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BIBLIOGRAFIA ADHD DICEMBRE 2015

Acad Pediatr. 2015.

BEYOND ADHD: HOW WELL ARE WE DOING?

Stein REK, Storfer-Isser A, Kerker BD, et al.

Background and Objective: There has been increasing emphasis on the role of the pediatrician with respect to behavioral, learning, and mental health (MH) issues, and developmental behavioral rotations are now required in pediatric residency programs. We sought to examine whether this newer emphasis on MH is reflected in pediatricians' reports of their current practices.

Methods: Data from 2 periodic surveys conducted in 2004 and 2013 by the American Academy of Pediatrics were examined to see whether there were differences in self-reported behaviors of usually inquiring/screening, treating/managing/comanaging, or referring patients for attention-deficit/hyperactivity disorder (ADHD), anxiety, depression, behavioral problems, or learning problems. We examined patterns for all practicing members and for those who practiced general pediatrics exclusively.

Results: There were few changes over the decade in the percentage who inquired or screened among all clinicians; among those exclusively practicing general pediatrics, the percentage who inquired or screened increased about 10% for ADHD and depression. ADHD remained the only condition for which the majority of respondents treated/managed/comanaged (57%). While there was some increase in the percentages who treated other conditions, the other conditions were usually treated by <30% of respondents. A similar pattern of results was observed in analyses adjusted for physician, practice, and patient characteristics.

Conclusions: Despite the changing nature of pediatric practice and increased efforts to emphasize the importance of behavior, learning, and MH, the pediatric community appears to be making little progress toward providing for the long-term behavioral, learning, and MH needs of children and adolescents in its care

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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.

Acta Radiologica. 2015;56:990-96.

DTI ABNORMALITIES IN ADULTS WITH PAST HISTORY OF ATTENTION DEFICIT HYPERACTIVITY DISORDER: A TRACT-BASED SPATIAL STATISTICS STUDY.

Bode MK, Lindholm P, Kiviniemi V, et al.

BACKGROUND: Diffusion tensor imaging (DTI) is a magnetic resonance imaging (MRI) technique enabling visualization and measurement of white matter tracts. Attention deficit hyperactivity disorder (ADHD) has been studied with DTI earlier with variable results, yet there is little research on remitted ADHD.

PURPOSE: To compare the brain white matter between ADHD drug naïve subjects whose ADHD symptoms have mostly subsided and healthy controls.

MATERIAL AND METHODS: Tract-based spatial statistics (TBSS) was used to compare 30 subjects with adolescent ADHD with control subjects at the age of 22-23 years. The study population was derived from a population-based Northern Finland Birth Cohort 1986. Fractional anisotropy (FA), mean diffusivity (MD), and measures of diffusion direction (λ_{1-3}) were calculated. Permutation testing was used to test for differences in mean values of FA, MD, and λ_{1-3} between the groups. The results were corrected for multiple comparisons across the whole white matter skeleton.

RESULTS: The ADHD group showed increased FA related to decreased radial diffusivity in the left forceps minor ($P < 0.05$). In the vicinity along the same tract, axial diffusion was significantly decreased without any significant effect on FA. No between-group difference in MD was observed. Regressor analysis revealed no gender-, IQ- or GAF-related changes. After removal of left handed subjects the statistical significance was only barely lost.

CONCLUSION: In a setting with remitted ADHD, the results may represent a compensatory mechanism in the left forceps minor.

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ADHD Atten Deficit Hyperact Disord. 2015;1-7.

PREVALENCE OF ADULT ADHD IN AN ALL-FEMALE PRISON UNIT.

Farooq R, Emerson L-M, Keogh S, et al.

There is increasing evidence suggesting a link between ADHD and criminality, including a strong association between ADHD symptoms and the likelihood of being on probation or in prison. Most studies investigating the prevalence of ADHD in prison populations have focused on adult male offenders. In the current study, 69 female prisoners were screened for both childhood and adult ADHD symptoms using the Barkley Adult ADHD Rating Scale-IV. The results indicate that 41 % of the prisoners met the diagnostic criteria for ADHD in childhood and continued to meet criteria for ADHD as adults. More importantly, young female prisoners (aged 18-25) were significantly more likely to report symptoms of ADHD than older prisoners. Prisoners who reported symptoms of ADHD also reported high levels of impairment associated with these symptoms. A better understanding of the prevalence of ADHD in female prison units can highlight specific areas for intervention during rehabilitation, as well as the management of serious incidents within prison

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ADHD Atten Deficit Hyperact Disord. 2015;1-7.

EXPLORATORY ANALYSIS OF DIFFUSION TENSOR IMAGING IN CHILDREN WITH ATTENTION DEFICIT HYPERACTIVITY DISORDER: EVIDENCE OF ABNORMAL WHITE MATTER STRUCTURE.

Pastura G, Doering T, Gasparetto EL, et al.

Abnormalities in the white matter microstructure of the attentional system have been implicated in the aetiology of attention deficit hyperactivity disorder (ADHD). Diffusion tensor imaging (DTI) is a promising magnetic resonance imaging (MRI) technology that has increasingly been used in studies of white matter microstructure in the brain. The main objective of this work was to perform an exploratory analysis of white matter tracts in a sample of children with ADHD versus typically developing children (TDC). For this purpose, 13 drug-naïve children with ADHD of both genders underwent MRI using DTI acquisition methodology and tract-based spatial statistics. The results were compared to those of a sample of 14 age- and gender-matched TDC. Lower fractional anisotropy was observed in the splenium of the corpus callosum, right superior longitudinal fasciculus, bilateral retrolenticular part of the internal capsule, bilateral inferior fronto-occipital

fasciculus, left external capsule and posterior thalamic radiation (including right optic radiation). We conclude that white matter tracts in attentional and motor control systems exhibited signs of abnormal microstructure in this sample of drug-naive children with ADHD

ADHD Atten Deficit Hyperact Disord. 2015;7:295-311.

ATTENTION-DEFICIT/HYPERACTIVITY DISORDER UNDER TREATMENT OUTCOMES RESEARCH (AUTOR): A EUROPEAN OBSERVATIONAL STUDY IN PEDIATRIC SUBJECTS.

Haynes V, Lopez-Romero P, Anand E.

The ADHD Under Treatment Observational Research (AUTOR) study was a European prospective, observational study that assessed factors associated with changes in ADHD severity, estimated change from baseline in quality of life (QoL), and characterized changes in ADHD symptoms over a 2-year period as a function of baseline treatment. The primary objective was to identify factors associated with worsening in ADHD severity during a 2-year follow-up period for subjects aged 6-17 years, who were receiving the same pharmacotherapy for 3-8 months before enrollment and had a Clinical Global Impression (CGI)-ADHD-Severity score of mild/lower and a CGI-ADHD-Improvement score of improved/very much improved. Multivariate logistic regression examined the association of factors with worsening in ADHD. Mixed-model repeated measures regression analyzed QoL in terms of change from baseline in CHIP-CE PRF scores. There were 704 subjects analyzed. Variables associated with worsening ADHD severity were parental occupation, poorer school outcomes, and use of psychoeducation; baseline treatment was not significant. Among the secondary objectives, initial use of atomoxetine (vs. stimulants) was associated with a significant improvement on the CHIP-CE PRF total score, with an adjusted treatment difference of -6.0 (95 % CI -7.9, -4.1) at 24 months. Additionally, the odds of stability (CGI-ADHD-S \leq 3 over the 2-year period) were significantly lower for subjects initially responding to stimulants compared with atomoxetine (OR 0.5; 95 % CI 0.3, 0.8). ADHD symptom worsening was associated with initial use of psychoeducation, parental occupation, and poorer school outcomes. Response to initial treatment with atomoxetine was associated with improved QoL over 2 years

ADHD Atten Deficit Hyperact Disord. 2015;1-6.

UNDERSTANDING INTENTIONALITY IN CHILDREN WITH ATTENTION-DEFICIT/HYPERACTIVITY DISORDER.

Mohammadzadeh A, Tehrani-Doost M, Khorrami A, et al.

One of the main aspects of theory of mind is intentionality which refers to recognizing other people's intentions in their behaviors. The aim of this study was to investigate intentionality in children with attention-deficit/hyperactivity disorder (ADHD). Thirty children with ADHD were compared to thirty age- and IQ-matched normal children. All participants were assessed using the moving shapes paradigm task which contains one large red and one small blue triangle moving around a black screen. They were asked to describe what the movements mean and how the triangles interact with each other. The answers were rated based on the accuracy, type of descriptions applied, mental states, and length of phrases. With regard to intentionality score, children with ADHD performed significantly worse than normal children ($P < .05$). Based on appropriateness score, the accuracy of patients' answers was lower in comparison with the control group. Children with ADHD used longer phrases as compared to controls. Children with ADHD can have problems with comprehending others' intentionality. This leads to impairment in social relationship

Am J Med Genet C Semin Med Genet. 2015;169C(1):117-22.

PHENOTYPIC VARIABILITY IN DEVELOPMENTAL COORDINATION DISORDER: CLUSTERING OF GENERALIZED JOINT HYPERMOBILITY WITH ATTENTION DEFICIT/HYPERACTIVITY DISORDER, ATYPICAL SWALLOWING AND NARRATIVE DIFFICULTIES.

Celletti C, Mari G, Ghibellini G, Celli M, Castori M, Camerota F.

Developmental coordination disorder (DCD) is a recognized childhood disorder mostly characterized by motor coordination difficulties. Joint hypermobility syndrome, alternatively termed Ehlers-Danlos syndrome, hypermobility type (JHS/EDS-HT), is a hereditary connective tissue disorder mainly featuring generalized joint hypermobility (gJHM), musculoskeletal pain, and minor skin features. Although these two conditions seem apparently unrelated, recent evidence highlights a high rate of motor and coordination findings in children with gJHM or JHS/EDS-HT. Here, we investigated the prevalence of gJHM in 41 Italian children with DCD in order to check for the existence of recognizable phenotypic subgroups of DCD in relation to the presence/absence of gJHM. All patients were screened for Beighton score and a set of neuropsychological tests for motor competences (Movement Assessment Battery for Children and Visual-Motor Integration tests), and language and learning difficulties (Linguistic Comprehension Test, Peabody Picture Vocabulary Test, Boston Naming Test, Bus Story Test, and Memoria-Training tests). All patients were also screening for selected JHS/EDS-HT-associated features and swallowing problems. Nineteen (46%) children showed gJHM and 22 (54%) did not. Children with DCD and gJHM showed a significant excess of frequent falls (95 vs. 18%), easy bruising (74 vs. 0%), motor imperistence (89 vs. 23%), sore hands for writing (53 vs. 9%), attention deficit/hyperactivity disorder (89 vs. 36%), constipation (53 vs. 0%), arthralgias/myalgias (58 vs. 4%), narrative difficulties (74 vs. 32%), and atypical swallowing (74 vs. 18%). This study confirms the non-causal association between DCD and gJHM, which, in turn, seems to increase the risk for non-random additional features. The excess of language, learning, and swallowing difficulties in patients with DCD and gJHM suggests a wider effect of lax tissues in the development of the nervous system

Ann Saudi Med. 2014 Nov;34:517-21.

DISRUPTIVE BEHAVIOR IN DOWN SYNDROME CHILDREN: A CROSS-SECTIONAL COMPARATIVE STUDY.

Yahia S, El-Hadidy M, El-Gilany AH, et al.

BACKGROUND AND OBJECTIVES: Down syndrome (DS) is associated with intellectual disability, and patients with DS show significant psychopathology. The objectives of this study were to estimate the prevalence of disruptive behavior in DS patients compared to their siblings, and to find any association between the disruptive behavior and the degree of intelligence.

DESIGN AND SETTINGS: This is a cross-sectional comparative study done in Mansoura University Children's Hospital during the period March 1, 2012-February 28, 2013.

SUBJECTS AND METHODS: In this study, 100 cases of DS and an equal number of their brothers/sisters were enrolled in the study. The Arabic version of Vineland Adaptive Behavior Scale was used for assessing social and mental intelligence quotient (IQ). The Arabic version of Mini International Neuropsychiatric Interview for Children (MINI-KID) and disruptive behavior disorder (DBD) rating scale were used for assessing disruptive behavior disorders.

RESULTS: Both social and mental IQs were significantly higher in non-DS than in DS cases. The prevalence of different variants of attention deficit/hyperactive disorder (ADHD)-impulsive, inattentive, and combined types-was significantly lower in non-DS than in DS cases; however, there was no statistical difference between both groups as regards oppositional defiant disorder and conduct disorder (CD). Also among DS cases, impulsive and combined types varied significantly with the degree of their IQ.

CONCLUSION: ADHD was more common among DS patients with a special impact of IQ on the type of psychiatric illness. We recommend psychiatric assessment for DS patients as a part of multidisciplinary management

Ann Gen Psychiatry. 2015;14.

ATTACHMENT, RECALLED PARENTAL REARING, AND ADHD SYMPTOMS PREDICT EMOTION PROCESSING AND ALEXITHYMIA IN ADULTS WITH ADHD.

Edel M-A, Edel S, Krueger M, et al.

Background: The aim of the article is to study the relationship between attachment, parental rearing behavior, and (infant and current) ADHD symptoms with emotion processing and alexithymia in adults with ADHD.

Methods: Attachment, parental behavior, and ADHD variables were tested for predictive value regarding emotion processing and alexithymia in the total sample, the pooled ADHD groups (with inattentive type and combined type, each with n = 26) and a control group (n = 26). Comparisons were performed between the pooled ADHD groups and the control group, and between the ADHD subtype groups regarding all emotion processing and alexithymia, and attachment-related measures.

Results: Emotion processing/alexithymia parameters were mainly predicted by early or current attachment-related features, and, to a lesser extent, by childhood or current ADHD symptoms, primarily in the ADHD groups.

Conclusions: The findings suggest partly specific and possibly causal relationships between attachment-related features and current emotion processing/alexithymia in adults with ADHD. The results confirm the necessity for further study of the multiple interactions between infant and parental ADHD symptoms, aversive parenting, and attachment with respect to emotional functioning in adult ADHD

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Behav Brain Res. 2016;298:48-54.

STOP AND LOOK! EVIDENCE FOR A BIAS TOWARDS VIRTUAL NAVIGATION RESPONSE STRATEGIES IN CHILDREN WITH ADHD SYMPTOMS.

Robaey P, McKenzie S, Schachar R, et al.

Studies in children show that the development of spatial competence emerges between seven and eight years of age. Multiple memory systems (hippocampus-dependent spatial and caudate nucleus-dependent response learning) are involved in parallel processing of information during navigation. As a hippocampus-dependent spatial strategy also relies on frontoparietal executive control and working memory networks that are impaired in ADHD, we predicted that children will be more likely to adopt a response strategy as they exhibit ADHD symptoms. We tested 285 healthy children on a virtual radial-arm maze paradigm in order to test this hypothesis. We found that children displaying at least one ADHD symptom were more likely to have a perfect performance on a probe trial, which suggests that they did not rely on environmental landmarks. Children with ADHD symptoms may primarily rely on caudate nucleus-dependent response learning strategies at the expense of hippocampus-dependent spatial strategies. Repetition and reward based learning strategies, which are hallmarks of response learning, may be most effective in children exhibiting ADHD symptoms

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Birth Defects Res C Embryo Today. 2015 Mar;105:53-72.

EFFECT OF MATERNAL DIABETES ON THE EMBRYO, FETUS, AND CHILDREN: CONGENITAL ANOMALIES, GENETIC AND EPIGENETIC CHANGES AND DEVELOPMENTAL OUTCOMES.

Ornoy A, Reece EA, Pavlinkova G, et al.

INTRODUCTION: Pregestational and gestational diabetes mellitus (PGDM; GDM) are significant health concerns because they are associated with an increased rate of malformations and maternal health complications.

METHODS: We reviewed the data that help us to understand the effects of diabetes in pregnancy.

RESULTS: Diabetic embryopathy can affect any developing organ system, but cardiovascular and neural tube defects are among the most frequent anomalies. Other complications include preeclampsia, preterm delivery, fetal growth abnormalities, and perinatal mortality. Neurodevelopmental studies on offspring of mothers with diabetes demonstrated increased rate of Gross and Fine motor abnormalities, of Attention

Deficit Hyperactivity Disorder, learning difficulties, and possibly also Autism Spectrum Disorder. The mechanisms underlying the effects of maternal hyperglycemia on the developing fetus may involve increased oxidative stress, hypoxia, apoptosis, and epigenetic changes. Evidence for epigenetic changes are the following: not all progeny are affected and not to the same extent; maternal diet may influence pregnancy outcomes; and maternal diabetes alters embryonic transcriptional profiles and increases the variation between transcriptomic profiles as a result of altered gene regulation. Research in animal models has revealed that maternal hyperglycemia is a teratogen, and has helped uncover potential therapeutic targets which, when blocked, can mitigate or ameliorate the negative effects of diabetes on the developing fetus.

CONCLUSIONS: Tight metabolic control, surveillance, and labor management remain the cornerstone of care for pregnant women with diabetes, but advances in the field indicate that new treatments to protect the mother and baby are not far from becoming clinical realities

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BMC Pharmacology and Toxicology. 2015;16.

USE OF PRESCRIPTION STIMULANT FOR ATTENTION DEFICIT HYPERACTIVITY DISORDER IN ABORIGINAL CHILDREN AND ADOLESCENTS: A LINKED DATA COHORT STUDY.

Ghosh M, Holman CDAJ, Preen DB.

Background: Increasing recognition of Attention Deficit Hyperactivity Disorder (ADHD) among Aboriginal children, adolescents and young adults is a public health challenge. We investigated the pattern of prescription stimulants for ADHD among Aboriginal individuals in Western Australia (WA).

Methods: Using a whole-population-based linked data we followed a cohort of individuals born in WA from 1980-2005, and their parents were born in Australia, to identify stimulant prescription for ADHD derived from statutory WA stimulant prescription dispensing between 2003 and 2007. Parental link was ascertained through WA Family Connections Genealogical Linkage System. Cox proportional hazards regression (HR) models were performed to determine the association between stimulant use and Aboriginal and non-Aboriginal status.

Results: Of the total cohort of 186,468, around 2 % (n = 3677) had prescription stimulants for ADHD. Individuals with both Aboriginal parents were two-thirds (HR 0.33, 95 % CI 0.26-0.42), and with only Aboriginal mother were one-third (HR 0.69, 95 % CI 0.53-0.90) less likely to have stimulants, compared to individuals with non-Aboriginal parents. HR in Aboriginals was 62 % lower (HR 0.35, 95 % CI 0.25-0.49) in metropolitan areas, and 72 % lower (HR 0.28, 95 % CI 0.20-0.38) in non-metropolitan areas, than non-Aboriginals. The risk for stimulant use was four times higher among Aboriginal boys than Aboriginal girls (HR 4.08, 95 % CI, 2.92-5.69).

Conclusion: Aboriginal cultural understanding of ADHD and attitude towards stimulant medication serve as a determinant of their access to health services. Any ADHD intervention and policy framework must take into account a holistic approach to Aboriginal culture, beliefs and individual experience to provide optimal care they need

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BMC Psychiatry. 2015;15:122.

AN EXPLORATORY RANDOMISED CONTROLLED TRIAL OF A WEB-BASED INTEGRATED BIPOLAR PARENTING INTERVENTION (IBPI) FOR BIPOLAR PARENTS OF YOUNG CHILDREN (AGED 3-10).

Jones S, Wainwright LD, Jovanoska J, et al.

BACKGROUND: Communication, impulse control and motivation can all be affected by Bipolar Disorder (BD) making consistent parenting more difficult than for parents without mental health problems. Children of parents with BD (CPB) are at significantly increased risk of a range of mental health issues including Attention Deficit Hyperactivity Disorder (ADHD), anxiety, depression, substance use, and sleep disorders. Furthermore, CPB are also at elevated risk for BD compared to the general population. This paper describes the rationale and protocol for a pilot randomised controlled trial (RCT) designed to assess the feasibility and acceptability of a new online intervention providing interactive psychoeducational information and parenting support for parents with BD.

METHODS AND DESIGN: This article describes a single-blind randomised controlled trial comparing an Integrated Bipolar Parenting Intervention (IBPI) in addition to treatment as usual (TAU) with TAU alone. Participants will be recruited from across the UK from mental health services and through self-referral. The primary outcome of the study is the feasibility and acceptability of IBPI as indicated by recruitment to target, use of the intervention site, and retention to follow-up. Parents with BD allocated to the IBPI condition will have access to the intervention for 16 weeks. Effect size estimates will be obtained with respect to child behaviour, parenting skills and measures of parental mental health using measures taken at baseline (0), and at 16, 24, 36, and 48 weeks post randomization.

DISCUSSION: This is the first randomised controlled trial of an integrated bipolar disorder parenting intervention. The benefits and challenges of delivering this online intervention, and evaluation using online RCT methodology are discussed.

TRIAL REGISTRATION: Current Controlled Trials ISRCTN75279027 Registered 12 August 2013

Br J Nurs. 2015 Jun;24:586, 588-86, 590.

MANAGEMENT OF COMMON BEHAVIOUR AND MENTAL HEALTH PROBLEMS.

El-Radhi AS.

Behavioural problems are usually influenced by both biological and environmental factors. Disruptive behavioural problems such as temper tantrums or attention deficit hyperactivity disorder are displayed during the first years of childhood. Breath-holding attacks are relatively common and are an important problem. Although the attacks are not serious and the prognosis is usually good, parents often fear that their child may die during an attack. Parents therefore require explanation and reassurance from health professionals. Conduct disorders (often referred to as antisocial behaviours), such as aggression to others or theft, are more serious as they tend to be repetitive and persistent behaviours where the basic rights of others are violated. Emotional problems, such as anxiety, depression and post-traumatic stress disorder tend to occur in later childhood, and are often unrecognised because young children often find it difficult to express their emotions, or it may go unnoticed by the child's parents. This article briefly discusses the most common behavioural problems, including autism, that affect children of all ages

Brain Dev. 2015.

ALTERED FRONTAL POLE DEVELOPMENT AFFECTS SELF-GENERATED SPATIAL WORKING MEMORY IN ADHD.

Arai S, Okamoto Y, Fujioka T, et al.

BACKGROUND: Spatial working memory (SWM) dysfunction is a feature of attention deficit hyperactivity disorder (ADHD). Previous studies suggested that behavioral performance in self-generated SWM improves through development in children with and without ADHD. Nevertheless, developmental changes in the neural underpinnings of self-generated SWM are unknown.

METHOD: Using near-infrared spectroscopy, hemodynamic activity in the prefrontal cortex (PFC) was measured in 30 children with ADHD (9.5±1.6years-old) and 35 TD children (9.0±1.6years-old) while they performed a self-generated SWM task. We then investigated correlations between age and behavioral performance, and between age and hemodynamic activity in the PFC for each group.

RESULTS: Both groups showed a negative correlation with age and number of errors [ADHD: $r(28)=-0.37$, $p=0.040$; TD: $r(33)=-0.59$, $p<0.001$], indicating that self-generated SWM improves through development. The TD group showed a positive correlation between age and oxygenated hemoglobin in the frontal pole [10ch: $r(33)=0.41$, $p=0.013$; 11ch: $r(33)=0.44$, $p=0.008$] and bilateral lateral PFC [4ch: $r(33)=0.34$, $p=0.049$; 13ch: $r(33)=0.54$, $p=0.001$], while no significant correlation was found in the ADHD group. Furthermore, regression slopes for the frontal pole significantly differed between the TD and ADHD groups [10ch: $t(61)=2.35$, $p=0.021$; 11ch: $t(61)=2.05$, $p=0.044$].

CONCLUSION: Children with ADHD showed abnormalities in functional maturation of the frontal pole, which plays a role in manipulating and maintaining information associated with self-generated behavior

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Cad Saude Publica. 2015 Apr;31:682-90.

CAFFEINE CONSUMPTION DURING PREGNANCY AND ATTENTION DEFICIT HYPERACTIVITY DISORDER (ADHD): A SYSTEMATIC LITERATURE REVIEW.

Silva BP, Anselmi L, Schmidt V, et al.

This aim of this study was to conduct a systematic literature review on the association between maternal caffeine intake during pregnancy and attention deficit hyperactivity disorder (ADHD) in childhood. The systematic multiple-stage literature search in PubMed, LILACS, BIREME, and PsycINFO was limited to research in human subjects and published in Portuguese, English, and Spanish. A total of 373 references were retrieved. Of these, only five met the study's objectives and were kept in the review. Most of the studies employed a longitudinal design, were conducted in developed countries, and were published in the last five years. Only one study found a positive association. Studies on caffeine consumption during pregnancy and ADHD are scarce, with conflicting results and several methodological difficulties such as lack of standardized outcome measures

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Ceska Slov Psychiatr. 2015;111:228-35.

ADHD IN DRUG ADDICTS UNDERGOING TREATMENT IN CZECH THERAPEUTIC COMMUNITIES - A PILOT STUDY.

Rubášová E, Kalina K, Miovský M, et al.

Aim: The pilot study aimed to learn whether clients with ADHD (in childhood, in adulthood or both) can be found in therapeutic communities for drug addicts (TCs) in the CR.

Material and methods: The sample involved clients of six participating TCs, in total 76 clients aged 15-45 (27 women, 49 men). A two-step sampling procedure (intentional selection, total sampling) was used. The ADHD occurrence was surveyed by self-report questionnaires: for ADHD in childhood the case history sheet based on WURS-61, for ADHD symptoms in adulthood a questionnaire designed according to ASRS v1.1 were used. Data were analysed by the evaluation of questionnaires and a fixed crosssectional pathology score for ADHD. A descriptive approach was combined with particular procedures of qualitative data analysis.

Results: A high prevalence of potential ADHD in the sample was found: 43 from the total 76 clients (56.6%) showed ADHD symptoms. The criteria for ADHD in childhood were met by 21 clients, for ADHD in adulthood by 6, and for ADHD in childhood and in adulthood by 21 clients.

Conclusions: The findings can confirm the high rate of ADHD in substance users and the impact of neuropsychological disorders on individual vulnerability in the bio-psycho-social domain

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Chinese Journal of Biomedical Engineering. 2014;33:385-91.

THE STUDY ON FRONTAL ERPS BASED UPON IMPROVED VISUAL CPT PARADIGM IN CHILDREN WITH ATTENTION DEFICIT HYPERACTIVITY DISORDER.

Wan X-J, Wang S-H, Gao X-R, et al.

The event-related potentials (ERPs) coming from children who were diagnosed as attention-deficit hyperactivity disorder (ADHD) were analyzed in this paper, aiming to investigate the neural activity in the frontal lobe, when the children performed a selective attention task. A high density electroencephalogram (EEG) acquisition instrument was utilized to record the ERPs of subjects and an improved visual continuous performance test (Visual-CPT) was used as the experimental paradigm. Twelve diseased children (ADHD group) and 13 healthy children (Control group) participated the experiment. The behavior and ERPs results were analyzed and compared with a two-sample T-test between two groups under Go and No-go conditions. Results show that; 1) The ADHD group performed a poor task in the current study, with a higher missing rate and false alarm rate as well as a longer reaction time than control group; 2) Under both Go and No-go

conditions, there were no significant difference observed in the ERPs latency. However, comparing with the control group, ADHD group has a lower N2 amplitude in frontal region ($P < 0.05$); 3) In addition, the ADHD group show a higher P2 amplitude under the condition of No-go ($P < 0.05$). The result indicates that children with ADHD have a disorder in cognitive function implementation, and this impairment may be associated with the abnormal ERPs amplitudes in frontal lobe

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CNS Drugs. 2015;29:953-62.

DOES GUANFACINE EXTENDED RELEASE IMPACT FUNCTIONAL IMPAIRMENT IN CHILDREN WITH ATTENTION-DEFICIT/HYPERACTIVITY DISORDER? RESULTS FROM A RANDOMIZED CONTROLLED TRIAL.

Stein MA, Sikirica V, Weiss MD, et al.

Background: In clinical trials of medications to treat attention-deficit/hyperactivity disorder (ADHD) in children, effects on functional impairment have been less well-studied than changes in ADHD symptoms.

Objective: Data regarding functional impairment were analyzed from a multicenter, double-blind, placebo-controlled study of guanfacine extended release (GXR) in children with ADHD, using the Weiss Functional Impairment Rating Scale-Parent Report (WFIRS-P). The correspondence of changes in WFIRS-P scores with symptomatic and global response to GXR treatment was also examined, with treatment response defined by scores on both the ADHD Rating Scale IV (ADHD-RS-IV) and the Clinical Global Impressions-Improvement Scale (CGI-I). **Methods:** In this 8-week, double-blind, placebo-controlled, dose optimization study at 47 sites across the USA and Canada, children aged 6-12 years with a diagnosis of ADHD [Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, Text Revision criteria, and an ADHD-RS-IV score ≥ 28 and CGI-Severity of Illness Scale score ≥ 4 at baseline], were randomized 1:1:1 into three groups: GXR am [GXR (1-4 mg/day) in the morning, placebo in the evening], GXR pm [placebo in the morning, GXR (1-4 mg/day) in the evening], or twice-daily placebo. Parents rated their children on the WFIRS-P at screening, baseline, the end of dose optimization, and at the final on-treatment assessment.

Results: The efficacy population was composed of 333 subjects (GXR am: $n = 107$; GXR pm: $n = 114$; placebo: $n = 112$). At the final on-treatment assessment, there were significant improvements from baseline in the placebo-adjusted difference in least-squares (LS) mean (95 % confidence interval) WFIRS-P Total scores for both GXR treatment groups combined [GXR all-active: -0.16 ($-0.25, -0.07$), effect size (ES) = 0.448 , $P < 0.001$] and separately [GXR am: -0.15 ($-0.26, -0.05$), ES = 0.417 , $P = 0.004$; GXR pm: -0.18 ($-0.28, -0.07$), ES = 0.478 , $P = 0.001$]. Significant improvements in WFIRS-P domain scores for Family, Learning and School (including Academic Performance and Behavior in School), Social, and Risky Behavior were found for both GXR cohorts compared with placebo. However, the Life Skills and Self-Concept domain scores of the WFIRS-P did not improve with GXR treatment. Post hoc stratification by responder status revealed that significant ($P < 0.001$) improvements in WFIRS-P Total and all domain scores were associated with symptomatic treatment response in the GXR all-active group.

Conclusions: GXR treatment in children with ADHD was associated with reductions in WFIRS-P functional impairment scores compared with placebo, regardless of time of GXR administration. Changes in WFIRS-P scores were congruent with clinical response, as determined by both ADHD symptom reduction and CGI-I scores.

ClinicalTrials.gov identifier: NCT00997984

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CNS Drugs. 2015 Feb;29:131-51.

THE EFFICACY OF ATOMOXETINE FOR THE TREATMENT OF CHILDREN AND ADOLESCENTS WITH ATTENTION-DEFICIT/HYPERACTIVITY DISORDER: A COMPREHENSIVE REVIEW OF OVER A DECADE OF CLINICAL RESEARCH.

Savill NC, Buitelaar JK, Anand E, et al.

Atomoxetine was first licensed to treat attention-deficit/hyperactivity disorder (ADHD) in children and adolescents in the US in 2002. The aim of this paper is to comprehensively review subsequent publications addressing the efficacy of atomoxetine in 6- to 18-year-olds with ADHD. We identified 125 eligible papers using a predefined search strategy. Overall, these papers demonstrate that atomoxetine is an effective

treatment for the core ADHD symptoms (effect sizes 0.6-1.3, vs. placebo, at 6-18 weeks), and improves functional outcomes and quality of life, in various pediatric populations with ADHD (i.e., males/females, patients with co-morbidities, children/adolescents, and with/without prior exposure to other ADHD medications). Initial responses to atomoxetine may be apparent within 1 week of treatment, but can take longer (median 23 days in a 6-week study; n=72). Responses often build gradually over time, and may not be robust until after 3 months. A pooled analysis of six randomized placebo-controlled trials (n=618) indicated that responses at 4 weeks may predict response at 6-9 weeks, although another pooled analysis of open-label data (n=338) suggests that the probability of a robust response to atomoxetine [$\geq 40\%$ decrease in ADHD-Rating Scale (ADHD-RS) scores] may continue to increase beyond 6-9 weeks. Atomoxetine may demonstrate similar efficacy to methylphenidate, particularly immediate-release methylphenidate, although randomized controlled trials are generally limited by short durations (3-12 weeks). In conclusion, notwithstanding these positive findings, before initiating treatment with atomoxetine, it is important that the clinician sets appropriate expectations for the patient and their family with regard to the likelihood of a gradual response, which often builds over time

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CNS Spectr. 2015 Aug;20:382-90.

COGNITIVE REMEDIATION: POTENTIAL NOVEL BRAIN-BASED TREATMENT FOR BIPOLAR DISORDER IN CHILDREN AND ADOLESCENTS.

Dickstein DP, Cushman GK, Kim KL, et al.

Bipolar disorder (BD) is among the most impairing psychiatric disorders affecting children and adolescents, despite our best psychopharmacological and psychotherapeutic treatments. Cognitive remediation, defined as a behavioral intervention designed to improve cognitive functions so as to reduce psychiatric illness, is an emerging brain-based treatment approach that has thus far not been studied in pediatric BD. The present article reviews the basic principles of cognitive remediation, describes what is known about cognitive remediation in psychiatric disorders, and delineates potential brain/behavior alterations implicated in pediatric BD that might be targets for cognitive remediation. Emerging data show that cognitive remediation may be useful in children and adults with schizophrenia, ADHD, and anxiety disorders, and in adults with BD. Potential targets for cognitive remediation in pediatric BD include face processing, response inhibition, frustration, and cognitive flexibility. Further study is warranted to determine if cognitive remediation for these targets, or others, may serve as a novel, brain-based treatment for pediatric BD

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CNS Spectr. 2015 Aug;20:401-11.

OVERLAPPING NEUROBEHAVIORAL CIRCUITS IN ADHD, OBESITY, AND BINGE EATING: EVIDENCE FROM NEUROIMAGING RESEARCH.

Seymour KE, Reinblatt SP, Benson L, et al.

Attention-deficit/hyperactivity disorder (ADHD) and conditions involving excessive eating (eg, obesity, binge/loss of control eating) are increasingly prevalent within pediatric populations, and correlational and some longitudinal studies have suggested inter-relationships between these disorders. In addition, a number of common neural correlates are emerging across conditions, eg, functional abnormalities within circuits subserving reward processing and executive functioning. To explore this potential cross-condition overlap in neurobehavioral underpinnings, we selectively review relevant functional neuroimaging literature, specifically focusing on studies probing (i) reward processing, (ii) response inhibition, and (iii) emotional processing and regulation, and we outline 3 specific shared neurobehavioral circuits. Based on our review, we also identify gaps within the literature that would benefit from further research

Cyberpsychol Behav Soc Netw. 2015 May;18:260-67.

ARE ADOLESCENTS WITH INTERNET ADDICTION PRONE TO AGGRESSIVE BEHAVIOR? THE MEDIATING EFFECT OF CLINICAL COMORBIDITIES ON THE PREDICTABILITY OF AGGRESSION IN ADOLESCENTS WITH INTERNET ADDICTION.

Lim JA, Gwak AR, Park SM, et al.

Previous studies have reported associations between aggression and Internet addiction disorder (IAD), which has also been linked with anxiety, depression, and impulsiveness. However, the causal relationship between aggression and IAD has thus far not been clearly demonstrated. This study was designed to (a) examine the association between aggression and IAD and (b) investigate the mediating effects of anxiety, depression, and impulsivity in cases in which IAD predicts aggression or aggression predicts IAD. A total of 714 middle school students in Seoul, South Korea, were asked to provide demographic information and complete the Young's Internet Addiction Test (Y-IAT), the Buss-Perry Aggression Questionnaire, the Barratt Impulsiveness Scale-11, the State-Trait Anger Expression Inventory-2, the Beck Anxiety Inventory, the Beck Depression Inventory, and the Conners-Wells Adolescent Self-Report Scale. Three groups were identified based on the Y-IAT: the usual user group (n=487, 68.2%), the high-risk group (n=191, 26.8%), and the Internet addiction group (n=13, 1.8%). The data revealed a linear association between aggression and IAD such that one variable could be predicted by the other. According to the path analysis, the clinical scales (BAI, BDI, and CASS) had partial or full mediating effects on the ability of aggression to predict IAD, but the clinical scales had no mediating effect on the ability of IAD to predict aggression. The current findings suggest that adolescents with IAD seem to have more aggressive dispositions than do normal adolescents. If more aggressive individuals are clinically prone to Internet addiction, early psychiatric intervention may contribute to the prevention of IAD

Duodecim. 2015;131:1561-68.

FAMILY-BASED PSYCHOSOCIAL INTERVENTIONS FOR CHILDREN WITH ATTENTION DEFICIT HYPERACTIVITY DISORDER (ADHD), OPPOSITIONAL DEFIANT DISORDER, AND CONDUCT DISORDER.

Vuori M, Tuulio-Henriksson A, Nissinen H, et al.

Psychosocial family-based interventions--family therapy, cognitive-behavioral parent training and family-based treatment protocols--are empirically supported treatments for children with attention deficit hyperactivity disorder (ADHD), oppositional defiant disorder, and conduct disorder. Well-researched interventions such as remote and group-based parent training programs relate to improvements in parenting quality, positive parenting, and the child's decreased ADHD and conduct behavioral problems, whereas individual family-based treatments are sometimes required, depending on symptom severity. Specific family-based treatment protocols are tailored for older children and adolescents with severe behavioral and emotional problems. Considering the above, empirically supported programs are used more in Finland, compared to licensed Anglo-American treatment protocols

Dyslexia. 2015 May;21:123-41.

BEHAVIOURAL DIFFICULTIES THAT CO-OCCUR WITH SPECIFIC WORD READING DIFFICULTIES: A UK POPULATION-BASED COHORT STUDY.

Russell G, Ryder D, Norwich B, et al.

This study aimed to examine the association between specific word reading difficulties (SWRD) identified at age 7 years using a discrepancy approach and subsequent dimensional measures of behavioural difficulties reported by teachers and parents at age 11 years. Behavioural problems were assessed using the Strengths and Difficulties Questionnaire. Secondary analysis of a UK representative population-based sample of children (n = 12,631) was conducted using linear regression models. There were 284 children (2.2%) identified with SWRD at age 7 years. Children with SWRD had significantly higher scores on all measures of behavioural difficulties in unadjusted analysis. SWRD was associated with elevated behavioural difficulties at age 11 years according to parent report, and with greater emotional problems, hyperactivity and conduct issues according to teachers, even after having controlled for baseline difficulties. These results were

replicated for children with low reading attainment, but no cognitive ability discrepancy. Categories of special educational need into which children with SWRD were classed at school were varied. Given high rates of co-occurring behavioural difficulties, assessment that identifies each individual child's specific functional, rather than categorical, difficulties is likely to be the most effective way of providing classroom support

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Encephale. 2014 Dec;40 Suppl 3:S23-S26.

ATTENTION DEFICIT HYPERACTIVITY DISORDER AND/OR BIPOLAR DISORDER?

Da FD, Adida M, Belzeaux R, et al.

The attention deficit disorder and the bipolar disorder maintain a complex relation. Indeed, these two syndromes share numerous symptoms that engender numerous diagnostic difficulties. According to several studies, it seems that these two disorders are really different with significant differences at the functional and anatomical level. However, there are common cognitive deficits as well as relatively frequent co-morbidity which is necessary to know in order to adjust the treatment

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Environ Int. 2015 May;78:90-94.

PRENATAL AND EARLY-LIFE POLYCHLORINATED BIPHENYL (PCB) LEVELS AND BEHAVIOR IN INUIT PRESCHOOLERS.

Verner MA, Plusquellec P, Desjardins JL, et al.

BACKGROUND: Whereas it is well established that prenatal exposure to polychlorinated biphenyls (PCBs) can disrupt children's behavior, early postnatal exposure has received relatively little attention in environmental epidemiology.

OBJECTIVES: To evaluate prenatal and postnatal exposures to PCB-153, a proxy of total PCB exposure, and their relation to inattention and activity in 5-year-old Inuits from the Cord Blood Monitoring Program.

METHODS: Prenatal exposure to PCBs was informed by cord plasma PCB-153 levels. We used a validated pharmacokinetic model to estimate monthly infants' levels across the first year of life. Inattention and activity were assessed by coding of video recordings of children undergoing fine motor testing. We used multivariable linear regression to evaluate the association between prenatal and postnatal PCB-153 levels and inattention (n=97) and activity (n=98) at 5years of age.

RESULTS: Cord plasma PCB-153 was not associated with inattention and activity. Each interquartile range (IQR) increase in estimated infant PCB-153 levels at 2months was associated with a 1.02% increase in the duration of inattention (95% CI: 0.04, 2.00). Statistical adjustment for the duration of breastfeeding slightly increased regression coefficients for postnatal level estimates, some of which became statistically significant for inattention (months: 2-4) and activity (months: 2-5).

CONCLUSIONS: Our study adds to the growing evidence of postnatal windows of development during which children are more susceptible to neurotoxicants like PCBs

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Epilepsy Behav. 2015 Mar;44:117-20.

BENIGN CHILDHOOD EPILEPSY WITH CENTRO-TEMPORAL SPIKES (BCECTSs), ELECTRICAL STATUS EPILEPTICUS IN SLEEP (ESES), AND ACADEMIC DECLINE--HOW AGGRESSIVE SHOULD WE BE?

Uliel-Sibony S, Kramer U.

Since many of the children with BCECTSs display electrical status epilepticus during sleep and many present with different comorbidities, mainly ADHD and behavioral disturbances, clinicians are often confronted with the dilemma of how aggressive they should be with their efforts of normalizing the EEG. We conducted a retrospective study by screening medical records of all consecutive patients with BCECTSs, spike-wave index (SWI) >30%, and ADHD/ADD that were evaluated in our pediatric epilepsy service and were followed up for at least two years. Patients with neurocognitive deterioration detected by formal testing were excluded. A total of 17 patients with mean age of 6.9years at BCECTS diagnosis were identified. The patients' mean SWI was 60% and that dense electrical activity lasted 1.5years on average (range: 1-4.5years). Six children

were formally diagnosed with learning disabilities in addition to ADD/ADHD. All of them were treated with an average of three antiepileptic medications, mainly for the purpose of normalizing the EEG, but none of them was treated with steroids or high-dose diazepam. The mean duration of follow-up was 5.5 years. A cognitive or behavioral deterioration was not detected in any of them. Our data suggest that when treating a child with BECTSs, high SWI, and school difficulties, the most critical parameter that determines the necessity of using second-line antiepileptic agents such as steroids or high-dose diazepam is a formal psychological evaluation that proves cognitive (I.Q.) decline. Otherwise, these agents may be avoided

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Eur Child Adolesc Psychiatry. 2015;1-15.

LONG-TERM FAR-TRANSFER EFFECTS OF WORKING MEMORY TRAINING IN CHILDREN WITH ADHD: A RANDOMIZED CONTROLLED TRIAL.

Bigorra A, Garolera M, Guijarro S, et al.

ADHD affects working memory (WM) and other executive functions (EFs) and thereby negatively impacts school performance, clinical symptoms and functional impairment. The main aim of this study was to analyse the efficacy of computerized WM training (CWMT) on EF rating scales. A secondary objective was to assess its efficacy on performance-based measures of EF (PBMEF), learning, clinical symptoms and functional impairment. 66 children with combined-type ADHD between 7 and 12 years of age from the Child and Adolescent Psychiatric Unit (Spain) were included in this randomized, double-blind, placebo-controlled, parallel-group clinical trial. The participants were randomized (1:1) to an experimental group (EG) (CWMT) (n = 36) or a control group (CG) (placebo training). Assessments were conducted at baseline (T0), 12 weeks (T1), and 6 months post-intervention (T2) with the administration of EF rating scales, PBMEF, measures of academic achievement, and questionnaires regarding clinical symptoms and functional impairment. Participants, parents, teachers and professionals who performed the cognitive assessments were blinded. Adjusted multiple linear regression analysis showed significant improvements in EF scales-parent version, from T1 to T2, on the metacognition index [$p = 0.03$, $d = 0.78$ (95 % CI 0.28 to 1.27)] and on WM (also significant at T2 vs T0) and plan/organize subscales. Significant improvements were also noted in EF scales-teacher version, from T0 to T1 and T2, on the metacognitive index [$p = 0.05$, $d = 0.37$ (95 % CI 0.06 to 0.68)] and on the initiate, WM, monitor and shift subscales. There were also significant improvements in PBMEF, ADHD symptoms, and functional impairment. CWMT had a significant impact on ADHD deficits by achieving long-term far-transfer effects

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Eur Child Adolesc Psychiatry. 2015;1-23.

THE CLINICAL UTILITY OF THE CONTINUOUS PERFORMANCE TEST AND OBJECTIVE MEASURES OF ACTIVITY FOR DIAGNOSING AND MONITORING ADHD IN CHILDREN: A SYSTEMATIC REVIEW.

Hall CL, Valentine AZ, Groom MJ, et al.

Attention-deficit hyperactivity disorder (ADHD) is typically diagnosed using clinical observation and subjective informant reports. Once children commence ADHD medication, robust monitoring is required to detect partial or non-responses. The extent to which neuropsychological continuous performance tests (CPTs) and objective measures of activity can clinically aid the assessment and titration process in ADHD is not fully understood. This review describes the current evidence base for the use of CPTs and objectively measured activity to support the diagnostic procedure and medication management for children with ADHD. Four databases (PsycINFO, Medline, Allied and Complementary Medicine (AMED), and PsycARTICLES) were systematically searched to understand the current evidence base for (1) the use of CPTs to aid clinical assessment of ADHD; (2) the use of CPTs to aid medication management; and (3) the clinical utility of objective measures of activity in ADHD. Sixty relevant articles were identified. The search revealed six commercially available CPTs that had been reported on for their clinical use. There were mixed findings with regard to the use of CPTs to assess and manage medication, with contrasting evidence on their ability to support clinical decision-making. There was a strong evidence base for the use of objective measures of

activity to aid ADHD/non-ADHD group differentiation, which appears sensitive to medication effects and would also benefit from further research on their clinical utility. The findings suggest that combining CPTs and an objective measure of activity may be particularly useful as a clinical tool and worthy of further pursuit

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Eur J Integr Med. 2015.

TREATING ATTENTION DEFICIT HYPERACTIVITY DISORDER WITH ACUPUNCTURE: A RANDOMIZED CONTROLLED TRIAL.

Hong S-S, Cho S-H.

Introduction: Attention deficit hyperactivity disorder (ADHD) is the most common childhood behavioral problem. The purpose of this study was to evaluate the effectiveness and safety of acupuncture in patients with ADHD.

Methods: The study was randomized, waitlist-controlled, and unblinded. A total of 93 participants with ADHD were enrolled. The acupuncture group received acupuncture treatment twice per week for 6 weeks. The waitlist group did not receive acupuncture during the first six weeks, and then underwent acupuncture treatment during the next six weeks. The primary outcome measure was the ADHD-rating scale. The computerized neurocognitive function tests (CNTs) was conducted as an objective measurement.

Results: The results of the primary analyses were equivocal. Additional analyses were conducted after data were stratified according to ADHD medication. The acupuncture group not taking ADHD medications demonstrated significantly better performance in the CNTs compared to the waitlist group: the backward digit span test ($p = 0.026$), backward visual span test ($p = 0.044$), correct hit/omission error of auditory continuous performance test (CPT) ($p = 0.021$), standard deviation of response time of visual CPT ($p = 0.048$). The clinical global impression-severity score decreased significantly in the acupuncture group after treatment compared to that in the waitlist group ($p = 0.000$). There was no statistically significant difference between both groups taking ADHD medications, except for verbal learning test in which waitlist group experienced a higher increase than acupuncture group. No adverse effect was reported.

Conclusions: Acupuncture positively influences cognitive function in patients who are not on ADHD medication

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Expert Opin Drug Saf. 2015 Apr;14:543-51.

ATTENTION-DEFICIT/HYPERACTIVITY DISORDER TREATMENT: WHAT ARE THE LONG-TERM CARDIOVASCULAR RISKS?

Hammerness PG, Karampahtsis C, Babalola R, et al.

INTRODUCTION: This drug safety review provides an update on the long-term cardiovascular risks of therapeutic stimulant class medication for children and adults with attention-deficit/hyperactivity disorder (ADHD).

AREAS COVERED: Relevant literature on the long-term (defined as ≥ 12 months) cardiovascular effects of stimulant class medications for ADHD was sought using PubMed searches for clinical literature, epidemiological reports, as well as reviews of post-marketing data and clinical guidelines/consensus statements. Comparison was made to the non-stimulant atomoxetine.

EXPERT OPINION: Long-term cardiovascular risks of stimulants for healthy children and adults with ADHD are limited to minor mean elevations in blood pressure (≤ 7 mmHg) and heart rate (≤ 10 bpm). In a sizeable minority of individuals these elevations are greater and/or reach a clinical threshold. Subjective complaints may also be anticipated during long-term treatment, yet without an increase in serious cardiac outcomes above background rates per age. Future research is needed on possible latent or cumulative cardiovascular risks in healthy individuals, as well as the longer-term cardiovascular safety in vulnerable populations

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Expert Rev Neurother. 2015 Apr;15:347-54.

GUANFACINE FOR THE TREATMENT OF ATTENTION DEFICIT HYPERACTIVITY DISORDER IN CHILDREN AND ADOLESCENTS.

Rizzo R, Martino D .

Guanfacine is an alpha2A-adrenoreceptor agonist currently indicated for the treatment of attention deficit hyperactivity disorder (ADHD). This article reviews the chemistry, pharmacodynamics and pharmacokinetics of guanfacine, as well as the clinical trial literature on guanfacine for the treatment of ADHD in children and adolescents, mainly focusing on the use of guanfacine extended-release (GXR). Six already published prospective randomized controlled trials (RCTs) and one unpublished RCT study were identified for GXR in the treatment of ADHD. All RCTs trials showed superiority over placebo on the primary outcome measure. Guanfacine, especially XR, seems to be an effective and safe treatment option for ADHD in children and adolescents

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Front Psychiatry. 2015;6.

NEUROPSYCHOLOGICAL PROFILES CORRELATED WITH CLINICAL AND BEHAVIORAL IMPAIRMENTS IN A SAMPLE OF BRAZILIAN CHILDREN WITH ATTENTION-DEFICIT HYPERACTIVITY DISORDER.

Rizzutti S, Schuch V, Augusto BM, et al.

Attention-deficit hyperactivity disorder (ADHD) is a complex neurodevelopmental disorder that implies several-step process, and there is no single test to diagnose both ADHD and associated comorbidities, such as oppositional-defiant disorder (ODD), anxiety disorder, depression, and certain types of learning disabilities. The purpose of the present study was to examine correlations between behavioral and clinical symptoms by administering an extensive neuropsychological battery to a sample of children and adolescents from a developing country. The sample was divided into three groups: non-ADHD, ADHD-non-comorbid, and ADHD + comorbidity. A full neuropsychological battery and clinical assessment found that 105 children met DSM-5 criteria, of whom 46.6% had the predominantly inattentive presentation, 37.3% had combined presentation, and 16% were predominantly hyperactive/impulsive presentation. The internal correlation between neuropsychological tests did not reach statistical significance in the comparison between ADHD and non-ADHD cases ($p < 0.17$). Clinical ADHD cases, including both + comorbidity and non-comorbid groups, performed substantially worse on continuous performance test (CPT), working memory. Comparing ADHD-non-comorbid and ADHD + comorbidity groups, the latter did significantly worse on inhibitory control, time processing, and the level of perseveration response on CPT indexes, as well as on working memory performance and child behavior checklist (CBCL) tests particularly the CBCL-deficient emotional self-regulation test in the ADHD + comorbidity group. Children diagnosed as ODD or with conduct disorder showed close correlations between clinical CBCL profiles and externalized symptoms. Our findings suggest that ADHD + comorbidity and ADHD non-comorbid cases may be differentiated by a number of neuropsychological measures, such as processing speed, inhibitory control, and working memory, that may reflect different levels of involvement of the hot and cool executive domains, which are more impaired in cases of severe symptomatic-externalized behavior and emotional regulation problems. Therefore, profiles based on clinical and behavioral findings can help clinicians select better strategies for detecting neuropsychological impairment in Brazilian children with ADHD

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Front Psychiatry. 2015;6.

USE OF COGNITIVE BEHAVIORAL THERAPY AND TOKEN ECONOMY TO ALLEVIATE DYSFUNCTIONAL BEHAVIOR IN CHILDREN WITH ATTENTION-DEFICIT HYPERACTIVITY DISORDER.

Coelho LF, Barbosa DLF, Rizzutti S, et al.

Medication has proved highly efficacious as a means of alleviating general symptoms of attention-deficit hyperactivity disorder (ADHD). However, many patients remain functionally impaired by inappropriate behavior. The present study analyzed the use of cognitive behavioral therapy (CBT) with the Token-Economy (TE) technique to alleviate problem behavior for 25 participants with ADHD, all children (19 boys, mean age

10.11) on long-term methylphenidate medication, who were given 20 CBT sessions with 10 weeks of TE introduced as of session 5. Their ten most acute problem behaviors were selected and written records kept. On weekdays, parents recorded each inappropriate behavior and provided a suitable model for their actions. At weekly sessions, problem behaviors were counted and incident-free participants rewarded with a token. To analyze improvement (less frequent problem behavior), a list of 11 behavioral categories was rated: inattention, impulsivity, hyperactivity, disorganization, disobeying rules and routines, poor self-care, verbal/physical aggression, low frustration tolerance, compulsive behavior, antisocial behavior, lacking in initiative and distraction. Two CBT specialists categorized behaviors and an ADHD specialist ruled on discrepancies. Statistical analyses used were Generalized Estimating Equations with Poisson distribution and autoregressive order correlation structure. In the course of the sessions, problematic behaviors decreased significantly in seven categories: impulsiveness, hyperactivity, disorganization, disobeying rules and routine, poor self-care, low frustration tolerance, compulsive behaviors, and antisocial behaviors. Caregiver attitudes to children's inappropriate behavior were discussed and reshaped. As functional improvement was observed on applying TE for 10 weeks, this type of intervention may be useful as an auxiliary strategy combined with medication

Genes Brain Behav. 2015 Feb;14:137-44.

BEHAVIORAL PHENOTYPES IN MALES WITH XYY AND POSSIBLE ROLE OF INCREASED NLGN4Y EXPRESSION IN AUTISM FEATURES.

Ross JL, Tartaglia N, Merry DE, et al.

The male sex chromosome disorder, 47,XYY syndrome (XYY), is associated with increased risk for social-emotional difficulties, attention-deficit hyperactivity disorder (ADHD) and autism spectrum disorder (ASD). We hypothesize that increased Y chromosome gene copy number in XYY leads to overexpression of Y-linked genes related to brain development and function, thereby increasing risk for these phenotypes. We measured expression in blood of two Y genes NLGN4Y and RPS4Y in 26 boys with XYY and 11 male controls and evaluated whether NLGN4Y expression correlates with anxiety, ADHD, depression and autistic behaviors (from questionnaires) in boys with XYY. The XYY cohort had increased risk of ASD behaviors on the social responsiveness scale (SRS) and increased attention deficits on the Conners' DSM-IV inattention and hyperactive scales. In contrast, there was no increase in reported symptoms of anxiety or depression by the XYY group. Peripheral expression of two Y genes in boys with XYY vs. typically developing controls was increased twofold in the XYY group. Results from the SRS total and autistic mannerisms scales, but not from the attention, anxiety or depression measures, correlated with peripheral expression of NLGN4Y in boys with XYY. Males with XYY have social phenotypes that include increased risk for autism-related behaviors and ADHD. Expression of NLGN4Y, a gene that may be involved in synaptic function, is increased in boys with XYY, and the level of expression correlates with overall social responsiveness and autism symptoms. Thus, further investigation of NLGN4Y as a plausible ASD risk gene in XYY is warranted

Health Qual Life Outcomes. 2015;13.

PSYCHOMETRIC VALIDATION OF THE WEISS FUNCTIONAL IMPAIRMENT RATING SCALE-PARENT REPORT FORM IN CHILDREN AND ADOLESCENTS WITH ATTENTION-DEFICIT/HYPERACTIVITY DISORDER.

Gajria K, Kosinski M, Sikirica V, et al.

Background: Measurement properties of the Weiss Functional Impairment Rating Scale-Parent Report Form (WFIRS-P), which assesses attention-deficit/hyperactivity disorder (ADHD)-related functional impairment in children/adolescents (6-17 years), were examined.

Methods: Data from seven randomized, controlled trials were pooled. Analyses were conducted in two random half-samples. WFIRS-P conceptual framework was evaluated using confirmatory factor analyses (CFA). Reliability was estimated using internal consistency (Cronbach's alpha) and test-retest reliability methods. Convergent validity was assessed using correlations between WFIRS-P domain scores and the ADHD-RS-IV and Clinical Global Impression-Severity (CGI-S) scales. Responsiveness was tested by

comparing mean changes in WFIRS-P domain scores between responders and non-responders based on clinical criteria.

Results: CFA adequately confirmed the item-to-scale relationships defined in the WFIRS-P conceptual framework. Cronbach's alpha coefficient exceeded 0.7 for all domains and test-retest reliability exceeded 0.7 for all but Risky Activities. With few exceptions, WFIRS-P domains correlated significantly ($p < 0.05$) with ADHD-RS-IV Total, Inattention and Hyperactivity-Impulsivity scores and CGI-S at baseline and follow-up in both random half-samples. Mean changes in WFIRS-P domain scores differed significantly between responder and non-responder groups in the expected direction ($p < 0.001$).

Conclusions: Study results support the reliability, validity and responsiveness of the WFIRS-P. Findings were replicated between two random samples, further demonstrating the robustness of results

Int J Epidemiol. 2015 Jun;44:1079-80.

BIAS FROM CONDITIONING ON LIVE-BIRTHS IN PREGNANCY COHORTS: AN ILLUSTRATION BASED ON NEURODEVELOPMENT IN CHILDREN AFTER PRENATAL EXPOSURE TO ORGANIC POLLUTANTS (LIEW ET AL. 2015).

Werler MM, Parker SE.

Int J Epidemiol. 2015 Feb;44:345-54.

BIAS FROM CONDITIONING ON LIVE BIRTH IN PREGNANCY COHORTS: AN ILLUSTRATION BASED ON NEURODEVELOPMENT IN CHILDREN AFTER PRENATAL EXPOSURE TO ORGANIC POLLUTANTS.

Liew Z, Olsen J, Cui X, et al.

Only 60-70% of fertilized eggs may result in a live birth, and very early fetal loss mainly goes unnoticed. Outcomes that can only be ascertained in live-born children will be missing for those who do not survive till birth. In this article, we illustrate a common bias structure (leading to 'live-birth bias') that arises from studying the effects of prenatal exposure to environmental factors on long-term health outcomes among live births only in pregnancy cohorts. To illustrate this we used prenatal exposure to perfluoroalkyl substances (PFAS) and attention-deficit/hyperactivity disorder (ADHD) in school-aged children as an example. PFAS are persistent organic pollutants that may impact human fecundity and be toxic for neurodevelopment. We simulated several hypothetical scenarios based on characteristics from the Danish National Birth Cohort and found that a weak inverse association may appear even if PFAS do not cause ADHD but have a considerable effect on fetal survival. The magnitude of the negative bias was generally small, and adjusting for common causes of the outcome and fetal loss can reduce the bias. Our example highlights the need to identify the determinants of pregnancy loss and the importance of quantifying bias arising from conditioning on live birth in observational studies

Intensive Care Medicine. 2015;1-14.

CIRCULATING PHTHALATES DURING CRITICAL ILLNESS IN CHILDREN ARE ASSOCIATED WITH LONG-TERM ATTENTION DEFICIT: A STUDY OF A DEVELOPMENT AND A VALIDATION COHORT.

Verstraete S, Vanhorebeek I, Covaci A, et al.

Purpose: Environmental phthalate exposure has been associated with attention deficit disorders in children. We hypothesized that in children treated in the pediatric intensive care unit (PICU), circulating phthalates leaching from indwelling medical devices contribute to their long-term attention deficit.

Methods: Circulating plasma concentrations of di(2-ethylhexyl)phthalate (DEHP) metabolites were quantified in 100 healthy children and 449 children who had been treated in PICU and were neurocognitively tested 4 years later. In a development patient cohort (N = 228), a multivariable bootstrap study identified stable thresholds of exposure to circulating DEHP metabolites above which there was an independent association with worse neurocognitive outcome. Subsequently, in a second patient cohort (N = 221), the observed independent associations were validated.

Results: Plasma concentrations of DEHP metabolites, which were virtually undetectable [0.029 (0.027–0.031) $\mu\text{mol/l}$] in healthy children, were 4.41 (3.76–5.06) $\mu\text{mol/l}$ in critically ill children upon PICU admission ($P < 0.001$). Plasma DEHP metabolite concentrations decreased rapidly but remained 18 times higher until PICU discharge ($P < 0.001$). After adjusting for baseline risk factors and duration of PICU stay, and further for PICU complications and treatments, exceeding the potentially harmful threshold for exposure to circulating DEHP metabolites was independently associated with the attention deficit (all $P \leq 0.008$) and impaired motor coordination (all $P \leq 0.02$). The association with the attention deficit was confirmed in the validation cohort (all $P \leq 0.01$). This phthalate exposure effect explained half of the attention deficit in post-PICU patients.

Conclusions: Iatrogenic exposure to DEHP metabolites during intensive care was independently and robustly associated with the important attention deficit observed in children 4 years after critical illness.

Clinicaltrials.gov identifier: NCT00214916

International Journal of Research in Ayurveda and Pharmacy. 2015;6:745-48.

MANAGEMENT OF ATTENTION DEFICIT HYPERACTIVITY DISORDER (ADHD) THROUGH PANCHAKARMA.

Mohita B, Parul S, Bhushan SV.

Attention Deficit Hyperactivity Disorder (ADHD) is among the commonest childhood neurological disorders affecting the focusing, behaviour and activity controlling abilities. This disorder not only influence the learning abilities of the child but also has a significant impact on patient's social, professional and family life, affecting their relationships with parents and siblings, causing disruption at work because of decreased concentration abilities and less stable relationships thus crippling the self-esteem in every aspect. The prevalence of the disease is increasing and treatment options are just limited to the management of symptoms and that too not very efficient, no permanent cure is reported till date. So, there is need to expand the treatment modality. In Ayurveda, it can be correlated with various types of abnormal behaviours due to increased Vata and symptoms arising due to imbalance in the homeostasis between the components of Prajya (intellect). The relaxation and concentration improving Panchakarma therapies along with Vedic chant recitation (Music Therapy) for enhancing the concentration and focussing abilities can be proved as a promising treatment in the management of ADHD

Ir J Psychol Med. 2015;32:307-12.

NEGATIVE OUTCOMES IN ATTENTION-DEFICIT/HYPERACTIVITY DISORDER COMORBID WITH OPPOSITIONAL DEFIANT DISORDER.

Ayaz AB, Ayaz M, Kayan E.

Objectives. In children and adolescents diagnosed with attention-deficit/hyperactivity disorder (ADHD), the comorbidity of the oppositional defiant disorder (ODD) negatively affects the course of ADHD. The purpose of this study was to compare ADHD-diagnosed children with and without ODD comorbidity in terms of smoking, psychoactive substance use, disciplinary punishments at school, criminal behaviors, and unintentional injuries.

Methods. This study included 109 children diagnosed with ADHD alone and 79 children with the ADHD-ODD comorbidity from a child psychiatry outpatient clinic. The children who participated in the study were aged between 6 and 15 years. Diagnoses of the children were determined by child psychiatrists according to DSM-IV criteria, and the Turgay DSM-IV-based Child and Adolescent Behavior Disorders Screening and Rating Scale-Parents Form was used to support the diagnosis in initial evaluations of children. Forty-six to fifty months after the first admission, parents were questioned regarding all negative outcomes from the time of first diagnosis to the time of the evaluation by phone.

Results. The groups were compared in terms of smoking, psychoactive substance use, disciplinary punishments at school, criminal behaviors, and unintentional injuries over a period of 4 years. The ODD-ADHD group was determined to have higher rates of disciplinary punishments at school, smoking, and

unintentional injuries compared with the ADHD group. No statistically significant difference was found between the two groups in terms of criminal behaviors and psychoactive substance use.

Conclusions. The ODD comorbidity increases the risk of negative outcomes in children diagnosed with ADHD

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J Am Med Inform Assoc. 2015 Sep;22:1042-53.

BIRTH MONTH AFFECTS LIFETIME DISEASE RISK: A PHENOME-WIDE METHOD.

Boland MR, Shahn Z, Madigan D, et al.

OBJECTIVE: An individual's birth month has a significant impact on the diseases they develop during their lifetime. Previous studies reveal relationships between birth month and several diseases including atherothrombosis, asthma, attention deficit hyperactivity disorder, and myopia, leaving most diseases completely unexplored. This retrospective population study systematically explores the relationship between seasonal affects at birth and lifetime disease risk for 1688 conditions.

METHODS: We developed a hypothesis-free method that minimizes publication and disease selection biases by systematically investigating disease-birth month patterns across all conditions. Our dataset includes 1 749 400 individuals with records at New York-Presbyterian/Columbia University Medical Center born between 1900 and 2000 inclusive. We modeled associations between birth month and 1688 diseases using logistic regression. Significance was tested using a chi-squared test with multiplicity correction.

RESULTS: We found 55 diseases that were significantly dependent on birth month. Of these 19 were previously reported in the literature ($P < .001$), 20 were for conditions with close relationships to those reported, and 16 were previously unreported. We found distinct incidence patterns across disease categories.

CONCLUSIONS: Lifetime disease risk is affected by birth month. Seasonally dependent early developmental mechanisms may play a role in increasing lifetime risk of disease

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J Child Psychol Psychiatry. 2015 Mar;56:345-65.

ANNUAL RESEARCH REVIEW: A META-ANALYSIS OF THE WORLDWIDE PREVALENCE OF MENTAL DISORDERS IN CHILDREN AND ADOLESCENTS.

Polanczyk GV, Salum GA, Sugaya LS, et al.

BACKGROUND: The literature on the prevalence of mental disorders affecting children and adolescents has expanded significantly over the last three decades around the world. Despite the field having matured significantly, there has been no meta-analysis to calculate a worldwide-pooled prevalence and to empirically assess the sources of heterogeneity of estimates.

METHODS: We conducted a systematic review of the literature searching in PubMed, PsycINFO, and EMBASE for prevalence studies of mental disorders investigating probabilistic community samples of children and adolescents with standardized assessments methods that derive diagnoses according to the DSM or ICD. Meta-analytical techniques were used to estimate the prevalence rates of any mental disorder and individual diagnostic groups. A meta-regression analysis was performed to estimate the effect of population and sample characteristics, study methods, assessment procedures, and case definition in determining the heterogeneity of estimates.

RESULTS: We included 41 studies conducted in 27 countries from every world region. The worldwide-pooled prevalence of mental disorders was 13.4% (CI 95% 11.3-15.9). The worldwide prevalence of any anxiety disorder was 6.5% (CI 95% 4.7-9.1), any depressive disorder was 2.6% (CI 95% 1.7-3.9), attention-deficit hyperactivity disorder was 3.4% (CI 95% 2.6-4.5), and any disruptive disorder was 5.7% (CI 95% 4.0-8.1). Significant heterogeneity was detected for all pooled estimates. The multivariate metaregression analyses indicated that sample representativeness, sample frame, and diagnostic interview were significant moderators of prevalence estimates. Estimates did not vary as a function of geographic location of studies and year of data collection. The multivariate model explained 88.89% of prevalence heterogeneity, but

residual heterogeneity was still significant. Additional meta-analysis detected significant pooled difference in prevalence rates according to requirement of functional impairment for the diagnosis of mental disorders.

CONCLUSIONS: Our findings suggest that mental disorders affect a significant number of children and adolescents worldwide. The pooled prevalence estimates and the identification of sources of heterogeneity have important implications to service, training, and research planning around the world

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J Child Psychol Psychiatry. 2015 Mar;56:278-95.

ANNUAL RESEARCH REVIEW: THE (EPI)GENETICS OF NEURODEVELOPMENTAL DISORDERS IN THE ERA OF WHOLE-GENOME SEQUENCING--UNVEILING THE DARK MATTER.

Kiser DP, Rivero O, Lesch KP.

BACKGROUND AND SCOPE: Neurodevelopmental disorders (NDDs) are defined by a wide variety of behavioural phenotypes, psychopathology and clinically informed categorical classifications. Diagnostic entities include intellectual disability (ID), the autism spectrum (ASD) and attention-deficit/hyperactivity disorder (ADHD). The aetiopathogenesis of these conditions and disorders involves an interaction between both genetic and environmental risk factors on the developmental trajectory. Despite their remarkable genetic heterogeneity and complexity of pathophysiological mechanisms, NDDs display an overlap in their phenotypic features, a considerable degree of comorbidity as well as sharing of genetic and environmental risk factors. This review aims to provide an overview of the genetics and epigenetics of NDDs.

FINDINGS: Recent evidence suggests a critical role of defined and tightly regulated neurodevelopmental programs running out of control in NDDs, most notably neuronal proliferation and migration, synapse formation and remodelling, as well as neural network configuration resulting in compromised systems connectivity and function. Moreover, the machinery of epigenetic programming, interacting with genetic liability, impacts many of those processes and pathways, thus modifying vulnerability of, and resilience to, NDDs. Consequently, the categorically defined entities of ID, ADHD and ASD are increasingly viewed as disorders on a multidimensional continuum of molecular and cellular deficiencies in neurodevelopment. As such, this range of NDDs displays a broad phenotypic diversity, which may be explained by a combination and interplay of underlying loss- and potential gain-of-function traits.

CONCLUSION: In this overview, we discuss a backbone continuum concept of NDDs by summarizing pertinent findings in genetics and epigenetics. We also provide an appraisal of the genetic overlap versus differences, with a focus on genome-wide screening approaches for (epi)genetic variation. Finally, we conclude with insights from evolutionary psychobiology suggesting positive selection for discrete NDD-associated traits

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J Clin Exp Neuropsychol. 2015;37:162-77.

RECOVERY OF VISUAL SEARCH FOLLOWING MODERATE TO SEVERE TRAUMATIC BRAIN INJURY.

Schmitter-Edgecombe M, Robertson K.

INTRODUCTION: Deficits in attentional abilities can significantly impact rehabilitation and recovery from traumatic brain injury (TBI). This study investigated the nature and recovery of preattentive (parallel) and attentive (serial) visual search abilities after TBI.

METHOD: Participants were 40 individuals with moderate to severe TBI who were tested following emergence from posttraumatic amnesia and approximately 8 months post injury, as well as 40 age- and education-matched controls. Preattentive (automatic) and attentive (controlled) visual search situations were created by manipulating the saliency of the target item amongst distractor items in visual displays. The relationship between preattentive and attentive visual search rates and follow-up community integration were also explored.

RESULTS: The results revealed intact parallel (automatic) processing skills in the TBI group both postacutely and at follow-up. In contrast, when attentional demands on visual search were increased by reducing the saliency of the target, the TBI group demonstrated poorer performances than the control group both

postacutely and 8 months post injury. Neither preattentive nor attentive visual search slope values correlated with follow-up community integration.

CONCLUSIONS: These results suggest that utilizing intact preattentive visual search skills during rehabilitation may help to reduce high mental workload situations, thereby improving the rehabilitation process. For example, making commonly used objects more salient in the environment should increase reliance or more automatic visual search processes and reduce visual search time for individuals with TBI

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J Clin Psychopharmacol. 2015 Apr;35:213.

PSYCHOSIS ASSOCIATED WITH GUANFACINE.

Kim RK, Chayer R.

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J Med Assoc Thai. 2015 Apr;98 Suppl 3:S81-S90.

FACEBOOK ADDICTION AND ITS RELATIONSHIP WITH MENTAL HEALTH AMONG THAI HIGH SCHOOL STUDENTS.

Hanprathet N, Manwong M, Khumsri J, et al.

OBJECTIVE: To investigate the relationship between Facebook addiction and mental health among high school students.

MATERIAL AND METHOD: This cross-sectional analytic study was performed among 972 high school students from four provinces associated with high economic prosperity in Thailand: Bangkok, ChiangMai, Ubon Ratchathani and Songkhla, utilizing a multistage cluster sampling technique. Facebook addiction was assessed using the Thai version of the Bergen-Facebook Addiction Scale (Thai-BFAS), while a Thai version of the General Health Questionnaire (Thai GHQ-28) was used for mental health evaluation. The relationship between Facebook addiction and mental health was analyzed through multiple logistic regressions.

RESULTS: The prevalence of Facebook addiction and abnormal mental health were 41.9% (95% CI: 38.6, 45.2), and 21.9% (95% CI: 19.2, 24.8), respectively. After adjustment for confounding factors (sufficiency of household income, school location, level of education, GPAX learning deficits and attention deficit hyperactivity disorder), the individuals identified as having Facebook addiction were discovered to be at a high risk of developing abnormal general mental health (OR_{adj} = 1.7, 95% CI: 1.1, 2.4), somatic symptoms (OR = 1.2, 95% CI: 0.9, 1.7), anxiety and insomnia (OR_{adj} = 1.3, 95% CI: 0.9, 1.8), social dysfunction (OR = 1.5, 95% CI: 1.1, 2.1) and severe depression (OR_{adj} = 1.5, 95% CI: 1.0, 2.2). Moreover; there were pronounced trends of increasing risk according to the level of Facebook addiction (P_{trend} < 0.05).

CONCLUSION: It was found that Facebook addiction among high school students could be associated with abnormal, general mental health status, somatic symptoms, anxiety & insomnia, social dysfunction, and severe depression. Therefore, it is essential that the relevant authorities educate young people about the mental health impacts linked with Facebook addictive usage and impose appropriate public health policies by screening Facebook addiction and mental health issues in risk groups

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J Med Internet Res. 2015;17:e123.

E-MENTAL HEALTH CARE AMONG YOUNG ADULTS AND HELP-SEEKING BEHAVIORS: A TRANSVERSAL STUDY IN A COMMUNITY SAMPLE.

Younes N, Chollet A, Menard E, et al.

BACKGROUND: The Internet is widely used by young people and could serve to improve insufficient access to mental health care. Previous information on this topic comes from selected samples (students or self-selected individuals) and is incomplete.

OBJECTIVE: In a community sample of young adults, we aimed to describe frequency of e-mental health care study-associated factors and to determine if e-mental health care was associated with the use of conventional services for mental health care.

METHODS: Using data from the 2011 wave of the TEMPO cohort study of French young adults (N=1214, aged 18-37 years), we examined e-mental health care and associated factors following Andersen's behavioral model: predisposing factors (age, sex, educational attainment, professional activity, living with a partner, children, childhood negative events, chronic somatic disease, parental history of depression), enabling factors (social support, financial difficulties, parents' income), and needs-related factors (lifetime major depression or anxiety disorders, suicidal ideation, ADHD, cannabis use). We compared traditional service use (seeking help from a general practitioner, a psychiatrist, a psychologist; antidepressant or anxiolytics/hypnotics use) between participants who used e-mental health care versus those who did not.

RESULTS: Overall, 8.65% (105/1214) of participants reported seeking e-mental health care in case of psychological difficulties in the preceding 12 months and 15.7% (104/664) reported psychological difficulties. Controlling for all covariates, the likelihood of e-mental health care was positively associated with 2 needs-related factors, lifetime major depression or anxiety disorder (OR 2.36, 95% CI 1.36-4.09) and lifetime suicidal ideation (OR 1.91, 95% CI 1.40-2.60), and negatively associated with a predisposing factor: childhood life events (OR 0.60, 95% CI 0.38-0.93). E-mental health care did not hinder traditional care, but was associated with face-to-face psychotherapy (66.2%, 51/77 vs 52.4%, 186/355, P=.03).

CONCLUSIONS: E-mental health care represents an important form of help-seeking behavior for young adults. Professionals and policy makers should take note of this and aim to improve the quality of online information on mental health care and to use this fact in clinical care

J Neurooncol. 2015 Mar;122:161-68.

PROSPECTIVE LONGITUDINAL EVALUATION OF EMOTIONAL AND BEHAVIORAL FUNCTIONING IN PEDIATRIC PATIENTS WITH LOW-GRADE GLIOMA TREATED WITH CONFORMAL RADIATION THERAPY.

Willard VW, Conklin HM, Wu S, et al.

Patients with low-grade glioma (LGG) who are successfully treated with irradiation are at increased risk for cognitive and psychosocial late effects. Conformal radiation therapy (CRT) allows sparing of cognitive deficits, but how it affects emotional and behavioral functioning remains unclear. We performed a prospective longitudinal study of the emotional and behavioral functioning of pediatric patients with LGG in the first 5 years post-CRT. Ninety-five pediatric patients with LGG treated on an institutional Phase II trial (August 1997-June 2009) underwent neuropsychological assessments pre-CRT and 6, 12, 24, 36, 48, and 60 months post-CRT. Parent-reported scores on the Child Behavior Checklist (CBCL) were analyzed. Three competence scales (School Competence, Social Competence, and Activities), two summary scales (Internalizing Problems and Externalizing Problems), and two subscales of theoretical interest (Attention Problems and Social Problems) from the CBCL were used. Among 80 eligible patients [44 female, 68 white], 51 had pilocytic astrocytoma and 13 had optic pathway glioma. Mean age at diagnosis was 6.8 years (SD = 4.3 years) and at CRT initiation was 8.9 years (SD = 3.4 years). Before CRT, deficits were demonstrated on the competence scales (mean scores below normative mean) and the Attention Problems and Social Problems subscales (mean scores above normative means). This trend continued at 5 years post-CRT. Longitudinal trajectories of emotional and behavioral functioning were stable over 5 years. Emotional and behavioral deficits remain relatively stable over the 5 years post-CRT in patients with LGG, suggesting that CRT may not exacerbate pre-existing psychosocial difficulties in this population

J Pediatr Surg. 2015 Apr;50:540-42.

COGNITIVE AND BEHAVIORAL CHARACTERISTICS OF CHILDREN WITH CAUSTIC INGESTION.

Cakmak M, Gollu G, Boybeyi O, et al.

BACKGROUND/AIM: Children with attention-deficit/hyperactivity disorder (AD/HD) have risk taking behavior and are more prone to sustaining injury. It is aimed to evaluate the cognitive and behavioral characteristics of children with caustic ingestion.

PATIENTS AND METHODS: Ninety two children with a history of nonsuicidal caustic ingestion (CI, n=46) and healthy subjects (HS, n=46) admitted to pediatric surgery department were enrolled into the study.

Patients in groups were evaluated for age, sex, number of siblings and educational status of the parents. Before filling the questionnaires, the children were undergone flexible endoscopy and treated accordingly. Conners Parents Rating Scale-revised long form (CPRS-R:L), validated for Turkish Children, was used to evaluate the cognitive and behavioral characteristics of children. Parents rate their child's behavior with a four-point Likert scale. Subscales of CPRS-R:L including cognitive problems/inattention (CG/I), hyperactivity (H), attention deficit hyperactivity disorder index (AD/HD-I), Conners' Global Index-discomfort-impulsivity (CGI-DI), DSM-IV-symptom subscale-inattention (DSMIV, SS-I), DSM-IV-symptom subscale-hyperactivity-impulsivity (DSM-IV, SS-HI), DSMIV-symptom subscale-total score (DSM-IV SS-T) were used to determine the severity of the AD/HD symptom. Demographic features and cognitive/behavioral characteristics of children with caustic ingestion were compared with healthy subjects.

RESULTS: The median age of the patients was 4 (2-14 years) in both CI and HS groups. Female male ratio was 13:33 in CI and 12:34 in HS. Sixty seven percent of patients were preschool children (younger than 5 years of age) in both CI and HS groups. There was no difference between groups for number of siblings ($p>0.05$). Parents of HS group had higher educational status than parents in CI ($p<0.05$). When subscale scores of CPRS-R:L compared between CI and HS groups, CI group had higher CGI-DI scores than HS ($p<0.05$). Children younger than five years of age had higher scores of H, emotional instability and total CG/I in CI than HS group ($p<0.05$).

CONCLUSION: Children with caustic ingestion had impulsiveness behavior when compared to healthy children. In addition to impulsivity, hyperactivity can be also assessed as a risk factor for caustic ingestion in children younger than 5 years of age. We suggest that association between AD/HD behavior and risk of sustaining injuries was also confirmed for caustic ingestion in children

JAMA Pediatr. 2015 Sep;169:838-45.

MATERNAL MILD THYROID HORMONE INSUFFICIENCY IN EARLY PREGNANCY AND ATTENTION-DEFICIT/HYPERACTIVITY DISORDER SYMPTOMS IN CHILDREN.

Modesto T, Tiemeier H, Peeters RP, et al.

IMPORTANCE: Maternal thyroid hormone insufficiency during pregnancy can affect children's cognitive development. Nevertheless, the behavioral outcomes of children exposed prenatally to mild thyroid hormone insufficiency are understudied. **OBJECTIVE:** To examine whether exposure to maternal mild thyroid hormone insufficiency in early pregnancy was related to symptoms of attention-deficit/hyperactivity disorder (ADHD) in children at 8 years of age.

DESIGN, SETTING, AND PARTICIPANTS: The study was embedded within the Generation R, a population-based birth cohort in the Netherlands. Children in the Generation R Study are followed up from birth (April 1, 2002, through January 31, 2006) until young adulthood. Of the 4997 eligible mother-child pairs with data on maternal thyroid levels (excluding twins), 3873 pairs of children and caregivers (77.5%) visited the Generation R research center for in-depth assessments and were included in the main analyses. Data collection in Generation R started December 1, 2001 (enrollment of pregnant women), and is ongoing. For this study, we used the data that were collected until January 1, 2014. Data analyses started on January 31 and finished June 30, 2014.

MAIN OUTCOMES AND MEASURES: Maternal hypothyroxinemia, characterized by low levels of free thyroxine coexisting with reference thyrotropin levels, and children's symptoms of ADHD. Maternal thyroid hormone levels (thyrotropin, free thyroxine, thyroid peroxidase antibodies) were measured at a mean (SD) of 13.6 (1.9) weeks of gestation. Children's ADHD symptoms were assessed at 8 years of age using the Conners' Parent Rating Scale-Revised Short Form; higher scores indicate more ADHD symptoms (possible range, 0-36). **RESULTS:** Maternal hypothyroxinemia ($n = 127$) in early pregnancy was associated with higher scores for ADHD symptoms in children at 8 years of age after adjustments for child and maternal factors (ie, sex, ethnicity, maternal age, maternal educational level, and income) (increase in ADHD scores, 7% [95% CI, 0.3%-15%]). The results remained essentially unchanged when women with elevated levels of thyroid peroxidase antibodies were excluded from the analyses (increase in ADHD scores, 8% [95% CI, 1%-16%]). Additional adjustment for children's IQ or comorbid autistic symptoms attenuated the association (increase in ADHD scores adjusted for autistic symptoms, 7% [95% CI, 1%-15%]; increase in ADHD scores adjusted for IQ, 6% [95% CI, 1%-14%]).

CONCLUSIONS AND RELEVANCE: Children exposed to maternal hypothyroxinemia in early pregnancy had more ADHD symptoms, independent of confounders. This finding suggests that intrauterine exposure to insufficient thyroid hormone levels influences neurodevelopment in offspring

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JAMA Psychiatry. 2015 Sep;72:867-74.

TREATMENT OF YOUNG PEOPLE WITH ANTIPSYCHOTIC MEDICATIONS IN THE UNITED STATES.

Olfson M, King M, Schoenbaum M.

IMPORTANCE: Despite concerns about rising treatment of young people with antipsychotic medications, little is known about trends and patterns of their use in the United States.

OBJECTIVE: To describe antipsychotic prescription patterns among young people in the United States, focusing on age and sex.

DESIGN, SETTING, AND PARTICIPANTS: A retrospective descriptive analysis of antipsychotic prescriptions among patients aged 1 to 24 years was performed with data from calendar years 2006 (n = 765,829), 2008 (n = 858,216), and 2010 (n = 851,874), including a subset from calendar year 2009 with service claims data (n = 53,896). Data were retrieved from the IMS LifeLink LRx Longitudinal Prescription database, which includes approximately 60% of all retail pharmacies in the United States. Denominators were adjusted to generalize estimates to the US population.

MAIN OUTCOMES AND MEASURES: The percentage of young people filling 1 or more antipsychotic prescriptions during the study year by sex and age group (younger children, 1-6 years; older children, 7-12 years; adolescents, 13-18 years; and young adults, 19-24 years) was calculated. Among young people with antipsychotic use, percentages with specific clinical psychiatric diagnoses and 1 or more antipsychotic prescriptions from a psychiatrist and from a child and adolescent psychiatrist were also determined.

RESULTS: The percentages of young people using antipsychotics in 2006 and 2010, respectively, were 0.14% and 0.11% for younger children, 0.85% and 0.80% for older children, 1.10% and 1.19% for adolescents, and 0.69% and 0.84% for young adults. In 2010, males were more likely than females to use antipsychotics, especially during childhood and adolescence: 0.16% vs 0.06% for younger children, 1.20% vs 0.44% for older children, 1.42% vs 0.95% for adolescents, and 0.88% vs 0.81% for young adults. Among young people treated with antipsychotics in 2010, receiving a prescription from a psychiatrist was less common among younger children (57.9%) than among other age groups (range, 70.4%-77.9%). Approximately 29.3% of younger children treated with antipsychotics in 2010 received 1 or more antipsychotic prescriptions from a child and adolescent psychiatrist. Among young people with claims for mental disorders in 2009 who were treated with antipsychotics, the most common diagnoses were attention-deficit/hyperactivity disorder in younger children (52.5%), older children (60.1%), and adolescents (34.9%) and depression in young adults (34.5%).

CONCLUSIONS AND RELEVANCE: Antipsychotic use increased from 2006 to 2010 for adolescents and young adults but not for children aged 12 years or younger. Peak antipsychotic use in adolescence, especially among boys, and clinical diagnosis patterns are consistent with management of developmentally limited impulsive and aggressive behaviors rather than psychotic symptoms

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J Child Adolesc Psychopharmacol. 2015;25:691-700.

ATTENTION-DEFICIT/HYPERACTIVITY DISORDER IS RELATED TO DECREASED WEIGHT IN THE PRESCHOOL PERIOD AND TO INCREASED RATE OF OVERWEIGHT IN SCHOOL-AGE BOYS.

Hanć T, Słopeń A, Wolańczyk T, et al.

Objective: Previous studies have associated attention-deficit/hyperactivity disorder (ADHD) with growth deviations and obesity. However, available data regarding the growth of children with ADHD in their early childhood are insufficient. Therefore, we aimed to examine whether there are differences in body size between preschool boys with and without ADHD.

Methods: The study used cross-sectional and retrospective longitudinal data concerning 112 boys with ADHD and a community-based sample of 308 boys without ADHD. The groups were homogeneous in terms

of socioeconomic status, place of residence, term of birth, and birth weight. The average age of diagnosis was 8.3 years, and none of boys had been treated with stimulants before they were 7 years of age. Comparisons were made at the ages of 2, 4, and 6 years, for World Health Organization (WHO)-norm-standardized height, weight, body mass index (BMI), prevalence of underweight, overweight, and obesity. Separate analysis were made for the cross-sectional measurements of current body size.

Results: Boys with ADHD at the age of 2 had significantly lower z scores for weight ($t=-1.98$, $p=0.04$) and BMI ($t=-2.09$, $p=0.04$), and at the age of 4 for weight ($t=-2.05$, $p=0.04$) than the boys from the control group. A significantly lower percentage of overweight/obesity was observed in boys with ADHD at the age of 2 in comparison with the control group. At the age of 6, boys with ADHD were underweight more often. Cross-sectional analysis of current body size showed that boys with ADHD had lower z scores for height ($t=-3.08$, $p=0.002$) and higher z scores ($t=3.13$, $p=0.002$) for BMI. Overweight was more frequent in this group.

Conclusions: Preschool boys with ADHD (age of 2-6 years) have a tendency toward lower body weight than their peers. But in subsequent phases of development, they are shorter and more frequently overweight than boys without ADHD, when place of residence, socioeconomic status, term of birth, birth weight, comorbid conditions, and treatment are controlled

J Intellect Disabil Res. 2015;59:30-31.

ADHD in adults with ID: What we know and what we should know.

Salerno L.

Objectives: Attention Deficit Hyperactivity Disorder (ADHD) is a neurobiological disorder constituting one of the most frequent comorbid diagnosis in children with Intellectual Disability (ID). Only recently the validity of ADHD diagnosis in adulthood has been established, and little is known about its prevalence and presentation in adults with ID. Methods: Literature up to date has been examined in order to explore data regarding the presentation of ADHD in adults with ID, and its impact on treatment outcomes. Results: Both ADHD and IQ are heritable phenotypes with overlapping genetic effects. Studies show that brain changes typical of ADHD vary as a function of IQ, suggesting a relationship between them. People with ADHD co-occurring with ID show a greater severity of symptoms and slightly different patterns of presentation than people without ID. A poorer treatment outcome has also been reported because of a double deficit derived by both disorders. Conclusions: Adults with ID and ADHD appear more compromised than those with ID only. ADHD presentation is slightly atypical in people with ID, and the lack of standardized assessment instruments for administering to adult ID population makes its diagnosis very challenging. However, diagnosing ADHD in people with ID may help professionals to implement more effective and appropriate treatment

J Psychiatr Res. 2016;72:6-14.

ATTENTION-DEFICIT HYPERACTIVITY DISORDER, ITS PHARMACOTHERAPY, AND THE RISK OF DEVELOPING BIPOLAR DISORDER: A NATIONWIDE POPULATION-BASED STUDY IN TAIWAN.

Wang L-J, Shyu Y-C, Yuan S-S, et al.

In this study, we aimed to evaluate the relationship between attention-deficit/hyperactivity disorder (ADHD) during childhood and subsequent diagnoses of bipolar disorder (BD), as well as to determine whether the pharmacotherapy for ADHD (methylphenidate and atomoxetine) influence the risks of developing BD. A nationwide cohort of patients newly diagnosed with ADHD ($n = 144,920$) and age- and gender-matching controls ($n = 144,920$) were found in Taiwan's National Health Insurance database from January 2000 to December 2011. Both patients and controls were observed until December 31, 2011. To determine the effect that the duration of methylphenidate and atomoxetine exposure had on BD, the difference in the risk of developing BD was compared among non-users, short-term users (≤ 365 days), and long-term users (>365 days). In comparison to the control group, the ADHD group showed a significantly increased risk of developing BD (ADHD: 2.1% vs. controls: 0.4%; aHR: 7.85, 95% CI: 7.09-8.70), and had a younger mean age at the time of first diagnosis (ADHD: 12.0 years vs. controls: 18.8 years). Compared to ADHD patients that had never taken methylphenidate, patients with long-term use of methylphenidate were less likely to be

diagnosed with BD (aOR: 0.72, 95% CI: 0.65-0.80). However, the duration of exposure to atomoxetine did not have a significant relationship to a BD diagnosis. The results suggested that a previous diagnosis of ADHD was a powerful indicator of BD, particularly juvenile-onset BD. Nevertheless, the exact mechanisms of the relationships among ADHD, its pharmacotherapy, and BD require further clarification in the future

J Psychopathol Behav Assess. 2015;1-10.

INTERNAL AND EXTERNAL VALIDITY OF SLUGGISH COGNITIVE TEMPO AND ADHD INATTENTION DIMENSIONS WITH TEACHER RATINGS OF NEPALI CHILDREN.

Khadka G, Burns GL, Becker SP.

The objective was to evaluate the validity of sluggish cognitive tempo (SCT) and ADHD-inattention (IN) symptoms in children from Nepal. Teachers rated SCT, ADHD-IN, ADHD-hyperactivity/impulsivity (HI), oppositional defiant disorder (ODD), anxiety, depression, academic impairment, social impairment, and peer rejection dimensions in 366 children (50 % girls) in first through sixth grades (Mage = 9.35, SDage = 1.96) on two separate occasions separated by 4-weeks. Seven of the eight SCT symptoms and all nine ADHD-IN symptoms showed convergent validity (substantial loadings on their respective factors) and discriminant validity (higher loadings on their respective factor than the alternative factor) at both time-points. Across all three separate analyses (assessment 1, assessment 2, and from assessment 1 to assessment 2), higher SCT scores were associated with lower ADHD-HI scores and higher depression, academic impairment, and social impairment scores after controlling for ADHD-IN while higher ADHD-IN scores were associated with higher ADHD-HI, ODD, academic impairment, and peer rejection scores after controlling for SCT. Also, as hypothesized, SCT scores were not related to ODD scores after controlling for ADHD-IN. The study provides the first evidence for the internal and external validity of the SCT dimension relative to the ADHD-IN dimension with teacher ratings of children from Nepal, thereby increasing the validity of the SCT construct beyond North America, Western Europe, South America, and South Korea

JRSM Short Reports. 2014;5:1-7.

CALORIC AND NUTRIENT INTAKE IN CHILDREN WITH ATTENTION DEFICIT HYPERACTIVITY DISORDER TREATED WITH EXTENDED-RELEASE METHYLPHENIDATE: ANALYSIS OF A CROSS-SECTIONAL NUTRITION SURVEY.

Durá-Travé T, Gallinas-Victoriano F.

Objectives: To study calorie and nutrients intake in a group of patients diagnosed with attention deficit hyperactivity disorder (ADHD) under treatment with extended-release methylphenidate (MPH-ER), and to analyse the need to design nutrition intervention strategies.

Design: Observational (case-control). Setting: Navarra Hospital Complex, Pamplona, Spain.

Participants: A total of 100 patients diagnosed with ADHD under treatment with MPH-ER and 100 healthy children (control group). Main outcome measures: A nutrition survey was carried out (food intake registration of 3 consecutive school days). Calorie and nutrient intake, as well as nutrition status, were evaluated and compared in both groups.

Results: Nutritional status in ADHD group was significantly lower ($p < 0.05$) than in control group. Calorie intake in mid-morning snack, lunch and afternoon snack was significantly higher ($p < 0.05$) in the control group. Calorie intake in supper was significantly higher ($p < 0.05$) in the ADHD group. There were no significant differences in breakfast. Total calorie intake, as well as protein, carbohydrates, fat, fibre, calcium, iron, magnesium, zinc, selenium and phosphorous, thiamine, niacin, vitamin B6 and folate intake, in control group was significantly higher than in ADHD group.

Conclusions: The daily calorie and nutrients intake in patients under treatment with MPH-ER is, generally, lower than in healthy population of similar age. The need to impart programmes of nutrition education simultaneously with multimodal treatment in order to avoid the nutrition consequences of treatment with MPH should be considered

Kaohsiung J Med Sci. 2015.

CEREBELLAR COGNITIVE AFFECTIVE SYNDROME: ATTENTION DEFICIT-HYPERACTIVITY DISORDER EPISODE OF ADOLESCENT WITH CEREBELLAR ATROPHY IN A PSYCHIATRIC WARD.

Chang C, Siao S-W.

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Lakartidningen. 2015;112.

RECONSIDER THE DIAGNOSIS AND TREATMENT APPROACH FOR ADHD.

Jacobsson L, Hagglof B.

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Lijec Vjesn. 2014 Nov;136:346-49.

CHRONIC DISEASE AND HEALTH CONDITION PREVENTION IN CHILDHOOD--2ND PART: EMPHASES FROM THE 14TH SYMPOSIUM OF PREVENTIVE PEDIATRICS.

Batinica M, Grguric J, Jadrijevic-Cvrlje F.

Chronically ill children nowadays in developed countries are more prevalent than before, and thanks to modern therapeutic modalities more children are surviving into adulthood. Increased survival cannot be assumed to be associated with increased quality of life. With the chronically ill child holistic approach is important, which incorporates not only realisation of the highest possible standards in diagnostics and treatment, but also special care for disease prevention. All this is very important in so called integrative approach in the care of a chronically ill child, with the aim of achieving as high as possible quality of life and complete social integration. At the 14th Preventive Pediatrics Symposium, which took place in Skrad, June 1' 2013, from preventive standpoint, the following chronic childhood illnesses were discussed: attention deficit hyperactivity disorder--ADHD, migraine, thyroid gland diseases, leukemia, cystic fibrosis, chronic renal disease, chronic inflammatory liver disease, chronic inflammatory bowel disease, juvenile idiopathic arthritis, and chronic otitis media with effusion. It is emphasized that talking about a disease prevention, there are three levels of it--primary, second-ary and tertiary prevention: how to avoid occurrence of disease, how to diagnose and treat existent disease in early stages, before it causes significant morbidity, and finally how to reduce the negative impact of existent disease by restoring function and reducing disease-related complications--how to improve quality of life of children with chronic diseases. Quaternary prevention describes methods to mitigate or avoid results of unnecessary or excessive interventions of the health system. An important process is also transition of care from child-oriented to adult-oriented care. Adults with chronic health conditions should continue to be evaluated periodically for possible late consequences of their childhood illness and previous medical treatments

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Nat Med J China. 2015;95:3351-56.

INFLUENCE OF ODD DIAGNOSIS ON THE ASSOCIATION BETWEEN NET1 AND ATTENTION-DEFICIT/HYPERACTIVITY DISORDER.

Liu L, Gao Q, Li H, et al.

Objective To explore the association between the SNP rs3785143 of NET1 gene and attention-deficit/hyperactivity disorder (ADHD) with and without oppositional defiant disorder (ODD).

Methods Five hundreds and eighty-seven ADHD children with ODD, 1228 ADHD children without ODD and 554 healthy children were recruited from child psychiatric clinics of Peking University Sixth Hospital/ Institute of Mental Health and included for genotyping of rs3785143. Comparisons of allelic and genotypic distribution among these groups were conducted.

Results In ADHD children with ODD, the genotypic distribution was significantly different from controls ($P = 0.008$), showing higher 'IT frequency in ADHD with ODD (4.3% vs 1.6%, $P = 0.009$). In ADHD children without ODD, the C allele (0.859 vs 0.821, $P = 0.005$) and CC genotype (73.4% vs 65.9%, $P = 0.001$) showed higher frequencies than controls. After controlling the potential influence of age and gender, those

associations were retained. To further exclude the potential effect of other comorbidities, we repeated above analyses in pure ADHD and pure ADHD with ODD. In pure ADHD, the C allele (0.870 vs 0.821 , $P = 0.003$) and CC genotype (75.8% vs 65.9% , $P = 0.001$) showed higher frequencies than controls; while in pure ADHD with ODD, the TT genotype showed higher frequency than controls (5.1% vs 1.6% , $P = 0.006$).

Conclusions We replicate the association between the SNP rs3785143 of NET1 gene and ADHD by case-control study. There may be different genetic mechanisms between ADHD with and without ODD

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Natl Health Stat Report. 2015 Sep;1-7.

DIAGNOSTIC EXPERIENCES OF CHILDREN WITH ATTENTION-DEFICIT/HYPERACTIVITY DISORDER.

Visser SN, Zablotzky B, Holbrook JR, et al.

OBJECTIVES: This report describes the diagnostic experiences of a sample of children in the United States diagnosed with attention-deficit/hyperactivity disorder (ADHD) as of 2011-2012.

DATA SOURCES: Data were drawn from the 2014 National Survey of the Diagnosis and Treatment of Attention-Deficit/Hyperactivity Disorder and Tourette Syndrome, a follow-up to the 2011-2012 National Survey of Children's Health.

RESULTS: The median age at which children with ADHD were first diagnosed with the disorder was 7 years; one-third were diagnosed before age 6. Children with ADHD were diagnosed by a wide variety of health care providers, including primary care physicians and specialists. Regardless of age at diagnosis, the majority of children (53.1%) were first diagnosed by primary care physicians. Notable differences were found by age at diagnosis for two types of specialists. Children diagnosed before age 6 were more likely to have been diagnosed by a psychiatrist, and those diagnosed at ages 6 and over were more likely to have been diagnosed by a psychologist. Among children diagnosed with ADHD, the initial concern about a child's behavior was most commonly expressed by a family member (64.7%), but someone from school or daycare first expressed concern for about one-third of children later diagnosed with ADHD (30.1%). For approximately one out of five children (18.1%), only family members provided information to the child's doctor during the ADHD assessment

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Neurochem Int. 2015 Mar;82:52-68.

DOES SEROTONIN DEFICIT MEDIATE SUSCEPTIBILITY TO ADHD?

Banerjee E, Nandagopal K.

The onset of attention-deficit-hyperactivity-disorder (ADHD) in childhood is characterized by developmentally inappropriate levels of hyperactivity, impulsivity and inattention. A chronic deficit of serotonin (5-HT) at the synapse may trigger symptoms of ADHD. This review focuses on neuro-anatomical, experimental and clinical pharmacological evidence, as well as the genetic underpinnings of serotonergic involvement in the etiology of ADHD. Neuro-anatomical investigations suggest that serotonin through the orbitofrontal-striatal circuitry may regulate behavioral domains of hyperactivity and impulsivity in ADHD. Studies from animal models of ADHD indicate intimate interplay between 5-HT and dopaminergic neurotransmission. Selective serotonin re-uptake inhibitors, as also non-stimulant drugs acting on the 5-HT system are, however, clinically effective. They impart less severe side effects in patients with no risk of addiction. Oral administration of l-tryptophan, the amino acid precursor of 5-HT, significantly alleviates ADHD symptoms. Given the multifactorial nature of ADHD, candidate gene and genome-wide association studies have suggested that serotonergic gene variants are associated with increased risk of ADHD with each locus individually exerting a modest effect on overall risk

Neuropsychiatr Enfance Adolesc. 2015;63:463-67.

IS NEUROFEEDBACK AN EFFICACIOUS TREATMENT FOR ATTENTION-DEFICIT/HYPERACTIVITY DISORDER IN CHILDREN? FROM RIGOROUS STUDIES TO CLINICAL GOOD PRACTICE.

Micoulaud-Franchi J-A, Lopez R, Bioulac S, et al.

Background: Neurofeedback, based on the concept of creating a retroactive psychophysiological loop, has advantages compared with other cognitive therapeutic techniques in the treatment of children with attention-deficit/hyperactivity disorder (ADHD). However, although this technique has been used for almost 20. years in ADHD, the level of evidence for its efficacy remains debated. This debate has recently been brought into focus in the literature following a published meta-analysis.

Aims: This article aims to review and classify existing literature on the efficacy of neurofeedback in ADHD.

Methods: Publications were identified through a literature search of the electronic database PubMed using the Medical Subject Headings (Mesh) terms "Neurofeedback" and "Attention-Deficit/Hyperactivity Disorder". All relevant papers published in English or French were reviewed by the authors. These were separated into 2. groups: published before and after 2011.

Results: Prior to 2011, studies are characterized by low sample size and are often non-randomized and uncontrolled. In addition these are most often performed by practitioners who participated in the development of the first neurofeedback equipment and who have electrophysiological expertise, essential for effective training during sessions. In 2009 Arns et al. published the first meta-analysis on the efficacy of neurofeedback in ADHD. They found a large effect size, 1.02 (0.84 to 1.21) and 0.94 (0.76 to 1.12) respectively for the inattention and impulsivity dimensions, and a moderate effect size of 0.71 (0.54 to 0.87) on the hyperactivity dimension. Improved inattention dimension was proportional to the number of sessions and maintained in randomized trials, which was not the case for the hyperactivity dimension. After 2011, studies are characterized by larger samples, and methodology including randomized, controlled trials and blinded assessments. In 2013, Sonuga-Barke et al. published the second meta-analysis on the efficacy of neurofeedback in ADHD (Am J Psych). They found a smaller effect size of 0.59 (0.31 to 0.87) compared to the first meta-analysis of 2009. The effectiveness of neurofeedback was not confirmed in studies with blinded assessment. The effect size was 0.29 (-0.02 to 0.61) (. P=. 0.07; NS). However the effectiveness of the training during neurofeedback sessions in some of the included studies has been called into question.

Conclusion: Methodological issues are likely to have a large impact on results obtained in studies of neurofeedback. Thus, it is critical that future trials implement adequately randomized, controlled, blinded designs that do not compromise the quality of neurofeedback session itself

Neurosci Lett. 2015 Aug;603:25-30.

THETA-PHASE GAMMA-AMPLITUDE COUPLING AS A NEUROPHYSIOLOGICAL MARKER OF ATTENTION DEFICIT/HYPERACTIVITY DISORDER IN CHILDREN.

Kim JW, Lee J, Kim BN, et al.

Theta-phase gamma-amplitude coupling (TGC) between slow and fast oscillations is considered to represent cortico-subcortical interactions. The purpose of this electroencephalographic (EEG) study was to evaluate the diagnostic utility of TGC by comparing the power spectra and TGC at rest between ADHD and control children. Nineteen-channel EEGs were recorded from 97 volunteers (including 53 subjects with ADHD attending a camp for hyperactive children). The EEG power spectra and TGC data were analyzed. Analysis of covariance (ANCOVA) was conducted on the quantitative EEG results between the groups to adjust for sex. Receiver operator characteristic (ROC) analysis was conducted to examine the discriminating ability of each parameter for ADHD diagnosis. The ADHD group exhibited significantly decreased TGC in multiple areas, including frontal (Fp1, F3, F7, F6), temporal (T3), and occipital (O2) areas, compared with the control group. The ROC analysis performed on the TGC data generated the most accurate result among the EEG measures, with an overall classification accuracy of 71.7%. TGC, which reflects the degree of neuronal interactions between functional systems, provides information about an individual's attentional network. Therefore, resting-state TGC is a promising neurophysiological marker of ADHD in children

Neurosci Lett. 2015 Sep;604:188-92.

ASSOCIATION OF ADULT ATTENTION DEFICIT HYPERACTIVITY DISORDER SUBTYPES AND RESPONSE TO METHYLPHENIDATE HCL TREATMENT: A MAGNETIC RESONANCE SPECTROSCOPY STUDY .

Unal GA, Kenar AN, Herken H, et al.

The effects of methylphenidate (MPH) treatment on N-acetyl aspartate (NAA), choline and creatine are being examined in individuals with different subtypes of attention deficit hyperactivity disorder (ADHD). Sixty ADHD subjects were included into the study aging between 18 and 60 years. Levels of NAA, creatine and choline in anterior cingulate cortex, cerebellum, striatum and dorsolateral prefrontal cortex were measured with magnetic resonance spectroscopy. Then, 10mg oral MPH was given to the subjects and the same metabolite levels were measured after an interval of 30min. Distribution of the patients according to the ADHD subtypes was as follows: 21 of them (35.0%) were in the inattentive type, 11 of them (18.3%) were in the hyperactive type and 28 of them were (46.7%) in the combined type. Changes of brain metabolite levels after MPH were found not to be statistically significantly different between the subtypes. The increase of choline levels after MPH compared to the levels of choline before MPH in striatum in the combined type patients were statistically significant. No clear association was found between ADHD subtypes and changes of brain metabolites with use of MPH in adult ADHD

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No To Hattatsu. 2015 Jul;47:272-78.

EFFECTIVENESS AND SAFETY OF LONG-TERM LEVETIRACETAM TREATMENT IN PATIENTS WITH REFRACTORY EPILEPSY.

Matsuo M, Fuji A, Matsuzaka T, et al.

OBJECTIVE: To evaluate the long-term effects and tolerability of levetiracetam (LEV) in refractory epilepsy.

METHODS: LEV was administered to 76 patients whose seizures were inadequately controlled by their current medications. The patients were followed for a minimum of 18 months but less than 2 years. The efficacy of LEV treatment was assessed retrospectively as the proportion of patients who experienced at least a 50% reduction in the frequency of seizures (50% RR), and adverse events were analyzed.

RESULTS: The 50% RR in all 76 patients was 42%. The 50% RRs in the 54 patients with localization-related epilepsy and in the 20 patients with generalized epilepsy were 42% and 35%, respectively. The patients who responded most remarkably to the therapy, with at least a 75% reduction in the frequency of seizures, were more often those with localization-related epilepsy. Among adverse events, irritability and hyperactivity/impulsivity were observed more frequently in this study than in previous reports. These events were observed predominantly in patients suffering from autism or attention deficit hyperactivity disorder (AD/HD) as a comorbidity. gamma-GTP values were improved in 14 of 17 patients whose values prior to beginning LEV treatment were higher than the normal range. This beneficial effect presumably resulted from a dose reduction or the discontinuation of other hepatotoxic antiepileptic drugs.

CONCLUSIONS: LEV was useful for the treatment of refractory epilepsy, and long-term efficacy was demonstrated. LEV also appeared to be less hepatotoxic. Behavioral changes should be monitored carefully when LEV is administered to patients with concomitant autism or AD/HD

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Nord J Psychiatry. 2015;1-7.

VALIDATION OF THE PARENT VERSION OF THE WORLD HEALTH ORGANIZATION ADULT ADHD SELF-REPORT SCALE FOR ADOLESCENTS.

Sjölander L, Vadlin S, Olofsdotter S, Sonnby K, et al.

OBJECTIVE: To investigate the validity of a parent version of the World Health Organization Adult Attention-Deficit/Hyperactivity Disorder (ADHD) Self-Report Scale for adolescents (ASRS-AP) and the 6-question screening version (ASRS-AP-S).

METHODS: Adolescent psychiatric outpatients (N = 112, mean age 15 years, 40% boys) and their parents were interviewed with the Kiddie Schedule of Affective Disorders and Schizophrenia (K-SADS), and the parents reported on the ASRS-AP/ASRS-AP-S.

RESULTS: Internal consistency (Cronbach's alpha) was 0.93 for ASRS-AP and 0.85 for ASRS-AP-S, 0.91 and 0.87 for the inattention subscale, and 0.91 and 0.72 for the hyperactivity subscale, respectively. The concurrent validity (Spearman's correlation coefficient) between the total K-SADS ADHD symptom severity score and the sum of the score on the ASRS-AP/ASRS-AP-S was 0.75 and 0.66, respectively. Diagnostic accuracy measures for the ASRS-AP and ASRS-AP-S were 78% and 80% sensitivity, 75% and 74% specificity, 73% and 71% positive predictive value (PPV), and 81% and 82% negative predictive value (NPV), respectively.

CONCLUSIONS: The ASRS-AP and ASRS-AP-S showed high internal consistency and concurrent validity in relation to total K-SADS ADHD symptom severity score. Both scales showed favourable diagnostic accuracy measures

Nutrients. 2015;7:9931-45.

A RANDOMIZED CONTROLLED TRIAL INVESTIGATING THE EFFECTS OF A SPECIAL EXTRACT OF BACOPA MONNIERI (CDRI 08) ON HYPERACTIVITY AND INATTENTION IN MALE CHILDREN AND ADOLESCENTS: BACHI STUDY PROTOCOL (ANZCTRN12612000827831).

Kean JD, Kaufman J, Lomas J, et al.

Clinical diagnoses of Attention Deficit Hyperactivity Disorder (ADHD) and the use of prescription medications for its treatment have increased in recent years. Current treatments may involve the administration of amphetamine-type substances, a treatment path many parents are apprehensive to take. Therefore, alternative pharmacological treatments are required. Few nutritional or pharmacological alternatives that reduce ADHD associated symptoms (hyperactivity and inattention) have been subjected to rigorous clinical trials. Bacopa monnieri is a perennial creeping herb. CDRI 08 is a special extract of Bacopa monnieri which has been subjected to hundreds of scientific studies and has been shown in human randomized controlled trials (RCTs) to improve memory, attention, and mood. It is hypothesised that chronic administration of CDRI 08 will improve attention, concentration and behaviour in children with high levels of hyperactivity and/or inattention. This paper reports the protocol for the first 16-week, randomized, placebo-controlled, double-blind, parallel groups trial examining the efficacy and safety of CDRI 08 in male children aged 6-14 years with high levels of inattention and hyperactivity. The primary outcome variable will be the level of hyperactivity and inattention measured by the Conners' Parent Rating Scale (CPRS). Secondary outcome variables include cognition, mood, sleep, and EEG.

TRIAL REGISTRATION: Australia and New Zealand Clinical Trials Register (ANZCTR): ACTRN12612000827831

Pediatrics. 2015;136:1144-53.

STIMULANT MEDICATIONS AND SLEEP FOR YOUTH WITH ADHD: A META-ANALYSIS.

Kidwell KM, Van Dyk TR, Lundahl A, et al.

CONTEXT: Mixed findings exist on whether stimulant medications alter youth sleep.

OBJECTIVE: To determine the effect of stimulant medications on sleep. **DATA STUDIES:** Studies published through March 2015 were collected via CINAHL, PsycINFO, and PubMed. References of retrieved articles were reviewed.

STUDY SELECTION: Eligibility criteria included studies with children/adolescents who had attention-deficit/hyperactivity disorder (ADHD), random assignment to stimulants, and objective sleep measurement. Studies that did not include information about key variables were excluded.

DATA EXTRACTION: Study-level, child-level, and sleep data were extracted by 2 independent coders. Effect sizes were calculated by using random effects models. Potential moderators were examined by using mixed effect models. **RESULTS:** A total of 9 articles (N = 246) were included. For sleep latency, the adjusted effect size (0.54) was significant, indicating that stimulants produce longer sleep latencies. Frequency of dose per day was a significant moderator. For sleep efficiency, the adjusted effect size (20.32) was significant. Significant moderators included length of time on medication, number of nights of sleep assessed,

polysomnography/actigraphy, and gender. Specifically, the effect of medication was less evident when youth were taking medication longer. For total sleep time, the effect size (20.59) was significant, such that stimulants led to shorter sleep duration.

LIMITATIONS: Limitations include few studies, limited methodologic variability, and lack of unpublished studies.

CONCLUSIONS: Stimulant medication led to longer sleep latency, worse sleep efficiency, and shorter sleep duration. Overall, youth had worse sleep on stimulant medications. It is recommended that pediatricians carefully monitor sleep problems and adjust treatment to promote optimal sleep

Pharmacoepidemiol Drug Saf. 2015.

IMPACT OF NEGATIVE MEDIA PUBLICITY ON ATTENTION-DEFICIT/HYPERACTIVITY DISORDER MEDICATION IN TAIWAN.

Wang L-J, Lee S-Y, Yuan S-S, et al.

Purpose: This study explores trends in attention-deficit/hyperactivity disorder (ADHD) medications in Taiwan from 2000 to 2011 and whether negative media coverage of Ritalin in January 2010 impacted ADHD prescriptions throughout the country.

Method: Patients throughout Taiwan who had been newly diagnosed with ADHD (n=145,269) between January 2000 and December 2011 were selected from Taiwan's National Health Insurance database as subjects for this study. We analyzed monthly and yearly data on person-days of treatment with immediate-release methylphenidate (IR-MPH), osmotic controlled-release formulation of methylphenidate (OROS-MPH), and atomoxetine (ATX) using linear models of curve estimation and the time series expert modeler.

Results: Of our sample, 57.8%, 28.9%, and 4.3% had been prescribed one or more doses of IR-MPH, OROS-MPH, or ATX, respectively. The annual person-days of IR-MPH use increased regularly from 2000 to 2009, dropped abruptly in 2010, and then increased again the next year. Furthermore, the person-days of OROS-MPH prescriptions did not reach their expected goal in 2010; however, the person-days of ATX prescriptions have increased constantly since entering the market in 2007. Compared with patients newly diagnosed with ADHD in 2009, those newly diagnosed in 2010 were less likely to be treated with medication.

Conclusion: These findings suggest that negative publicity affected the writing of stimulant prescriptions for ADHD patients throughout Taiwan. Media reporting has a vital role in influencing children with ADHD, their parents, and their willingness to accept pharmacotherapy as treatment

Physiol Res. 2014;63 Suppl 4:S509-S519.

ATTENTION DEFICIT/HYPERACTIVITY DISORDER (ADHD) IS ASSOCIATED WITH ALTERED HEART RATE ASYMMETRY.

Tonhajzerova I, Ondrejka I, Farsky I, et al.

Attention deficit/hyperactivity disorder (ADHD) is associated with complex neurocardiac integrity. We aimed to study heart rate time asymmetry as a nonlinear qualitative feature of heart rate variability indicating complexity of cardiac autonomic control at rest and in response to physiological stress (orthostasis) in children suffering from ADHD. Twenty boys with ADHD and 20 healthy age-matched boys at the age of 8 to 12 years were examined. The continuous ECG was recorded in a supine position and during postural change from lying to standing (orthostasis). Time irreversibility indices - Porta's (P%), Guzik's (G%) and Ehlers' (E) - were evaluated. Our analysis showed significantly reduced heart rate asymmetry indices at rest (P%: 49.8 % vs. 52.2 %; G%: 50.2 % vs. 53.2 %; p<0.02), and in response to orthostatic load (P%: 52.4 % vs. 54.5 %, G%: 52.3 % vs. 54.5 %; p<0.05) associated with tachycardia in ADHD children compared to controls. Concluding, our study firstly revealed the altered heart rate asymmetry pattern in children suffering from ADHD at rest as well as in response to posture change from lying to standing (orthostasis). These findings might reflect an abnormal complex cardiac regulatory system as a potential mechanism leading to later cardiac adverse outcomes in ADHD

PLoS ONE. 2015;10.

VITAMIN D STATUS AT BIRTH AND FUTURE RISK OF ATTENTION DEFICIT/HYPERACTIVITY DISORDER (ADHD).

Gustafsson P, Rylander L, Lindh CH, et al.

Objective To investigate whether children with Attention Deficit/Hyperactivity Disorder have lower levels of Vitamin D3 at birth than matched controls.

Material Umbilical cord blood samples collected at birth from 202 children later diagnosed with Attention Deficit/Hyperactivity Disorder were analysed for vitamin D content and compared with 202 matched controls. 25-OH vitamin D3 was analysed by liquid chromatography tandem mass spectrometry.

Results No differences in cord blood vitamin D concentration were found between children with Attention Deficit/Hyperactivity Disorder (median 13.0 ng/ml) and controls (median 13.5 ng/ml) ($p = 0.43$). In a logistic regression analysis, Attention Deficit/Hyperactivity Disorder showed a significant association with maternal age (odds ratio: 0.96, 95% confidence interval: 0.92-0.99) but not with vitamin D levels (odds ratio: 0.99, 95% confidence interval: 0.97-1.02).

Conclusion We found no difference in intrauterine vitamin D levels between children later developing Attention Deficit/Hyperactivity Disorder and matched control children. However, the statistical power of the study was too weak to detect an eventual small to medium size association between vitamin D levels and Attention Deficit/Hyperactivity Disorder

Psychiatr Danub. 2015 Sep;27 Suppl 1:S530-S532.

TRANSCRANIAL MAGNETIC STIMULATION (TMS) IN ATTENTION DEFICIT HYPERACTIVITY DISORDER (ADHD).

Zaman R.

Attention Deficit Hyperactivity Disorder (ADHD) is a common neuropsychiatric disorder, which affects children as well as adults and leads to significant impairment in educational, social and occupational functioning and has associated personal and societal costs. Whilst there are effective medications (mostly stimulants) as well as some psychobehavioural treatments that help alleviate symptoms of ADHD, there is still need to improve our understanding of its neurobiology as well as explore other treatment options. Transcranial Magnetic Stimulation (TMS) and repetitive transcranial magnetic stimulation (rTMS) are safe and non-invasive investigative and therapeutic tools respectively. In this short article, I will explore their potential for improving our understanding of the neurobiology of ADHD as well consider its as a possible treatment option

Psychiatry Res. 2015 May;227:52-57.

PREVALENCE AND COMORBIDITY OF EATING DISORDERS AMONG A COMMUNITY SAMPLE OF ADOLESCENTS: 2-YEAR FOLLOW-UP.

Rojo-Moreno L, Arribas P, Plumed J, et al.

The previous literature about comorbidity between eating disorders (ED) and other DSM-IV psychiatric disorders in adolescence has employed cross-sectional studies with clinical samples, where the comorbid disorders were diagnosed retrospectively. The present study aims to overcome these limitations by the analysis of comorbidity in a community population during 2-year follow-up. A semi-structured interview was applied to a teenager sample. Firstly, a cross-sectional and non-randomized study on psychiatric morbidity was conducted with 993 teenagers between the ages of 12 and 16 from five schools. Secondly, 326 students between 14 and 17 years old of one school were reassessed 2 years later in order to detect ED new cases and find associations with previous psychiatric disorders. The ED prevalence was 3.6%. Cross-sectional analysis revealed that 62.9% of individuals with an ED had comorbid disorders: anxiety disorders (51.4%), Attention Deficit Hyperactivity Disorder (31.4%), oppositional defiant disorder (11.4%), and obsessive compulsive disorder (8.6%). Prospective longitudinal analysis showed an ED incidence rate of 2.76% over the course of 2 years. 22.2% of new cases had received previous psychiatric diagnoses, of which all were

anxiety disorders. Thus, ED exhibited a high comorbidity rate among adolescent populations and anxiety disorders were the most common comorbid diagnosis

Psychiatry Res. 2015 Jun;227:290-95.

A MULTIDIMENSIONAL APPROACH OF IMPULSIVITY IN ADULT ATTENTION DEFICIT HYPERACTIVITY DISORDER.

Lopez R, Dauvilliers Y, Jaussent I, et al.

We aimed to compare adult patients with attention deficit hyperactivity disorder (ADHD) and matched controls on four dimensions of impulsivity (urgency, lack of premeditation, lack of perseverance, and sensation seeking) and to examine the association between impulsivity and ADHD symptoms. The study was conducted on 219 participants: 72 adult ADHD patients and 147 aged and gender matched controls. All participants completed questionnaires measuring the various facets of impulsivity (UPPS Impulsive Behavior Scale), ADHD and depressive symptoms severity. Patients were also assessed for ADHD subtypes, mood disorders, and addictive behaviors. ADHD patients exhibited higher urgency, lower premeditation and lower perseverance in comparison to controls. Lack of perseverance showed the strongest association with ADHD (area under curve=0.95). Patients with combined inattentive and hyperactive/impulsive subtypes reported more frequently substance abuse problems and had higher scores on urgency and sensation seeking dimensions of impulsivity than those with predominantly inattentive subtype. We report for the first time a multidimensional evaluation of impulsivity in adult ADHD patients. The UPPS Impulsive Behavior Scale may constitute a useful screening tool for ADHD in adults and may help to further understanding the psychological mechanisms underlying the differences between the ADHD subgroups

Res Dev Disabil. 2015 Mar;38:161-70.

ELABORATION, VALIDATION AND STANDARDIZATION OF THE FIVE TO FIFTEEN (FTF) QUESTIONNAIRE IN A DANISH POPULATION SAMPLE.

Lambek R, Trillingsgaard A.

The five to fifteen (FTF) is a parent questionnaire developed to assess ADHD, its common comorbid conditions and associated problems in children and adolescents. The present study examined (1) the psychometric properties of scores on the new teacher version of the FTF, (2) competing models of the FTF subdomain structure and (3) the psychometric properties and utility of scores on the newly developed FTF impact questions. Parents (n=4258) and teachers (n=1298) of Danish children and adolescents (ages 5 to 17 years), selected using simple random sampling, completed the FTF. In the largest study of the FTF to date, parent and teacher scores had acceptable psychometric properties. The FTF subdomains were organized into six domains labelled cognitive skills, motor/perception, emotion/socialization/behaviour, attention, literacy skills and activity control and analysis of these domains may provide additional information when applying the FTF in the future. The impact questions yielded information above and beyond that provided by symptom count alone and appeared to increase the ability of the FTF to identify at risk children and adolescents

Res Autism Spectr Disord. 2016;23:28-35.

THE IMPACT OF ATTENTION DEFICIT/HYPERACTIVITY DISORDER ON ADAPTIVE FUNCTIONING IN CHILDREN DIAGNOSED LATE WITH AUTISM SPECTRUM DISORDER - A COMPARATIVE ANALYSIS.

Magnúsdóttira K, Saemundsen E, Einarsson BL, et al.

This study investigated the relationship between ASD, ADHD and adaptive behavior in children aged 7-17 years at the time of their first ASD diagnosis. Results showed that 68.1% of the participants had a clinical diagnosis of ADHD in addition to ASD. A hypothesis of an additive negative effect of ADHD on adaptive behavior of children with ASD was partly supported. When controlling for age, gender, IQ, and autistic symptoms, communication was the only adaptive behavior domain that remained significant. Further

analyses of the data showed that this effect was limited to high functioning boys (IQ \geq 80). The reasons why ADHD did not impinge on the adaptive behavior of low functioning boys and low and high functioning girls are discussed

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Res Dev Disabil. 2016;49-50:205-15.

COMPARISON OF CHANGE DETECTION PERFORMANCE AND VISUAL SEARCH PATTERNS AMONG CHILDREN WITH/WITHOUT ADHD: EVIDENCE FROM EYE MOVEMENTS.

Türkan BN, Amado S, Ercan ES, et al.

Background: ADHD participants showed poorer change detection performance compared to participants without any diagnosis. The difficulty to detect changes in ADHD children might be due to their voluntary eye movement control and attentional deficits.

Aims: To evaluate change detection performance and visual search patterns of children with ADHD and compare their performances with typically developing (TD) children. Methods and procedures: 48 children (nADHD=24, nTD=24) participated (Mage=8 years, 10 months). Flicker paradigm was used to evaluate change detection performance, while eye movements were recorded during the experiment.

Results: Change detection accuracies of TD children were higher compared to ADHD children. TD groups made longer fixations on the changed area and their first fixation duration was also longer than ADHD children which showed that TD children had longer fixation maintenance than ADHD children.

Conclusions: The change detection performance, which is associated with visual attention and memory, was found to be worse in ADHD children than TD children and these children made shorter fixations on the changed area than TD children. The findings were found to be in line with the difficulty to sustain attention in ADHD children that is necessary for encoding the scene properties and goal-oriented behavior

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Res Dev Disabil. 2016;49-50:76-85.

FETAL CEREBRAL VENTRICULAR ATRIA WIDTH OF 8-10MM: A POSSIBLE PRENATAL RISK FACTOR FOR ADOLESCENT TREATED ATTENTION DEFICIT HYPERACTIVITY DISORDER (ADHD).

Kivilevitch Z, Gabis LV, Katorza E, et al.

The purpose of our research was to study the in-utero and long term post-natal outcome of fetal isolated cerebral ventricular atria width between 8 and 10. mm. We conducted a retrospective, observational, case-control study, of low risk pregnant women, between 1993 and 2001. One hundred and forty one fetuses with isolated cerebral ventricular atria width between 8 and 10. mm, corresponding to 2-4 standard deviations above the mean, and 309 controls, with atrial width below this level, were included for the analysis. Clinical data concerning pre and post-natal outcome was retrieved from computerized medical records. Matching of cases with controls was based on age, with a ratio of 2-3 controls per case. Statistical analysis included: T-test, Chi-Square, and Multiple Logistic Regression analysis. The study group was characterized by a predominance of male gender, left side involvement, and higher birth weight, compared to the control group. Long term post-natal follow-up at a mean age of 12.7 years (-1.9) demonstrated an adjusted odds ratio of 2.589 (95% CI 1.415-4.737, p=0.001), being diagnosed as Attention Deficit Hyperactivity Disorder (ADHD), and treated by Methylphenidate (Ritalin-«), during childhood, compared to the control group (23.6% and 10.0% respectively) (p=0.001). Cerebral atria width was an independent factor, controlled for the only two significant variants between groups, gender and weight over 90th centile. In conclusions, our preliminary results show that fetuses with prenatal finding of isolated cerebral ventricular atria width between 8 and 10. mm are more likely of being diagnosed and treated as ADHD during childhood

Span J Psychol. 2014;17:E100.

PSYCHOPATHOLOGICAL FACTORS THAT CAN INFLUENCE ACADEMIC ACHIEVEMENT IN EARLY ADOLESCENCE: A THREE-YEAR PROSPECTIVE STUDY.

Voltas N, Hernandez-Martinez C, Aparicio E, et al.

This three-phase prospective study investigated psychosocial factors predicting or associated with academic achievement. An initial sample of 1,514 school-age children was assessed with screening tools for emotional problems (Screen for Childhood Anxiety and Related Emotional Disorders; Leyton Obsessional Inventory-Child Version; Children's Depression Inventory). The following year, 562 subjects (risk group/without risk group) were re-assessed and attention deficit/hyperactivity disorder (ADHD) was assessed. Two years later, 242 subjects were followed, and their parents informed about their academic achievement. Results showed that early depression (phase 1 $B = -.130$, $p = .001$; phase 1 + phase 2 $B = -.187$, $p < .001$), persistent anxiety symptoms (phase 1 + phase 2 $B = -1.721$, $p = .018$), and ADHD were predictors of lower academic achievement (phase 1 + phase 2 $B = -3.415$, $p = .005$). However, some anxiety symptoms can improve academic achievement (Social phobia $B = .216$, $p = .018$; Generalized anxiety $B = .313$, $p < .001$). Socio-economic status (SES) was positively related to academic achievement. We can conclude that in the transition period to adolescence, school-health professionals and teachers need to consider the emotional issues of students to avoid unwanted academic outcomes

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Surgical Neurology International. 2014;5.

NEUROPSYCHIATRIC CHANGES FOLLOWING PENETRATING HEAD INJURY IN CHILDREN.

Badhiwala JH, Blackham JR, Bhardwaj RD.

Case Description: We report the case of a 12-year-old boy who suffered a penetrating head injury to the frontal lobes secondary to a self-inflicted gunshot wound, and experienced subsequent resolution of pre-existing bipolar disorder and new onset of attention deficit hyperactivity disorder

Conclusion: Children with penetrating head injury require close multidisciplinary follow-up in order to monitor, and accordingly implement management strategies, for associated sequelae, including behavioral and neuropsychiatric changes

Background: Penetrating head injuries demand the prompt attention of a neurosurgeon. While most neurosurgical centers are experienced in the acute management of these injuries, less is known about the long-term neuropsychiatric sequelae of penetrating head trauma. In adults, direct injury to the frontal lobe classically has been associated with mental status changes. However, there is less published data in children

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Trends in Psychiatry and Psychotherapy. 2015;37:157-60.

ATTENTION DEFICIT HYPERACTIVITY DISORDER IS AN INDEPENDENT RISK FACTOR FOR LOWER RESILIENCE IN ADOLESCENTS: A PILOT STUDY.

Regalla MA, Guilherme P, Aguilera P, et al.

Objective: Attention deficit hyperactivity disorder (ADHD) is associated with impaired daily functioning in a wide range of domains. Resilience, the ability to overcome and recover from challenges, has been scarcely investigated in ADHD and could potentially provide novel strategies for treatment. However, since ADHD is often comorbid with other clinical conditions, it is necessary to better understand if it impairs resilience levels when controlled for other variables. This pilot study is the first to investigate the correlation between quantitative measures of resilience and ADHD using strict diagnostic criteria by controlling this correlation for comorbid conditions.

Methods: Twelve adolescents diagnosed with ADHD via semi-structured interview using Diagnostic and Statistical Manual of Mental Disorders, 4th edition (DSM-IV) were compared to 12 adolescents exhibiting typical development, regarding resilience, in an analysis controlled for anxiety and depression levels, socioeconomic status, and intelligence quotient (IQ).

Results: The ADHD group was less resilient than the control group ($p < 0.01$). Importantly, resilience in the ADHD group was not correlated with depression or anxiety, age, intelligence level, and socioeconomic status.

Conclusions: ADHD seems to be associated with lower resilience, which cannot be explained by depression, anxiety, intelligence level, age, or socioeconomic status

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Value Health. 2015;18:A837.

EVIDENCE OF EFFICACY AND SAFETY OF METHYLPHENIDATE IN THE TREATMENT OF CHILDREN OR ADOLESCENTS WITH ATTENTION DEFICIT DISORDER AND HYPERACTIVITY (ADHD).

Leite BF, Vidal JS, Silva AS, et al.

OBJECTIVES: To evaluate the efficacy and safety of methylphenidate compared to other pharmacological alternatives or placebo in the treatment of ADHD.

METHODS: Health technology assessments (HTA), randomized clinical trials (RCT) or systematic reviews (SR) of RCT were systematically researched. Inclusion criteria were placebo or pharmacological intervention as comparators, and children or adolescents as population. Studies about different dosis or presentations of methylphenidate were also selected.

RESULTS: One ECR, four SR and two HTA were selected comparing methylphenidate to placebo, atomoxetine, bupirone, dexamphetamine. Methylphenidate was superior to placebo in the index of hyperactivity detected by parents and teachers, behavior during the execution of tasks, productivity in classroom and in precision of the activities. Response rates to treatment and abandonment were better as compared to atomoxetine. Compared to bupirone, methylphenidate was shown to be more effective in reducing the symptoms of ADHD. Benefits of methylphenidate on dexamphetamine are inconclusive. Low dose methylphenidate was superior to high dose in behavior improvement on the execution of tasks. There was no difference between long and short acting presentations. Regarding security: anorexia, insomnia, migraines, stomach pain and dizziness were often associated with methylphenidate.

CONCLUSIONS: Primary studies showed methodological limitations such as low quality, short follow up and low capacity of generalization. The evaluation of the results should be cautious. It is necessary to find a balance between benefits and risks before starting the administration of methylphenidate in children and adolescents, especially in long-term treatments

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World J Biol Psychiatry. 2014;1-12.

AGE-DEPENDENT AND -INDEPENDENT CHANGES IN ATTENTION-DEFICIT/HYPERACTIVITY DISORDER (ADHD) DURING SPATIAL WORKING MEMORY PERFORMANCE.

Bollmann S, Ghisleni C, Poil S-S, et al.

Objectives: Attention-deficit/hyperactivity disorder (ADHD) has been associated with spatial working memory as well as frontostriatal core deficits. However, it is still unclear how the link between these frontostriatal deficits and working memory function in ADHD differs in children and adults. This study examined spatial working memory in adults and children with ADHD, focussing on identifying regions demonstrating age-invariant or age-dependent abnormalities.

Methods: We used functional magnetic resonance imaging to examine a group of 26 children and 35 adults to study load manipulated spatial working memory in patients and controls.

Results: In comparison to healthy controls, patients demonstrated reduced positive parietal and frontostriatal load effects, i.e., less increase in brain activity from low to high load, despite similar task performance. In addition, younger patients showed negative load effects, i.e., a decrease in brain activity from low to high load, in medial prefrontal regions. Load effect differences between ADHD and controls that differed between age groups were found predominantly in prefrontal regions. Age-invariant load effect differences occurred predominantly in frontostriatal regions.

Conclusions: The age-dependent deviations support the role of prefrontal maturation and compensation in ADHD, while the age-invariant alterations observed in frontostriatal regions provide further evidence that these regions reflect a core pathophysiology in ADHD

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World J Biol Psychiatry. 2015;16:619-24.

COMBINED METHYLPHENIDATE AND ATOMOXETINE PHARMACOTHERAPY IN ATTENTION DEFICIT HYPERACTIVITY DISORDER.

Ozbaran B, Kose S, Yuzuguldu O, et al.

Objectives. Pharmacological treatment of attention deficit hyperactivity disorder (ADHD) includes stimulant and non-stimulant medications. Our purpose in this study is to investigate efficacy, safety and tolerability of combined methylphenidate and atomoxetine pharmacotherapy.

Methods. We included 12 patients of the 824 patients with ADHD using methylphenidate and atomoxetine combined therapy between the years 2010 and 2014. Kiddie-SADS, Turgay DSM-IV Based Child and Adolescent Behavior Disorders Screening and Rating Scale, Child Behavior Checklist, Clinic Global Impression Scale Severity and Impression (CGIS-S-I) scales were used.

Results. Patients were between the ages of 7 and 17 years. Before combined pharmacotherapy the CGIS-S score mean was 5.08. Mean CGIS-S score after the combined pharmacotherapy was 3.08 ($P = 0.03$; $-2,980$). The most common side effects were irritability ($n = 5$, 41.6%), appetite reduction ($n = 3$, 25%), palpitations ($n = 2$, 16.7%), headache ($n = 1$, 8.3%).

Conclusions. Nine of these 12 patients showed significant improvement in their symptoms, combined therapy enhanced the effectiveness of monotherapy

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World J Biol Psychiatry. 2015.

ETHNIC DIFFERENCES IN COMT GENETIC EFFECTS ON STRIATAL GREY MATTER ALTERATIONS ASSOCIATED WITH CHILDHOOD ADHD: A VOXEL-BASED MORPHOMETRY STUDY IN A JAPANESE SAMPLE.

Shimada K, Fujisawa TX, Takiguchi S, et al .

Objectives: Attention deficit/hyperactivity disorder (ADHD) is associated with deficits in the dopaminergic fronto-striatal systems mediating higher-level cognitive functions. We hypothesised that a dopamine-regulating gene, catechol-O-methyltransferase (COMT), would have differential effects on the neural systems of different ethnic samples with ADHD. In Caucasian children with ADHD, the COMT Val-homozygotes have been previously shown to be associated with striatal grey matter volume (GMV) alterations. By using voxel-based morphometry, we examined whether Asian children with ADHD would exhibit a pattern opposite to that found in Caucasian samples.

Methods: Structural brain images were obtained for Japanese children with ADHD ($n = 17$; mean age = 10.3 years) and typically developing (TD) children ($n = 15$; mean age = 12.8 years). COMT Val158Met genotype data were also obtained for the ADHD group.

Results: Reduced GMV in the left striatum was observed in the ADHD group versus the TD group. This reduced GMV was modulated by COMT polymorphism; Met-carriers exhibited smaller striatal GMV than the Val/Val genotype.

Conclusions: Contrasting with previous findings in Caucasians, the COMT Met allele was associated with striatal GMV alterations in Japanese children with ADHD. These results suggest the existence of ethnic differences in the COMT genetic effect on ADHD-related striatal abnormalities.

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Z Kinder- Jugendpsychiatr Psychother. 2015;43:425-31.

EXPRESSED EMOTION, MOTHER-CHILD RELATIONSHIP, AND ADHD SYMPTOMS IN PRESCHOOL - A STUDY ON THE VALIDITY OF THE GERMAN PRESCHOOL FIVE MINUTE SPEECH SAMPLE.

Schloß S, Schramm M, Christiansen H, et al.

An inadequate parent-child relationship with hostility, low warmth, and a lack of responsiveness/sensitivity on the part of the primary caregiver often accompanies a child's externalizing disorders and predicts a negative developmental course. The Preschool Five Minute Speech Sample (PFMSS) was developed to enable an economic assessment of components of an inadequate parent-child relationship. In this article we investigate aspects of the validity of the German version of the PFMSS. We analyze whether the PFMSS scales are associated with observed maternal sensitivity, symptoms of attention deficit-/hyperactivity disorder (ADHD), oppositional defiant disorder (ODD), and maternal depressive symptoms. The sample consists of n

= 114 families with 4- to 5-year-old children, whereof n = 65 (57%) show heightened ADHD-symptoms. The families were recruited from local kindergartens. Maternal sensitivity was assessed by observing the mother-child interaction at home. ADHD, ODD, and maternal depressive symptoms were measured by clinical interviews and questionnaires. Most of the PFMSS scales showed the expected associations with maternal sensitivity, ADHD, and ODD symptoms of the child. The German PFMSS thus validly captures significant components of an inadequate mother-child relationship within the context of preschool externalizing behavior problems

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Zhen Ci Yan Jiu. 2015 Aug;40:319-25.

A META-ANALYSIS ON ACUPUNCTURE TREATMENT OF ATTENTION DEFICIT/HYPERACTIVITY DISORDER.

Ni XQ, Zhang JY, Han XM, et al.

OBJECTIVE: To assess the efficacy and safety of acupuncture in treating attention-deficit/hyperactivity disorder (ADHD) children.

METHODS: A literature search was conducted to retrieve randomized controlled clinical trials of acupuncture in treating ADHD covering the period of the years of establishment of the databases to January 2014 from database of CBM, CNKI, PubMed, Cochrane Library by using key words "attention deficit hyperactivity disorder" "hyperactivity" "minimal brain dysfunction" "acupuncture". Two independent researchers extracted data from located articles in a pre-defined structured way, and consulted the third researcher if necessary.

RESULTS: Thirteen original trials including 1 304 cases of children with ADHD were obtained in this study according to our included criteria and excluded criteria. In these trials, acupuncture intervention alone, or acupuncture plus pharmacotherapy (methylphenidate, haloperidol) or acupuncture plus behavioral therapy were compared with simple pharmacotherapy or behavioral therapy alone. Results of Meta-analysis indicated that the total effective rate and Conners' index of hyperactivity (CIH) score-reduction rate in the acupuncture group were significantly superior to those of the other treatment groups [OR = 2.22, 95% CI (1.65, 3.00), Z = 5.22, P < 0.00001] [SMD = -0.94, 95% CI (-1.41, -0.47), Z = 3.89, P < 0.0001]. Acupuncture treatment is more effective than haloperidol in reducing the score of Conners' Rating Scale for ADHD [SMD = -7.28, 95% CI (-8.32, -6.23), Z = 13.62, P < 0.00001]. Acupuncture is similarly effective as Methylphenidate (Ritalin) in improving the Chinese medicine syndrome (liver-kidney yin hypoactivity) of children with ADHD [SMD = -1.14, 95% CI (-2.53, 0.25), Z = 1.60, P = 0.11]. Less severe adverse effects were reported with acupuncture therapy than the pharmacotherapy (poor appetite, dry mouth, nausea and constipation). These effects were not likely due to publication bias (approximately symmetry funnel plot, Egger's test P > 0.1).

CONCLUSION: Acupuncture is an effective and safe therapy in treating ADHD, combined administration of acupuncture and pharmacotherapy or behavioral therapy is more effective than the pharmacotherapy or behavioral therapy alone. However, more rigorously designed and high-quality RCTs are needed to confirm the above conclusion

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Phenotypic Variability in Developmental Coordination Disorder: Clustering of Generalized Joint Hypermobility With Attention Deficit/hyperactivity Disorder, Atypical Swallowing and Narrative Difficulties

CLAUDIA CELLETTI, GIORGIA MARI, GIULIA Ghibellini, MAURO CELLI, MARCO CASTORI, AND FILIPPO CAMEROTA

Developmental coordination disorder (DCD) is a recognized childhood disorder mostly characterized by motor coordination difficulties. Joint hypermobility syndrome, alternatively termed Ehlers–Danlos syndrome, hypermobility type (JHS/EDS-HT), is a hereditary connective tissue disorder mainly featuring generalized joint hypermobility (gJHM), musculoskeletal pain, and minor skin features. Although these two conditions seem apparently unrelated, recent evidence highlights a high rate of motor and coordination findings in children with gJHM or JHS/EDS-HT. Here, we investigated the prevalence of gJHM in 41 Italian children with DCD in order to check for the existence of recognizable phenotypic subgroups of DCD in relation to the presence/absence of gJHM. All patients were screened for Beighton score and a set of neuropsychological tests for motor competences (Movement Assessment Battery for Children and Visual-Motor Integration tests), and language and learning difficulties (Linguistic Comprehension Test, Peabody Picture Vocabulary Test, Boston Naming Test, Bus Story Test, and Memoria-Training tests). All patients were also screened for selected JHS/EDS-HT-associated features and swallowing problems. Nineteen (46%) children showed gJHM and 22 (54%) did not. Children with DCD and gJHM showed a significant excess of frequent falls (95 vs. 18%), easy bruising (74 vs. 0%), motor impersistence (89 vs. 23%), sore hands for writing (53 vs. 9%), attention deficit/hyperactivity disorder (89 vs. 36%), constipation (53 vs. 0%), arthralgias/myalgias (58 vs. 4%), narrative difficulties (74 vs. 32%), and atypical swallowing (74 vs. 18%). This study confirms the non-causal association between DCD and gJHM, which, in turn, seems to increase the risk for non-random additional features. The excess of language, learning, and swallowing difficulties in patients with DCD and gJHM suggests a wider effect of lax tissues in the development of the nervous system. © 2015 Wiley Periodicals, Inc.

KEY WORDS: attention deficit/hyperactivity disorder; coordination; language; hypermobility; speech; swallowing

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INTRODUCTION

The term “development coordination disorder” (DCD) is used to define the selective impairment of development of motor coordination in children [Vaivre-Douret, 2014]. Synonyms of DCD include, but are not limited to congenital clumsiness, “motor debility” and developmental dyspraxia, the latter being the result of faulty maturational processes of the central nervous system during infancy and childhood [Vaivre-Douret, 2014]. According to the diagnostic and statistical manual of mental disorders (DCM-IV) [American Psychiatric Association, 2000], DCD is an exclusion diagnosis for perturbed fine and/or global motor coordination in the absence of any cognitive, neurological, and/or sensorial deficit. The overall prevalence of DCD is close to 6% in children with an excess of affected males [American Psychiatric Association, 2000]. Motor impairments include marked delay in achieving motor milestones, clumsiness, poor sensorimotor coordination, poor balance and handwriting and poor postural control, as well as difficulties in motor learning (acquiring and automatizing new movements), execution and ideation of motor planning, timing, and sequencing of movement [Geuze, 2005]. Thus far, the etiology of DCD remains unknown, despite many hypotheses that have been suggested to explain its neurodevelopmental pathogenesis.

Kirby and Davies [2007] observed functional similarities between children with DCD and those with joint hypermobility syndrome (JHS), a connective tissue disorder diagnosed according to the Brighton criteria [Grahame et al., 2000]. This observation prompted the authors to speculate on the multisystem nature of DCD. JHS, which is now considered clinically indistinguishable from Ehlers–Danlos syndrome, hypermobility type (JHS/EDS-HT) [Tinkle et al., 2009; Castori et al., 2014], presents manifestations that span clearly beyond the integumentary and articular systems [Castori, 2012]. The proposed link between connective tissue and DCD is also supported by the observation of a high prevalence of generalized

joint hypermobility (gJHM) in children with DCD [Jelsma et al., 2013]. These data corroborate what has been previously observed by Adib et al. [2005], who described clumsiness and poor coordination symptoms in 125 children with JHS. They also described speech and learning difficulties, as well as “dyspraxia” among these patients.

It is possible that the lack of recognition of a significant overlap between DCD, gJHM, and JHS/EDS-HT is due to the still widespread lack of prompt diagnosis of gJHM and related syndromes in specialized settings (i.e., among rheumatologists) [Grahame and Bird, 2001]. This is probably related to the absence of a consensus among specialists in using available diagnostic criteria for gJHM and JHS/EDS-HT [Remvig et al., 2014], as well as the absence of a reliable confirmatory test for JHS/EDS-HT [Mayer et al., 2013]. Hence, the non-random association between DCD, gJHM, and associated symptoms may represent a highly prevalent, still poorly defined, multisystem disorder in children, with unexpected consequences on various health and mental health determinants in adults.

In the short term, the early recognition of gJHM and related features may be useful for the assessment and management of the child with DCD under both the clinical and the rehabilitation perspectives. The aim of the present study is to assess the prevalence of gJHM in a group of 41 Italian children with DCD and to investigate possible phenotypic clustering in relation to additional findings, such as language disorders and learning impairments.

MATERIALS AND METHODS

From May 2012 to February 2013, 41 Italian children with DCD were assessed in a specialized setting including child neurologist, logopedist and physiatrist. The diagnosis of DCD was made according to DSM-IV [American Psychiatric Association, 2000]. Exclusion criteria were age <4 years, IQ <70 evaluated through the Wechsler Intelligence Scale for Children 4th Edition

(WISC-IV) [Wechsler, 2003], as well as the presence of any neurological, rheumatic, and metabolic disease.

Motor performance was evaluated using the Movement Assessment Battery for Children (M-ABC) test [Henderson and Sugden, 1992] and the Developmental Test of Visual–Motor Integration (VMI) test [Sutton et al., 2011]:

- M-ABC is a product-oriented, norm-referenced test designed for (a) identifying children aged 4–12 years with motor difficulties; (b) clinical exploration, intervention planning; (c) program evaluation; and (d) research. It consists of eight items grouped in three sections (manual dexterity, ball skills, and balance).
- VMI is commonly used to assess handwriting dysfunction in children. VMI is a standardized, norm-referenced test designed to assess visual–motor integration. VMI requires the child to copy a series of geometric designs. Child's performance is compared with standard criteria and reference designs and a score allocated according to the accuracy of the drawing.

All the children were first evaluated for gJHM, language disorders, and learning disabilities. gJHM was assessed with the Beighton score [Beighton et al., 1973] by two trained physiatrists. This score is composed of five maneuvers: four of them are tested passively on both sides of the body and one is tested actively. The passive extension of the metacarpophalangeal joint of the little finger, elbow, and knee were measured bilaterally. When the range of motion exceeds a specified range, 1 point is given. These points are summed and the score ranges from 0 to 9 (two times four joints and 1 point for hands flat on the floor with straight knees). According to the recommendation of van der Giessen, the cut-off point for hypermobility was ≥ 5 for children aged 3–9 years and ≥ 4 points for children aged older than 10 years [van der Giessen et al., 2001].

Language and learning difficulties were assessed using the Linguistic Comprehension Test (LCT) [Rustioni, 1994], The Peabody Picture Vocabulary Test (PPVT) [Dunn and Dunn, 1981], the Boston Naming Test (BNT) [Kaplan

et al., 1976] the Bus Story Test (BST) [Renfrew, 1969], and the Memoria-Training (MT) Test for the Assessment of reading and comprehension skills [Cornoldi and Colpo, 1998]:

- LCT is an Italian-specific and Italian-normed test of linguistic understanding; it is packaged in booklet form in a multiple-choice format, and is used to assess the understanding of grammatical contrasts in the Italian language. The child is shown a page with four picture choices and must select the picture that matches a spoken sentence. The test is administered in six different protocols depending on age, and the score is calculated as the sum of correct answers.
- PPVT measures an individual's receptive vocabulary for standard American English and provides, at the same time, a quick estimate of verbal ability or academic aptitude. It has been translated in Italian language [Stella et al., 2000]. The PPVT consists of 175 stimulus words and as many corresponding image plates. Each image plate contains four black-and-white drawings, one of which best represents the meaning of the corresponding stimulus word. The child listens to a word uttered by the interviewer and then selects one of four pictures that best describes the word's meaning.
- BNT is one of the most commonly used tests of confrontation naming. It requires subjects to provide the names of 85 drawn objects. The drawings cover a wide range of nouns, from those used very frequently (such as "house") to those that are used rarely (such as "yoke" and "hammock"). Subjects who cannot provide the correct name within 20 sec are given a semantic cue (for example, "a type of building" for "house"); if they are still unable to give the answer after additional 20 sec, they are given a phonemic cue (for example, "hou . . ." for "house"). A positive score is attributed to every correct answer given within the first 20 sec, as well as to those given after the semantic cue [Riva et al., 2000].
- BST [Renfrew, 1969], administered in the validated Italian version [Cipriani, 2012], tests the narrative skills of children in the age range between 3 years and

6 months and 8 years and 5 months. It consists of a "retelling" task: the child is asked to listen to a story and to rehearse it using verbal description and helped by pictures. For the purpose of the present study, the test was used only as a screening tool. Therefore, the result was expressed categorically as either "presence of narrative difficulties", when the child could not retell an intelligible version of the story, or "good narrative abilities".

- MT is a standardized battery of tests to assess reading and comprehension skills and was specifically designed for Italian school-age children [Cornoldi and Colpo, 1998]. MT Test consists of: (a) an evaluation of reading speed measured by the time needed to read a short passage compared with a standardized measure; (b) a test of accuracy of reading, as reflected by the number of reading errors made per passage; and (c) a text comprehension test based on the ability to provide correct answers to a defined set of questions following the reading of a short story [Levorato et al., 2004]. Owing to the lack of standardized Italian tests for the assessment of narrative skills in subjects older than 9, the subtest (c) was also used for this purpose in subjects older than 9 years, by asking them to retell a story. As with younger children receiving the BST, also in this case, subjects were categorized as having "narrative difficulties" or "good narrative abilities".

All children were also assessed by means of a custom-made questionnaire aimed to gather more in-depth information concerning different symptoms correlated with gJHM. In addition, the presence of attention deficit/hyperactivity disorder (ADHD) was checked according to DSM-IV [American Psychiatric Association, 2000]. The presence of atypical swallowing was also assessed: this condition is defined as a lingual pathological behavior, consisting of tongue pressure on the palatal and lingual surfaces of the teeth during swallowing [Melsen, 1979; Eslamian and Leilazpour, 2006].

Statistical analysis was conducted with the Medcalc software (Marienkerke, Belgium). Descriptive statistics were used for the characteristics of the samples. χ^2 test was performed to test for differences

in the frequency of symptoms between the groups. Correlation between variables was expressed by the Spearman's ranking-order-correlation coefficients. An α level of 5% was adopted for analysis.

RESULTS

Among the 41 children with DCD, 31 were boys and 10 girls (mean age 8 +/- 3 years). According to the Beighton score *cut-offs*, patients were subclassified in those with DCD and gJHM (i.e. DCD-H) and those with DCD but without gJHM (i.e., DCD-NH). Nineteen (46%) patients were identified as DCD-H and 22 (54%) as DCD-NH. Comparison among selected clinical characteristics between DCD-H and DCD-NH patients are summarized in Table I.

In summary, we found statistically significant differences between groups concerning frequent falls, bruising and prolonged bleeding, motor impersistence (defined as the inability to maintain a fixed posture), arthralgias and myalgias, intestinal constipation, sore hands from writing, and ADHD that further supported phenotypic clustering around gJHM in children with DCD.

In order to further scrutinize the relationship between gJHM, language disorders, and learning disabilities, a linear regression analysis was carried out and showed a positive correlation between Beighton score and ADHD ($r = 0.59$; $P = 0.01$), whereas no statistically significant correlation was observed between Beighton score and language disorders ($r = 0.027$; $P = 0.86$).

Based on the results in the speech comprehension and production test battery, patients with a language disorder were divided into three subcategories according to DSM-IV criteria:

- "expressive", when performance was inappropriate for age in the expressive language test (BNT) and comprehension skills were normal or only mildly delayed;
- "phonological", when they performed inappropriately for age in the PPVT test while scoring normal or mildly delayed for age in all the other tests;
- "receptive-expressive", if LCT and PPVT test scores were lower than the

TABLE I. Comparison for General Features Between the Hypermobile (DCD-H) and Non-Hypermobile (DCD-NH) Groups of Children with Developmental Coordination Disorder.

Feature	DCD-NH (Total = 22)	DCD-H (Total = 19)	P-value
Gender	M = (17) 77%; F = (5) 23%	M = 14) 73%; F = (5) 27%	0.92
Age	79 months (\pm 33 months)	87 months (\pm 33 months)	0.23
Cesarean delivery	1 (4%)	3 (16%)	0.495
Prematurity	1 (4%)	2 (10%)	0.895
Birth problems	5 (23%)	5 (26%)	0.922
Plagiocephaly	1 (4%)	0	0.941
Crooked feet	0	1 (5%)	0.941
Congenital hip dysplasia	0	3 (16%)	0.182
Neonatal UTI	2 (9%)	2 (10%)	0.709
Delayed toddling	11 (50%)	5 (26%)	0.219
Tiptoe walking	1 (4%)	5 (26%)	0.128
Delayed ambulation	15 (68%)	11 (58%)	0.721
Clumsiness	14 (64%)	17 (89%)	0.119
Painful pronation	0	2 (10%)	0.405
Learning difficulties	5 (23%)	9 (47%)	0.184
Language delay	17 (77%)	12 (63%)	0.518
Abdominal hernias	0	4 (21%)	0.082
Frequent falls	4 (18%)	18 (95%)	<0.001
Bruising and prolonged bleeding	0	14 (74%)	<0.001
Motor imperistence	5 (23%)	17 (89%)	<0.001
Sore hands from writing	2 (9%)	10 (53%)	0.007
ADHD	8 (36%)	17 (89%)	0.002
Constipation	0	10 (53%)	<0.001
Arthralgias/myalgias	1 (4%)	11 (58%)	<0.001

ADHD, attention deficit/hyperactivity disorder; F, females; M, males; UTI, urinary tract infection.

expected mean score for age and if their performance was inappropriate in the expressive language test.

The speech/language assessment using the test battery showed significant differences in the incidence of narrative difficulties and atypical swallowing between groups (Table II).

DISCUSSION

In this study, we first confirmed a high rate of gJHM among children originally assessed for DCD [Kirby and Devies, 2007]. We also compared the rate of selected features, spanning from typical connective tissue features to specifically addressed neurodevelopmental attributes between a group of children with DCD and gJHM (i.e., DCD-H), and a group of non-hypermobile DCD subjects (DCD-NH). In summary, we

found an excess of frequent falls (95 vs. 18%), easy bruising (74 vs. 0%), motor imperistence (89 vs. 23%), sore hands for writing (53 vs. 9%), ADHD (89 vs. 36%), constipation (53 vs. 0%), arthralgias/myalgias (58 vs. 4%), narrative difficulties (74 vs. 32%), and atypical swallowing (74 vs. 18%) in the DCD-H group compared to the DCD-NH one. Our findings suggest the existence of a highly prevalent, still poorly defined, multisystem disorder in DCD children with gJHM which could evolve in a more pronounced generalized connective tissue disorder in the later life. The eventual phenotype may be a true hereditary connective tissue disorder and, perhaps, correspond to JHS/EDS-HT. Accurate integumentary involvement was not systematically assessed in this work, because essentially conceived in a child neurology setting. Hence, we were not able to definitely

confirm this hypothesis, which could represent a field for future research.

In comparison with most studies investigating the relationship between gJHM (or JHS/EDS-HT) and neurodevelopmental attributes, our observation extended such a link to language and learning difficulties. The existence of a recognizable speech impairment in patients with Ehlers-Danlos syndrome is well known in the specialized literature [Arvedson and Heintskill, 2009]. Nevertheless, evidence-based data aimed at substantiating this experience are still lacking. In this work, both groups (i.e., DCD-H and DCD-NH) showed a high rate of language disorders. More specifically, the DCD-H group displayed a significant excess of narrative difficulties with narrative competences below what is expected at their chronological age. This preliminary evidence, which needs confirmations in other studies, may share a

TABLE II. Speech and Language Results in the Hypermobile (DCD-H) and Non-Hypermobile (DCD-NH) Groups of Children with Developmental Coordination Disorder.

Feature	DCD-H	DCD-NH	χ^2	P-value
Gender	14 males; 5 females	17 males; 5 females	0.07	0.78
Language disorders	12/19	16/22	0.43	0.51
Type of language disorder				
Expressive	4/12	8/16	0.78	0.37
Phonological	2/12	3/16	3.07	0.88
Receptive/expressive	6/12	5/16	0.78	0.31
Narrative difficulties	14/19	7/22	7.15	<0.001
Atypical Swallowing	14/19	4/22	12.75	<0.001

common pathogenesis with the low motor competences in children with gJHM (or JHS/EDS-HT).

Now, it is well known the existence of an excess of defective proprioception in children with gJHM [Fatoye et al., 2009] and this is likely related to a recognizable neurodevelopmental pattern [Adib et al., 2005]. Stratified knowledge indicates that children organize language through action. In particular, Iverson [2010], and Iverson and Braddock [2011] suggested that emerging new motor skills affect infants' interactions with objects and people, and this is relevant for development of communication and language acquisition. In the developing child with gJHM, the (presumably) generalized lack of proprioception may affect the process of organization of spatial and temporal concepts. This phenomenon could explain the observed excess of numbers and letters reversion during writing in the DCD-H group. In fact, this may stand for a difficulty in recognizing the correct spatial orientation in the "hypermobile" child. The presumed high rate of unsatisfactory orthographic competence, dysgraphia [Adib et al., 2005], and poor pen grip in gJHM children could be explained by the same mechanism. In this work, we did not systematically assess for typical satellite symptoms, such as headache, fatigue, and specific pattern of musculoskeletal pain, of JHS/EDS-HT, and did not investigate their relationship with language impairment in the DCD-H group. However, we could hypothesize that in the symptomatic child (i.e., the gJHM child also meeting JHS/EDS-

HT criteria), upper limb pain, easy fatigability of upper limb muscles, and fatigue may contribute to the poor handwriting performances.

An association between DCD and attention deficit is well known by the child neurologist, who is used to attribute the diagnosis of disorder of attention and motor perception at the mixed phenotype of DCD, AD(H)D, and oppositional defiant disorder [Gibbs et al., 2007]. Accordingly, two studies found a significant association between ADHD and gJHM in children [Koldas Doğan et al., 2011; Shiari et al., 2013]. In our work, we confirmed this association underlying the non-causal link between development of motor competence and appropriate learning skills in gJHM children. We also suggest that the presence of a (subclinical) hereditary connective tissue disorder may be an underestimated diagnosis for DCD children who also display a disorder of attention with or without an oppositional defiant disorder. The reason for an excess of ADHD in children with gJHM remains without a consistent explanation. Nevertheless, a default of the process of the organization of spatial and temporal concepts, as well as the coexistence of additional JHS/EDS-HT-related features, such as fatigue and musculoskeletal pain, could be postulated to be involved.

It is reported that low muscle tone of neck, mouth, and articulators can affect speech production, as well as swallowing in Ehlers-Danlos syndrome patients and that these subjects often have a small jaw and a highly arched palate [Shprintzen, 1997; Hunter et al., 1998, Arvedson and Heintskill, 2009]. In addition, various

research groups note that the clinical absence/hypoplasia of the lingual frenulum is statistically more common in Ehlers-Danlos syndrome and JHS/EDS-HT than controls [De Felice et al., 2001; Perrinaud et al., 2007; Celletti et al., 2011]. In our study, we did not accurately assess the relationships between intraoral anatomy, tongue praxis, and speech problems. Nevertheless, DCD-H children showed a higher prevalence of atypical swallowing, a phenomenon that could be partly explained by poor tongue coordination. In this setting, we could speculate on the link between a presumed high rate of abnormal lingual frenulum in our gJHM children and atypical swallowing. Accordingly, deglutition and speech problems in gJHM (and, perhaps, JHS/EDS-HT) children may arise from the combination of short lingual frenulum and abnormal tongue pharyngeal proprioception. In turn, the evidence of a short lingual frenulum could be pathogenically unrelated to defective tongue proprioception/movement, or rather be a developmental (intrauterine) or postural (extrauterine) consequence of tongue incoordination.

In conclusion, this study highlights numerous disabling findings in hypermobile children with DCD compared to non-hypermobile subjects. Most can be treated with appropriate therapeutic plans and learning support in order to guarantee children' adequate education and attainment of proper development. Currently, the Beighton score for gJHM, although originally elaborated by studying a pediatric population, now is not considered adequate for children. Therefore, an

appropriate diagnostic work-up relying on a multidisciplinary approach is necessary [Celletti et al., 2013] during which family history and JHS/EDS-HT-related symptoms should be investigated in children originally assessed for DCD. The implementation of a rehabilitation plan working on the concept of space at a bodily level (e.g., occupational and physiotherapeutic training) and at a higher thoughts level (e.g., spatial organization of the setting, organization of verbal sequences, representation of graphemes) is important, as well as a lingual motility training, especially in children with difficulties in articulation and swallowing. Such a program also needs to involve children's families, as home treatment is known to improve the outcome [Mintz-Itkin, 2009]. In addition, strengthening meta-cognitive resources can support children to organize and control their movements, as well as their learning. This can be fostered with tools, such as computers and conceptual maps, in order to reach a better orthographic control and oral rehearsal.

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ADHD IN ADULTS WITH ID: WHAT WE KNOW AND WHAT WE SHOULD KNOW

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Objectives: Attention Deficit Hyperactivity Disorder (ADHD) is a neurobiological disorder constituting one of the most frequent comorbid diagnosis in children with Intellectual Disability (ID). Only recently the validity of ADHD diagnosis in adulthood has been established, and little is known about its prevalence and presentation in adults with ID. **Methods:** Literature up to date has been examined in order to explore data regarding the presentation of ADHD in adults with ID, and its impact on treatment outcomes. **Results:** Both ADHD and IQ are heritable phenotypes with overlapping genetic effects. Studies show that brain changes typical of ADHD vary as a function of IQ, suggesting a relationship between them. People with ADHD co-occurring with ID show a greater severity of symptoms and slightly different patterns of presentation than people without ID. A poorer treatment outcome has also been reported because of a double deficit derived by both disorders. **Conclusions:** Adults with ID and ADHD appear more compromised than those with ID only. ADHD presentation is slightly atypical in people with ID, and the lack of standardized assessment instruments for administering to adult ID population makes its diagnosis very challenging. However, diagnosing ADHD in people with ID may help professionals to implement more effective and appropriate treatment. **References:** Rose E, Bramham J, Young S et al. Neuropsychological characteristics of adults with comorbid

ADHD and borderline/mild intellectual disability. *Research in Developmental Disabilities*. 2009; 30(3):496-502; Xenitidis K, Paliokosta E, Rose E et al. ADHD symptom presentation and trajectory in adults with borderline and mild intellectual disability. *Journal of Intellectual Disability Research*. 2010; 54(7):668-677.

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