independent dataset.

Results: As with previous studies, scarce results were found in the all-age group. However, we found that the younger group consistently exhibited hyper-connectivity between different parts of the cortex and left middle frontal gyrus, and hypo-connectivity between different parts of the cortex and left putamen/pallidus/amygdala. Whereas, the older group (mainly for adults) showed hyper-connectivity between the cortex and right precuneus/sub-gyral/cingulate gyrus. Besides, the abnormal cortico-cortical and cortico-subcortical functional connectivity in children, and the abnormal cortico-cortical functional connectivity in adults were verified in our independent dataset.

Conclusion: Our study emphasizes the importance of developmental age effects on the study of brain networks in ADHD. Further, we proposed that cortico-cortical and cortico-subcortical connectivity might play an important role in the pathophysiology of children with ADHD, while abnormal cortico-cortical connections were more important for adults with ADHD. This work provided a potential new insight to understand the neurodevelopmental mechanisms and possible clinical application of ADHD

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Dev Sci. 2023 Jan;26:e13252.

INTRA-INDIVIDUAL VARIABILITY IN TASK PERFORMANCE AFTER COGNITIVE TRAINING IS ASSOCIATED WITH LONG-TERM OUTCOMES IN CHILDREN.

Cubillo A, Hermes H, Berger E, et al.

The potential benefits and mechanistic effects of working memory training (WMT) in children are the subject of much research and debate. We show that after five weeks of school-based, adaptive WMT 6-9 year-old primary school children had greater activity in prefrontal and striatal brain regions, higher task accuracy, and reduced intra-individual variability in response times compared to controls. Using a sequential sampling decision model, we demonstrate that this reduction in intra-individual variability can be explained by changes to the evidence accumulation rates and thresholds. Critically, intra-individual variability is useful in quantifying the immediate impact of cognitive training interventions, being a better predictor of academic skills and well-being 6-12 months after the end of training than task accuracy. Taken together, our results suggest that attention control is the initial mechanism that leads to the long-run benefits from adaptive WMT. Selective and sustained attention abilities may serve as a scaffold for subsequent changes in higher cognitive processes, academic skills, and general well-being. Furthermore, these results highlight that the selection of outcome measures and the timing of the assessments play a crucial role in detecting training efficacy. Thus, evaluating intra-individual variability, during or directly after training could allow for the early tailoring of training interventions in terms of duration or content to maximise their impact

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Egyptian Pediatric Association Gazette. 2022;70.

ATTENTION-DEFICIT HYPERKINETIC DISORDER AMONG CHILDREN AND ADOLESCENTS WITH TYPE 1 DIABETES: A CROSS-SECTIONAL STUDY.

Aly HH, AbdelAziz EA, Mousa MA, et al.

Background: Type 1 diabetes is a common childhood disease that is affected by and affects every aspect in the life of the child or adolescent with diabetes. Data on attention-deficit hyperkinetic disorder (ADHD) among children and adolescents with type 1 diabetes is limited. The aim of this study was to assess the prevalence of ADHD among a cross-sectional sample of 70 children and adolescents with type 1 diabetes as compared to 70 matched controls and to assess the glycemic control of included patients. For a comprehensive evaluation, assessment was done using Pediatric Symptom Checklist (PSC, the 35 item), Diagnostic and Statistical Manual of Mental Disorders-the fifth edition (DSM-5) criteria, and Conners comprehensive behavior rating scale-revised for parents/caregivers. Glycemic control of all included patients was also evaluated by HbA1c %.

Results: A screening PSC score was significantly higher for children and adolescents with type 1 diabetes than controls ($p < 0.001$). Significantly larger number of cases with type 1 diabetes fulfilled DSM-5 criteria for inattentive or hyperactive or mixed type ADHD (14.3%, 17.1% and 18.6%, respectively) as compared to controls (4.3%, 5.7%, and 7.1% respectively, $p < 0.05$). Also, a significantly larger number (more than half, 57.14%) had a Conners score above 70, and the mean scores on Conners parent rating scale were also significantly higher for children with type 1 diabetes than controls ($p < 0.001$). Most of the included patients did not achieve adequate glycemic control (47.14% of patients were in poor control and only about one fifth achieved a HbA1c < 7.5%).

Conclusion: ADHD is more common among children and adolescents with type 1 diabetes than in healthy controls. It is important to perform psychiatric evaluation of children and adolescents with type 1 diabetes especially those in poor metabolic control to assess for associated neuro-behavioral disorders such as ADHD. This is crucial to be able to properly design insulin therapy for such a group of patients who may suffer hypo- or hyper-glycemia due to inattention, forgetfulness, or hyperactivity and to-áproperly select educational material that take the easy distractibility of ADHD patients into account as well as to be able to properly manage such cases given the extra stresses entailed in having a diagnosis of diabetes

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Elife. 2022 Dec;11.

BODY MASS INDEX AND CHILDHOOD SYMPTOMS OF DEPRESSION, ANXIETY, AND ATTENTION-DEFICIT HYPERACTIVITY DISORDER: A WITHIN-FAMILY MENDELIAN RANDOMIZATION STUDY.

Hughes AM, Sanderson E, Morris T, et al.

BACKGROUND: Higher BMI in childhood is associated with emotional and behavioural problems, but these associations may not be causal. Results of previous genetic studies imply causal effects but may reflect influence of demography and the family environment.

METHODS: This study used data on 40,949 8-year-old children and their parents from the Norwegian Mother, Father and Child Cohort Study (MoBa) and Medical Birth Registry of Norway (MBRN). We investigated the impact of BMI on symptoms of depression, anxiety, and attention-deficit hyperactivity disorder (ADHD) at age 8. We applied within-family Mendelian randomization, which accounts for familial effects by controlling for parental genotype.

RESULTS: Within-family Mendelian randomization estimates using genetic variants associated with BMI in adults suggested that a child's own BMI increased their depressive symptoms (per 5 kg/m(2) increase in BMI, beta = 0.26 S.D., CI = -0.01,0.52, p=0.06) and ADHD symptoms (beta = 0.38 S.D., CI = 0.09,0.63, p=0.009). These estimates also suggested maternal BMI, or related factors, may independently affect a child's depressive symptoms (per 5 kg/m(2) increase in maternal BMI, beta = 0.11 S.D., CI:0.02,0.09, p=0.01). However, within-family Mendelian randomization using genetic variants associated with retrospectively-reported childhood body size did not support an impact of BMI on these outcomes. There was little evidence from any estimate that the parents' BMI affected the child's ADHD symptoms, or that the child's or parents' BMI affected the child's anxiety symptoms.

CONCLUSIONS: We found inconsistent evidence that a child's BMI affected their depressive and ADHD symptoms, and little evidence that a child's BMI affected their anxiety symptoms. There was limited evidence

of an influence of parents' BMI. Genetic studies in samples of unrelated individuals, or using genetic variants associated with adult BMI, may have overestimated the causal effects of a child's own BMI.
FUNDING: This research was funded by the Health Foundation. It is part of the HARVEST collaboration, supported by the Research Council of Norway. Individual co-author funding: the European Research Council, the South-Eastern Norway Regional Health Authority, the Research Council of Norway, Helse Vest, the Novo Nordisk Foundation, the University of Bergen, the South-Eastern Norway Regional Health Authority, the Trond Mohn Foundation, the Western Norway Regional Health Authority, the Norwegian Diabetes Association, the UK Medical Research Council. The Medical Research Council (MRC) and the University of Bristol support the MRC Integrative Epidemiology Unit

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Eur Psychiatry. 2020;63:S318.

ADHD AND EMOTIONAL DYSREGULATION.

Chinchurreta N, De Frutos Guijarro JJ, Mart+¡n Arag+¦n R, et al.

Introduction: El trastorno por déficit de atención con hiperactividad (TDAH) es un ejemplo común de psicopatología del desarrollo que podría entenderse mejor tomando una perspectiva de regulación emocional. Como se ha visto que la desregulación emocional se está convirtiendo en un problema más frecuente en la población infantiljuvenil, una psicopatología del desarrollo común como el TDAH podría entenderse mejor tomando una perspectiva de la emoción
Objectives: To describe the magnitude of emotional dysregulation in ADHD
Methods: To presente a bibliographic review about clinical, prevalence, etiology, treatmente efficacy; the magnitude of emotional desregulation in ADHD.
Results: The prevalence found in different studies ranges from 24-50%. Functional neuroimaging have discovered neuronal networks related to cognition (Cold) that are involved in the allocation of attention resources to stimuli that arouses emotion and other networks related to emotion (hot) that are responsible for orientation early to emotional stimuli and their perception. Therapeutic strategies used in the treatment of ADHD have shown efficacy in the management of emotional symptoms in parallel to the remission of the main symptoms of ADHD.
Conclusions: Emotional deregulation is a dimensional entity, NOT a categorical diagnosis. The majority of epidemiological research, focusing on children, has found a strong association betweenADHD and emotional dysregulation; moderate association between difficult early temperament, with high negative emotionality, and ADHD combined with emotional deregulation. ADHD patients have a primary dysfunction in the recognition of emotional stimuli and a difficulty in modulating emotions when they are negative

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Eur Psychiatry. 2020;63:S333.

SLEEP DISTURBANCES IN UNMEDICATED CHILDREN RECENTLY DIAGNOSED WITH ATTENTION-DEFICIT/HYPERACTIVITY DISORDER ASSESSED BY ACTIGRAPHY AND PARENT-REPORT QUESTIONNAIRES

Marta CF, Imma IP, Cristina GG, et al.

Introduction: Children with ADHD frequently have sleep disturbances. Results from subjective and objective sleep studies in ADHD have been inconsistent. The most often cited issues about the heterogeneity of result are the different methods of sleep measurement, the use of stimulant medication and the presence of psychiatric comorbidity.
Objectives: The objectives of this study were to assess sleep disturbances in unmedicated children recently diagnosed with attentiondeficit/ hyperactivity disorder (ADHD), compared with healthy peers, using actigraphy and parental questionnaires, and examine the potentially moderating role of severity of symptoms, ADHD subtype and comorbidity.
Methods: 120 children of age group between 6-16 years (60 children diagnosed with ADHD and 60 controls), recruited from a hospital's Child Psychiatry Outpatient services. Sleep disturbances were assessed using actigraphy during 7 consecutive days. The parents of these children were interviewed using Sleep

Disturbance Scale for Children (SDSC). The severity of ADHD and comorbidity were evaluated via the Conner's Parents Rating Scale and K-SADS-PL.
Results: The SDSC scale showed a significantly greater incidence of sleep disorders in children with ADHDas compared to controls. Children with ADHD had a higher score on Problems Initiating and Maintaining Sleep, Night Awakenings, Sleep-Disordered Breathing, Sleep-Awakening and Excess Daytime Sleepiness. Sleep disturbances were not finding by actigraphy. The presence of psychiatric comorbidity and combined ADHD subtype were associated with more severe sleep disturbances, but not severity of symptoms.
Conclusions: Sleep disturbances are more prevalent in children with combined ADHD subtype and psychiatric comorbidity; however, it is necessary objective assessment tools to verify these sleep disturbances

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Eur Psychiatry. 2020;63:S677.
DIMENSIONAL ANALYSIS OF ADOLESCENT ATTENTION-DEFICIT/ HYPERACTIVITY DISORDER.
Fernandez-Martin P, et al.
Introduction: In recent years, we are witnessing a crisis in diagnostic classification systems. Prevalence of mental health disorders has increased considerably, among various reasons, because traditional diagnostic criteria are not sensitive enough to detect their great heterogeneity. Attention-Deficit/Hyperactivity Disorder (ADHD) is one of the most prevalent mental health disorders, whose dimensional character has been pointed out.
Objectives: The aim of this study was to improve ADHD diagnosis by identifying ADHD specific dimensional profiles. Methods: 100 adolescents (12-16 years old) were recruited from the local community, 45 ADHD and 55 controls, and were assessed with AULA Nesplora, a virtual-reality Continuous Performance test (CPT) specially designed for the assessment of attentional processes, impulsivity, processing speed and motor activity level. Hierarchical and non-hierarchical cluster analysis were performed to identify new homogeneous groups based on specific behavioural symptoms. One-wayANOVAwas used to compare between-group differences in performance.
Results: Five dimensional profiles were obtained: two normative groups and three groupswith different impairments that don'tmatch with the traditional ADHD subtypes. These last three groups shared difficulties in selective and sustained attention but differed in the presence and severity of impulsive and/or hyperactive behaviours.
Conclusions: These findings represent an advance in the understanding of ADHD symptoms, highlight the need to update diagnostic criteria and could be useful to design most effective intervention strategies based on specific behavioural dimensions

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Eur Psychiatry. 2020;63:S317.
AWARENESS OF ATTENTION DEFICIT HYPERACTIVITY DISORDER AMONG SPECIAL EDUCATION STUDENTS IN RIYADH AND QASSIM REGIONS OF SAUDI ARABIA 2019-2020.
Alotaibi S, Alsoqih N, Aljhani S, et al.
Introduction: ADHD is a chronic genetic neurodevelopmental disorder. Which is represented by either inattention symptoms or hyperactivity symptoms or both of them. Subsequently, the peak of symptoms appears during childhood and decreases with growing older. Plenty of researches showed various factors could contribute to increasing symptoms' severity. ADHDis considered as one of the most common neurodevelopmental disorders. Yet, Saudi society's awareness towards it appears to be relatively lacking. Apart from that, Researches showed that teachers and parents misconception about the disorder affects children's improvement as a result of decreased support and not providing a healthy suitable environment for children's case.
Objectives: The general objective is to measure awareness levels of ADHD among college students majored in special education. Besides, other specific objectives such as assessing their knowledge about dealing with

ADHD child, assessing their thoughts about having an ADHD course and its importance in their career, and evaluating ADHD involvement within special education curriculums.
Methods: Data will be collected through a demographic questionnaire along with the Knowledge of Attention Deficit Disorders Scale (KADDS). Then, processed by the SPSS Statistics program.
Results: Expected Results (ongoing) Average to low levels of awareness among the students. Especially in medical knowledge about the disorder.
Conclusions: no conclusion yet will be posted as soon as possible

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Eur Psychiatry. 2020;63:S336.

NUTRITION IN NEURODEVELOPMENTAL DISORDERS: TO SUPPLEMENT OR NOT TO SUPPLEMENT, THAT IS THE QUESTION!

Sa-Carneiro F, Coelho R, Calhau C, et al.

Introduction: Neurodevelopmental disorders such as Autism Spectrum Disorder (ASD) and Attention Deficit Hyperactivity Disorder (ADHD) are lifelong conditions which have undergone huge diagnostic and therapeutic evolutions in the past decades. Although there seems to be consensus regarding therapeutic interventions in ADHD targeting dopaminergic and noradrenergic deficits in this disorder, the aetiology of the disorder seems far more complex, and in the case of ASD specific therapeutic target are still elusive to date. Concerns about adverse effects and interactions of multiple pharmacotherapy have boosted research on treatment strategies as nutritional supplements, but their advantages remain controversial. Objectives: The present study aimed to investigate nutritional status in Portuguese children diagnosed with ASD and ADHD (n=91).
Methods: Clinical evaluation included the Autism Diagnostic Observation Schedule (ADOS-2) and Autism Diagnostic Interview-Revised (ADI-R) and formal cognitive evaluation scales was performed in all the children, and patients on special diets, with metabolic disorders or with known vitamin deficiencies were excluded.
Results: An association between subclinical nutritional deficits and both Autism Spectrum Disorders and Attention Deficit Hyperactivity Disorder was detected.
Conclusions: With the present work, the authors aim to enlighten the role for PUFA's, iodine, zinc, selenium, iron and magnesium in neurodevelopment as distinct factors in the clinical presentation of both disorders. The relationship between nutritional status and ROS in the pathophysiology of ASD and ADHD is explored

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Eur Psychiatry. 2020;63:S426.

DIFFERENCES BETWEEN ADOPTED CHILDREN AND NON-ADOPTED CHILDREN RELATED TO ATTENTION-DEFICIT DISORDER WITH HYPERACTIVITY. THE IMPORTANCE OF THE EFFECT OF DEPRIVATION .

Martin Villarroel C, Carpio Garcia L, Dominguez Cutanda J, et al.

Introduction: Multiple studies have demonstrated that adopted children develop behavioral and we think that they have a more risk of develop of attention-deficit hyperactivity disorder (ADHD). Objectives: The objective of this paper is to study if there is a higher frequency of ADHD in adopted than non-adopted children and in that case, which risk factors increase the vulnerability.
Methods: A bibliographic search was performed from different database (Pubmed, TripDatabase) about both populations, looking for vulnerability factors for the development of ADHD.
Results: We found more ADHDon adopted children than children raised in their biological families. This finding might be because of risk factors related with adopted children, like prenatal alcohol exposure and a maintained state of deprivation (from no social or cognitive stimulation, to maltreatment). In addition, the prevalence and levels of ADHD symptoms are increased in children who have been institutionalized early life, because it can disturb the development of some brain regions, and children who have spent more time in these institutions (more than 6 months). We found that de prevalence of ADHD symptoms between adopted children with low level of deprivation were similar to the general population (5.6%), while individuals with high level of deprivation had over four times than the others (20%).

Conclusions: In conclusion, adopted children have more risk to develop ADHD, especially if they have been exposed to a serious deprivation, on a earlier age and six months minimum. We should put more attention in this population to act early and supply an appropriate development

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Eur Psychiatry. 2020;63:S320.

'MY MOTHER WAS VERY SAD WHEN I WAS BORN.' PSYCHOPATHOLOGY IN SONS OF PATIENTS WITH SEVERE MENTAL DISORDER. CASE REPORT.

Del Sol Calderan P, et al.

Introduction: This is a 9-year-old male who begins follow-up in mental health derived from pediatrics due to behavioral problems. Objectives: The aim of this case is to show how presenting a serious mental disorder implies a greater risk of psychopathology in the children of these patients.

Methods: The medical history includes digestive colic and 3 admissions for bronchiolitis in childhood. The patient is in third grade (repeated second grade once). He is an only child. The mother has two children from a previous marriage, divorced from her ex-partner 5 years before the patient's birth. Highlights very low tolerance to frustration with intense tantrums. In addition, both at school and at home, the patient is very restless, with difficult handling and often maintaining a challenging attitude. He never respects the turn of speech both in class and in games. Also for about 2 months he complains of nonspecific abdominal pain that the pediatrician has considered as functional

Results: As a family history, severe postpartum depression stands out consisted of high nervousness, low mood with marked apathy and anhedonia. She had severe thoughts of disability rejecting his son. She had intense suicide ideas with fear of harming her son. She was admitted responding to 11 sessions of electroconvulsive therapy. During her follow-up she has been diagnosed with bipolar disorder

Conclusions: Mental pathology in parents can affect the development of a secure attachment, giving more frequent health problems and a decrease in weight and height; with more risk of anxiety and depression and ADHD

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Eur Psychiatry. 2020;63:S516.

ADD ESCAPE: AN IMMERSIVE EXPERIENCE FOR ADD TREATMENT.

Figueroa P, Cabas-Hoyos K, Gomez-Cubillos V.

Introduction: 5% of infants and teenagers worldwide are diagnosed with attention deficit disorder (ADD) (APA, 2013). We present ADD Escape, an immersive serious game for cognitive intervention in ADD patients. We support abilities such as omission of irrelevant stimuli, following instructions, sustained attention, cognitive flexibility, inhibition, interference control, and task persistence.

Objectives: To study the effect of virtual reality for the intervention of ADD.

Methods: Subjects. The final sample will be teenagers (n:150) between 13 and 16 years old, with ADD. We will do a randomized controlled trial (RCT) where subjects will be divided into three conditions: G1: Pen and paper. G2: ADD Escape. G3. Waiting list Subjects will receive 9 weeks of intervention. Pre and post interventions will include neuropsychological evaluations of selective, sustained, and divided attention, as well as a motivation measurement. A follow up after three months will be performed. Data Analysis. An ANOVA analysis and its size effect will allow a comparison between conditions. Tools and Functionality. ADD Escape is an escape room puzzle that presents RCTs such as the following: voice and text commands, shape matching, organization of objects, and inhibiting activities. ADD Escape is designed for the Oculus Quest platform, with 64GB of memory, a resolution of 1440 x 1600 pixels per eye, and a refresh rate of 72Hz.

Results: We hypothetize that ADD Escape will motivate more than pen and paper and will create more adherence to treatment.

Conclusions: We show with ADD Escape some of the benefits of VR for the intervention of disorders such as ADD

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Eur Psychiatry. 2020;63:S672.

THE BOY WHO NEEDED MORE THAN PILLS.

Carrajo Garcia C, Loeck De Lapuerta C, Rodriguez De Lorenzo M, et al.

Introduction: 16-year-old male in follow-up with Neurology and Psychiatry from the age of 6, with poor tolerance to different pharmacological lines. He has received the diagnoses of Autism Spectrum Disorder, Attention Deficit Hyperactivity Disorder and Tics Disorder.He has not performed psychotherapeutic treatment prior.

Objectives: The main objective is to highlight the importance of psychotherapy in neurodevelopmental disorders.

Methods: He was adopted alone by his mother at age three. In the initial joint interview, an authoritarian parental style is observed, with deregulation between affection / communication and control / demand. Subsequent individual evaluations reveal difficulties in communication and social interaction, the need for rigid routines and poor cognitive flexibility, as well as depressive symptoms derived from poor self-concept. There is a disagreement between the demand raised by the mother (pharmacological adjustment) and the son, who focuses on interpersonal relationship difficulties (difficulty inferring mental states from others, impulsivity and inadequacy in response). Results: In the therapeutic setting (outpatient intervention), in addition to the pharmacological adjustment, the following objectives were raised: -To promote autonomy and interpersonal functioning on the one hand and effective and bidirectional communication on the other hand, through family and interpersonal therapy. -Increase cognitive flexibility and reduce the level of anxiety in situations beyond control, through cognitive-behavioral interventions. -Training in identification and regulation of emotions, assertive communication and social cognition.

Conclusions: Although the psychotherapeutic intervention on the nuclear problem of neurodevelopment may be minimal, the rest of the objectives focused on improving the quality of his relationships (and his life) if they are attainable

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Eur Psychiatry. 2020;63:S598.

INVESTIGATING THE EFFECTS OF PHYSICAL ACTIVITY ON POSITIVE AND NEGATIVE AFFECT IN THE EVERYDAY LIFE OF PATIENTS WITH ADHD - A MOBILE HEALTH APPROACH.

Koch E, Freitag C, Mayer J, et al.

Introduction: Physical activity is beneficial for both physical and mental health. Thus, several Ambulatory Assessment studies have investigated the association between physical activity and affect, but mainly in healthy individuals. Individuals with mental disorders, e.g., ADHD, rarely have been subjects of Ambulatory Assessment studies investigating this association.

Objectives and Methods: To investigate affect-responses to physical activity in the everyday life of patients with ADHD and healthy controls, we used multilevel-models to analyze data from electronic diaries and accelerometers (N=118 individuals, aged 14-44 years). Participants reported on positive and negative affect repeatedly in real-time via Smartphone-App and wore accelerometers across four days.

Results: Preliminary findings show that physical activity increases positive affect and decreases negative affect in the short term in healthy individuals. Patients with ADHD show similar patterns, with minor differences to the healthy control group.

Conclusions: Physical activity influences both positive and negative affect in patients with ADHD and healthy individuals. Translated into practice, these findings may serve as an empirical basis for future interventions targeting the improvement of affective instability in patients with ADHD

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Eur Psychiatry. 2020;63:S334-S335.

FUNCTIONAL NIRS EVALUATION OF PREFRONTAL CORTEX ACTIVITY DURING EMOTIONAL PROCESSING IN CHILDREN WITH ADHD.

Maddalena M, Grazioli S, Crippa A, et al.

Introduction: Attention deficit hyperactivity disorder (ADHD) is characterized by a lack in self-regulation of behaviour, cognition and emotional response. Children with ADHD often experience emotional dysregulation (ED) defined as the inability to regulate emotions and to organize behaviours in response to emotional stimuli.
Objectives: The present exploratory study aimed to evaluate possible peculiar sensitivity to emotional stimuli in children with ADHD and ED, revealed by behavioural performances and cortical hemodynamic characteristics measured with functional Near Infrared Spectroscopy (fNIRS). The relationship between haemodynamic activation during task and ADHD and ED symptoms was also investigated.
Methods: Eighteen children with ADHD and ED, all drug naïve, and 25 typically developing (TD) peers, aged 6-16 years, underwent fNIRS while performing a visual emotional continuous performance task in which faces with relevant positive, negative and neutral content were presented. ADHD and ED symptoms were evaluated with Conners' parents rating scales (CPRS). Selected fNIRS sources and detectors see figure1
Results: Between groups comparisons revealed worse performances of ADHD children, with a statistically significant difference for positive blocks and total errors. fNIRS analysis showed higher activation inTDgroup, as measured by higher oxygenated-haemoglobin concentration changes, localized in right prefrontal cortex, regardless from the valence of the emotional stimuli. Correlations conducted between fNIRS activation and CPRS revealed several associations between hemodynamic changes in right prefrontal regions and inattention and hyperactivity, but not ED symptoms.
Conclusions: Lack of self-regulation and ED impact on ADHD children ability to process emotional stimuli, as revealed by worse performances and haemodynamic peculiarities in right prefrontal cortex

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Eur Psychiatry. 2020;63:S83.

CHILDREN WITH ADD HAVE DEFICIT IN VERBAL MEMORY IN DELAYED RECALL CONDITION.

Kiselev S.

Introduction: It was shown that children with attention deficit disorder (ADD) have cognitive deficit, particularly deficit in working memory (Martinussen et al., 2012). In our previous research we have revealed that ADHD children have deficit in visual memory in delayed recall condition in comparison to immediate condition (Kiselev, 2018).
Objectives: The goal of this research was to examine the hypothesis that 7-8 years old children with attention deficit disorder have a deficit in verbal memory in delayed recall condition.
Methods: The experimental group included 15 children with ADD at the age of 7-8 years. The control group included 15 typically developing children. The children from groups were matched for IQ, gender and age. Children from both groups were assessed with verbal memory test from Luria's neuropsychological battery. This test is designed to assess reproducing the 6 words in immediate and delayed recall conditions. ANOVA with repeated measures was used to reveal group differences in reproducing the words in two conditions.
Results: We have not revealed significant differences between children from experimental and control group in reproducing the words in immediate condition. However, the interaction of condition type and group was significant [p 0,05]. Children with ADD had weakness in reproducing the words in delayed recall condition.
Conclusions: In view of our previously received results in children with ADD, we can propose that deficit in memory in delayed recall condition can be one of the key symptoms in this disorder. The research was supported by Act 211 Government of the Russian Federation, agreement 02.A03.21.0006

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Eur Psychiatry. 2020;63:S651.

HETEROGENEITY IN THE DIAGNOSTICS OF ATTENTION DEFICIT HYPERACTIVITY DISORDER DIAGNOSIS IN THE CZECH REPUBLIC AMONG ADULTS.

Vè Ukovi M, Ptiìek R, Raboch J.

Introduction: Attention Deficit Hyperactivity Disorder (ADHD) is a neurological disorder most commonly diagnosed at the age of 7-10 years, which persists in adulthood in 40-60%.

Objectives: Previous years we reported the discrepancy of the diagnosis among children aged 6-10, as a follow up we looked at the prevalence and source of diagnosis among adults.

Methods: Data were collected using a combination of qualitative and quantitative methodology. In the first wave we used standardized questionnaires for symptomatology of ADHD, time perception as well as lifestyle and demographic surveys.

Results: A total of 1518 respondents participated in the research: 766men and 752women.3%of respondents (31men and 15women) reported having been diagnosed with ADHD / hyperkinetic disorder throughout their lives. The average age at which they were diagnosed was 9.18 years. Most often, up to 39.1%, the diagnosis came from an expert in the pedagogical-psychological counseling, followed by a child psychiatrist (21.7%) and a general practitioner (19.6%). Only in one case was the diagnosis made by a clinical psychologist.

Conclusions: The worldwide prevalence of ADHD is between 3-7%. Our results suggest an adequate level of ADHD diagnosis. Similarly, as with children and adolescents, the problem may be that the diagnosis came from a number of sources. However, with children we saw that there was no ADHD diagnosed by general practitioner and far more cases were diagnosed by clinical psychologist. Therefore, we see further discrepancy even within Czech republic. This is only further proof that implementation of structured assessment is crucial

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Eur Psychiatry. 2020;63:S82.

POSITIVE IMPACT OF BODY-ORIENTED THERAPY ON EXECUTIVE ABILITIES IN 6-7 YEARS OLD CHILDREN WITH ADD.

Kiselev S.

Introduction: It is known that children with attention deficit disorder have deficit in cognitive abilities, specifically in executive abilities. It is important to develop the trainings to overcome this deficit in children with ADD.

Objectives: The goal of this study was to reveal effect of bodyoriented therapy on executive abilities in ADD children. We compared the efficacy of two methods of treatment (body-oriented therapy for children vs. conventional motor exercises) in a randomized controlled pilot study.

Methods: 15 children with ADD between 6 to 7 years of age were included and randomly assigned to treatment conditions according to a 2-¦2 cross-over design. The body-oriented therapy included the exercises from yoga and breathing techniques. To assess the executive functions and attention in children we used 4 subtests from NEPSY (Tower, Auditory Attention and Response Set, Visual Attention, Statue). Effects of treatment were analyzed by means of an ANOVA for repeated measurements.

Results: The ANOVA has revealed ($p<.05$) that for all 4 subtests on executive functions and attention the body-oriented therapy was superior to the conventional motor training, with effect sizes in the medium-to-high range (0.44-0.83).

Conclusions: The findings from this pilot study suggest that bodyoriented therapy can effectively influence the executive abilities in children with attention deficit disorder. However, it is necessary to do further research for revealing the impact of body-oriented therapies on the prevention and treatment of ADD in children. The research was supported by Act 211 Government of the Russian Federation, agreement 02.A03.21.0006

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Eur Psychiatry. 2020;63:S456-S457.

UNLOCKING THE MIND: UNDERSTANDING THE IMPACT OF MINDFULNESS MEDITATION ON THE COGNITIVE FUNCTIONING OF CHILDREN WITH ADHD.

Gottlieb M, Bigelow H, Fenesi B.

Introduction: Mindfulness meditation has received attention as a potential alternative or adjunct treatment for Attention Deficit Hyperactive Disorder (ADHD) in children. While pharmacological interventions are commonly used, they have side-effects that may impact quality of life. Thus, there is an urgent need to identify alternative treatments that target ADHD symptoms and support overall well-being.
Objectives: Examine the impact of a 10-minute mindfulness meditation session on cognitive functioning and learning in 20 children with ADHD (ages 10-14).
Methods: We use a pre-post within-subjects design whereby participants first complete a battery of cognitive tests assessing attention, working memory, inhibitory control, and learning. Participants then engage in a 10-minute pre-recorded guided mindfulness meditation session (experimental group) or a silent reading session (control group). Participants then complete modified versions of the cognitive and learning tests. We also use functional near-infrared spectroscopy (fNIRS) to measure changes in brain activation within the prefrontal cortex during the cognitive and learning tasks. This protocol allows us to evaluate whether brief a mindfulness meditation bout supports greater prefrontal cortical activity, and consequently promotes cognitive functioning.
Results: The study is ongoing, with results to be presented at the congress. We predict that mindfulness meditation will improve prefrontal cortical functioning (relative to silent reading), which will directly impact enhanced performance on cognitive and learning tasks.
Conclusions: These findings will allow us to better understand how mindfulness meditation impacts cognitive functioning in children with ADHD and potential underlying neural processes. Results will have implications for the practical use of brief mindfulness meditation interventions for children with ADHD

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Eur Psychiatry. 2020;63:S321-S322.

THE CHARACTERISTICS OF VISUAL ATTENTION OF THE STUDENTS OF THE ELEMENTARY SCHOOL WITH ADHD.

Goryacheva T, Belousov A.

Introduction: The current study considers attention as a multicomponent process with several characteristics. The analysis of each characteristic helps to understand the special features of attention development of children with ADHD.
Objectives: The research aim is analyzing the characteristics of voluntary visual attention of children in the age from nine to eleven years with hyperactive disorder with attention deficit.
Methods: The experimental group consists of 25 children of 9-11 years with the diagnosis F90.0 Attention deficit hyperactivity disorder. The control group includes 25 children of the same age and gender meeting the requirements of homogeneous indexes with the experimental group. The research methods include six consequent techniques, given in the following order: Bourdon test, Comparison of characteristics (Cohen's Test), Schulte table test; Ray's twisted lines test; Pieron-Rouser test; shortened five-minute Toulouse-Pieron attention test.
Results: The research shows that the children with ADHD demonstrate derangements in concentration degree, stableness, distribution, volume and shift of attention comparingwith the children of the control group. For instance, by the end of the Bourdon Test the latter decrease their speed but the concentration remains relatively high, whereas theADHDchildren show the deterioration of concentration along with the practically the same speed of performance.
Conclusions: The fatigue as a result of a series of several consequent tasks reflecting various attention characteristics comes sooner to the children with ADHD whereas the children of the control group just slow down the activity and change the strategy, still keeping concentration at the same level

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Eur Psychiatry. 2020;63:S335-S336.

SUPPORT PROGRAM FOR THE CARIEER OF ATTENTION DEFICIT HYPERACTIVITY DISORDER: A UNIVERSITY EXTENSION PROJECT.

Paiva Wagner CJ, Kurmann AC, Viapiana V, et al.

Introduction: Attention Deficit Hyperactivity Disorder (ADHD) is the main neurobehavioral disorder affecting children and adolescents between six and seventeen years of age; It is a neurodevelopmental disorder of chronic and hereditary characteristics, with behavioral patterns of inattention, impulsivity, and hyperactivity1,4. ADHD affects 5% of school-age children and 2.5% of adults. In addition, 60-80% of patients remain with symptoms in adulthood. Among the etiologies involved in ADHD, the main one is heritability, whichmay reach 75%2,3. Regarding the prognosis, there is a relationship between ADHD and substance abuse and other psychiatric disorders, academic and professional failure, difficulty in interpersonal relationships3. It is recommended that the treatment be multimodal, involving drug therapy, psychological and psychoeducation5. The drugs of choice are methylphenidate and dexamphetamine4.
Objectives: To present a multidisciplinary university extension project that works in the diagnosis and treatment of children with ADHD.
Methods: The project operates in a multidisciplinary way, involving the medical, psychological and psycho-pedagogical areas. Patients undergo initial medical evaluation, followed by neuropsychological evaluation to confirm or exclude the diagnosis. When associated with learning disorders, psychopedagogic intervention is performed.
Results: In 2019, the project provided over 130 consultations, covering more than 60 patients.
Conclusions: The project performance is justified, being ADHD a prevalent disease in the population and with developmental damage; thus, it is of utmost importance to correctly diagnose and treat patients with a specialized and multidisciplinary team

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Eur Psychiatry. 2020;63:S592.

THE SILENT MINORITY: FEMALES WITH ADHD.

Kilic O, Young S.

Research has identified gender differences in several correlates of ADHD. Firstly, population studies in childhood have shown a sex ratio of 1:3, suggesting that ADHD is less prevalent in girls than boys; however, in clinical studies, this ratio is between 1:5 to 1:9. In adulthood, the sex ratio of ADHD is 1:1 both in the population and clinical studies. Secondly, females with ADHD present more with inattention rather than hyperactivity and impulsivity. Symptoms of inattention are more subtle and likely to manifest in a structured environment such as high school or college, resulting in a delay in the diagnosis. Because of higher disruptiveness, boys are more likely to be referred to the clinic. Some researchers blame referral bias as the cause of gender differences in clinical settings and gender does not affect the clinical correlates of ADHD. Despite the available research, gender differences are poorly understood possibly because of the underrepresentation of females in the literature

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Eur Psychiatry. 2020;63:S493-S494.

NEUROBIOLOGICAL EFFECTS OF TWO PHYSIOTHERAPY PROGRAMMES ON SOMATIC AND NEUROPHYSIOLOGICAL MANIFESTATIONS SHOW THE RELEVANCE OF PHYSIOTHERAPY IN THE MANAGEMENT OF CHILDREN WITH ATTENTION-DEFICIT/ HYPERACTIVITY DISORDER.

Bayo-Tallin V, Esquirol-Caussa J, P+ámias Massana M, et al.

Introduction: ADHD is a neurobiological disorder; common symptoms are inattention, hyperactivity, impulsivity, deficient emotional self-regulation often associated with motor problems. Despite motor impairments, somatic and neurophysiological features frequently occur in ADHD, they are not included in the diagnostic criteria.
Objectives: To assess basal somatic features (joint hypermobility, motor-control, fine motor skills, general-coordination, autonomic response, biotipology) in the presence ofADHDand compare them with the

reference values. To analyse short-term effects of two physiotherapy programmes on physiological/neurophysiological variables and their persistence.
Methods: Randomized double-blind, clinical-trial conducted (n=48) in ADHD children divided into two intervention groups (IG). Interventions: IG1: massage; IG2: manual-cranial-therapy. Both groups received the standard multimodal treatment plus 4 sessions according to each group.
Variables: vital-signs (temperature, respiratory rate, heart rate, blood pressure), joint hypermobility, somatotype, general-coordination, motor-control, fine motor skills, Heart Rate Variability (HRV) time/frequency domain parameters.
Results: Forty-eight participants (7-11 years-old, ΓÖé45.83%; 54.16%, body mass index average BMI=17.879kg/m2). 66.67% had joint hypermobility, 45.833% presented ectomorph composition. Baseline sympathetic activity predominance on HRV, deficits in motor-control, fine motor skills and general-coordination were also observed. Both programmes significantly reduced vital-signs and increased parasympathetic activity in the short-term, but only IG2 reduced LF/HF short-term ratio (p=0.00012) and improved psychomotor skills within eight weeks by exerting parasympathetic effects (p=0.00005).
Conclusions: Only IG2 programme showed significant changes on vital-signs, HRV and psychomotor skills maintained during eight weeks. Physiotherapy assessment of somatic/neurophysiological traits should be included in the diagnostic process as part of the multidisciplinary approach to manage somatic/clinical manifestations associated with ADHD

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Eur Psychiatry. 2020;63:S334.
QUALITY IMPROVEMENT PROJECT IN ADHD TREATMENT PATHWAY UNDER MERTON CHILD AND ADOLESCENT MENTAL HEALTH SERVICE (CAMHS).
Nagasinghe P.
Introduction: Diagnosis of ADHD for children residing in the Borough if Merton is currently being carried out by CAMHS Neurodevelopment Service located at Springfield Hospital. Due to centralised nature of assessments young people tends to stay in a waiting list for nearly 6-8 months. Following diagnosis they get redirected to Merton CAMHS as a new referral to consider initiation of medication. This two-stage process adds a considerable delay into starting medication.
Objectives: Reduce the waiting time for young people waiting on medication treatment pathway under Merton CAMHS.
Methods: We are hoping to collect following data on patients who were on waiting list in September and October 2019; number of patients, age range, duration of being on waiting list, total number of medication initiation appointments offered, average duration of these appointments We will be handing over an information pack on ADHD medication from November to December 2019 to get patient feedback on what needs to be included in such a pack. Finalised information packs will be sent to young people prior to each medication initiation appointment from January to February 2020 while reducing the appointment time to 45 minutes.
Results: We have collected the data and currently distributing the information packs to young patients and families.
Conclusions: Our hypothesis could be that the introduction of information pack on medication would help to bring down appointment time by half. This would help us to bring the waiting time by half for the current cohort

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Eur Psychiatry. 2020;63:S329.
PREVALENCE OF ATTENTION DEFICIT AND HYPERACTIVITY DISORDER IN ADOLESCENTS ATTENDING SCHOOL.
Morel S, Tejada N, Martinez N, et al.
Introduction: Attention Deficit and Hyperactivity Disorder (ADHD) is one of the most common neuropsychiatric conditions that interfere in the normal process of teenage development, adaptation and

learning, affecting the fulfillment of norms and in their behavior within family, interpersonal and academic environments.
Objectives: Determine the prevalence of Attention Deficit and Hyperactivity Disorder (ADHD) in adolescents attending school in Santiago de los Caballeros, Dominican Republic.
Methods: The investigators conducted a descriptive, crosssectional study of primary source during the months of March-April 2018. The population was adolescents from 13 to 17 that were attending school in Santiago de los Caballeros. This investigation was performed through a survey that was filled in by the parents or tutors of the adolescents. The sample used was of 615 students, divided into 12 schools.
Results: The results showed a prevalence of ADHD of 25.7%. The type of ADHD that predominated was hyperactivity and impulsivity (47.5%). The relation between sex and the disease demonstrated a ratio of 1:1. The 27.4% and 22.3% of individuals within the age ranges of 15 to 17 and 13 to 14, respectively, presented symptomatology of ADHD. The analysis presented statistical association between failing subjects and grades and showing symptoms of the disease ($p < 0.05$).
Conclusions: One quarter of the population studied obtained positive result of ADHD. Hyperactivity and impulsivity predominated over the other types of the disorder. Public schools showed more cases than private schools, although no statistical significance was observed. Relation between ADHD and failing grades and subjects at school was found

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Eur Psychiatry. 2020;63:S130.
CONTRIBUTION OF DIGITAL HEALTH TECHNOLOGIES IN THE MANAGEMENT OF ATTENTION DEFICIT AND HYPERACTIVITY DISORDER (ADHD).
Ben Othman A, Bourgou S, Azouz Z, et al.
Introduction: ADHD is a common neurodevelopmental disorder with serious functional impairments. The symptoms management and medication adherence remain challenging in most cases. Digital health technologies (DHT) seem to offer a better approach to support the traditional treatment strategies. Objectives: Investigate the use of DHT in the management of paediatric ADHD.
Methods: A review of the literature, including articles evaluating the use of telemedicine in ADHD, with the following key words was done using the PubMed and google scholar: telemedicine, mHealth, ADHD, internet
Results: Perpetually developing, and individualized DHT were mentioned in the literature. These can be classified into different categories: Telemedicine/ telepsychiatry: Based on remote professional interventions. It Helps local primary care providers to deliver evidence based pharmacologic treatment and behaviour training interventions for children with ADHDthanks to training programs and continuous monitoring by specialists. It also allows consultations through videoconferencing, and remote monitoring. Computerized Cognitive and Behavioural Therapy (cCBT) was used in serious games interventions helping children to improve their executive functions and daily life skills. mHealth: Mobile-delivered Health provides information, interventions and assessments on mobile devices, such as smartphones. Apps related to ADHD aim to improve organizational skills, and include tools such as reminders, timers, reward charts etc. It also facilitates caregivers / care providers' communication telehealth: Includes Web portals, informative sites and electronic health records providing communication, screening and symptom tracking tools, rating scales.
Conclusions: Multiple studies emphasize the improved outcomes of DHT as they are valued, available and well accepted treatment strategies. Further investigations are needed to evaluate these findings

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Eur Psychiatry. 2022;65:S324-S325.
LONG-TERM SUICIDE RISK OF CHILDREN AND ADOLESCENTS WITH ATTENTION DEFICIT AND HYPERACTIVITY DISORDER - A SYSTEMATIC REVIEW.
Garas P, Balazs J.
Introduction: Several studies showed the high suicide risk of patients with attention deficit and hyperactivity disorder (ADHD), however most of these studies had cross-sectional design.

Objectives: The aim of the current study was to review systematically those studies which investigated the suicide risk among ADHD patients with longitudinal design.
Methods: The systematic search was made on OVID Medline, PsychInfo, PubMed, Scopus, and Web of Science. The search terms were (ADHD OR attention deficit hyperactivity disorder) AND (suicide OR suicidal OR suicidality) AND (follow-up OR longitudinal study OR prospective study). Inclusion criteria were: written in English; participants under 18 years at the baseline; longitudinal, prospective studies; ADHD population at the baseline and at the follow-up; suicide behavior as primary outcome.
Exclusion criteria were: the study did not contain empirical data, and reviews/meta-analyses and studies which aimed to investigate the drug treatment efficacy of ADHD.
Results: 18 papers were included in the systematic review. 10 articles were published in the last 5 years. 9 studies enrolled children aged under 12 at baseline. The follow-up periods varied between 2 and 17 years. 17 studies found a significant positive association between ADHD diagnosis at baseline and the future suicidal behavior and/or attempts at the follow-up. The affective comorbidity showed an association with the future suicide risk.
Conclusions: These results highlight the importance of screening suicidality in patient with ADHD and consider it during treatment. Further studies are needed to clarify the role of the treatment and comorbidities of ADHD in the increased suicide risk

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Eur Psychiatry. 2022;65:S462.

BEHAVIORAL PHENOTYPE OF NOONAN-LIKE SYNDROME WITH LOOSE ANAGEN HAIR.

Bouayed Abdelmoula N.

Introduction: Noonan-like syndrome with loose anagen hair (NSLH MIM 607721) is associated to mutations in PTPN11, RAF1, BRAF and SHOC2 genes.
Objectives: Here, we report behavioral phenotype of a child suspected to have NSLH.
Methods: A 2-years-old Tunisian child harboring severe pulmonic valvular stenosis was referred to our genetic counselling for genetic assessment. Medical dysmorphology, cytogenetic analysis as well as genetic exploration of RAS-MAPK pathway genes were conducted.
Results: The child had short stature and ectodermal features including ichthyotic skin and thin-soft nails. He has specific hair appearance associated to NS features. In fact, he had a small nasal tip, thick lips and sticking-out rotated ears. He harbored typical nasal voice and loose anagen hair with ungrowing thin hair, sparse and pale scalp hair and eyebrows. He showed cognitive deficits with mental retardation and hyperactive behavior. Considered as having NSLH, cytogenetic analysis revealed a 46, XY formula, but molecular screening of PTPN11, RAF1, BRAF, RIT1 and SHOC2 genes was negative.
Conclusions: Mutations within the RAS-MAPK signaling pathway affect neurophysiologic activity in brain regions underlying attention and executive functions. Children with rasopathies demonstrated higher rates of attention deficit-hyperactivity (ADHD) and autism spectrum disorders. However, no studies have examined specifically the aspects of behavioral attention in the various types of Rasopathies. A recent study demonstrated that ADHD seems to be higher in children with NSLH and SHOC2 mutation, which is the case of our patient. We suggest that assessment of inattentive and hyperactivity symptoms in children should consider Rasopathies with specificmolecular screening

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Eur Psychiatry. 2022;65:S82.

USE OF ADHD MEDICATION AMONG DANISH CHILDREN AND ADOLESCENTS FROM 2010-2020 - A NATIONWIDE STUDY.

Stoltz-Andersen M, Wesselhoeft R, Ernst M, et al.

Introduction: To ensure rational drug use, there is a need to continuously monitor the use of ADHD medication among children and adolescents.
Objectives: To describe the use of ADHD medication among Danish children and adolescents from 2010-2020.

Methods: Using the Danish national healthcare registries, we extracted data on filled prescriptions of ADHD medication (including methylphenidate, atomoxetine, guanfacine, dexamphetamine, and lisdexamphetamine) among children (age 6-12 years) and adolescents (age 13-17 years) between 2010-2020. We examined the annual incidence rate and prevalence proportion of ADHD drug use, and the proportion of children and adolescents having an ADHD diagnosis when initiating ADHD medication.
Results: From 2010-2020, the incidence followed a u-shaped trend with an incidence rate of 4.9/1,000 children and 4.4/1,000 adolescents in 2010, decreasing to 3.2/1,000 children and 3.0/1,000 adolescents in 2013, and rising to 4.9/1,000 children and 4.8/1,000 adolescents in 2020. The prevalence for children showed a similar trend, shifting from 17/1,000 in 2010, to 15/1,000 in 2016, and peaking at 19/1,000 children in 2020. However, among adolescents the prevalence increased steadily from 19/1,000 in 2010 to 29/1,000 in 2020. 67% of children and 53% of adolescents initiating ADHD medication had an ADHD diagnosis.
Conclusions: After an initial decline in incidence rates of ADHD medication use among Danish children and adolescents, there has been a rise in use the last five years. The same trend applied for the prevalence among children, whereas the prevalence among adolescents increased steadily over the entire period. More than half of children and adolescents initiating ADHD medication were diagnosed with ADHD

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Eur Psychiatry. 2022;65:S384.

ADHD IN A PATIENT WITH EATING DISORDER. CASE REPORT.

Del Sol Calderin P, Izquierdo De La Puente A, Garcia Moreno M, et al.

Introduction: 15-year-old female referred to outpatient unit after COVID lockdown for binge eating and purging with depressive symptoms and anxiety.
Objectives: To show the importance of a correct diagnosis in an impulsive patient with eating disorder
Methods: case report and literature review
Results: The patient presents emotional instability with interpersonal difficulties with high fear of rejection. She suffered from fear of gaining weight and desires to lose weight with rejection of her body image. Fluoxetine and lorazepam are started together with low doses of olanzapine. During the follow up she presented a worsening of mood, onset of self-injuries and an episode of suicidal attempt. A biographical examination was performed, expressing a feeling of academic failure with difficulty concentrating and performing simple tasks. As a child she is described as impulsive, with frequent arguments with classmates. CPT III was performed with a high probability of ADHD. Treatment was started with lisdexamfetamine up to 50 mg with good tolerance. From the beginning of the treatment the patient expressed a feeling of improvement in the control of emotions as well as in the management of her impulsivity. There was an improvement in her academic performance with a decrease in self-injury episodes. The patient was able to express improvement in the sense of incapacity she felt.
Conclusions: This case shows how marked emotional dysregulation and impulsive symptoms improves after diagnosis and subsequent treatment of ADHD, also improving eating symptoms. ADHD is present in eating disorders, especially in those with impulse dyscontrol such as binge eating disorder or bulimia nervosa

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Eur Psychiatry. 2022;65:S431.

NEUROFIBROMATOSIS TYPE 1 COMORBID WITH ATTENTION DEFICIT AND HYPERACTIVITY DISORDER. CASE REPORT.

Del Sol Calderin P, Paricio Del Castillo R, Mallol Casta+¦o L, et al.

Introduction: A 9-year-old girl under pediatric follow-up since the age of 4 years after diagnosis of neurofibromatosis type 1
Objectives: To present a case of neurofibromatosis and ADHD comorbidity to raise awareness of the importance of screening for neurodevelopmental disorders.
Methods: Case report and literature review
Results: The patient had an adequate control and follow-up of the disorder with periodic check-ups and magnetic resonance imaging during her follow-up. She was referred due to symptoms of inattention with failure to perform exams and impulsivity in interpersonal relationships, affecting her social functioning. In

addition, the patient presented simple motor tics of eye contraction and shoulder elevation. The patient was diagnosed with attention deficit hyperactivity disorder together with tic disorder. She was treated with stimulant medication with worsening of tics and marked hyporexia. Therefore, medication with guanfacine was started up to 4 mg per day, adjusted by weight. With this dose there was a control of the tics, with improvement of the symptoms of inattention and impulsivity. In different spheres an improvement in their functionality was observed, with improvement in mood, selfesteem and academic performance.
Conclusions: Neurofibromatosis type 1 is a rare monogenic disorder with a varied presentation (ophthalmologic, dermatologic and predisposition to tumor development). Patientshave been shown to present with symptoms of inattention and executive function impairment, along with other neurodevelopmental disorders such as autism spectrum disorders, learning disabilities or intellectual disability. The literature shows that up to 60% of them has ADHD criteria

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Eur Psychiatry. 2022;65:S165-S166.

USE OF MACHINE LEARNING ON CLINICAL QUESTIONNAIRES DATA TO SUPPORT THE DIAGNOSTIC CLASSIFICATION OF ATTENTION DEFICITHYPERACTIVITY DISORDER: A PERSONALIZED MEDICINE APPROACH.

Grazioli S, Mauri M, Rosi E, et al.

Introduction: Attention Deficit / Hyperactivity Disorder (ADHD) is a highly prevalent neurodevelopmental condition characterized by inattention, motor hyperactivity and impulsivity. ADHD cognitive and behavioral presentation is characterized by a high heterogeneity (APA, 2013). Indeed, a complex diagnostic process, that considers several validated tools, is, to date, necessary.
Objectives: The main aim is to develop supervised machine learning (ML) algorithms that could be used to support the diagnostic process for ADHD, by identifying the most relevant features in discriminating between the presence or absence of the ADHD diagnosis in children.
Methods: We analyzed data from 342 children (Mean age: 8y 8m -¦ 1y; 61 F) referred for possible ADHD symptomatology. Assessments were performed by an expert clinician and through questionnaires: Social Responsiveness Scale (SRS), Child Behavior Checklist (CBCL), Conners Rating Scale for Parents (CPRS) and for Teachers (CTRS). Data were analyzed using a decision tree classifier and random forest algorithms.
Results: The decision tree model performed an accuracy of 0.71. The random forest model that was identified as the best tested, performed an accuracy of 0.77 (Figure 1) and it identified as most informative parent- and teacher-rated DSM-oriented ADHD symptoms (Figure 2).
Conclusions: A random forest classifier could represent an effective algorithm to support the identification of ADHD children and to simplify the diagnostic process as an initial step. The use of supervised machine learning algorithms could be useful in helping the diagnostic process, highlighting the importance of a personalized medicine approach

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Eur Psychiatry. 2022;65:S288-S289.

EVALUATION OF THE ROLE OF LISDEXAMFETAMINE ON ATTENTION-DEFICIT/HYPERACTIVITY DISORDER COMMON PSYCHIATRIC COMORBIDITIES: MECHANISTIC INSIGHTS ON BINGE EATING DISORDER AND DEPRESSION.

Gutierrez Casares JR, Quintero J, et al.

Introduction: Attention-deficit/hyperactivity disorder (ADHD) is a psychiatric condition in which children suffer from inattentiveness, hyperactivity, and or impulsivity. ADHD patients frequently present comorbid psychiatric disorders: in adults, the most common are depression, substance-related disorders, anxiety, and eating disorders. Children and adolescents present conduct disorders, learning disorders, anxiety and depression. Since ADHD and its psychiatric comorbidities share similarities, a partial overlap of their pathophysiological mechanisms has been suggested. ADHD, can be treated with lisdexamfetamine (LDX), a prodrug indicated by the FDA as treatment for binge eating disorder (BED) and ADHD.
Objectives: To evaluate, through a systems biology-based in silico method, the efficacy of LDX as first-line ADHD treatment to improve ADHD psychiatric comorbidities. Furthermore, we explored the molecular mechanisms behind LDX's action.

Methods: We used the systems biology- and artificial intelligencebased Therapeutic Performance Mapping System (TPMS) technology to characterise and model ADHD comorbidities. Artificial neural networks (ANNs) algorithms were used to identify specific relationships between protein sets. Finally, we modelled the mechanisms of LDX for the most relevant comorbidities by using sampling methods and comorbidity-specific virtual patients in each case.
Results: This study predicts a strong relationship between LDX's targets and proteins involved in BED and depression (Fig 1). Our results could be explained not only by LDX role in neurotransmitter regulation, but also by modulation of neuroplasticity (BDNF/ NTRK2, GSK3), neuroinflammation (interleukins, inflammasome), oxidative stress (NOS2, SOD), and the hypothalamic-pituitaryadrenal (HPA) axis (CRH, CRHR1).
Conclusions: These findings could be used in pre-clinical and clinical future investigations to assess optimal treatment for ADHD patients with psychiatric comorbidities. (Figure Presented)

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Eur Psychiatry. 2022;65:S19.
ADHD IN PRISONERS.
Ginsberg Y.
The risk rate of criminality is increased in ADHD, especially in children who, in addition to ADHD, express externalizing behavior of oppositional defiant disorder (ODD), later followed by conduct disorder (CD), substance misuse and antisocial personality disorder (ASPD). Studies report ADHD to be about ten times more common in prison populations than in the general adult population. Prisoners with ADHD have compared to prisoners without ADHD, an earlier onset of offending, higher rates of coexistent psychiatric disorders, and are more often incarcerated due to violent- and drug-related offences. Within prison settings, inmates with ADHD are more often reported for intra-institutional aggression and they are often experienced as more difficult to manage and costly to rehabilitate. Further, they relapse comparably more often and faster into criminality after being conditionally released. Despite high prevalence rates of ADHD within prisons and serious consequences related to untreated ADHD, few controlled trials have evaluated methylphenidate treatment in prisoners with ADHD and coexistent disorders. Evidence and clinical experience of pharmacological and psychosocial interventions of prison populations with ADHD will be presented briefly

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Eur Psychiatry. 2022;65:S204.
COGNITIVE BIASES IN FIRST PSYCHOTIC EPISODE WITH ATTENTION DEFICIT AND HYPERACTIVITY DISORDER: A CONTROLLED STUDY.
Manzanares Teson N, et al.
Introduction: Cognitive biases are a core feature of psychotic disorders. Moreover, people with first episode of psychosis (FEP) have more difficulties in social cognition, in particular in theory of mind. On the other hand, deficits in processing speed and distractibility appear to be core features of attention deficit hyperactivity disorder (ADHD) and impairment in these basic processes can lead to deficits in more complex functions, that could induced to cognitive biases.
Objectives: To evaluate whether FEP with and without ADHD differ in the rate and type of cognitive biases.
Methods: Participants 121 FEP treated at the Early Intervention Service of Reus and aged between 14 and 28 years.
Instruments: The Diagnostic Interview for ADHD (DIVA) and the Cognitive Biases Questionnaire for Psychosis (CBQp) measuring 2 themes: anomalous perception (AP) and threatening events (TE) and 5 cognitive biases: Intentionalising (Int), Catastrophising (Cat), Dichotomous thinking (DT), Jumping to conclusions (JTC) and Emotional reasoning (ER) Results: 31 out 121 (25.6%) met criteria for childhood ADHD. Compared with FEP ADHD-, FEP-ADHD+ presented significant higher scores in the CBQp total score (U= 2.538; p=0.001), the AP theme (U=2.262; p=0.02), the TE theme (U= 2.242; p=0.02) and DT bias ((U= 2.188; p=0.03)

Conclusions: Our findings support the fact that subjects with FEPADHD+ presented more cognitive biases than those ADHD-. So, FEP-ADHD+ subjects could represent a clinical subgroup with a worse prognosis than FEP-ADHDsubjects, presenting more delusions, distress and a worse cognitive insight

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Eur Psychiatry. 2022;65:S231.

EVALUATION OF RISK FACTORS FOR ATTENTION DEFICIT HYPERACTIVITY DISORDER IN SRI LANKAN CHILDREN: A SCHOOL BASED POPULATION STUDY FROM A DEVELOPING NATION.

Nazeer N, Rohanachandra Y, Prathapan S.

Introduction: Attention Deficit Hyperactivity Disorder (ADHD) is one of the most common psychiatric disorders of childhood with significant impairment in overall functioning and associated psychiatric comorbidities. Knowledge of determinants is vital for the development of effective preventive strategies and tailor made interventions. Objectives: The study was aimed at determining risk factors for the development of ADHD among primary school children (PSC)) in state schools in Colombo district of Sri Lanka.

Methods: An unmatched case control study was conducted consisting of 73 cases (with ADHD) and 264 controls (without ADHD) selected randomly among 6-10 year old PSC from Sinhala medium state schools in Colombo district. Primary Care Givers completed the validated Sinhala version of Swanson, Nolan, Pelham -IV (SNAP-IV-S) scale for the assessment of ADHD and an interviewer administered questionnaire on risk factors. Children's diagnostic status was confirmed by a Consultant Child and Adolescent Psychiatrist following a clinical assessment. Bivariate analysis followed by multivariate regression model identified potential risk factors.

Results: Multivariate analysis revealed, male sex (aOR=3.74; 95% CI=1.67-8.35), lower educational level of the mother (aOR=3.31; 95%CI=1.39-7.98), maternal psycho pathology (aOR=7.28; 95% CI=1.55-34.35), prenatal exposure to passive tobacco smoke (aOR=3.76; 95%CI=1.09-12.95), Birth weight <2500g and /or gestation period of <37 completed weeks (aOR=3.6; 95%CI= 1.48-8.74), neonatal complications (aOR=4.03; 95%CI=1.94- 8.32) , minimal leisure time with family (aOR=2.39; 95% CI=1.19-4.82) and subjected to teasing/ bullying (aOR=5.03; 95% CI=2.47-10.25) as significant predictors of ADHD.

Conclusions: Primary prevention focusing on strengthening neonatal, maternal and child health services needs highlighting together with special emphasis on the need for anti-bullying policies in state schools

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Eur Psychiatry. 2022;65:S439.

ATTENTION DEFICIT HYPERACTIVITY DISORDER FOLLOWING HYPOTHALAMIC HAMARTOMA SURGERY : AN UNUSUAL MANIFESTATION.

Khivsara A, Goya D, Nebhinani N.

Introduction: Psychiatric symptoms are a common comorbid feature of hypothalamic hamartoma(HH) with epilepsy. They are a significant challenge for patient and their families. Most common psychiatric symptoms are externalizing behaviors such as aggression and defiance.

Objectives: To outline an atypical presentation of HH in form of development of ADHD post-surgery.

Methods: A 6-year old child born out of non-consanguinous marriage, with history of hyperemesis gravidarum and depression in mother in ante-natal period, delivered by NVD at term (did not cry at birth and was hospitalized for 3 days) with birth weight of 2.25 kg, currently presented to Neurology with global developemental delay and history of gelastic seizures since 3 years of age. Patient was diagnosed with pituitary hamartoma (through MRI) and precocious puberty that time and was operated for it after which he started having behavioural issues like irritability, aggression, hyperactivity and lack of appropriate social behaviour with peers along with defiance towards parents. Child was then refered to Psychiatry. On MSE patient did not interact with interviewer and was noticed to shout loudly when confronted for using mobile phone. MRI brain (2 months back) showed post-op changes with cystic lesion in suprasellar region. IQ assessment showed borderline intelligence.

Results: Patient was started on Risperidone (upto 1.5 mg) which lead to some improvement. However antiepileptics are being rationalized to prevent behavioural issues secondary to epilepsy

Conclusions: Patients of HH with epilepsy, present with varied psychiatric symptoms which usually improve after surgery. However we came across a child with worsening of psychiatric symptoms after he was operated for above lesion

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Eur Psychiatry. 2022;65:S420.

STIMULANT INDUCED DERMATOLOGICAL AND VASCULAR COMPLICATIONS IN PATIENTS WITH ADHD: A LITERATURE REVIEW.

Arain F, Jawad M, Azeem A, et al.

Introduction: Methylphenidate and amphetamine are the two most widely used stimulants in managing AttentionDeficit Hyperactivity Disorder (ADHD)1. Reynaud's phenomenon (RP) is a reversible distal vasoconstriction presenting with various dermatological symptoms. RP can secondarily develop after certain medications as well2.

Objectives: The review was undertaken to synthesize the incidence of RP within ADHD population treated with stimulants, and any causal relation of RP and stimulant-use.

Methods: PubMed, Psych-Info and Google Scholar were searched using these keywords: skin change, Raynaud, stimulants and methylphenidate. All relevant study types were included. Results were synthesized narratively.

Results: Initial search yielded 240 articles with 5 articles fulfilling our inclusion criteria. One was retrospective case-controlled study while remaining 4 were case reports. Six cases were identified with an age of 12-19 years, who presented with RP after being treated with methylphenidate-or-dextroamphetamine. In one case, multiple clinical signs of RP were seen with cold distal fingers, transient color changes and even frank ulceration3-6. In two cases, it was seen that RP was dose-dependent with stimulant use and got resolved after decreasing the dosage respectively. In case-control study, 32 cases with RP and 32 controls were enrolled. The results showed a statistically significant association (2 =5, p=0.01) between RP and past-or-current stimulant usage.7

Conclusions: The literature review suggests weak evidence of the association between RP and stimulant use but no evidence of any causal link. Further studies are needed to identify characters that can predict this adverse effect in vulnerable ADHD individuals

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Eur Psychiatry. 2022;65:S143.

EFFECTS OF ACUTE PHYSICAL ACTIVITY ON EXECUTIVE FUNCTIONS REQUIRING INHIBITION AMONG CHILDREN WITH ATTENTIONDEFICIT HYPERACTIVITY DISORDER.

Miklos M, Kom+íromy D, Fut+¦ J, et al.

Introduction: In recent years, physical activity as a potential intervention for attention-deficit hyperactivity disorder (ADHD) became into the focus of researchers, however the results are conflicting. Objectives: Our aim was to investigate the effect of acute moderate physical activity on executive functions requiring inhibition.

Methods: The study included 50 treatment-na+»ve ADHD children, 50 medicated children with ADHD and 50 typically developing children, aged 6-12 years. To diagnose ADHD, we applied the Mini International Neuropsychiatric Interview for Children and Adolescents. To measure executive functions, the pediatric version of the Test of Attentional Performance (KiTAP) was used. Half of the children in each study group participated in a 20-minute, moderately intense exercise while watching a cartoon video. In the control intervention, the other half of the children from all three study groups watched the same cartoon video in a sitting position for 20 min.

Results: Regarding distractibility, flexibility and inhibition, physical activity had a significant positive effect on two of 10 parameters (number of total errors and errors when distractor was presented, both in the distractibility task) in the treatment-na+»ve ADHD group.

Conclusions: Our results suggest that moderate acute physical activity has some significant positive effects on certain executive function parameters among children with ADHD. Future studies should consider

determining the optimal form, intensity, and duration of physical activity to become a potential adjunctive intervention for children diagnosed with ADHD

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Eur Psychiatry. 2022;65:S876.

WHEN ATTENTION-DEFICIT/HYPERACTIVITY DISORDER REACHES ADULTHOOD.

Morais AS, Gomes R, Descal+ºo N.

Introduction: Attention-Deficit/Hyperactivity Disorder (ADHD) was classically considered a childhood-onset neurodevelopmental condition. Over the past 40 years, it became evident that it can persist during adulthood.
Objectives: The purpose of the authors is to describe the characteristics of ADHD in adults and the specific comorbidities, proposing an approach to these patients.
Methods: A brief non-systematized review is presented, using the literature available on PubMed and Google Scholar.
Results: Only 40-50% of children and adolescents with ADHD will have symptoms that persist into adulthood (estimated adult prevalence of 2.8% across 20 countries; 25% in prisons). A more subtle presentation in adults and the difficulty to access past medical history, lead to diagnosis and treatment rates of lower than 20% (versus 50% in children). Well-characterized core symptoms in children evolve into a predominance of inattention symptoms. They became adults with marked disorganization, difficulties in completing tasks and managing time. Emotional dysregulation is a very prevalent symptom in this population. The comorbidities rate increase over time (reaching 75% of patients).
Conclusions: Adults (or even older subjects) with cognitive and/or behavioural complaints should be submitted to systematic screening for ADHD. Non-treated ADHD symptoms in adulthood are associated with severe impairment, therefore adjustments in the health care system to support the transition from child to adult services are needed

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Eur Psychiatry. 2022;65:S422-S423.

ATTENTION-DEFICIT/HYPERACTIVITY DISORDER AND PARENTING: TOWARD A COGNITIVE/SCHEMA MODEL.

Miklosi M, Nagy V, Ol+íh S.

Introduction: Attention-Deficit/Hyperactivity Disorder (ADHD) runs in families; however, there are mixed results on the interaction effects of parent's and child's psychopathology on parenting qualities. Cognitive/schema therapy is a promising treatment approach for adult ADHD; we know little about the effect of cognitive factors on parenting, however.
Objectives: We aimed to fill this gap by exploring the role of dysfunctional schema modes in the associations between adult ADHD symptoms, child's externalizing symptoms, and perceived parental competence in a dimensional approach. Methods: A community sample of parents (N=100, mean age=38.25 years, SD=5.73) filled out online questionnaires assessing ADHD symptoms (Adult ADHD Self-Report Scale), dysfunctional schema modes (Schema Mode Inventory), perceived parental competence (Parental Sense of Competence Scale), and child's psychopathology (Strength and Difficulties Questionnaire).
Results: In a multivariate model, higher levels of parental ADHD symptoms were related to higher levels of dysfunctional schema modes. However, neither the child's externalizing symptoms nor the interaction term of parent's symptoms by the child's symptoms had any effect on dysfunctional schema modes. Furthermore, the child's externalizing symptoms had a direct negative association with parental self-efficacy beliefs, whereas the relationship between adult ADHD symptoms and parental self-efficacy was mediated by the detached and overcompensating dysfunctional schema modes.
Conclusions: Our results suggest that the activation of dysfunctional schema modes is related to the parent's but not the child's psychopathology. The activation of dysfunctional schema modes may play an important role in the self-efficacy beliefs of parents with ADHD. Targeting that cognitive factors may enhance the effect of behavioral parent training programs

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Eur Psychiatry. 2022;65:S468-S469.

A CASE OF ADULT ATTENTION DEFICIT HYPERACTIVITY DISORDER WITH NON-ORGANIC PSYCHOSIS COMORBIDITY.

Akyildirim Kor S, Duman M, Uzun O.

Introduction: Although ADHD is the most frequently diagnosed psychiatric disorder in childhood, the majority of adults with ADHD are not diagnosed and 90% of the cases remain untreated. One of the main reasons that may lead to the missed diagnosis of ADHD in adults may be the high rate of comorbid psychiatric conditions masking the main symptoms.
Objectives: In this study, it was aimed to present a case who was followed up with the diagnosis of ADHD since childhood and developed psychosis after a recent traumatic life event.
Methods: A 19-year-old male patient was consulted because of his complaints of persecution delusions, and disorganized speech that started 2 years ago. IIt was learned that the first psychiatry application of the patient was 10 years ago with complaints of impulsivity, aggression, increased psychomotor movements, and methylphenidate treatment was started during this period. The patient, whose current clinical picture was evaluated as psychosis, was discharged after the symptoms subsided with paliperidone depot 100mg/month treatment after hospitalization. It is understood that his psychotic complaints completely regressed in the follow-ups.
Results: It is stated that approximately 80% of adult ADHD cases have at least one accompanying psychiatric disorder. However, there are limited studies in the literature on the relationship between psychotic disorders and ADHD.
Conclusions: Recent studies indicate that beyond the fact that ADHD is a feature of the schizophrenia prodrome, ADHD diagnosis may be associated with an increased risk of psychosis in the future. Therefore, this association can be better clarified in further studies on comorbidities

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Eur Psychiatry. 2022;65:S142.

PREDICTION OF ADHD SYMPTOMS FROM PRENATAL DATA IN TWO LARGE POPULATION-BASED COHORTS.

Dooley N, Cannon M, Cotter D, et al.

Introduction: The association between low birth weight and attention problems in childhood has been replicated many times (e.g. Momany, Kamradt, & Nikolas, 2018). However birth weight is unlikely the aetiological start-point of this association, as birth weight is itself the product of many prenatal factors e.g. gestational complications, maternal toxin exposure during pregnancy and basic demographics.
Objectives: We explore (1) which prenatal factors best predict attention problems in two independant population-based cohorts of children (2) which associations, if any, are moderated by sex and (3) we report accuracy statistics of our prenatal prediction algorithm for attention problems.
Methods: Participants were children aged 9 from ABCD study from the United States (N > 9,000) and the Growing Up in Ireland (GUI) study from Ireland (N > 6,000). Selected variables included familial pscyhiatric history, maternal smoking during gestation, prescription and non-prescription drug-use during gestation and a variety of gestational complications. All interactions with sex were also included. We used 5-fold cross-validation and elastic net regression (glmnet) to identify the optimal predictors of attention problems (measured by CBCL and SDQ).
Results: Strongest predictors of attention problems in the U.S. cohort included male sex, number of drugs used during pregnancy, number of family members with a history of mental illness, and number of gestational complications. Sex interacted with several of these risks. Protective factors included being a twin/ triplet, being Asian, having higher household income and higher parental education level.
Conclusions: Several risk factors for childhood attention problems were identified across both cohorts, supporting their generalizabilty. Other findings were cohort-specific

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Eur Psychiatry. 2022;65:S592.

IS IT ATTENTION DEFICIT HYPERACTIVITY DISORDER (ADHD) OR STIMULANT USE DISORDER ? HOW IS ADHD DIAGNOSED?

Sud N.

Introduction: From clinical experience, majority of patients in adult forensic services who have childhood diagnosis of ADHD self-report onset of substance misuse around the age of 12.
Objectives: Aim of the study was to explore if routine screening of childhood substance use is considered by ADHD diagnostic services.
Methods: PsycINFO and Embase databases were searched with the keywords: Attention Deficit Hyperactivity Disorder, ADHD, primary care/general practice, family physicians, paediatrics, and children/adolescents, child and adolescent psychiatry, diagnostic assessments, substance / drug use, prescription drugs and drug screening. Results: 24 articles were retrieved for age groups 12 to 17 years. Studies identified substance misuse as highly comorbid with ADHD but more so in conduct disorder. Studies identified diversion risk in adolescents.
Conclusions: Both ADHD and amphetamine misuse disorders are Axis 1 disorders (Baldwin 2009). Literature links substance misuse in ADHD to conduct disorder. There needs to be research into the diagnostic overlap between conduct disorder and ADHD and how this fits into the trauma model of adult offender treatment pathways. Treatment pathways for ADHD or conduct disorder and childhood onset substance misuse disorder are not clear both in primary or secondary care. Literature appears to put emphasis on early diagnosis and prescription stimulant treatment outside the social and psychological context and cites outcomes of the short term studies as reason for continued prescriptions in adolescence and beyond. There is need for studies exploring perspectives and trajectories of amphetamine use in adults who were diagnosed with ADHD in childhood, adolescence and as adults

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Eur Psychiatry. 2022;65:S867-S868.

COMPARATIVE ANALYSIS OF IMPULSIVITY PROFILES IN ADULT ATTENTION DEFICIT HYPERACTIVITY DISORDER AND BORDERLINE PERSONALITY DISORDER.

Kenezloi E, Balogh L, Somogyi S, et al.

Introduction: High levels of impulsive behavior represent a core symptom of different psychiatric conditions, such as Attention Deficit Hyperactivity Disorder (ADHD), Borderline Personality Disorder (BPD), impulse control and conduct disorders, bulimia nervosa, substance use disorders, and other maladaptive behaviors. Impulsivity is a multidimensional construct, having at least three factors.
Objectives: Our aim was to describe the impulsivity profile in adult ADHD and BPD patients in comparison with a healthy control group, taking into consideration the different impulsivity factors.
Methods: aADHD (n=80) and BPD Patients (n=60) were recruited, based on the DSM-5 criteria. Control subjects (n=80) were screened using Derogatis Symptom Checklist (SCL-90). Comorbidities were assessed by structured clinical interviews. Participants were further investigated with online questionnaires including the Barratt Impulsiveness Scale (BIS-11), Difficulties in Emotion Regulation Scale (DERS), and neuropsychological tests, like Rogers' decision-making test.
Results: Based ont the BIS-11 and DERS results, significantly higher levels of impulsivity (motor, attentional, non-planning) and difficulties in emotion regulation were present both in the aADHD and BPD groups, compared to the control group. Impulsivity factors were more characteristic to aADHD, emotion dysregulation was more specific to BPD. In the Rogers test, aADHD group was significantly slower in decision-making, while in BPD decision quality and risk-taking were affected.
Conclusions: Impulsivity profiles of the two disorders are different, which leads to the assumption of potentially altered pathway of developing impulsive behavior. As a neuropsychiatric condition, impulsivity in aADHD is related to neurobiological dysinhibition, in BPD impulsive behavior is attached to emotionally involving situations, and emotional dysregulation rooted in childhood adverse events

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Eur Psychiatry. 2022;65:S141.

SUICIDE IN ADOLESCENTS WITH MOOD DISORDERS.

Shah K, Trivedi C, Kamrai D, et al.

Introduction: Adolescents patients presenting with mood disorders, including disruptive mood dysregulation disorder (DMDD), often present with the comorbid disorders such as oppositional defiant disorder (ODD) and attention-deficit hyperactivity disorder (ADHD).

Objectives: 1) Evaluate the association between suicide in adolescents and various mood disorders. 2) To study the impact of comorbid conditions in DMDD on suicide ideation and attempt in adolescents. Methods: We used 2016-2017 National Inpatient Sample dataset to select patients with mood disorders. Rao Scott adjusted Chi-Square test used to compare the groups with SPSS v26.

Results: In this study, 15195 patients were in the DMDD group (Mean age:12.1,F: 38%) and 219205 in the 'other mood disorders' group (Mean age:14.4,F:67%). The odds of SI/SA were two times more in patients with the 'other type of mood disorder' (OR:2.07, 95%CI: 1.77-2.14). Patients with the primary diagnosis of DMDD sub-classified into four groups (Group 1: DMDD only (n=5160), Group 2: DMDD+ADHD (n=7240), Group 3: DMDD +ODD (n=700), and Group 4: DMDD+ADHD+ODD (n=2095). SI/SA was prevalent in 30.8%, 26.0%, 22.9% and 26.3% in Group 1, 2, 3 and 4 respectively (p: 0.03). SI/SA was more prevalent in females compared to males (31.3% vs. 25.2%). An increase of 1 year in age was associated with a higher SI/SA (OR:1.05, 95%CI:1.01-1.08, 0.01). The SI/SA odds were 5% more in female patients (OR:1.27, p:0.01).

Conclusions: The study reveals that the risk of suicide ideation or suicide attempt is almost twice in the adolescent with mood disorders without DMDD compared to the DMDD group

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Fam Syst Health. 2022 Dec;40:472-83.

INTEGRATED BEHAVIORAL HEALTH EDUCATION USING SIMULATED PATIENTS FOR PEDIATRIC RESIDENTS ENGAGED IN A PRIMARY CARE COMMUNITY OF PRACTICE.

Jones MR, Dadiz R, Baldwin CD, et al.

INTRODUCTION: Novel teaching curricula using simulated patients (SP) and a team-based approach are needed to teach pediatric residents how to approach behavioral health (BH) conditions in an integrated care setting.

METHOD: This mixed-methods study evaluated a pilot curriculum on BH integration in pediatric primary care. Two 1-hour didactic sessions and 3 hours of SP encounters focused on attention-deficit/hyperactivity disorder (ADHD) and anxiety, followed by facilitated debriefings that included interdisciplinary team members. Residents completed pre- and postcurriculum surveys on self-efficacy in patient assessment and management. A subset of residents participated in semistructured interviews, reviewing video recordings of their SP encounters to facilitate reflection on their learning. We conducted qualitative analysis of interview transcripts until we reached thematic saturation.

RESULTS: Residents (n = 31) reported significantly improved self-efficacy in the majority of BH skills (p â‰¤ .05 to p â‰¤ .0001), including assessing and discussing concerns with families, using screening tools, developing management plans, prescribing medications, and performing warm handoffs with BH clinicians. In analysis of 15 interviews, four themes emerged: shared experiences, mutual engagement, contextual meaning, and behavioral change, which aligned with the components of the communities of practice framework. Sharing experiences within an integrated BH-pediatric primary care learning community enhanced activated, self-reflective learning and consequent behavioral change that contributed to identity formation.

DISCUSSION: Resident participation in the integrated BH-pediatric curriculum improved self-efficacy in patient care for anxiety and ADHD. Curricula implemented in integrated learning communities could help promote reflection and improve integrated pediatric-BH care, including warm handoffs from pediatric to BH providers

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Frontiers in Pharmacology. 2022;13.

IN UTERO ANTIDEPRESSANT EXPOSURE NOT ASSOCIATED WITH ADHD IN THE OFFSPRING: A CASE CONTROL SIBLING DESIGN.

Hartwig CAM, Robiyanto R, de Vos S, et al.

Recent studies have reported an association between antidepressant (AD) use during pregnancy and the risk to develop attention-deficit/hyperactivity disorder (ADHD) in the offspring. However, the association might be confounded by risk factors in the pregnant parent. To control for unmeasured factors between pregnancies carried by the same parent, we set up a case-control sibling study using the University of Groningen prescription database IADB.nl. Children receiving medication for ADHD (cases) before the age of 16 years were matched to siblings not receiving such medication (controls). Exposure was defined as at least two prescriptions for any AD during pregnancy, i.e., the period of 39-áweeks before the birth date of the offspring. Secondary analyses were performed to assess the effects of the degree of exposure (the amount of Defined Daily Doses) and the type of AD exposed to. Univariate and multivariate logistic regression was used to estimate odds ratios (ORs) with corresponding 95% confidence intervals (CI). In total, 2,833 children (1,304 cases and 1,529 controls) were included in the analysis. Exposure rate to ADs among cases and controls was 2.2% and 2.4%, respectively. After adjusting for the birth date of the child (as a proxy for the date of pregnancy), age of the pregnant parent at birth, use of psychostimulants, opioids, and antiepileptic drugs by the pregnant parent in the 15 months before birth of the child, an adjusted OR of 1.11 (95% CI 0.67-1.83) was found for the risk of ADHD in the offspring when exposed in utero to ADs. This indicates no increased risk of ADHD in offspring following in utero exposure to ADs. The secondary analyses revealed no statistically significant associations either. The present study provides further evidence that an association between in utero AD exposure and ADHD in offspring might not exist. This perceived association may be caused (at least partially) by confounding by indication. The extent to which depression in the pregnant parent could cause mental disorders such as ADHD in offspring, and the mechanisms involved, should be investigated in further studies

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Front Psychiatry. 2022;13.

THE IMPORTANCE OF RECOGNIZING WORTHLESSNESS FOR SUICIDE PREVENTION IN ADOLESCENTS WITH ATTENTION-DEFICIT/HYPERACTIVITY DISORDER.

Katzenmajer-Pump L, Kom+íromy D, Bal+ízs J.

Background: Attention-deficit/hyperactivity disorder (ADHD) is one of the most common psychiatric diagnoses among children and adolescents. Depression and general anxiety disorder (GAD) are often co-occurring with ADHD among children and adolescents. Previous studies have found that ADHD, depression and GAD are all strongly correlated with suicidal thoughts and planning.

Aim: The current study aimed to further explore the association between ADHD, GAD and depressive symptoms as well as their association with suicidal thoughts and planning among adolescents.

Method: Adolescents with ADHD diagnosis were involved from child psychiatry outpatient clinics and adolescents without a psychiatric treatment or diagnosis were enrolled from high schools in Hungary. The Mini International Neuropsychiatric Interview for Children and Adolescents was used to evaluate psychiatric symptoms and disorders as well as suicidal thoughts and planning. Regularized psychological networks were used to investigate the associations.

Results: Altogether 185 adolescents (58 females and 127 males; mean age 14.79 years, SD = 1.48), 89 with ADHD and 96 without ADHD were enrolled. Depression symptom worthlessness was directly related to suicidal thoughts and planning, CI95 of the logit B between worthlessness and suicidal thought (0.72, 1.66). Both ADHD and anxiety were indirectly related to suicidal thoughts and planning through depression: CI95 of the logit B between being disorganized and feeling worthless is (0.38, 3.02), and CI95 of the logit B between being distressed and feeling worthless is (0.57, 2.52).

Conclusions: This study draws the attention of clinicians to the importance of recognizing worthlessness for suicide prevention in adolescents with ADHD. Furthermore, the results support previous studies, whereby symptoms of depression and anxiety mediate the relationship between ADHD and suicidal thoughts and planning. These results highlight the importance of ADHD comorbidities with depression and GAD and their effect on suicidal thoughts and planning

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Front Psychiatry. 2022;13.

ASSOCIATION BETWEEN TYPE 1 DIABETES AND NEURODEVELOPMENTAL DISORDERS IN CHILDREN AND ADOLESCENTS: A SYSTEMATIC REVIEW AND META-ANALYSIS.

Xie XN, Lei X, Xiao CY, et al.

Type 1 diabetes and neurodevelopmental disorders are common chronic conditions in childhood and adolescence, and having one may lead to an increased chance of developing the other. Type 1 diabetes mellitus is mainly manifested by elevated blood glucose, while neurodevelopmental diseases are composed of a variety of diseases, which are relatively complex. The purpose of this meta-analysis was to find out the prevalence of type 1 diabetes-related neurodevelopmental disorders in children and adolescents and to explore the potential association between neurodevelopmental disorders and type 1 diabetes. PubMed, Embase and Web of science databases were searched from the inception to May 22, 2022 to identify relevant studies, Finally, 24 original studies were included in the meta-analysis. Prevalence estimates for neurodevelopmental disorders in the type 1 diabetes adolescent and their 95% confidence intervals were pooled using random effects models. The pooled estimates for autism spectrum disorders (ASD) and attention deficit hyperactivity disorder (ADHD) in the type 1 diabetes population were 1.2 and 5.3%, respectively, both of which are higher than the 2019 global prevalence of ASD and ADHD in the general population. The results of the subgroup analysis showed that the prevalence of ASD and ADHD in the T1DM population tended to increase with age. In conclusion, there may be a potential link between the occurrence of type 1 diabetes mellitus and the development of neurodevelopmental disorders in children and adolescents, but more relevant studies are needed to understand the link between the underlying pathogenesis of type 1 diabetes and neurodevelopmental disorders. Systematic review registration: [https://www.crd.york.ac.uk/PROSPERO/], identifier [CDR42022333443]

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Front Psychiatry. 2022;13.

DIAGNOSIS OF CHILDREN WITH ATTENTION-DEFICIT/HYPERACTIVITY DISORDER (ADHD) COMORBID AUTISTIC TRAITS (ATS) BY APPLYING QUANTITATIVE MAGNETIC RESONANCE IMAGING TECHNIQUES.

Tang S, Liu X, Nie L, et al.

Objective: To explore the feasibility of applying quantitative magnetic resonance imaging techniques for the diagnosis of children with attention-deficit/hyperactivity disorder (ADHD) comorbid autistic traits (ATs).

Methods: A prospective study was performed by selecting 56 children aged 4-5 years with ADHD-ATs as the study group and 53 sex- and age-matched children with ADHD without ATs as the control group. All children underwent magnetic resonance scans with enhanced T2*- weighted magnetic resonance angiography (ESWAN), 3D-PCASL, and 3D-T1 sequences. Iron content and cerebral blood flow parameters were obtained via subsequent software processing, and the parameter values in particular brain regions in both groups were compared and analyzed to determine the characteristics of these parameters in children with ADHD-ATs.

Results: Iron content and cerebral blood flow in the frontal lobe, temporal lobe, hippocampus, and caudate nucleus of children with ADHD-ATs were lower than those of children with ADHD without ATs ($p < 0.05$). Iron content and CBF values in the frontal lobe, temporal lobe and caudate nucleus could distinguish children with ADHD-ATs from those without ATs (AUC > 0.5, $p < 0.05$).

Conclusions: Quantitative magnetic resonance techniques could distinguish children with ADHD-ATs.
Trial registration: This study protocol was registered at the Chinese clinical trial registry (ChiCTR2100046616)

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Health Promot Int. 2022 Dec;37.

HEALTH PROMOTION PARTNERSHIP TO PROMOTE PHYSICAL ACTIVITY IN SWEDISH CHILDREN WITH ASD AND ADHD.

Lydell M, Kristan L, Nyholm M.

Children with autism spectrum disorder (ASD) or attention-deficit/hyperactivity disorder (ADHD) have a higher risk of inactivity, and efforts to promote physical activity among this population have been limited. Physical activity on prescription (PAP) may be a suitable tool for motivating participation in physical activity among children with these diagnoses. However, PAP calls for synergy and partnership between health care and other sectors of the community. The aim of this study was to describe a health promotion partnership for physical activity targeting children with ASD or ADHD. Data were obtained through individual interviews with professionals at CAP (n = 11) and three focus-group interviews with coaches from local sports clubs. We used the Bergen Model of Collaborative Functioning as the theoretical framework and used qualitative content analysis as the method of analysis to study partnerships between professionals from the Child and Adolescent Psychiatry outpatient clinic (CAP) and coaches from local sport clubs. The findings demonstrate that the partnerships included both positive and negative processes. Although the two partners shared values regarding the project, such as working for a good cause for the children and seeing the potential in the collaboration, there were doubts about sharing common resources and uncertainties about the sustainability of the PAP project. Challenges remain and further research is needed into developing, monitoring and evaluating health promotion partnerships when promoting physical activity for all

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Hypertens Pregnancy. 2022 Aug;41:149-58.

ASSOCIATION BETWEEN HYPERTENSIVE DISORDERS OF PREGNANCY AND RISK OF ATTENTION-DEFICIT/HYPERACTIVITY DISORDER IN THE OFFSPRING: A SYSTEMATIC REVIEW AND META-ANALYSIS.

Zhao J, Xia L.

OBJECTIVE: We reviewed the association between hypertensive disorders of pregnancy (HDP) and the risk of attention-deficit/hyperactivity disorder (ADHD) in children.
METHODS: We searched the databases of PubMed, Embase, ScienceDirect, CENTRAL, and Google Scholar for studies.
RESULTS: Twelve studies were included. Meta-analysis demonstrated that history of HDP results in a statistically significant increased risk of ADHD. Subgroup analysis of cohort and case-control studies also yielded similar results. Pre-eclampsia and chronic hypertension were associated with a statistically significant increased risk of ADHD in the offspring but not pregnancy-induced hypertension.
CONCLUSION: Exposure to HDP significantly increases the risk of ADHD in the offspring

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Int J Environ Res Public Health. 2022 Dec;19.

A RANDOMIZED TRIAL OF A SWIMMING-BASED ALTERNATIVE TREATMENT FOR CHILDREN WITH ATTENTION DEFICIT HYPERACTIVITY DISORDER.

Hattabi S, Forte P, Kukic F, et al.

Attention deficit hyperactivity disorder (ADHD) is considered a highly prevalent neurodevelopmental childhood disorder extending from ages 1-2 to 12-13, associated with impairment across multiple domains, including social, emotional, and cognitive functioning. Little is known about alternative treatments for this disorder. Interest has grown in physical activity as a potential intervention for rehabilitating children with ADHD. This study aimed to investigate the impact of adapted swimming activity on cognitive functions, academic performance, and related behavior of Tunisian children with ADHD. The study was conducted on

school children aged 9 to 12 years (n = 40, 5 female and 35 male) diagnosed with ADHD. They were randomly assigned to an experimental group (exercise intervention) or the control group. The Hayling test was used to assess cognitive performance, the Children Behavior Check List (CBCL) was used to assess ADHD-related behavior, and the change in reading and numeracy proficiency was assessed pre- and post-intervention. After 12 weeks of the intervention, the results revealed that there were significant improvements in behavior (p < 0.001), inhibition process (p < 0.001), and academic performance (p < 0.001) in the experimental group compared with the control group. These findings suggest that adapted swimming activity may have positive implications for cognitive function, behavior, and academic performance. This research may provide preliminary support for alternative therapeutic interventions that could be used by practitioners. Moreover, the results support active practice of recreational physical activities as a strategy to support children in overcoming ADHD deficiencies

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Int J Environ Res Public Health. 2022 Dec;19.

ASSOCIATION BETWEEN EXPOSURE TO PARTICULATE MATTER AIR POLLUTION DURING EARLY CHILDHOOD AND RISK OF ATTENTION-DEFICIT/HYPERACTIVITY DISORDER IN TAIWAN.

Fan HC, Chen CM, Tsai JD, et al.

(1) **Background**: Recently, a growing number of studies have provided evidence to suggest a strong correlation between air pollution exposure and attention-deficit/hyperactivity disorder (ADHD). In this study, we assessed the relationship between early-life exposure to particulate matter (PM)(10), PM(2).(5), and ADHD;

(2) **Methods**: The National Health Insurance Research Database (NHIRD) contains the medical records, drug information, inspection data, etc., of the people of Taiwan, and, thus, could serve as an important research resource. Air pollution data were based on daily data from the Environmental Protection Administration Executive Yuan, R.O.C. (Taiwan). These included particulate matter (PM(2.5) and PM(10)). The two databases were merged according to the living area of the insured and the location of the air quality monitoring station;

(3) **Results**: The highest levels of air pollutants, including PM(2.5) (adjusted hazard ratio (aHR) = 1.79; 95% confidence interval (CI) = 1.58-2.02) and PM(10) (aHR = 1.53; 95% CI = 1.37-1.70), had a significantly higher risk of ADHD;

(4) **Conclusions**: As such, measures for air quality control that meet the WHO air quality guidelines should be strictly and uniformly implemented by Taiwanese government authorities

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International Journal of Developmental Disabilities. 2022.

GALECTIN-3 LEVELS IN SCHOOL AGED CHILDREN WITH AUTISM SPECTRUM DISORDER.

Artok A, Kocaman O, Kara H, et al.

Objective: Autism spectrum disorder (ASD) is a group of neurodevelopmental disorders with underlying pathogenesis and etiological factors not fully understood. We assumed that galectin-3, which is also linked with inflammatory responses, may be central to the ethiopathogenesis of ASD.

Method: The current study consisted of 33 psychotropic medication-naive children with ASD and 32 control subjects. The Schedule for Affective Disorders and Schizophrenia for School-Aged Children, Present and Lifetime Version-DSM-5 (K-SADS-PL-DSM-5) was used to screen healthy controls for psychiatric disorders by a psychiatrist after a physical examination by a pediatrician. The clinical severity of the ASD symptoms has been assessed by the Childhood Autism Rating Scale (CARS). Venous blood samples were collected and serum galectin-3 levels were measured.

Results: When the ASD and control groups are compared, the mean galectin-3 level is 417.77 (SD = 200.20) in the ASD group and 243.08 (SD = 64.65) in the control group, and there is a statistically significant difference between the groups (p < 0.001). When examining whether there is a correlation between galectin-3 levels and CARS total scores, no statistically significant correlation was found between them (r = 0.015, p = 0.933).

Discussion: In this study, we examined whether serum galectin-3 levels have a relation with ASD in childhood or not. Our findings have indicated that the children with ASD have higher serum galectin-3 levels compared to the controls. However, no significant relationship has been found between serum galectin-3 levels and ASD symptom severity

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Int J Dev Neurosci. 2022.

THE ASSOCIATION BETWEEN AUTISTIC TRAITS AND SERUM TESTOSTERONE, OXYTOCIN, AND ANDROSTENEDIONE LEVELS IN PREPUBERTAL MALE DRUG NAIVE CHILDREN WITH ATTENTION-DEFICIT/HYPERACTIVITY DISORDER.

Artok A, et al.

Background: Children with attention-deficit/hyperactivity disorder (ADHD) might have similar problems as in autism spectrum disorder (ASD) and show impairment in social behaviour. Also, there is a relationship between social relationship skills and ToM (theory of mind) skills of children with ADHD. Besides, ASD is associated with prenatal exposure to high levels of androgens, and oxytocin plays a role in the modulation of emotions, coping with stress, and social behaviour like ASD. In this study, the relationship between autistic traits and serum oxytocin, testosterone, and androstenedione levels in prepubertal male drug naive children with ADHD has been investigated.

Method: Eighty-three prepubertal children, who were diagnosed with ADHD between the ages of 6-10 years old, are included in the study. For the study, intelligence levels were evaluated by using WISC-4, and autistic traits were measured by using both social responsiveness scale and theory of mind tests. In addition, serum oxytocin, testosterone, and androstenedione levels were measured by using ELISA.

Results: It has been found that serum testosterone levels of patients with lower autistic traits are significantly lower than those with moderate and severe autistic traits, while the serum oxytocin levels are significantly higher. Also, patients with severe autistic traits have had significantly higher serum androstenedione levels than those with lower and moderate autistic traits.

Conclusion: This study suggests that patients who have higher autistic traits have elevated testosterone and androstenedione levels and lower serum oxytocin levels. Further studies are needed to clarify this relationship

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Int J Epidemiol. 2021;50:446-56.

OBSTETRIC OXYTOCIN EXPOSURE AND ADHD AND ASD AMONG DANISH AND FINNISH CHILDREN.

Stokholm L, Juhl M, Talge NM, et al.

Background: Some studies have indicated an increased risk of attention deficit hyperactivity disorder (ADHD) and a small, sex-specific association with autism spectrum disorder (ASD) among children prenatally exposed to obstetric oxytocin. Since oxytocin is widely used in the obstetric ward, these potentially deleterious effects are of concern. Thus, we aimed to examine whether obstetric oxytocin treatment for labour induction or augmentation is associated with ADHD and ASD in offspring born in a two-country design based on data from Denmark and Finland.

Methods: This population-based study used data from national registers in Denmark and Finland. Singletons born in Denmark 2000-10 (n -+ 577 380) and Finland 1991ΓÇô2010 (n -+ 945 543), who survived infancy, were followed until 31 December 2015. ADHD and ASD were defined using diagnostic codes. For ADHD, we also included information on prescribed and redeemed ADHD medication in the definition. Hazards ratios (HRs) with 95% confidence intervals (CI), modelled with age as the underlying time scale, were calculated to estimate the associations.

Results: Oxytocin was used in 31% and 46% of the included deliveries in Denmark and Finland, respectively. In crude analyses, prenatal oxytocin was associated with an approximately 20% increased risk of ADHD and ASD, but confounder adjustment attenuated the association. The adjusted HR was 1.03, 95% CI 1.01-1.05, for ADHD and 1.05, 95% CI 1.02-1.08, for ASD. The results were similar in across country and gender.

Conclusions: We found an association between synthetic oxytocin and ADHD or ASD which is unlikely to reflect a causal association and thus should not support the concern of clinical use. Our results help to allay concerns of obstetric use of oxytocin causing ADHD or ASD

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Int J Neuropsychopharmacol. 2022;25:26-35.

PLACEBO RESPONSE AND ITS PREDICTORS IN ATTENTION DEFICIT HYPERACTIVITY DISORDER: A META-ANALYSIS AND COMPARISON OF META-REGRESSION AND METAFOREST.

Castells X, Saez M, Barcheni M, et al.

Background: High placebo response in attention deficit hyperactivity disorder (ADHD) can reduce medicationΓÇôplacebo differences, jeopardizing the development of new medicines. This research aims to (1) determine placebo response in ADHD, (2) compare the accuracy of meta-regression and MetaForest in predicting placebo response, and (3) determine the covariates associated with placebo response.

Methods: A systematic review with meta-analysis of randomized, placebo-controlled clinical trial investigating pharmacological interventions for ADHD was performed. Placebo response was defined as the change from baseline in ADHD symptom severity assessed according to the 18-item, clinician-rated, DSM-based rating scale. The effect of study design, intervention, and patient-related covariates in predicting placebo response was studied by means of meta-regression and MetaForest.

Results: Ninety-four studies including 6614 patients randomized to placebo were analyzed. Overall, placebo response was 8.9 points, representing a 23.1% reduction in the severity of ADHD symptoms. Cross-validated accuracy metrics for meta-regression were R2 = 0.0012 and root mean squared error = 3.3219 for meta-regression and 0.0382 and 3.2599 for MetaForest. Placebo response among ADHD patients increased by 63% between 2001 and 2020 and was larger in the United States than in other regions of the world.

Conclusions: Strong placebo response was found in ADHD patients. Both meta-regression and MetaForest showed poor performance in predicting placebo response. ADHD symptom improvement with placebo has markedly increased over the last 2 decades and is greater in the United States than the rest of the world

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J Adolesc Health. 2023 Jan;72:S71-S78.

MEASURING THE PREVALENCE OF MENTAL DISORDERS IN ADOLESCENTS IN KENYA, INDONESIA, AND VIETNAM: STUDY PROTOCOL FOR THE NATIONAL ADOLESCENT MENTAL HEALTH SURVEYS.

Erskine HE, Blondell SJ, Enright ME, et al .

PURPOSE: In low- and middle-income countries, there are limited data on mental disorders among adolescents. To address this gap, the National Adolescent Mental Health Surveys (NAMHS) will provide nationally representative prevalence data of mental disorders among adolescents in Kenya, Indonesia, and Vietnam. This paper details the NAMHS study protocol.

METHODS: In each country, a multistage stratified cluster sampling design will be used. Participants will be eligible pairs of adolescents aged 10-17 years and their primary caregiver. Adolescents will be assessed for social phobia, generalized anxiety disorder, major depressive disorder, attention-deficit/hyperactivity disorder, conduct disorder, and post-traumatic stress disorder using the Diagnostic Interview Schedule for Children, version 5. Demographics, risk and protective factors, and service use information will also be collected. In the parallel clinical calibration study, diagnoses of major depressive disorder, social phobia, and generalized anxiety disorder made using the Diagnostic Interview Schedule for Children, version 5 will be calibrated against a diagnostic assessment by in-country clinicians in a separate sample.

RESULTS: Data collection for the national survey and clinical calibration study will commence in 2021, with dissemination of findings and methodology due to occur inÂ 2022.

CONCLUSIONS: Accurately quantifying the prevalence of mental disorders in adolescents is essential for service planning. NAMHS will address this lack of prevalence data, both within the NAMHS countries and within their respective regions, while establishing a gold-standard methodology for data collection on adolescent mental health in low- and middle-income countries. More broadly, NAMHS will encourage

capacity building within each country by establishing linkages between researcher, clinician, government, and other networks

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J Child Psychol Psychiatry. 2023 Jan;64:167-74.

REPLICATION OF A PREDICTIVE MODEL FOR YOUTH ADHD IN AN INDEPENDENT SAMPLE FROM A DEVELOPING COUNTRY.

Lorenzi CH, Teixeira LD, Bressan R, et al.

BACKGROUND: Very few predictive models in Psychiatry had their performance validated in independent external samples. A previously developed multivariable demographic model for attention-deficit/hyperactivity disorder (ADHD) accurately predicted young adulthood ADHD using clinical and demographical information collected in childhood in three samples from developed countries, but failed to replicate its performance in a sample from a developing country. Furthermore, consolidated risk factors for ADHD were not included among its predictors.

METHODS: Participants were 1905 children and adolescents from a community-based sample and followed from ages 6 to 14 years at baseline to ages 14 to 23 years (mean age 18) at follow-up. We applied the intercept and weights of the original model to the data, calculating the predicted probability of each participant according to the set of predictors collected in childhood, and compared the estimates with the actual outcome (ADHD) collected during adolescence and young adulthood. We explored the performance of the original model, and of models including novel predictors (prematurity, family history of ADHD, and polygenic risk score for ADHD).

RESULTS: The observed area under the curve of the original model was .76 (95% Confidence Interval .70 to .82). The multivariable demographical model outperformed single variable models using only prematurity, family history, or the ADHD PRS. Adding either of these variables, or all at once, did not improve the performance of the original demographical model.

CONCLUSIONS: Our findings suggest that the originally developed ADHD predictive model is suitable for use in different settings for clinical and research purposes

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J Child Psychol Psychiatry. 2023 Jan;64:185-96.

RELATIVE AGE IN THE SCHOOL YEAR AND RISK OF MENTAL HEALTH PROBLEMS IN CHILDHOOD, ADOLESCENCE AND YOUNG ADULTHOOD.

Broughton T, Langley K, Tilling K, et al.

PURPOSE: Relative age within the school year ('relative age') is associated with increased rates of symptoms and diagnoses of mental health disorders, including ADHD. We aimed to investigate how relative age influences mental health and behaviour before, during and after school (age range: 4-25 years).

METHOD: We used a regression discontinuity design to examine the effect of relative age on risk of mental health problems using data from a large UK population-based cohort (Avon Longitudinal Study of Parents and Children (ALSPAC); N=14,643). We compared risk of mental health problems between ages 4 and 25â€‰years using the parent-rated Strengths and Difficulties Questionnaire (SDQ), and depression using self-rated and parent-rated Short Mood and Feelings Questionnaire (SMFQ) by relative age.

RESULTS: The youngest children in the school year have greater parent-rated risk of mental health problems, measured using parent-rated SDQ total difficulties scores. We found no evidence of differences before school entry [estimated standardised mean difference (SMD) between those born on 31 August and 1 September: .02 (-.05, .08)]. We found that estimates of effect size for a 1-year difference in relative age were greatest at 11 years [SMD: .22 (.15, .29)], but attenuated to the null at 25â€‰years [SMD: -.02 (-.11, .07)]. We did not find consistent evidence of differences in self-rated and parent-rated depression by relative age.

CONCLUSIONS: Younger relative age is associated with poorer parent-rated general mental health, but not symptoms of depression

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J Child Psychol Psychiatry. 2023 Jan;64:175-84.

PROSPECTIVE ASSOCIATION BETWEEN EVENING CIRCADIAN PREFERENCE AND ACADEMIC FUNCTIONING IN ADOLESCENTS: THE ROLE OF DAYTIME SLEEPINESS.

Fredrick JW, Cook TE, Langberg JM, et al.

BACKGROUND: There is growing evidence for the role of circadian factors in adolescents' sleep and academic adjustment, with greater evening preference being linked to poorer academic functioning. However, studies have yet to evaluate this association prospectively in adolescence, nor have studies examined daytime sleepiness as a putative mechanism linking evening preference to poor academic functioning. The current study used a multi-informant design to test the prospective association of evening circadian preference, daytime sleepiness, and academic functioning (e.g., global academic impairment and grades) across 2â€‰years in adolescence. As evening circadian preference, sleepiness, and academic problems are elevated in adolescents with ADHD, we used a sample enriched for adolescents with ADHD and explored whether ADHD moderated effects.

METHOD: Participants were 302 adolescents (M(age) =13.17 years; 44.7% female; 81.8% White; 52% with ADHD). In the fall of eighth grade, adolescents reported on their circadian preference, and in the fall of ninth grade, adolescents and parents completed ratings of daytime sleepiness. In the middle of 10th grade, parents and teachers reported on adolescents' academic impairment and at the end of 10th grade, adolescents' grade point average (GPA) was obtained from school records.

RESULTS: Above and beyond covariates (e.g., adolescent sex, ADHD status, medication, sleep duration) and baseline academic impairment, greater self-reported evening preference in 8th grade predicted increased parent ratings of academic impairment in 10th grade indirectly via adolescent and parent ratings of daytime sleepiness in 9th grade. Furthermore, evening preference in 8th grade predicted greater teacher ratings of academic impairment and lower average GPA in 10th grade via parent ratings of daytime sleepiness in 9th grade, controlling for covariates and baseline GPA. ADHD status did not moderate indirect effects.

CONCLUSION: Findings underscore daytime sleepiness as a possible intervening mechanism linking evening preference to poor academic functioning across adolescence. Intervention studies are needed to evaluate whether targeting circadian preference and sleepiness improves academic functioning in adolescents

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J Child Psychol Psychiatry. 2023 Jan;64:4-15.

PRACTITIONER REVIEW: ATTENTION-DEFICIT HYPERACTIVITY DISORDER AND AUTISM SPECTRUM DISORDER - THE IMPORTANCE OF DEPRESSION.

Thapar A, Livingston LA, Eyre O, et al.

Young people with neurodevelopmental disorders, such as attention-deficit hyperactivity disorder (ADHD) and autism spectrum disorder (ASD), show high rates of mental health problems, of which depression is one of the most common. Given that depression in ASD and ADHD is linked with a range of poor outcomes, knowledge of how clinicians should assess, identify and treat depression in the context of these neurodevelopmental disorders is much needed. Here, we give an overview of the latest research on depression in young people with ADHD and ASD, including possible mechanisms underlying the link between ADHD/ASD and depression, as well as the presentation, assessment and treatment of depression in these neurodevelopmental disorders. We discuss the implications for clinicians and make recommendations for critical future research in this area

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J Child Psychol Psychiatry. 2023 Jan;64:16-26.

USING MACHINE LEARNING TO IMPROVE DIAGNOSTIC ASSESSMENT OF ASD IN THE LIGHT OF SPECIFIC DIFFERENTIAL AND CO-OCCURRING DIAGNOSES.

Schulte-Rather M, Kulvicius T, Stroth S, et al.

BACKGROUND: Diagnostic assessment of ASD requires substantial clinical experience and is particularly difficult in the context of other disorders with behavioral symptoms in the domain of social interaction and communication. Observation measures such as the Autism Diagnostic Observation Schedule (ADOS) do not take into account such co-occurring disorders.

METHOD: We used a well-characterized clinical sample of individuals (n=1,251) that had received detailed outpatient evaluation for the presence of an ASD diagnosis (n=481) and covered a range of additional overlapping diagnoses, including anxiety-related disorders (ANX, n=122), ADHD (n=439), and conduct disorder (CD, n=194). We focused on ADOS module 3, covering the age range with particular high prevalence of such differential diagnoses. We used machine learning (ML) and trained random forest models on ADOS single item scores to predict a clinical best-estimate diagnosis of ASD in the context of these differential diagnoses (ASD vs. ANX, ASD vs. ADHD, ASD vs. CD), in the context of co-occurring ADHD, and an unspecific model using all available data. We employed nested cross-validation for an unbiased estimate of classification performance and made available a Webapp to showcase the results and feasibility for translation into clinical practice.

RESULTS: We obtained very good overall sensitivity (0.89-0.94) and specificity (0.87-0.89). In particular for individuals with less severe symptoms, our models showed increases of up to 35% in sensitivity or specificity. Furthermore, we analyzed item importance profiles of the ANX, ADHD, and CD models in comparison with the unspecific model revealing distinct patterns of importance for specific ADOS items with respect to differential diagnoses.

CONCLUSIONS: ML-based diagnostic classification may improve clinical decisions by utilizing the full range of information from detailed diagnostic observation instruments such as the ADOS. Importantly, this strategy might be of particular relevance for older children with less severe symptoms for whom the diagnostic decision is often particularly difficult

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J Eur Acad Dermatol Venereol. 2023 Jan;37:114-22.

ATOPIC DERMATITIS AND RISK OF MAJOR NEUROPSYCHIATRIC DISORDERS IN CHILDREN: A POPULATION-BASED COHORT STUDY.

Wan J, Shin DB, Syed MN, et al.

BACKGROUND: Paediatric atopic dermatitis (AD) has been linked to neuropsychiatric comorbidities such as depression, anxiety and attention-deficit/hyperactivity disorder (ADHD). However, longitudinal data are limited, and the effect of AD severity on neuropsychiatric outcomes requires further characterization.

OBJECTIVES: To determine the risk of several major neuropsychiatric conditions in children with AD.

METHODS: We analysed UK health records data in a population-based cohort study. Each patient <18â€‰years old with AD was matched to up to five unaffected patients on age, practice and index date. Treatments served as proxies for AD severity, which was analysed in a time-updated manner. Outcomes were incident anxiety, depression, bipolar disorder, schizophrenia, ADHD, autism, obsessive-compulsive disorder (OCD), suicidal ideation or attempt, and completed suicide.

RESULTS: A total of 409,431 children with AD (93.2% mild, 5.5% moderate, 1.3% severe) were compared to 1,809,029 children without AD. In Cox regression models adjusted for age, sex, socioeconomic status and other atopic comorbidities, no statistically significant relationships were observed between AD and incident anxiety (HR 1.01, 95% CI 0.99-1.03), ADHD (1.02, 0.97-1.06), autism (1.02, 0.98-1.06), bipolar disorder (1.08, 0.85-1.36), suicidal ideation/attempt (0.98, 0.95-1.01) or completed suicide (0.85, 0.64-1.14). Children with AD were less likely to develop depression (0.93, 0.91-0.95) or schizophrenia (0.72, 0.54-0.95) but more likely to develop OCD (1.26, 1.16-1.37). However, there was substantial variation by AD severity and age in both the direction and magnitude of effect for many of the neuropsychiatric conditions examined.

CONCLUSIONS: The was no substantial impact of AD on the overall risk of many neuropsychiatric conditions in children, but disease severity and age may be important modifying factors. Additional research is needed to further dissect the complex relationship between paediatric AD and neuropsychiatric comorbidities

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JAMA Netw Open. 2022 Dec;5:e2246889.

ASSOCIATION OF PRENATAL EXPOSURE TO BENZODIAZEPINES AND Z-HYPNOTICS WITH RISK OF ATTENTION-DEFICIT/HYPERACTIVITY DISORDER IN CHILDHOOD.

Sundbakk LM, Gran JM, Wood ME, et al.

IMPORTANCE: Evidence is limited regarding the safety of prenatal benzodiazepine and z-hypnotic exposure and its association with long-term neurodevelopment in childhood. OBJECTIVE: To quantify the associations of the timing and number of intervals of prenatal exposure to benzodiazepines and/or z-hypnotics with the risk of attention-deficit/hyperactivity disorder (ADHD) in childhood.

DESIGN, SETTING, AND PARTICIPANTS: This cohort study used data from the 1999 to 2008 population-based Norwegian Mother, Father and Child Cohort Study, which are linked to the Medical Birth Registry of Norway, Norwegian Patient Registry, and Norwegian Prescription Database. Two populations of participants were created: a full sample and a mental health sample. The full sample included mothers and their live-born singletons, whereas the mental health sample was restricted to offspring of mothers who reported anxiety, depression, or sleeping problems during pregnancy or 6 months before pregnancy. Data were analyzed from September 2021 to February 2022.

EXPOSURES: Maternal self-report of benzodiazepine and/or z-hypnotic use during pregnancy was grouped into early pregnancy exposure and middle and/or late pregnancy exposure for analysis of the association with timing of exposure, and number of 4-week intervals of exposure was classified (single [1] vs multiple [â‰¥2]) for analysis of the association with number of exposed intervals.

MAIN OUTCOME AND MEASURES: The outcome was ADHD, defined as time to ADHD diagnosis or filled prescription for ADHD medication. To control for confounding, inverse probability of treatment-weighted Cox proportional hazards regression models were used. Hazard ratios and 95% CIs were estimated. The weights were derived from propensity score modeling of the probability of benzodiazepine and/or z-hypnotic exposure as a function of potential confounders between the exposure and the outcome, including maternal symptoms of depression and anxiety.

RESULTS: The full sample comprised 82 201 pregnancies, and the mental health sample included 19 585 pregnancies. In total, 681 offspring (0.8%) in the full sample and 468 offspring (2.4%) in the mental health sample were prenatally exposed to benzodiazepines and/or z-hypnotics. After weighting, exposure in early (hazard ratio, 0.74; 95% CI, 0.39-1.94) and middle and/or late (hazard ratio, 0.76; 95% CI, 0.35-1.61) pregnancy was not associated with increased risk of childhood ADHD. There was no evidence of substantial association between the number of exposed intervals during pregnancy and childhood ADHD.

CONCLUSIONS AND RELEVANCE: Results of this study suggest that there may be no increased risk of childhood ADHD associated with prenatal exposure to benzodiazepines and/or z-hypnotics, regardless of timing of exposure and number of exposed intervals. However, these findings should be interpreted with caution due to low study power

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Journal of Behavioral Addictions. 2021;10:1061-67.

ATTENTION DEFICIT HYPERACTIVITY DISORDER AND GAMING DISORDER: FREQUENCY AND ASSOCIATED FACTORS IN A CLINICAL SAMPLE OF PATIENTS WITH GAMING DISORDER.

Cabelguen C, Rocher B, Leboucher J, et al.

Background and aims: Since June 2018, gaming disorder (GD) has been recognized as a disease. It is frequently associated with attention deficit hyperactivity disorder (ADHD), as there are common vulnerability factors and bidirectional interactions between the two disorders. This study aims to evaluate the presence of ADHD symptoms and predictive factors of ADHD among patients with GD.

Methods: Ninety-seven patients 16 years old referred to the University Hospital of Nantes between 2012 and 2020 for GD were included. The diagnosis of GD was given a posteriori in accordance with the new ICD-11 GD definition. ADHD was screened using the Adult-ADHD Self-Report Scale and the Wender-Utah Rating Scale. A multivariate logistic regression model was used to identify explanatory factors for ADHD-GD comorbidity.
Results: The rate of GD patients who screened positive for ADHD was 39%. Predictive factors of ADHD-GD comorbidity were impulsivity (higher score on the negative urgency dimension) and low self-esteem. Discussion: The rate of ADHD found among patients with GD is consistent with that from the literature on internet GD but higher than that found for other behavioural addictions. The identification of a higher negative urgency score and low self-esteem as predictive factors of AHDH-GD comorbidity indicates that gaming could be considered a dysfunctional way to cope with emotional dysregulation in ADHD or to virtually escape.
Conclusions: Comorbid ADHD must be taken into consideration to minimize its functional impact on GD patients and gaming-related damage. In contrast, the evaluation of gaming habits in patients with ADHD could be useful for both prevention and care

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Journal of Biomedical Physics and Engineering. 2022;12:645-54.
HIGH DIMENSIONAL CONVOLUTIONAL NEURAL NETWORK FOR EEG CONNECTIVITY-BASED DIAGNOSIS OF ADHD.
Mafi M, Radfar S.
Background: Attention-deficit/hyperactivity disorder (ADHD) is a common neu-rodevelopmental disorder in children and adults and its early detection is effective in the successful treatment of children. Electroencephalography (EEG) has been widely used for classifying ADHD and normal children. In recent years, deep learning leads to more accurate classification.
Objective: This study aims to adapt convolutional neural networks (CNNs) for classifying ADHD and normal children based on the connectivity measure of their EEG signals.
Material and Methods: In this experimental study, the dataset consisted of 61 ADHD and 60 normal children from which 13021 epochs were extracted as in-put for model training and evaluation. Synchronization likelihood (SL) and wavelet coherence (WC) were considered connectivity measures. The neighborhood between EEG channels was arranged in a two-dimensional matrix for better representation. Four-dimensional (4D) and six-dimensional (6D) connectivity tensors were composed as model inputs. Two architectures were developed, one 4D and 6D CNN for SL and WC-based diagnosis of ADHD, respectively.
Results: A 5-fold cross-validation was utilized to assess developed models. The average accuracy of 98.56% for 4D CNN and 98.85% for 6D CNN in epoch-based classification were obtained. In the case of subject-based classification, the accuracy was 99.17% for both models.
Conclusion: Based on the evaluation metrics of the proposed models, ADHD children can be diagnosed and ADHD and normal children can be successfully distin-guished

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Journal of Pediatric Health Care. 2022.
SLEEP IN CHILDREN WITH NEURODEVELOPMENTAL DISABILITIES DURING COVID-19: AN INTEGRATIVE REVIEW.
Kronk R, Kim I, Nolfi D.
Introduction: Sleep issues occur at higher rates in children with neurodevelopmental disorders than in the typical population. Little is known about the impact of COVID-19 on sleep issues in this population
Method: This integrative review aimed to characterize studies during the COVID-19 pandemic (2020-2022) addressing the prevalence and management of sleep issues in children and youth with neurodevelopmental disorders. Comprehensive database searches were used to identify articles, and 31 studies were considered suitable for this review.
Results: Most studies reported worsening sleep disturbances during COVID-19 restrictions. All studies were conducted when clinics were closed; only two studies addressed treatment options such as music therapy and sleep hygiene education and found improvement in sleep issues.

Discussion: Future research needs to concentrate on developing interventions to assist families remotely and empower families with a toolkit of preparedness in times of crisis

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Journal of Personalized Medicine. 2022;12.

ASSOCIATION BETWEEN GUT MICROBIOTA AND EMOTIONAL-BEHAVIORAL SYMPTOMS IN CHILDREN WITH ATTENTION-DEFICIT/HYPERACTIVITY DISORDER.

Lee MJ, Lai HC, Kuo YL, et al.

Previous studies have explored the role of the microbiome in attention-deficit/hyperactivity disorder (ADHD). However, whether the microbiome is correlated with emotional-behavioral disturbances, the most common comorbid symptom of ADHD, remains unclear. We established a cross-sectional study in which 6- to 18-year-old children with ADHD who were receiving no medication and a healthy control group of children without ADHD were recruited to analyze their microbiome composition. Microbiota of fecal samples were collected and analyzed using a 16s rRNA gene sequencing approach. In comparison with the healthy control group, the gut microbiota in children with ADHD exhibited significantly lower beta diversity. The abundance of the phylum Proteobacteria and the genera Agathobacter, Phascolarctobacterium, Prevotella_2, Acidaminococcus, Roseburia, and Ruminococcus gnavus group was increased in the ADHD group compared with the healthy group. Linear discriminant effect size (LEfSe) analysis was used to highlight specific bacteria phylotypes that were differentially altered between the ADHD and control groups. A regression analysis was performed to investigate the association between microbiota and emotional-behavioral symptoms in children with ADHD. A significant association was noted between withdrawal and depression symptoms and Agathobacter ($p = 0.044$), and between rule-breaking behavior and the Ruminococcus gnavus group ($p = 0.046$) after adjusting for sex, age, and the ADHD core symptoms score. This study advances the knowledge of how gut microbiota composition may contribute to emotional-behavioral symptoms in children with ADHD. The detailed mechanisms underlying the role of the gut microbiota in ADHD pathophysiology still require further investigation

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J Am Acad Child Adolesc Psychiatry. 2022.

HORMONAL CONTRACEPTIVE USE AND RISK OF DEPRESSION AMONG YOUNG WOMEN WITH ATTENTION-DEFICIT/HYPERACTIVITY DISORDER.

Lundin C, Wikman A, Wikman P, et al.

Objective: Women with attention-deficit/hyperactivity disorder (ADHD) have an increased risk of becoming teenage mothers. Adverse effects of hormonal contraception (HC), including depression, may affect adherence to user-dependent contraception and increase the risk for unplanned pregnancies and teenage births in women with ADHD. The current study analyzed whether girls and young women with ADHD are at increased risk for depression during HC use compared with non-ADHD women.

Method: A linkage of Swedish national registers covering 29,767 girls and young women with ADHD aged 15 to 24 years and 763,146 without ADHD provided measures of ADHD and depression diagnoses (International Classification of Diseases [ICD] code) and prescription of stimulant medication, HC, and antidepressant medication (Anatomical Therapeutic Chemical [ATC] code). Cox regression models applying an interaction term (ADHD diagnosis +ù HC use) evaluated the excess risk of HC-induced depression in women with ADHD.

Results: Women with ADHD had a 3-fold higher risk of developing depression, irrespective of HC use (adjusted hazard ratio [aHR] = 3.69, 95% CI = 3.60-3.78). Oral combined HC users with ADHD had a 5 times higher risk of depression compared with non-ADHD women who were not using oral combined HC (aHR = 5.19, 95% CI = 4.94-5.47), and a 6 times higher risk in comparison with non-ADHD women who were on oral combined HC (aHR = 6.10 (95% CI = 5.79-6.43). The corresponding risk of depression in women with AHDH who used a progestogen-only pill (aHR = 5.00, 95% CI = 4.56-5.49). The risk of developing depression when using non-oral HC was similarly moderately increased in both groups.

Conclusion: Girls and young women with ADHD have an increased risk of developing depression when using oral HC compared with their unaffected peers. Information on risks with HCs as well as potential

benefits with long-acting reversible contraceptives needs to be an integrated part of the shared decision making and contraception counseling for young women with ADHD

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Mol Autism. 2022 Dec;13:46.

INFANT EXCITATION/INHIBITION BALANCE INTERACTS WITH EXECUTIVE ATTENTION TO PREDICT AUTISTIC TRAITS IN CHILDHOOD.

Carter L, V, Begum-Ali J, Goodwin A, et al.

BACKGROUND: Autism is proposed to be characterised by an atypical balance of cortical excitation and inhibition (E/I). However, most studies have examined E/I alterations in older autistic individuals, meaning that findings could in part reflect homeostatic compensation. To assess the directionality of effects, it is necessary to examine alterations in E/I balance early in the lifespan before symptom emergence. Recent explanatory frameworks have argued that it is also necessary to consider how early risk features interact with later developing modifier factors to predict autism outcomes.

METHOD: We indexed E/I balance in early infancy by extracting the aperiodic exponent of the slope of the electroencephalogram (EEG) power spectrum ('1/f'). To validate our index of E/I balance, we tested for differences in the aperiodic exponent in 10-month-old infants with (n=22) and without (n=27) neurofibromatosis type 1 (NF1), a condition thought to be characterised by alterations to cortical inhibition. We then tested for E/I alterations in a larger heterogeneous longitudinal cohort of infants with and without a family history of neurodevelopmental conditions (n=150) who had been followed to early childhood. We tested the relevance of alterations in E/I balance and our proposed modifier, executive attention, by assessing whether associations between 10-month aperiodic slope and 36-month neurodevelopmental traits were moderated by 24-month executive attention. Analyses adjusted for age at EEG assessment, sex and number of EEG trials.

RESULTS: Infants with NF1 were characterised by a higher aperiodic exponent, indicative of greater inhibition, supporting our infant measure of E/I. Longitudinal analyses showed a significant interaction between aperiodic slope and executive attention, such that higher aperiodic exponents predicted greater autistic traits in childhood, but only in infants who also had weaker executive functioning abilities.

LIMITATIONS: The current study relied on parent report of infant executive functioning-type abilities; future work is required to replicate effects with objective measures of cognition.

CONCLUSIONS: Results suggest alterations in E/I balance are on the developmental pathway to autism outcomes, and that higher executive functioning abilities may buffer the impact of early cortical atypicalities, consistent with proposals that stronger executive functioning abilities may modify the impact of a wide range of risk factors

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Mol Psychiatry. 2022;27:3262-71.

NEURODEVELOPMENTAL MODEL OF SCHIZOPHRENIA REVISITED: SIMILARITY IN INDIVIDUAL DEVIATION AND IDIOSYNCRASY FROM THE NORMATIVE MODEL OF WHOLE-BRAIN WHITE MATTER TRACTS AND SHARED BRAIN-COGNITION COVARIATION WITH ADHD AND ASD.

Chien YL, Lin HY, Tung YH, et al.

The neurodevelopmental model of schizophrenia is supported by multi-level impairments shared among schizophrenia and neurodevelopmental disorders. Despite schizophrenia and typical neurodevelopmental disorders, i.e., autism spectrum disorder (ASD) and attention-deficit/hyperactivity disorder (ADHD), as disorders of brain dysconnectivity, no study has ever elucidated whether whole-brain white matter (WM) tracts integrity alterations overlap or diverge between these three disorders. Moreover, whether the linked dimensions of cognition and brain metrics per the Research Domain Criteria framework cut across diagnostic boundaries remains unknown. We aimed to map deviations from normative ranges of whole-brain major WM tracts for individual patients to investigate the similarity and differences among schizophrenia (281 patients subgrouped into the first-episode, subchronic and chronic phases), ASD (175 patients), and ADHD (279 patients). Sex-specific WM tract normative development was modeled from diffusion spectrum imaging of 626 typically developing controls (5-40 years). There were three significant findings. First, the patterns of

deviation and idiosyncrasy of WM tracts were similar between schizophrenia and ADHD alongside ASD, particularly at the earlier stages of schizophrenia relative to chronic stages. Second, using the WM deviation patterns as features, schizophrenia cannot be separated from neurodevelopmental disorders in the unsupervised machine learning algorithm. Lastly, the canonical correlation analysis showed schizophrenia, ADHD, and ASD shared linked cognitive dimensions driven by WM deviations. Together, our results provide new insights into the neurodevelopmental facet of schizophrenia and its brain basis. Individual's WM deviations may contribute to diverse arrays of cognitive function along a continuum with phenotypic expressions from typical neurodevelopmental disorders to schizophrenia

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Mol Psychiatry. 2022.

RARE COPY NUMBER VARIANTS IN MALES AND FEMALES WITH CHILDHOOD ATTENTION-DEFICIT/HYPERACTIVITY DISORDER.

Jung B, Ahn K, Justice C, et al.

While childhood attention-deficit/hyperactivity disorder (ADHD) is more prevalent in males than females, genetic contributors to this effect have not been established. Here, we explore sex differences in the contribution of common and/or rare genetic variants to ADHD. Participants were from the Adolescent Brain and Cognitive Development study (N = 1253 youth meeting DSM-5 criteria for ADHD [mean age = 11.46 years [SD = 0.87]; 31% female] and 5577 unaffected individuals [mean age = 11.42 years [SD = 0.89]; 50% female], overall 66% White, non-Hispanic (WNH), 19% Black/African American, and 15% other races. Logistic regression tested for interactions between sex (defined genotypically) and both rare copy number variants (CNV) and polygenic (common variant) risk in association with ADHD. There was a significant interaction between sex and the presence of a CNV deletion larger than 200 kb, both in the entire cohort (β = −0.74, CI = [−1.27 to −0.20], FDR-corrected p = 0.048) and, at nominal significance levels in the WNH ancestry subcohort (β = −0.86, CI = [−1.51 to −0.20], p = 0.010). Additionally, the number of deleted genes interacted with sex in association with ADHD (whole cohort. β = −0.13, CI = [−0.23 to −0.029], FDR-corrected p = 0.048; WNH. β = −0.17, CI = [−0.29 to −0.050], FDR-corrected p = 0.044) as did the total length of CNV deletions (whole cohort. β = −0.12, CI = [−0.19 to −0.044], FDR-corrected p = 0.028; WNH. β = −0.17, CI = [−0.28 to −0.061], FDR-corrected p = 0.034). This sex effect was driven by increased odds of childhood ADHD for females but not males in the presence of CNV deletions. No similar sex effect was found for CNV duplications or polygenic risk scores. The association between CNV deletions and ADHD was partially mediated by measures of cognitive flexibility. In summary, CNV deletions were associated with increased odds for childhood ADHD in females, but not males

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Neuropsychobiology. 2022;81:539-49.

RISK OF MAJOR MENTAL DISORDER AFTER SEVERE BACTERIAL INFECTIONS IN CHILDREN AND ADOLESCENTS: A NATIONWIDE LONGITUDINAL STUDY.

Hsu TW, Chu CS, Tsai SJ, et al.

INTRODUCTION: Evidence has suggested an association between bacterial infection and increased risk of subsequent major mental disorders (MMDs). Whether such association varies with different pathogens remains unclear. We aimed to investigate the risk of subsequent MMDs after exposure to bacterial pathogens in children and adolescents.

METHODS: Between 1997 and 2012, we enrolled a nationwide cohort of 14,024 children and adolescents with hospitalized bacterial infection, and noninfected controls were 1:4 matched for demographics. There were 11 investigated pathogens, namely, Streptococcus, Staphylococcus, Pseudomonas, Klebsiella, Hemophilus, Mycoplasma, Tuberculosis, Meningococcus, Escherichia, Chlamydia, and Scrub typhus. The primary outcomes were the subsequent risk of seven MMDs, namely, autism spectrum disorder (ASD), attention-deficiency hyperactivity disorder (ADHD), obsessive-compulsive disorder (OCD), tic disorder, schizophrenia, bipolar disorder, and depressive disorder. The secondary outcomes were the subsequent risk of exposure to psychotropic medications.

RESULTS: Pooled bacterial infection was associated with increased risk of the six MMDs - ASD (reported as hazard ratios with 95% confidence intervals: 13.80; 7.40-25.75), ADHD (6.93; 5.98-8.03), OCD (3.93; 1.76-8.76), tic disorder (6.19; 4.44-8.64), bipolar disorder (2.50; 1.28-4.86), and depressive disorder (1.93; 1.48-2.51) - and exposure to four psychotropic medications, including ADHD drugs (11.81; 9.72-14.35), antidepressants (2.96; 2.45-3.57), mood stabilizers (4.51; 2.83-7.19), and atypical antipsychotics (4.23; 3.00-5.96) compared to controls. The associations among MMDs and specific pathogens varied. Importantly, Streptococcus was associated with the most MMDs (six MMDs), and ADHD was associated with eight bacterial pathogen infections.
CONCLUSIONS: After bacterial infection, the risk of MMDs increased in children and adolescents compared to controls, and such associations varied with different pathogens. Future studies are warranted to validate our study findings and investigate the potential mechanisms

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Neuropsychologia. 2023;178.

FUNCTIONAL CONNECTIVITY STRENGTH AND TOPOLOGY DIFFERENCES IN SOCIAL PHOBIA ADOLESCENTS WITH AND WITHOUT ADHD COMORBIDITY.

Kim B, Niu X, Zhang F.

Social phobia (SP) is associated with changes in functional connectivity strength and topology. However, reported changes have been heterogeneous due to small sample sizes, inconsistent methodologies, and comorbidities, such as attention-deficit/hyperactivity disorder (ADHD), which has a high comorbidity rate with SP. Furthermore, there are few studies looking at SP in an adolescent population, a critical period for the development of the social brain. This project focuses on functional connectivity strength and topological differences in social phobia patients with and without ADHD comorbidity. We examined resting-state functional MRI images from 158 subjects, including 36 SP participants without ADHD comorbidity, 60 SP participants with ADHD comorbidity, and 62 healthy controls, with an overall average age of 14.16. We used a data-driven approach to examine impaired functional connectivity in a whole-brain analysis and higher-order topological differences in functional brain networks. We identified changes in the cerebellum and default mode network in social phobia patients as a whole, with the presence of ADHD comorbidity affecting various subsystems of the default mode network. Social phobia functional connectivity networks resembled random graphs, and local connectivity patterns in the superior occipital gyrus were different due to ADHD comorbidity. These alterations may indicate impairments in self-related processing, imagery, mentalizing, and predictive processes. We then used these changes in a linear support vector machine to distinguish between each pair of groups and achieved prediction accuracy significantly above chance rates. Our study extends prior research by showing that functional connectivity changes exist at adolescence, which are affected by ADHD comorbidity. As such, these results offer a new perspective in examining neurobiological changes in SP patients

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Nutrients. 2022 Dec;14.

LONG-TERM EFFECTS OF AN OLIGOANTIGENIC DIET IN CHILDREN WITH ATTENTION-DEFICIT/HYPERACTIVITY DISORDER (ADHD) ON CORE SYMPTOMATOLOGY.

Walz G, Blazynski N, Frey L, et al.

In the early 1920s, it was discovered that nutrition is associated with what is known today as Attention-Deficit/Hyperactivity Disorder (ADHD) and that certain foods can worsen the symptoms. In previous studies, approximately 60% of the participants experience at least a 40% reduction in ADHD symptoms after an oligoantigenic diet (OD). The purpose of this study was to evaluate ADHD symptoms in children approximately 3.5 years after completing a 4-week oligoantigenic diet. Among 28 participants who completed the 4-week diet, 21 were re-assessed for this study after 3.5 years. The severity of ADHD symptoms was assessed with the ADHD-Rating-Scale-IV (ARS). Of 21 participants, 14 fulfilled the responder criterion, whereas 7 did not. At follow-up, 28% of the participants were taking medication. The mean ARS total score improved significantly from T1: M = 29.62 (SD = 9.80) to T2: M = 15.86 (SD = 8.56) between the time points

before and after the diet (d = -1.91). There was also a lower ARS total score at the follow-up T5: M = 16.00 (SD = 10.52) compared to before the diet (d = -1.17). This study shows that individually adjusted nutrition significantly improved the ADHD symptomatology of the participants long-term. This suggests that an oligoantigenic diet with subsequent individual nutritional recommendations could become an additional treatment option for children with ADHD

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Paediatrics and Child Health (Canada). 2022;27:e21.

IMPACT OF A VIRTUAL BEHAVIOURAL SUPPORT INTERVENTION ON IMPROVING BEHAVIOUR, MENTAL HEALTH, AND ACADEMIC ENGAGEMENT AND MOTIVATION FOR CHILDREN WITH ADHD AND THEIR FAMILIES: A PILOT STUDY.

Lemay JF, Hai T, Climie E, et al.

BACKGROUND: Children with ADHD struggle with their academic achievement, well-being, and social functioning. COVID-19 restrictions negatively impacted families of children with ADHD and limited their access to services. This led to the creation of the online ADHD-VIBES program (VIrtual BEhavioural Support Intervention for Children with ADHD).

OBJECTIVES: To determine the efficacy of the ADHD-VIBES program to support families of children with ADHD in behavioural, mental health, academic motivation, and engagement challenges.

DESIGN/METHODS: The ADHD-VIBES program was an online program created to support children with ADHD and their families. It consisted of separate parent and child sessions (1-hour each) for six weeks, targeting the development of self-regulation, positive thinking, communication, problem-solving and executive function skills. To our knowledge, there was no other online program offering the same program content during the pandemic. All children met the following criteria: confirmed ADHD based diagnosis of child on parent ratings on Conners-3 Rating Scale (T-score > 65); IQ score > 80 on the WASI-II abbreviated; and access to technology to join virtual groups. Parents completed the Behavior Assessment System for Children (BASC-3) and the Parenting Stress Index (PSI-4-SF) questionnaires. Children completed the BASC-3, the Executive Skills Questionnaire (ESQ), and the Motivation and Engagement Scale (MES). All questionnaires were completed at three different time-points: pre-intervention, post-intervention, and two-months after intervention. A survey was completed at the end of the intervention to determine level of satisfaction of parents towards the ADHD-VIBES.

RESULTS: A total of 12 boys between the ages of 8 to 11 years old (M = 9.62, SD = 0.94), and their caregivers, took part in this program (summer 2021). On the BASC-3, parents reported significantly lower levels of depression and anxiety (F:5.65, p=.016; F:6.21, p=.012) after completion of the ADHDVIBES program. No significant difference was reported by the children on the BASC-3. On the PSI-4-SF, there was no statistical difference observed (parental distress p=0.244). Improvement associated with executive skills (ESQ) were noticed related to Planning/Preparation (F:4.86, p=.019), Time Management (F:7.08, p=.005) and Goal Directed Persistence (F:5.71, p=.011). On the MES, negative Motivation subscales scores demonstrated a decrease in raw scores (T1=40.78; T2=35.75; T3=30.98; p=.103). Finally, all parents (100%) were satisfied/very satisfied with the ADHD-VIBES intervention.

CONCLUSION: The ADHD-VIBES online intervention showed promising improvement on some behavioural issues, and executive function skills. However, future randomized controlled studies with a larger sample size are required to better understand the impact of the intervention for children with ADHD and their parents

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Perm J. 2022 Dec;26:69-77.

INCREASED PREVALENCE OF SENSORY PROCESSING ISSUES IN PEDIATRIC GASTROINTESTINAL PATIENT POPULATION.

Wood JK, Garcia KE, Carey RG.

Background Sensory processing dysfunction in children has been linked to attention-deficit/hyperactivity disorder, autism, feeding disorders, and functional abdominal pain. However, little is known about sensory processing in the broader pediatric gastroenterology population.

Objective To characterize frequency and type of sensory processing dysfunction seen in pediatric gastroenterology compared to a general pediatric population.
Methods The Short Sensory Profile 2 was administered to the parents of children ranging 3-14 years, being seen in a pediatric gastrointestinal (GI) subspecialty clinic or general pediatric clinic. Short Sensory Profile 2 scores from age- and gender-matched groups were compared with nonparametric statistics. Results Sensory processing dysfunction was increased in children seen in the GI clinic compared to children in the general pediatric clinic. Short Sensory Profile 2 quadrant analysis revealed greatest differences in avoiding, primarily in young females of the GI population.
Conclusion Children presenting to a pediatric GI clinic demonstrate greater sensory processing dysfunction compared to children in a general pediatric practice

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Pril (Makedon Akad Nauk Umet Odd Med Nauki). 2022 Nov;43:43-53.
AN OVERVIEW OF PEDIATRIC APPROACHES TO CHILD WITH DEVELOPMENTAL DELAY ESPECIALLY IF THERE IS SUSPICION OF ASD IN FIRST FEW YEARS OF LIFE.
Demerdzieva A, Pop-Jordanova N.
To be a pediatrician means that one encounters many serious childhood health problems and one finds many ways to help families cope with these problems. Symptoms in children can be discrete, and the responsibility of the pediatrician to distinguish normal development from pathological. We are facing a new era in the developmental assessment of children. A cluster of neurodevelopmental disorders includes ASD (autism spectrum disorder) and ADHD (attention deficit hyperactivity disorder). Parents often do not recognize the problem on time. Generally, their first concern is speech delay, leading to the suspicion of hearing problems. Therefore, it is very important to obtain objective anamnestic information and for the child to undergo a careful physical examination, a neurophysiological assessment, and metabolic and genetic testing. The etiology usually is multifactorial: genetic, epigenetic, and non-genetic factors act in combination through various paths. Most children seem to have typical neurodevelopment during first their year. It was found that approximately one-third of children with ASD lose some skills during the preschool period, usually speech related, but sometimes also non-verbal communication, social or play skills. In conclusion we must say that it is very important to recognize the early signs of ASD and any kind of other developmental delay and to start with early intervention. Clinical pediatricians tend to correlate clinical manifestations and biological underpinnings related to neurodevelopmental disorder, especially ASD. Therefore, better treatment possibilities are needed

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Pril (Makedon Akad Nauk Umet Odd Med Nauki). 2022 Nov;43:29-42.
HOW ALCOHOL DAMAGES BRAIN DEVELOPMENT IN CHILDREN .
Pop-Jordanova N, Demerdzieva A.
The world over, people drink in order to socialize, celebrate, and relax, despite the negative health effects of alcohol. Three periods of dynamic brain changes are evidenced to be particularly sensitive to the harmful effects of alcohol: gestation (from conception to birth), later adolescence (15-19 years), and older adulthood (over 65 years). This article is concentrated only on the negative effects of alcohol in children who have been exposed to alcohol before birth, known as foetal alcohol syndrome (FAS). This is a review based on published data in PubMed over the last two decades and is an analysis of more than 150 published papers. Alcohol use during pregnancy can cause miscarriage, stillbirth, and a range of lifelong physical, behavioural, and intellectual disabilities. The effects of ethanol are expressed on a set of molecules involved in neuroinflammation, myelination, neurotransmission, and neuron function. Modern neuroimaging techniques are able to specify some fine structural changes in the affected areas of the brain: volume reductions in the frontal lobe, including the middle frontal gyri in the prefrontal cortex, hippocampal structure, interhemispheric connectivity, abnormalities in glial cells, white matter deficits etc. Corpus callosum myelination is affected, resulting in a lack of the inter-hemispheric connectivity. This is known to facilitate autism, stroke, schizophrenia, as well as dementia, disrupts cognitive performance, and may lead to neurobehavioral

deficits. It was pointed out that many symptoms and neuroimaging characteristics are similar in ADHD and FAS, thus the anamnesis for prenatal alcohol and nicotine exposure must be taken very seriously in order to better understand and interpret clinical symptoms

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Psychiatry Res. 2023;319.

OPEN ASSESSMENT OF THE THERAPEUTIC AND RATE-DEPENDENT EFFECTS OF BRAIN BALANCE CENTER-« AND INTERACTIVE METRONOME-« EXERCISES ON CHILDREN WITH ATTENTION DEFICIT HYPERACTIVITY DISORDER.

Teicher MH, Bolger E, Hafezi P, et al.

The aim of this open study was to delineate domains of benefit and effect size measures to design an appropriately powered randomized control trial to assess the efficacy of Brain Balance@ exercises and Interactive Metronome@ training (BB/IM) on ADHD symptoms in children. Participants underwent an extensive 15-week, 5 time per week, at-home training program. Results were assessed in 16 youths with ADHD (14M/2F, 10.8-¦1.7 years) who completed the program and compared to 8 typically developing controls (4M/F4, 11.0-¦1.8 years). BB/IM was associated with a significant reduction of 8.3 and 8.2 points on the Conner's Parent Rating Scale ΓÇô Revised and the ADHD Rating Scale ΓÇô IV. BB/IM was not associated with improvement on the Quotient ADHD System but with rate-dependent effects on hyperactivity and attention that were similar to previously reported effects of low dose methylphenidate. Both therapeutic and rate-dependent effects were observed on the Tower of London. The study provides information that could be used to design a randomized control trial, which is required for proof of efficacy. A key limitation is that 59% of the 39 enrolled participants with ADHD dropped out of the study and a new study should include multiple ratings during the course of treatment

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QJM. 2022 Dec;115:813-21.

ASSOCIATIONS OF A FAMILY HISTORY OF LUPUS WITH THE RISKS OF LUPUS AND MAJOR PSYCHIATRIC DISORDERS IN FIRST-DEGREE RELATIVES.

Lin PC, Liang CS, Tsai CK, et al.

BACKGROUND: Genetic factors link psychiatric disorders, particularly major depressive disorder (MDD), bipolar disorder, and obsessive-compulsive disorder (OCD), with systemic lupus erythematosus (SLE). Additionally, maternal SLE is a risk factor for long-term developmental problems, particularly learning disabilities, attention disorders, autism spectrum disorder (ASD) and speech disorders, in children. AIM: We aimed to determine whether first-degree relatives (FDRs) of patients with SLE have increased risks of SLE and major psychiatric disorders.

DESIGN AND METHODS: Using the Taiwan National Health Insurance Research Database, we recruited 40 462 FDRs of patients with SLE as well as 161 848 matched controls. The risks of major psychiatric disorders, including schizophrenia, bipolar disorder, OCD, MDD, ASD and attention-deficit/hyperactivity disorder (ADHD), were assessed.

RESULTS: The FDRs of patients with SLE had higher risks of SLE (reported as the adjusted relative risk and 95% confidence interval: 14.54; 12.19-17.34), MDD (1.23; 1.12-1.34), ADHD (1.60; 1.55-1.65), OCD (1.41; 1.14-1.74) and bipolar disorder (1.18; 1.01-1.38) compared with controls. Specifically, male FDRs of patients with SLE had higher risks of SLE and bipolar disorder, whereas female FDRs of patients with SLE had higher risks of MDD and OCD. Differences in the familial relationship (i.e. parents, children, siblings and twins) were consistently associated with higher risks of these disorders compared with controls.

CONCLUSIONS: The FDRs of patients with SLE had higher risks of SLE, MDD, ADHD, OCD and bipolar disorder than the controls

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Salud Colect. 2022 Nov;18:e4233.

CHILDHOODS, DIAGNOSIS AND MENTAL HEALTH: DISCUORSES ON THE DIAGNOSIS OF ATTENTION DEFICIT HYPERACTIVITY DISORDER IN THE LOS LAGOS REGION, CHILE (2020-2021).

Bello SnO.

The purpose of this article is to identify power-knowledge relationships that shape discourses surrounding attention deficit hyperactivity disorder (ADHD) diagnoses in the region of Los Lagos, Chile. Employing a qualitative methodology based on Foucauldian discourse analysis, three analytical categories were defined: a) meanings, b) configurations, and c) implications of this neuropsychiatric condition. These categories guided eleven in-depth interviews with professionals, family members, and adolescents diagnosed with ADHD, which were conducted between 2020 and 2021. Based on the discourse analysis, the article concludes that: a) Foucauldian biopolitics and Latin American collective health are effective analytical approaches to discourses surrounding ADHD; b) the diagnosis of this disorder is a medicalized phenomenon; and c) diagnosis functions as a classifying tool, a field of controversies, and a strategy that modulates the body and childhood activity

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Sci Rep. 2022 Dec;12:21928.

WAVELET-BASED APPROACH FOR DIAGNOSING ATTENTION DEFICIT HYPERACTIVITY DISORDER (ADHD) .

Vimalajeewa D, McDonald E, Bruce SA, et al.

Attention deficit hyperactivity disorder (ADHD) is a common cognitive disorder affecting children. ADHD can interfere with educational, social, and emotional development, so early detection is essential for obtaining proper care. Standard ADHD diagnostic protocols rely heavily on subjective assessments of perceived behavior. An objective diagnostic measure would be a welcome development and potentially aid in accurately and efficiently diagnosing ADHD. Analysis of pupillary dynamics has been proposed as a promising alternative method of detecting affected individuals effectively. This study proposes a method based on the self-similarity of pupillary dynamics and assesses its strength as a potential diagnostic biomarker. Localized discriminatory features are developed in the wavelet domain and selected via a rolling window method to build classifiers. The application on a task-based pupil diameter time series dataset of children aged 10-12 years shows that the proposed method achieves greater than 78% accuracy in detecting ADHD. Comparing with a recent approach that constructs features in the original data domain, the proposed wavelet-based classifier achieves more accurate ADHD classification with fewer features. The findings suggest that the proposed diagnostic procedure involving interpretable wavelet-based self-similarity features of pupil diameter data can potentially aid in improving the efficacy of ADHD diagnosis

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Sci Total Environ. 2023 Feb;859:160123.

ASSOCIATION OF RESIDENTIAL AND SCHOOL GREEN- AND BLUESPACE WITH ACADEMIC PERFORMANCE IN 10-13-YEAR-OLD POLISH SCHOOLCHILDREN WITH AND WITHOUT ATTENTION DEFICIT HYPERACTIVITY DISORDER.

Singh N, Baumbach C, BuczyÅ‚owska D, et al.

BACKGROUND: Several studies, mostly based on the USA data, have reported that school greenspace was associated with better academic performance. However, nearly all of them were conducted on aggregated data. We are among the first individual data-based studies worldwide to examine whether exposure to school and residential green- and bluespace can boost academic performance.

METHODS: NeuroSmog is an ongoing case-control study investigating the impact of air pollution on brain development in children with and without attention deficit hyperactivity disorder (ADHD). 658 children aged 10 to 13 years from 18 large and small towns in southern Poland constituted the analytical sample. Information about latest end-of-year school grades in Polish and maths was collected by the parent report while perceived academic performance in these subjects was collected by the Youth Self-Report. Tree, grass, and water cover, as well as overall vegetation, were abstracted in Euclidean buffers of 500 and 1000 m around concurrent school and residential addresses. Perceived green- and bluespace data were also

collected. Adjusted for age, sex, parent education, financial situation, and urbanicity, logistic models were fitted to assess the associations between each exposure-outcome pair.
RESULT: We found no consistent associations between academic performance and school or residential green- and bluespace. This held true for children with and without ADHD.
CONCLUSIONS: Higher residential and school green- and bluespace do not seem to be sufficient for better academic performance

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Transl Psychiatry. 2022 Dec;12:518.

EFFECT OF METHYLPHENIDATE ON FUNCTIONAL CONTROLLABILITY: A PRELIMINARY STUDY IN MEDICATION-NAIVE CHILDREN WITH ADHD.

Henry TR, Fogleman ND, Nugiel T, et al.

Methylphenidate (MPH) is the recommended first-line treatment for attention-deficit/hyperactivity disorder (ADHD). While MPH's mechanism of action as a dopamine and noradrenaline transporter blocker is well known, how this translates to ADHD-related symptom mitigation is still unclear. As functional connectivity is reliably altered in ADHD, with recent literature indicating dysfunctional connectivity dynamics as well, one possible mechanism is through altering brain network dynamics. In a double-blind, placebo-controlled MPH crossover trial, 19 medication-naÃ¨ve children with ADHD underwent two functional MRI scanning sessions (one on MPH and one on placebo) that included a resting state scan and two inhibitory control tasks; 27 typically developing (TD) children completed the same protocol without medication. Network control theory, which quantifies how brain activity reacts to system inputs based on underlying connectivity, was used to assess differences in average and modal functional controllability during rest and both tasks between TD children and children with ADHD (on and off MPH) and between children with ADHD on and off MPH. Children with ADHD on placebo exhibited higher average controllability and lower modal controllability of attention, reward, and somatomotor networks than TD children. Children with ADHD on MPH were statistically indistinguishable from TD children on almost all controllability metrics. These findings suggest that MPH may stabilize functional network dynamics in children with ADHD, both reducing reactivity of brain organization and making it easier to achieve brain states necessary for cognitively demanding tasks

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Trials. 2022 Dec;23:1003.

ONLINE PARENT TRAINING FOR THE INITIAL MANAGEMENT OF ADHD REFERRALS (OPTIMA): THE PROTOCOL FOR A RANDOMISED CONTROLLED TRIAL OF A DIGITAL PARENTING INTERVENTION IMPLEMENTED TO SUPPORT PARENTS AND CHILDREN ON A TREATMENT WAITLIST.

Kostyrka-Allchorne K, Ballard C, Byford S, et al.

BACKGROUND: Children referred for attention-deficit/hyperactivity disorder (ADHD) often present with a broader pattern of conduct problems including oppositionality and defiance. This combination can be extremely stressful to parents, lower parents' self-esteem and negatively impact family life. The National Institute for Health and Care Excellence (NICE) recommends that families receive support as soon as possible after their referral. However, as clinical services are overstretched, and traditional in-person parenting intervention programmes are expensive, families often must wait times a long time prior to receiving this vital input. To address this, we have created a digital parenting programme called STEPS. It is delivered as a mobile phone app providing a set of tools and resources that can be easily accessed at parents' convenience. This study aims to evaluate the clinical and cost-effectiveness of STEPS in supporting parents of children with high levels of hyperactivity/impulsivity, inattention and conduct problems, who are waiting to be assessed by specialist children's clinical services.
METHODS: Online Parent Training for The Initial Management of ADHD referrals (OPTIMA) is a two-arm superiority parallel randomised controlled trial with an internal pilot study. We aim to recruit 352 parents and their children, who have been accepted onto a waitlist in Child and Adolescent Mental Health Services or similar child health services. Parents who consent will be randomised 1:1 to either the STEPS or wait-as-usual (WAU) group. The trial will be conducted remotely (online and telephone) with measures taken at

baseline and 3, 6, 9 and 12 months post-randomisation. The primary objective is to evaluate whether STEPS reduces the severity of children's oppositional and defiant behaviour, as rated by parents, measured at 3 months post-randomisation compared to WAU.
DISCUSSION: Digital solutions, such as mobile phone apps, have potential for delivering psychological support for parents of children with clinical-level needs in a timely and inexpensive manner. This trial will provide data on the clinical and cost-effectiveness of the STEPS app, which could support the implementation of this scalable parenting intervention programme into standard clinical care and, ultimately, improve the outcomes for families of children referred to specialist child and adolescent health services.
TRIAL REGISTRATION: ISRCTN 16523503. Prospectively registered on 18 November 2021. https://www.isrctn.com/ISRCTN16523503

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Womens Health (Lond). 2022 Jan;18:17455057221133635.
MENTAL HEALTH AND NEURODEVELOPMENT IN CHILDREN AND ADOLESCENTS WITH TURNER SYNDROME.
Wolstencroft J, Mandy W, Skuse D.
OBJECTIVES: Turner syndrome (TS) is a rare sex chromosome aneuploidy, with an incidence of four in 10,000 new-born girls. TS is often associated with impaired social communication skills, but the extent to which these are attributable to Autism Spectrum Disorders (ASD) is uncertain. We made standardized assessments of the mental health and associated neurodevelopmental disorders in children and adolescents with TS and report on the prevalence of concurrent conditions.
METHODS: Our sample comprised 127 girls with TS, 5-19 years of age. We obtained reports of their mental health from a combination of diagnostic interview (the Development and Wellbeing Assessment (DAWBA)), from the Strengths and Difficulties Questionnaire (SDQ) and from the Social Responsiveness Scale (SRS-2). Sources of information included parents, teachers and self-reports. The prevalence of mental health disorders in this sample was compared with age/sex matched national English data from typical controls.
RESULTS: Most individuals with TS (83%) had experienced significant social communication difficulties and nearly one in four (23%) met diagnostic criteria for ASD on the DAWBA. One-third (34%) had at least one mental health or neurodevelopmental condition, and those girls with an ASD were at a greater risk of a co-occurring emotional disorder and/or attention deficit hyperactivity disorder (ADHD).
CONCLUSION: Children and adolescents with TS are substantially more likely to meet criteria for ASD than their typically developing peers. Our finding has clinical implications for appropriate behavioural management from preschool through to adolescence

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Work. 2022;73:1235-44.
WORK PARTICIPATION, SENSORY PROCESSING AND SLEEP QUALITY IN ADULTS WITH ATTENTION-DEFICIT HYPERACTIVE DISORDER.
Grinblat N, Rosenblum S.
BACKGROUND: Although studies have indicated significant effects of attention-deficit hyperactive disorder (ADHD) on work participation, the mechanism underlying work participation of adults with ADHD is still unclear.
OBJECTIVE: Following the World Health Organization's international classification of functioning, disability, and health concepts, this study compares sensory processing and sleep quality (body functions) with work participation among adults with and without ADHD and examines predictive relationships among adults with ADHD.
METHODS: Sixty-nine adults with ADHD and 52 matched controls completed a sociodemographic questionnaire, the Adult/Adolescent Sensory Profile, the Mini Sleep Questionnaire, and the Occupational Questionnaire.
RESULTS: The ADHD group had significantly poorer body functions, sensory processing (i.e., low registration, sensory-sensitivity, and sensation-avoiding patterns), sleep quality, and work performance

compared to the control group (p<.001). For adults with ADHD, sensory sensitivity accounted for 10.9%, and sleep quality accounted for 22.0%, of the variance in their work performance.
CONCLUSIONS: The deficient body functions of adults with ADHD may affect their work performance and therefore should be considered in further research, as well as in clinical applications

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European Psychiatry

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E-Poster Viewing

Abstract

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EUROPEAN PSYCHIATRIC ASSOCIATION

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EPV0276

Functional NIRS evaluation of prefrontal cortex activity during emotional processing in children with ADHD

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*Corresponding author.

Introduction: Attention deficit hyperactivity disorder (ADHD) is characterized by a lack in self-regulation of behaviour, cognition and emotional response. Children with ADHD often experience emo-tional dysregulation (ED) defined as the inability to regulate emo-tions and to organize behaviours in response to emotional stimuli. **Objectives:** The present exploratory study aimed to evaluate possible peculiar sensitivity to emotional stimuli in children with ADHD and ED, revealed by behavioural performances and cortical hemodynamic characteristics measured with functional Near Infrared Spectroscopy (fNIRS). The relationship between haemodynamic activation during task and ADHD and ED symptoms was also investigated. **Methods:** Eighteen children with ADHD and ED, all drug naïve, and 25 typically developing (TD) peers, aged 6-16 years, underwent fNIRS while performing a visual emotional continuous perfor-mance task in which faces with relevant positive, negative and

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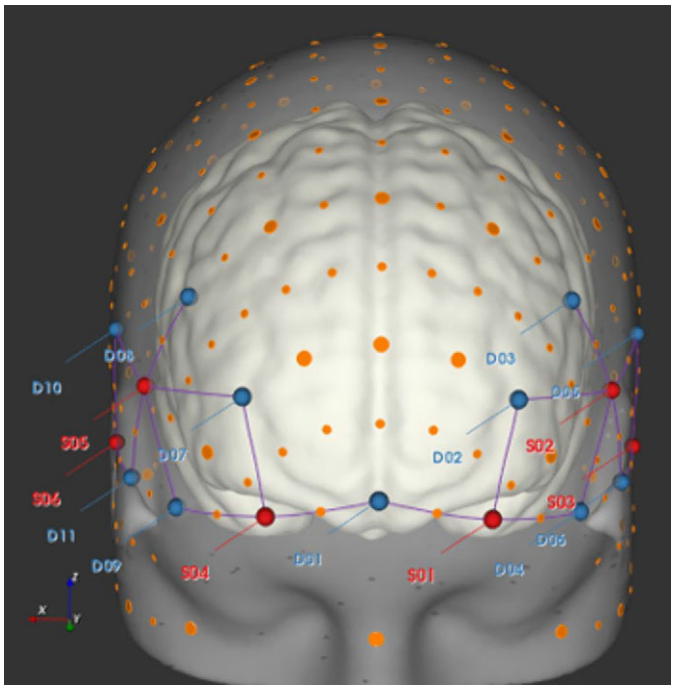

neutral content were presented. ADHD and ED symptoms were evaluated with Conners' parents rating scales (CPRS). Selected fNIRS sources and detectors see figure1

Results: Between groups comparisons revealed worse performances of ADHD children, with a statistically significant difference for positive blocks and total errors. fNIRS analysis showed higher activation in TD group, as measured by higher oxygenated-haemoglobin concentration changes, localized in right prefrontal cortex, regardless from the valence of the emotional stimuli. Correlations conducted between fNIRS activation and CPRS revealed several associations between hemodynamic changes in right prefrontal regions and inattention and hyperactivity, but not ED symptoms.

Conclusions: Lack of self-regulation and ED impact on ADHD children ability to process emotional stimuli, as revealed by worse performances and haemodynamic peculiarities in right prefrontal cortex.

Conflict of interest: No

Keywords: emotional regulation; ADHD; Prefrontal Cortex; fNIRS

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Introduction: Attention Deficit / Hyperactivity Disorder (ADHD) is a highly prevalent neurodevelopmental condition characterized by inattention, motor hyperactivity and impulsivity. ADHD cognitive and behavioral presentation is characterized by a high heterogeneity (APA, 2013). Indeed, a complex diagnostic process, that considers several validated tools, is, to date, necessary.
Objectives: The main aim is to develop supervised machine learning (ML) algorithms that could be used to support the diagnostic process for ADHD, by identifying the most relevant features in discriminating between the presence or absence of the ADHD diagnosis in children.
Methods: We analyzed data from 342 children (Mean age: 8y 8m ± 1y; 61 F) referred for possible ADHD symptomatology. Assessments were performed by an expert clinician and through questionnaires: Social Responsiveness Scale (SRS), Child Behavior Checklist (CBCL), Conners Rating Scale for Parents (CPRS) and for Teachers (CTRS). Data were analyzed using a decision tree classifier and random forest algorithms.
Results: The decision tree model performed an accuracy of 0.71. The random forest model that was identified as the best tested, performed an accuracy of 0.77 (Figure 1) and it identified as most informative parent- and teacher-rated DSM-oriented ADHD symptoms (Figure 2).

```
Confusion Matrix and Statistics

          Reference
Prediction ADHD nonADHD
   ADHD      33       9
   nonADHD    7      19

               Accuracy : 0.7647
                 95% CI : (0.6462, 0.8591)
    No Information Rate : 0.5882
    P-Value [Acc > NIR] : 0.001766
```

Figure 1: Random forest confusion matrix and statistics.

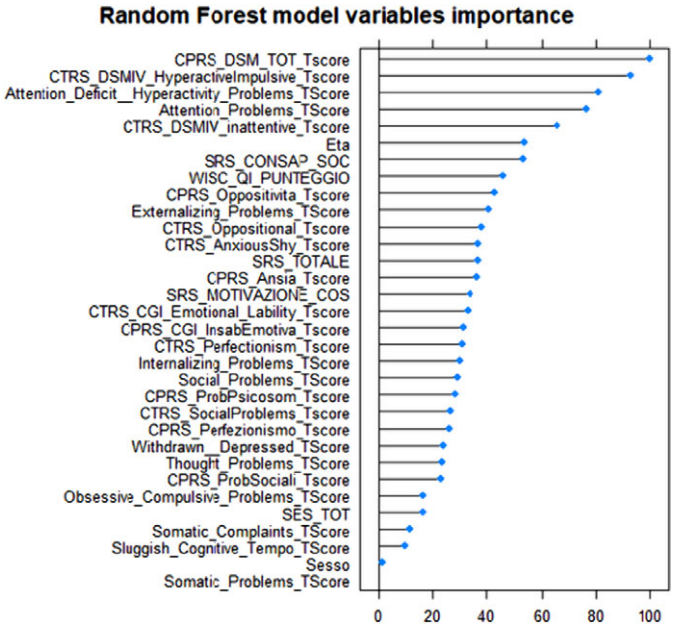

Figure 2: Ranking of variables importance.

EPP0123

Use of machine learning on clinical questionnaires data to support the diagnostic classification of Attention DeficitHyperactivity Disorder: a personalized medicine approach

S. Grazioli*, M. Mauri, E. Rosi, F. Villa, F. Tizzoni, A. Tarabelloni, S. Trabattoni, V. Mauri, P. Colombo, M. Molteni and M. Nobile

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doi: 10.1192/j.eurpsy.2022.441

Conclusions: A random forest classifier could represent an effective algorithm to support the identification of ADHD children and to simplify the diagnostic process as an initial step. The use of supervised machine learning algorithms could be useful in helping the diagnostic process, highlighting the importance of a personalized medicine approach.

Disclosure: No significant relationships.
Keywords: machine learning; Personalized medicine; Attention Deficit Hyperactivity Disoder; Diagnostic classificatio

https://doi.org/10.1192/j.eurpsy.2022.441 Published online by Cambridge University Press

Ricerca&Pratica

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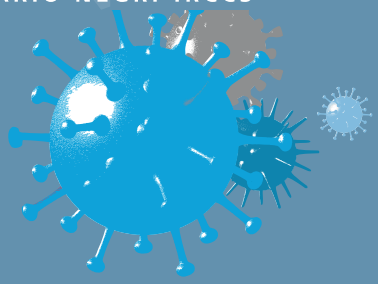

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Il Pensiero Scientifico Editore

67. AUTISMO: UN DISTURBO DEL NEUROSVILUPPO

I disturbi dello spettro autistico, chiamati più semplicemente anche solo autismo, possono manifestarsi in modo diverso tra le persone e in diverse fasi della vita di ciascuno. L'autismo riguarda la sfera del neurosviluppo che coinvolge linguaggio, socialità e comunicazione.
I bambini vengono al mondo con la motivazione e la capacità innate per cominciare a stabilire un'immediata relazione sociale con chi si prende cura di loro, sorridono, adorano le coccole, ridono e rispondono con entusiasmo a giochi. Alcuni bambini non interagiscono in questo modo ma sembrano chiusi in un loro proprio mondo caratterizzato da comportamenti ripetitivi, strani, problemi di comunicazione sia verbale che non verbale e mancanza o ridotto interesse per gli altri. Sono almeno 78 milioni le persone nel mondo con autismo e la maggioranza non riesce ad avere accesso ad una cura appropriata. Per questo motivo, vivere nello spettro è una condizione complessa sia per chi ne soffre che per i famigliari.
All'interno di questo spettro le caratteristiche difficoltà compaiono in modo sfumato dalla più grave alla più lieve, dalla presenza di tutte alla presenza solo di una in forma meno complessa.

Quali sono le cause dell'autismo?

L'autismo è la manifestazione delle alterazioni di alcune funzioni del sistema nervoso centrale, la cui causa è ancora sconosciuta; comunque, non è imputabile ai genitori e neppure alle vaccinazioni dell'infanzia.
La maggioranza dei ricercatori, concorda nell'affermare che le cause possano essere genetiche (la familiarità, l'essere portatori di determinate malattie genetiche: sindrome di Rett, sindrome di Angelman), neurobiologiche (nascita di neuroni anomali che non riescono a creare connessioni con le altre cellule nervose del

Enea. Fotografia di Elisa Mariotti, 2018

cervello) e fattori di rischio ambientali (parto prematuro; abuso di alcool e farmaci durante la gravidanza; l'esposizione del feto ad inquinamento continuo; eventuali infezioni contratte dalla mamma durante il periodo di gestazione; l'età avanzata dei genitori al momento del concepimento).
Infine, l'autismo si presenta più frequentemente nelle persone di sesso maschile: i maschi hanno un rischio di 4 volte maggiore di soffrire di autismo rispetto alle femmine. In parte queste differenze sono dovute a un maggior ritardo nella diagnosi del disturbo nel sesso femminile.

Quando si manifesta?

I primi sintomi di questa patologia si possono manifestare intorno ai 2-3 anni e sono estremamente variabili, i più comuni sono:

- ritardo nello sviluppo del linguaggio (non pronuncia singole parole all'età di 16 mesi);
- ripetizione frequente di parole o frasi;
- monotonia nel suono della voce e mancanza di espressioni facciali;
- ripetizione di movimenti come un dondolio o il battito di mani;
- eccessiva sensibilità a luci intense e suoni acuti;
- disinteresse verso qualsiasi forma di interazione sociale (sembra preferire il giocare da solo);
- mancanza di emotività (sorride poco in risposta a qualcuno che gli sorride);
- tendenza a isolarsi;
- scatti di aggressività improvvisi e senza motivo e tendenza all'invadenza;
- sviluppo sopra la norma di memoria, capacità di calcolo, abilità musicali e matematiche;
- mancanza di coordinazione nei movimenti.

Con la crescita, la sintomatologia della persona affetta da autismo può cambiare sia in meglio che in peggio. Non basta che sia presente soltanto uno dei sintomi per sospettare un disturbo dello spettro autistico, un bambino in età prescolare preferisce stare e giocare da solo, e non riesce a rispondere in modo adeguato alle persone; può avere comportamenti motori strani o rituali come dondolare, "sfarfallare le mani", o un bisogno ossessivo di mantenere l'ordine.
Alcuni bambini con autismo non parlano.
La gravità dell'autismo è molto variabile.
Alcuni bambini sono molto brillanti e vanno bene a scuola, anche se hanno problemi con la regolazione delle emozioni e dei rapporti sociali. Questi bambini possono essere in grado di vivere autonomamente quando crescono.

Come si esegue la diagnosi di autismo?

L'iter diagnostico prevede il coinvolgimento di diversi professionisti (psichiatri dell'infanzia e dell'adolescenza, psicologi, neurologi pediatri e logopedisti) e necessita di una serie di test valutativi, come un esame obiettivo capace di stabilire il grado di sviluppo del linguaggio, del comportamento e delle capacità comunicative. Potranno anche essere effettuate analisi genetiche volte a stabilire la possibile natura di alcuni sintomi.
Spesso la diagnosi viene ancora fatta intorno ai 6 anni, quando il bambino inizia a frequentare la scuola e a manifestare le prime difficoltà. Invece, una diagnosi precoce attorno ai 2 anni consentirebbe di poter attivare per tempo interventi terapeutici.
Il ruolo del pediatra di famiglia è essenziale per attivare il percorso diagnostico, per individuare tempestivamente i sintomi e per indirizzare la famiglia dallo specialista. Anche i genitori e gli insegnanti, se il bambino frequenta la scuola, sono coinvolti nella diagnosi: a loro è richiesto di compilare un questionario che serve a chiarire aspetti e comportamenti del bambino.

Come si cura l'autismo?

Non essendo l'autismo una malattia, ma un insieme di disturbi caratterizzati dalla manifestazione di sintomi e segni, non esiste alcun farmaco capace di curarlo.
Ci sono farmaci che, se usati in modo appropriato, possono controllare i sintomi.
Esistono poi diverse attività volte a mitigare i disturbi dello spettro autistico, tra cui psicomotricità, logopedia, comunicazione facilitata; ce ne sono anche altre prive di basi scientifiche.
I trattamenti consigliati dagli specialisti sono:

- interventi educativi volti a migliorare specifiche abilità del paziente tramite determinate attività;
- terapia cognitivo-comportamentale, cioè una forma di psicoterapia che ha lo scopo di insegnare al paziente come riconoscere e controllare determinati comportamenti definibili problematici;
- sedute basate su tecniche psicologiche che coinvolgono l'intero nucleo famigliare del paziente. Questo tipo di terapia è efficace se tutta la famiglia comprende bene ogni peculiarità della malattia allo scopo di aiutare al meglio chi ne è affetto.

La terapia deve essere multimodale: psicologica, ma anche farmacologica, soprattutto quando alcuni sintomi sono particolarmente debilitanti o in presenza di patologie associate particolari. Un esempio è la prescrizione di melatonina per i disturbi del sonno, di antidepressivi per la depressione, di anticonvulsivanti per l'epilessia, di metilfenidato per il disturbo dell'attenzione e iperattività (ADHD) e di antipsicotici per l'eccessiva aggressività.

Spesso i bambini autistici mostrano già dal compimento del primo anno di vita difficoltà nel comunicare con gli altri attraverso le parole, lo sguardo e i gesti, anche se difficilmente si arriva a una diagnosi di autismo prima dei 2-3 anni.

La diagnosi precoce di autismo e dei disturbi del neurosviluppo uno degli obiettivi del progetto NASCITA, nell'ambito del quale i ricercatori cercano di aiutare i medici nella diagnosi attraverso la compilazione di test di screening appropriati, da eseguire già entro i primi due anni d'età. Queste valutazioni precoci coinvolgono i piccoli pazienti, il pediatra di famiglia e i genitori. •

68. I DISTURBI SPECIFICI DELL'APPRENDIMENTO

I Disturbi Specifici dell'Apprendimento (DSA) tendono a interferire con la vita quotidiana, compromettendo la prestazione e il successo scolastico dei bambini e dei ragazzi. Solitamente si manifestano in età evolutiva, con l'inizio della scuola elementare e non sono legati a un funzionamento mentale sotto la norma.
Negli ultimi anni, vi è stato un incremento significativo delle diagnosi di casi di DSA: i dati del MIUR indicano che l'incidenza è passata dallo 0,7% (nell'anno scolastico 2010-2011) al 3,2% (nell'anno 2017-2018).
Vi è accordo nel riconoscere l'origine neurobiologica del disturbo; sono però i fattori ambientali che aiutano a definire i DSA, così come il loro livello di compromissione. Tra i fattori più rilevanti c'è la familiarità, per questa ragione al momento della diagnosi si tiene conto della presenza di altri casi di DSA nel proprio nucleo familiare.
I DSA si presentano frequentemente associati a disturbi emotivi e comportamentali. La comorbidità fra DSA e disturbi di tipo internalizzanti o esternalizzanti è del 25-50%, tra questi i più frequenti sono il disturbo da deficit dell'attenzione/iperattività (ADHD), il Disturbo oppositivo-provocatorio e i Disturbi Specifici del Linguaggio.
I soggetti con DSA mostrano difficoltà specifiche nell'acquisizione e utilizzo di una (o più) delle funzioni di lettura, scrittura e calcolo, motivo per il quale vengono distinti in base alle funzioni che risultano deficitarie in:

- **Dislessia**: difficoltà ad effettuare una lettura accurata e/o fluente. Nei primi anni del percorso scolastico il bambino può manifestare difficoltà a riconoscere le lettere dell'alfabeto, ad imparare la corrispondenza fra grafemi e fonemi. La dislessia consiste nell'incapacità di riprodurre il linguaggio con la velocità e le abilità normali che un soggetto dovrebbe avere in relazione all'età.
- **Disortografia**: difficoltà a scrivere correttamente da un punto di vista ortografico. Il bambino presenta difficoltà nell'applicare le regole di conversione dal suono alla parola scritta e quindi a riconoscere i suoni che compongono la parola. Spesso insorge come conseguenza della dislessia, ma può manifestarsi anche in maniera isolata.
- **Disgrafia**: difficoltà nella componente esecutiva e grafo-motoria (scrittura poco leggibile). Il bambino presenta difficoltà a scrivere in modo fluido, veloce ed efficace.
- **Discalculia**: difficoltà nel calcolo e nel concetto di numero. Il bambino fatica a legare un numero a una situazione di vita reale e mostra difficoltà a ricordare i numeri, oltre che ad automatizzare alcuni compiti numerici e di calcolo (ad esempio il bambino ha difficoltà ad apprendere le tabelline oppure usa le dita per fare i calcoli).

Affinché venga effettuata una diagnosi di DSA è necessario che il soggetto valutato da un'équipe specialistica composta da neuropsichiatra infantile, psicologo e logopedista. Dai test effettuati ai bambini con DSA dovrebbe emergere un quoziente intellettivo nella media (o superiore alla media) e almeno due prove diagnostiche al di sotto della norma. La diagnosi di DSA viene di solito eseguita solo al termine del secondo anno della scuola primaria. Le difficoltà si manifestano infatti quando le richieste scolastiche che coinvolgono le abilità carenti vanno oltre un certo livello di capacità individuale. Solitamente sono i docenti ad accorgersi delle difficoltà dei loro studenti e dunque suggerire alle famiglie un approfondimento specialistico.
I genitori sono confusi e spesso tendono ad associare le difficoltà ad uno scarso impegno o insufficiente esercizio del figlio. Di conseguenza il bambino si sente demotivato, inadeguato e poco compreso; questo può andare a influire sulla sua autostima. È quindi fondamentale una diagnosi precoce che consenta di trattare adeguatamente tale disturbo. Strategie compensative e dispensative dovrebbero permettere al bambino di riacquisire una maggior consapevolezza delle proprie capacità e facilitare il suo successo negli apprendimenti. •

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link per potersi cancellare dalla mailing list:
http://adhd.marionegri.it/index.php/newsletter/cancellazione-newsletter

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, n. 3885 del 30/03/2020)
Capofila Progetto: UONPIA Azienda Ospedaliera "Spedali Civili di Brescia"
"*Percorsi diagnostico-terapeutici per l'ADHD*".

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