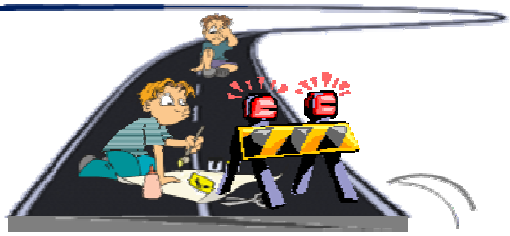
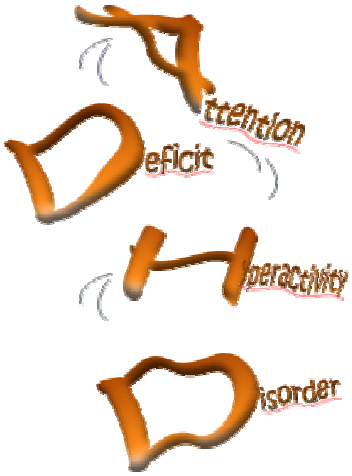
NEWSLETTER





DALLE BANCHE DATI BIBLIOGRAFICHE

MARIONEGRI
ISTITUTO DI RICERCHE FARMACOLOGICHE

BIBLIOGRAFIA ADHD LUGLIO 2012

Acad Pediatr. 2012 [e-pub].

DEVELOPMENT OF AN INSTRUMENT TO MEASURE PARENTS' PREFERENCES AND GOALS FOR THE TREATMENT OF ATTENTION DEFICIT-HYPERACTIVITY DISORDER.

Fiks AG, Mayne S, Hughes CC, et al.

Objectives: To describe the development and validation of an instrument to measure parents' attention deficit-hyperactivity disorder (ADHD) treatment preferences and goals.

Methods: Parents of children 6 to 12 years of age diagnosed with ADHD in the past 18 months were recruited from 8 primary care sites and an ADHD treatment center (autism excluded). A 16-item medication, 15-item behavior therapy preference scale and a 23-item goal scale, were developed after a review of the literature, 90 parent and clinician semistructured interviews, and input from parent advocates and professional experts were administered to parents. Parent cognitive interviews confirmed item readability, clarity, content, and response range. We conducted an exploratory factor analysis and assessed internal consistency and test-retest reliability and construct and concurrent validity.

Results: We recruited 237 parents (mean child age 8.1 years, 51% black, 59% from primary care, 61% of children medication naive). Factor analyses identified 4 medication preference subscales (treatment acceptability, feasibility, stigma, and adverse effects, Cronbach's (alpha) 0.74-0.87); 3 behavior therapy subscales (treatment acceptability, feasibility, and adverse effects, (alpha) 0.76-0.83); and 3 goal subscales (academic achievement, behavioral compliance, and interpersonal relationships, (alpha) 0.83-0.86). The most strongly endorsed goal was academic achievement. The scales demonstrated construct validity, concurrent validity (r = 0.3-0.6) compared with the Treatment Acceptability Questionnaire and Impairment Rating Scale and moderate to excellent test-retest reliability (intraclass coefficient = 0.7-0.9).

Conclusions: We developed a valid and reliable instrument for measuring preferences and goals for ADHD treatment, which may help clinicians more easily comply with new national treatment guidelines for ADHD that emphasize shared decision making.

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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 Med Iran. 2012;50:319-27.

SUBSTANCE ABUSE DISORDERS IN THE PARENTS OF ADHD CHILDREN, AND PARENTS OF NORMAL CHILDREN.

Farokhzadi F, Mohammadi MR, Alipour A, et al .

The objective of the study was to compare the attention-deficit/ hyperactivity, and substance abuse disorders background in the parents of children with attention-deficit/ hyperactivity disorder (ADHD), and the parents of normal children.

The available sampling method was used to choose 400 parents of children (200 parents of children with ADHD and 200 parents of normal children), the ages of children were 6-18 years old. The data were collected through the Schedule for Affective Disorders and Schizophrenia (SADS) for parents and the Kiddy Schedule for Affective Disorders and Schizophrenia for School-Age Children-Present and Lifetime version (K-SADS-PL), Connors Adult ADHD Rating Scale (CAARS) and the Wender Utah Rating Scale (WURS) for adult ADHD.

The results were analyzed by using SPSS-17 software, based on two-variable Chi-Square and t-tests.and P value in all disorders were equals to $P<0.05$. The results indicated that substance abuse in parents of children with ADHD is 21% more prevalent, and parents of children with ADHD compared to parents of normal children have 2% ADHD, 9% attention deficit disorder, and 1% hyperactivity disorder more in their background.

Therefore, we conclude that there exists a significant difference between the above mentioned disorders in the parents of children with ADHD, and parents of normal children. The high prevalence rate of disorders and background of ADHD in families of individuals with ADHD shows the probability of effect of inheritance in the disorder. Also, it shows that parents of children with ADHD have more substance abuse and history of ADHD in their background.

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Acta Med Port. 2011;24:493-502.

SELF-PERCEPTION IN CHILDREN WITH ATTENTION-DEFICIT/HYPERACTIVITY DISORDER.

Maia C, Guardiano M, Victor V, et al.

The Attention-Deficit/ Hyperactivity Disorder (ADHD) is a disorder reflected by significant deficits in multiple domains, interfering with the self-perception and self-esteem of children. However, international studies that assess the relationship between ADHD and self-perception have come to contradictory results, and, in Portugal, this is still a little investigated subject. The present work aims to assess the self-percetion in different areas (scholastic competence, athletic competence, physical appearance, behaviour and social acceptance) in children with ADHD, comparing them with a control group. This study also tries to analyze whether the subtype of ADHD could interfere differently with the self-perception. We studied 43 children who had a clinical diagnosis of ADHD and 59 children without this diagnosis. Children with ADHD were divided into different subtypes in view of the revised Conners Scales (Portuguese version). The children completed the Self-Perception Profile for Children. From the analysis of averages comparison, it was found that the group of children with ADHD showed lower values in the different domains of self-perception, with a statistically significant difference in scholastic and behaviour self-percetions. Regarding the different subtypes of ADHD, the results were not statistically significant, but indicated that children perceive themselves differently depending on the subtype. This discrepancy was most evident in scholastic competence where children predominantly inattentive considered themselves less able than the others. In this study, as in the international literature, children with ADHD have an scholastic and behavioural self-percetion statistically inferior to other children of the same age, needing every possible suport for a healthy emocional development.

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Acta Neuropsychol. 2012;10:69-80.

GRAPHOMOTOR FUNCTIONS IN ADHD - MOTOR OR PLANNING DEFICIT? A MICROGENETIC APPROACH .

Lipowska M.

Background: Attention Deficit Hyperactivity Disorder (ADHD) is the most common neurobehavioural disorder of childhood. Although graphomotor deficits are not listed as a diagnostic criterion for ADHD, they are very common. It remains unclear, however, whether this is caused by motor deficits or by problems in planning and organizing behavior. Material/

Methods: The experimental group consisted of 30 boys with ADHD. The control group consisted of 30 boys with no deficits, matched in terms of age and IQ. The Clock Drawing Test (CDT), and the Rey-Osterrieth Complex Figure Test were used to analyze graphomotor and planning functions.

Results: As expected, the ADHD children achieved significantly lower scores on the Rey-Osterrieth Figure for both speed and accuracy, in both the copying and reproduction tasks. The ADHD children showed less complexity, along with a tendency to dislocate, rotate, or omit elements of the model. On the Clock Drawing Test, the ADHD children significantly more often drew the clock face incorrectly, and even when they did not, they more often indicated the wrong time. The strongest correlation was between the results on the Rey-Osterrieth Test and precision in drawing the clock face, both of which tasks are heavily dependent on graphomotor functions.

Conclusions: Children with ADHD exhibit diverse deficits of cognitive and behavioral processes, including graphomotor deficits. The latter seem to be associated with both disturbances of coordination and fine motor control resulting from hyperactivity and difficulties in the planning of writing, caused by executive dysfunction.

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Acta Pediatr Esp. 2012;70:239-46.

ADVANCES IN THE PHARMACOLOGICAL TREATMENT OF ATTENTION-DEFICIT/ HYPERACTIVITY DISORDER.

***Martin Fernandez-Mayoralas D, Fernandez-Perrone AL, Fernandez-Jaen A*.**

Attention-deficit hyperactivity disorder (ADHD) is a disorder of inattention, impulsivity, and hyperactivity that affects 5% of children. Studies during the last years have shown the safety and effectiveness of stimulant and not-stimulants medications. Other investigations have also clarified the appropriate role of targeted psychosocial treatments in the context of ongoing pharmacotherapy. The literature clearly documents that pharmacological treatment improve not only abnormal behaviors of ADHD but also self-esteem, cognition, and social and family functioning. However, efficacy varies with age and psychiatric comorbidities. Although most of the existing studies are brief, an increasing number of long-term studies have documented persistent response up to 2 years. Recent studies are extending the knowledge of treatment and are discuss in this review.

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Adv Ther. 2012;29:385-400.

GUANFACINE EXTENDED RELEASE AS ADJUNCTIVE THERAPY TO PSYCHOSTIMULANTS IN CHILDREN AND ADOLESCENTS WITH ATTENTION-DEFICIT/HYPERACTIVITY DISORDER.

***Childress AC*.**

Attention-deficit/hyperactivity disorder (ADHD) is a common neurobehavioral disorder associated with a wide range of impairments. Psychostimulants are generally first-line pharmacotherapy, but symptom improvement is suboptimal in some patients. In these patients, clinicians frequently use a combination of psychostimulants and nonscheduled medications to manage ADHD, although published evidence supporting this practice was relatively scarce until recently. Guanfacine extended release (GXR), a selective alpha2A-adrenoceptor agonist, is approved as a mono-therapy and adjunctive-therapy to psychostimulant medications for ADHD in patients 6-17 years of age. Drug-drug interaction studies have demonstrated that the adjunctive administration of GXR with a long-acting methylphenidate preparation or lisdexamfetamine dimesylate did not change exposure to the active components of either medication in a clinically meaningful way compared with either treatment alone. Data supporting the potential efficacy of GXR adjunctive to psychostimulants were preliminarily observed in a 9-week, open-label, dose-escalation

study and subsequent extension study ((less-than or equal to) 24 months) in subjects aged 6-17 years with suboptimal control of ADHD symptoms on psychostimulant monotherapy. In a subsequent 9-week, randomized, double-blind, placebo-controlled study of subjects aged 6-17 years with suboptimal response to a long-acting, extended-release, oral psychostimulant, adjunctive GXR (administered in the morning or evening) was associated with significantly greater symptom reduction than placebo and psychostimulant (ADHD Rating Scale IV [ADHD-RS-IV] total score, placebo-adjusted least squares mean reductions: GXR AM, -4.5, P = 0.002; GXR PM, -5.3, P < 0.001, based on Dunnett's test). Across multiple studies, the safety and tolerability profile of GXR administered adjunctively to psychostimulants has been consistent with the known profiles of each medication. Additional studies should further explore the role of adjunctive GXR in clinical practice to help identify those patients most likely to benefit from such therapy.

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Am J Epidemiol. 2012;175:S128.

JOINT EFFECTS OF PRENATAL STRESS AND FAMILY HISTORY ON RISK OF ADHD.

Rowland AS, Skipper B, Umbach DM, et al.

Studies have suggested that maternal stress during pregnancy may increase risk of attention deficit/hyperactivity disorder (ADHD) in children. We screened 7587 children in grades 1-5 for ADHD. 81 % of parents gave permission to have their child's teacher complete a DSM-IV behavior checklist. We interviewed parents of children taking ADHD medication or symptomatic at school and potential controls randomly sampled from the whole population using a structured interview (DISC). 72% of eligible parents participated. Parent and teacher ratings were combined to determine ADHD case status. Prenatal stress was defined by mother's ability to pay for food and necessities during pregnancy and how much support she received from her partner and family. Responses were combined to create a score (16-point scale) that was categorized into quartiles. Parental history of ADHD was positive if mother reported that either parent had ADHD symptoms as a child. Because of the complex sampling design, data were analyzed using weighted logistic regression. Among 944 families in the final sample, prenatal stress was associated with ADHD and risk varied by parental history of ADHD. Compared to children with the lowest prenatal stress and no family history, children with high prenatal stress and no parental history had twice the odds of ADHD after controlling for maternal education, gender, income, drinking, and race/ethnicity: OR = 2.4 (95% C. I. = 1.2-4.9) The odds ratio was over 7 for children whose mothers reported the highest stress and positive parental history: OR = 7.6 (95% C.I. = 3.8- 15.1) Prenatal stress may increase the risk of ADHD and risk may vary by family history of ADHD symptoms.

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Am J Epidemiol. 2012;175:S32.

RACIAL/ETHNIC AND FAMILY INCOME DIFFERENCES IN DIAGNOSED ATTENTION DEFICIT HYPERACTIVITY DISORDER (ADHD) FOR US CHILDREN AGED 7-11, NATIONAL HEALTH INTERVIEW SURVEY 1999-2010.

Pastor PN, Reuben CA.

Although the increased prevalence of diagnosed ADHD has been widely reported, few studies have examined trends in diagnosed ADHD by race/ ethnicity and family income. This study examines national trends in ADHD for US children in selected subgroups. The analysis includes 33,467 children aged 7-11 from the 1999-2010 National Health Interview Survey, a large nationally representative household survey. Information about diagnosed ADHD and the child's characteristics including race/ethnicity and family income was provided by a knowledgeable household adult. Data from 1999-2010 were combined to form 4 time periods each consisting of 3 consecutive years. Average annual rates of change were calculated for 6 subgroups of children defined by both race/ethnicity (Hispanic, non-Hispanic (NH) black, NH white) and family income (lower: <200% of the poverty level, higher: 200%+). SAS/SUDAAN was used to adjust for the complex sampling design. Among all children the prevalence of ADHD increased from 7.4% (1999-2001) to 9.1% (2008-2010). Among children with higher family income, the prevalence of ADHD did not change significantly and fluctuated around 7.0%, regardless of the child's race/ethnicity. However, among children with lower family income, the prevalence of ADHD among Hispanic children increased from 3.1% to 6.0% (annual change = 5.7%) and among NH black children from 8.3% to 13.3% (annual change =

4.0%). Among lower income NH white children, the prevalence of ADHD did not increase significantly (from 11.0% to 14.0%). Additional analyses will explore the impact of recent changes in special education programs and public insurance on the trends in diagnosed ADHD.

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Arch Gen Psychiatry. 2012;69:750-53.

REDUCED GABA CONCENTRATION IN ATTENTION-DEFICIT/HYPERACTIVITY DISORDER.

Edden RAE, Crocetti D, Zhu H, et al.

Context: Attention-deficit/hyperactivity disorder (ADHD) is a developmental disorder characterized by a deficit in behavioral inhibition. Recent evidence also suggests a deficit in cortical inhibition via the GABA ((gamma)- aminobutyric acid)-ergic system.
Objective: To investigate the GABAergic component of ADHD using magnetic resonance spectroscopy.
Design: Cross-sectional study.
Setting: Participants were recruited through local schools, local pediatric and other community clinics, and through advertisement in regional publications. Magnetic resonance spectroscopy was performed within the research institute.
Participants: Children (age range, 8-12 years) in a typically developing control group vs a group with ADHD were compared.
Main Outcome Measures: J-difference-edited magnetic resonance spectroscopy at 3 T was used to measure GABA concentration in a volume that included primary somatosensory and motor cortices.
Results: GABA concentration is reduced in children with ADHD compared with typically developing control subjects.
Conclusion: Our finding of reduced GABA concentration in ADHD is concordant with recently reported deficits in short intracortical inhibition in ADHD and suggests a GABAergic deficit in ADHD.

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Behav Ther. 2012 [e-pub].

DOES A POSITIVE BIAS RELATE TO SOCIAL BEHAVIOR IN CHILDREN WITH ADHD?

Linnea K, Hoza B, Tomb M, et al.

This study examines whether positively biased self-perceptions relate to social behaviors in children with attention-deficit/hyperactivity disorder (ADHD) as compared to control children. The social behaviors of children with ADHD (n = 87) were examined relative to control children (CTL; n = 38) during a laboratory-based dyadic social interaction task. Children with ADHD were subgrouped into those with a positive illusory bias (PIB) in their self-perceptions (ADHD + PIB) versus those without such a bias (ADHD - PIB). Using a behavioral coding system adapted for this study, ADHD + PIB, ADHD - PIB, and CTL participants were compared on objectively coded social behaviors occurring within the context of the social interaction task. Whereas both ADHD groups displayed more disruptive behavior than controls, only the ADHD + PIB group displayed less prosocial behavior and less effortful behavior. This study breaks new ground by examining positively biased self-perceptions as they relate to social behavior in children with ADHD and provides promising new insight into the social problems experienced by these children.

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Biol Psychiatry. 2012;72:191-97.

DEVELOPMENT OF CORTICAL SURFACE AREA AND GYRIFICATION IN ATTENTION-DEFICIT/HYPERACTIVITY DISORDER.

Shaw P, Malek M, Watson B, et al.

Background: Delineation of the cortical anomalies underpinning attention-deficit/hyperactivity disorder (ADHD) can powerfully inform pathophysiological models. We previously found that ADHD is characterized by a delayed maturation of prefrontal cortical thickness. We now ask if this extends to the maturation of cortical surface area and gyrification.

Methods: Two hundred thirty-four children with ADHD and 231 typically developing children participated in the study, with 837 neuroanatomic magnetic resonance images acquired longitudinally. We defined the developmental trajectories of cortical surfaces and gyrification and the sequence of cortical maturation, as indexed by the age at which each cortical vertex attained its peak surface area.
Results: In both groups, the maturation of cortical surface area progressed in centripetal waves, both lateral (starting at the central sulcus and frontopolar regions, sweeping toward the mid and superior frontal gyrus) and medial (descending down the medial prefrontal cortex, toward the cingulate gyrus). However, the surface area developmental trajectory was delayed in ADHD. For the right prefrontal cortex, the median age by which 50% of cortical vertices attained peak area was 14.6 years (SE = .03) in ADHD, significantly later than in typically developing group at 12.7 years (SE = .03) [log-rank test (chi)(1)2 = 1300, p < .00001]. Similar, but less pronounced, delay was found in the left hemispheric lobes. There were no such diagnostic differences in the developmental trajectories of cortical gyrification.
Conclusions: The congruent delay in cortical thickness and surface area direct attention away from processes that selectively affect one cortical component toward mechanisms controlling the maturation of multiple cortical dimensions.

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Brain. 2012;135:2215-30.

CORTICAL INHIBITION IN ATTENTION DEFICIT HYPERACTIVITY DISORDER: NEW INSIGHTS FROM THE ELECTROENCEPHALOGRAPHIC RESPONSE TO TRANSCRANIAL MAGNETIC STIMULATION.

Bruckmann S, Hauk D, Roessner V, et al.

Attention deficit hyperactivity disorder is one of the most frequent neuropsychiatric disorders in childhood. Transcranial magnetic stimulation studies based on muscle responses (motor-evoked potentials) suggested that reduced motor inhibition contributes to hyperactivity, a core symptom of the disease. Here we employed the N100 component of the electroencephalographic response to transcranial magnetic stimulation as a novel marker for a direct assessment of cortical inhibitory processes, which has not been examined in attention deficit hyperactivity disorder so far. We further investigated to what extent affected children were able to regulate motor cortical inhibition, and whether effects of age on the electroencephalographic response to transcranial magnetic stimulation were compatible with either a delay in brain maturation or a qualitatively different development. N100 amplitude evoked by transcranial magnetic stimulation and its age-dependent development were assessed in 20 children with attention deficit hyperactivity disorder and 19 healthy control children (8-14 years) by 64-channel electroencephalography. Amplitude and latency of the N100 component were compared at rest, during response preparation in a forewarned motor reaction time task and during movement execution. The amplitude of the N100 component at rest was significantly lower and its latency tended to be shorter in children with attention deficit hyperactivity disorder. Only in controls, N100 amplitude to transcranial magnetic stimulation was reduced by response preparation. During movement execution, N100 amplitude decreased while motor evoked potential amplitudes showed facilitation, indicating that the electroencephalographic response to transcranial magnetic stimulation provides further information on cortical excitability independent of motor evoked potential amplitudesand spinal influences. Children with attention deficit hyperactivity disorder showed a smaller N100 amplitude reduction during movement execution compared with control children. The N100 amplitude evoked by transcranial magnetic stimulation decreased with increasing age in both groups. The N100 reduction in children with attention deficit hyperactivity disorder at all ages suggests a qualitative difference rather than delayed development of cortical inhibition in this disease. Findings further suggest that top-down control of motor cortical inhibition is reduced in children with attention deficit hyperactivity disorder. We conclude that evoked potentials in response to transcranial magnetic stimulation are a promising new marker of cortical inhibition in attention deficit hyperactivity disorder during childhood.

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Brain Topogr. 2012 Jul;25:332-44.

BEHAVIOURAL TREATMENT INCREASES ACTIVITY IN THE COGNITIVE NEURONAL NETWORKS IN CHILDREN WITH ATTENTION DEFICIT/HYPERACTIVITY DISORDER.

Siniatchkin M, Glatthaar N, von Müller GG, et al.

Response cost and token approach (RCT) within the scope of a summer camp training is an effective treatment program for attention deficit hyperactivity disorder (ADHD). It is likely that intensive RCT training influences networks responsible for ADHD symptoms. Functional magnetic resonance imaging (fMRI) was carried out in 12 children with ADHD before and after the RCT program and in 12 healthy control children twice. For fMRI, a Go/No-go paradigm was used to investigate the influence of RCT training on attention and impulsivity. The No-go condition revealed only weak activation in the dorsal part of the anterior cingulate cortex (ACC), parietal and dorsolateral prefrontal cortex (DLPFC) before the training in children with ADHD compared to healthy children. However, this activation in these brain regions was significantly more pronounced after the training. This increase in hemodynamic response cannot be attributed merely to repetition of the measurement since the effect was not observed in healthy children. The increase in hemodynamic response in the ACC and right DLPFC was significantly associated with a reduction in response time variability and clinical symptoms in ADHD patients. After the RCT training, the children with ADHD demonstrated more pronounced activation of cortical structures which are typically related to response monitoring and self-control. It seems likely that children with ADHD learned more cognitive control in a continuous performance task as was revealed by both neuropsychological outcome and fMRI.

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Clin Biochem. 2012;45:745-48.

OXIDATIVE STRESS IN CHILDREN WITH ATTENTION DEFICIT HYPERACTIVITY DISORDER.

Oztop D, Altun H, Baskol G, et al.

Objective: The aim of this study was to investigate oxidative stress in ADHD children.

Design and methods: Levels of oxidant parameters malondialdehyde (MDA), 8-hydroxy-2'-deoxyguanosine (8-OHDG), advanced oxidation protein products (AOPP) and antioxidant parameters paraoxonase (PON1) and thiol levels were measured in thirty children with ADHD (27 boys, 3 girls) who were firstly diagnosed according to DSM-IV and thirty healthy children (18 boys, 12 girls) aged 6-12. years.

Results: The levels of the oxidant parameters MDA and 8-OHDG were statistically significantly lower in ADHD children compared to the controls. We did not find a significant difference between the groups regarding AOPP, PON1, and thiol levels.

Conclusion: We found low levels of some oxidants and no difference of antioxidant parameters in ADHD children. Our study points out that there may not be a direct relationship between oxidative stress and ADHD.

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Cocuk Sagligi Hast Derg. 2011;54:148-53.

PHYSICAL ABUSE AND NEGLECT IN CHILDREN WITH ATTENTION-DEFICIT HYPERACTIVITY DISORDER.

Soysal AS, Bayoglu BU, Gucuyener K.

Attention-Deficit Hyperactivity Disorder (ADHD) is a neurobehavioral developmental disorder. It is the most commonly studied and diagnosed psychiatric disorder in children, affecting about 3-5% of children globally, with symptoms starting before seven years of age. It is a health condition involving biologically active substances in the brain. ADHD may affect certain areas of the brain that allow problem solving, planning ahead, understanding others' actions, and impulse control. A specific cause of ADHD is not yet known. There are, however, a number of factors that may contribute to ADHD, including genetics, diet and social and physical environments. In our study, the injury rates of 116 children with ADHD and of 84 school-aged children composing the control group and their relationship with physical abuse/neglect were examined. While 25% of the children with ADHD diagnosis were exposed to accidents and injuries, this rate was 3.6% among children in the control group. Fifty percent of the children with ADHD diagnosis had an accident and injury history that included road traffic accidents or falling off a bike, while 52% had a history of injuries that suggested neglect and physical abuse, such as a broken arm or burn. The history of recurrent injury in

children with ADHD, particularly among boys, leads to suspicion of neglect. In conclusion, ADHD is a diagnosis that increases the rate of accident and injury in childhood. An elaborative investigation of children with ADHD with an injury history, in terms of physical abuse and neglect, may prevent more serious injuries in the future. In addition, it can accelerate activation of family support mechanisms.

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Compr Psychiatry. 2012 [e-pub].

AGREEMENT BETWEEN DIAGNOSTIC AND STATISTICAL MANUAL OF MENTAL DISORDERS, FOURTH EDITION, AND THE PROPOSED DSM-V ATTENTION DEFICIT HYPERACTIVITY DISORDER DIAGNOSTIC CRITERIA: AN EXPLORATORY STUDY.

Ghanizadeh A.

Background: There is no empirical literature about the American Psychiatry Association proposed new diagnostic criteria for attention deficit hyperactivity disorder (ADHD). This study examined the agreement between ADHD diagnosis derived from Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV), and DSM-V diagnostic criteria. It also reports sensitivity, specificity, and agreement for ADHD diagnosis.

Methods: A clinical sample of 246 children and adolescents were interviewed face to face using both ADHD diagnostic criteria for DSM-V and DSM-IV by interviewing clinician. Comorbid psychiatric disorders were screened using DSM-IV criteria.

Results: The rate of ADHD diagnosis using DSM-V was significantly higher than the rate detected by using DSM-IV diagnostic criteria. The sensitivity of DSM-V diagnostic criteria was 100%, while its specificity was 71.1%. The kappa agreement between DSM-IV and DSM-V was 0.75. In addition, positive predictive value was 85.1%. All the four newly added symptoms to ADHD diagnostic criteria are statistically more common in the children with ADHD than those in the comparison group. However, these symptoms are also very common in the children without ADHD.

Conclusion: It is expected that the rate of ADHD would increase using the proposed ADHD DSM-V criteria. Moreover, the newly added symptoms have a low specificity for ADHD diagnosis.

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Curr Psychiatry Rep. 2012;1-8.

EMERGING ASSOCIATION BETWEEN ADDICTIVE GAMING AND ATTENTION-DEFICIT/HYPERACTIVITY DISORDER.

Weinstein A, Weizman A.

Children's and adolescent's use of computer games and videogames is becoming highly popular and has increased dramatically over the last decade. There is growing evidence of high prevalence of addiction to computer games and videogames among children, which is causing concern because of its harmful consequences. There is also emerging evidence of an association between computer game and videogame addiction and attention deficit/hyperactivity disorder (ADHD). This is indicated by the occurrence of gaming addiction as a co-morbid disorder of ADHD, common physiological and pharmacological mechanisms, and potential genetic association between the two disorders. A proper understanding of the psychological and neurotransmitter mechanisms underlying both disorders is important for appropriate diagnostic classification of both disorders. Furthermore, it is important for development of potential pharmacological treatment of both disorders. Relatively few studies have investigated the common mechanisms for both disorders. This paper reviews new findings, trends, and developments in the field. The paper is based on a literature search, in Medline and PUBMED, using the keywords addictive gaming and ADHD, of articles published between 2000 and 2012.

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Dev Med Child Neurol. 2012;54:704-09.

LONG-TERM COGNITIVE OUTCOMES OF INFANTS BORN MODERATELY AND LATE PRETERM.

Odd DE, Emond A, Whitelaw A.

Aim To investigate whether infants born late preterm have poorer cognitive outcomes than term-born infants.

Method A cohort study based on the Avon Longitudinal Study of Parents and Children. Cognitive measures were assessed between the ages of 8 and 11years. Exposure groups were defined as moderate/late preterm (32-36weeks' gestation) or term (37-42wk). Regression models were used to investigate the association between gestational age and IQ.

Results Seven hundred and forty-one infants (5.4% of total eligible population; 422 males, 319 females; mean (SD) birthweight 2495g [489]) were born between 32 and 36weeks' gestation. The analysis was based on 6957 infants with IQ data at age 11 (50% of eligible infants). In the adjusted model, children born moderately and late preterm had similar IQ scores to peers born at term (mean difference [95% confidence interval] -0.18 [-1.88 to 1.52]). However, the preterm infants had a higher risk of having special educational needs at school (odds ratio 1.56 [1.18-2.07]).

Interpretation Despite an increased risk of special educational needs, there is little evidence of a reduction in IQ, memory, or attention measures at school age in children born between 32 and 36weeks' gestation. Although interpretation is limited by the amount of missing data, further work is needed to identify why these infants have increased educational needs.

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Diabetes. 2012;61:A210.

NOT PAYING ATTENTION TO DIABETES: ADHD AND DIABETES MANAGEMENT.

Duke DC, Freeman KA, Boston B, et al.

The impact of Attention-Deficit/Hyperactivity Disorder (ADHD) on diabetes management has been increasingly recognized as an important clinical issue. According to the Centers for Disease Control and Prevention (CDC), approximately 9.5% of youth 4 to 17 years have been diagnosed with ADHD in the US. The CDC also estimated that 151,000 youth under 20 have diabetes. Based on these rates, a simple calculation yields an estimate of 14,345 youth having both diabetes and ADHD in the US. However, the actual prevalence of ADHD in youth with diabetes, and the association of this with diabetes management, has received little attention.As part of a larger study, we examined a sample of 64 adolescents with poorly controlled T1DM (HbA1c > 9.0%) and their parent(s). Adolescents participating in the study had a mean age of 15.1 years (SD=1.9) and a mean duration of diabetes of 6.8 years (SD=3.7). Participants completed various questionnaires, including ADHD diagnostic status; the Diabetes Self Management Profile (DSMP), and the Diabetes Family Conflict Scale (DFCS).Of study participants, 28.4% endorsed a diagnosis of ADHD, greater than 3 times the statewide CDC estimate of 8.4%. An Analysis of Covariance (ANCOVA) found that those participants with ADHD scored significantly lower on the DSMP than those without ADHD, $F(1, 60) = 5.41$, $p = .024$. Analysis found that DFCS scores were significantly higher for participants reporting a diagnosis of ADHD compared to those who did not, $F(1, 58) = 4.35$, $p = .041$.Current findings highlight the importance of considering the impact of ADHD symptoms on successful management of diabetes during adolescence. Implications of the findings for diabetes management are discussed. The likely contributions of executive functioning problems known to be associated with ADHD are reviewed. Recommendations are provided regarding optimizing diabetes management for youth with ADHD, and directions for future investigation are offered.

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Dyslexia. 2012;18:174-85.

ARE EXTERNALIZING AND INTERNALIZING DIFFICULTIES OF YOUNG CHILDREN WITH SPELLING IMPAIRMENT RELATED TO THEIR ADHD SYMPTOMS?

Rietz CS, Hasselhorn M, Labuhn AS.

Children with literacy difficulties often suffer from a variety of co-occurring externalizing and internalizing difficulties, as well as comorbid ADHD. Therefore, these externalizing and internalizing problems might be more related to comorbid ADHD, rather than being a correlate of literacy difficulties per se. In the present study, we investigated the occurrence of externalizing and internalizing difficulties in elementary school children (third grade) with and without spelling impairment. Taking the high rate of comorbidity between literacy difficulties and ADHD into account, we investigated whether co-occurring difficulties are associated with spelling impairment per se or with comorbid ADHD symptoms. Results indicated that these young children with spelling impairment showed more co-occurring difficulties compared with children without spelling impairment. Hierarchical regression analysis indicated that occurrence of externalizing symptoms is more strongly related to comorbid ADHD symptoms than to spelling impairment per se. The pattern of results concerning internalizing problems was not as distinct but showed a similar trend. Preferably, carers and educators should be aware of co-occurring socio-emotional and behavioural problems in children with spelling impairment. Particularly children with spelling impairment and comorbid ADHD symptoms seem to have an increased risk of encountering further co-occurring difficulties.

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Eur Child Adolesc Psychiatry. 2012;1-16.

AMFETAMINE AND METHYLPHENIDATE MEDICATIONS FOR ATTENTION-DEFICIT/HYPERACTIVITY DISORDER: COMPLEMENTARY TREATMENT OPTIONS.

Hodgkins P, Shaw M, Coghill D, et al.

Attention-deficit/hyperactivity disorder (ADHD) is one of the most common neurodevelopmental disorders among school-aged children. It is highly symptomatic and associated with significant impairment. This review examines the role of stimulant medications in the treatment of children and adolescents with ADHD. Published clinical studies that compared methylphenidate- and amfetamine-based stimulants in children and adolescents with ADHD support the therapeutic utility of stimulant treatments, and suggest robust efficacy and acceptable safety outcomes in groups treated with either stimulant. Evidence-based guidelines agree that each patient with ADHD is unique and individual treatment strategies that incorporate both drug and non-drug treatment options should be sought. In seeking to optimize individual response and outcomes to stimulant therapy, important considerations include the selection of stimulant class, the choice of long- or short-acting stimulant formulations, addressing effectively any emergent adverse effects and strategies aimed at enhancing adherence to dosing regimen and persistence on therapy.

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Eur Child Adolesc Psychiatry. 2012;1-10.

ATTENTION-DEFICIT/HYPERACTIVITY DISORDER (ADHD) AND ADAPTATION NIGHT AS DETERMINANTS OF SLEEP PATTERNS IN CHILDREN.

Kirov R, Uebel H, Albrecht B, et al.

Sleep problems are a prominent feature in children with attention-deficit/hyperactivity disorder (ADHD) but their relationships to sleep structure are not consistent across studies. We aimed at further examining the sleep architecture in children with ADHD, while considering the role of the first-night effect (FNE) as a possible confounder. Twenty unmedicated children with ADHD combined type (8-15 years old; mean 11.24, SD 2.31) and 19 healthy controls, matched for age and gender, underwent polysomnography during an adaptation and a consecutive second night. ADHD and controls displayed a typical FNE without group differences. Independently of testing night, children with ADHD spent more time in sleep and had shortened rapid eye movement (REM) sleep latency and a greater amount of REM sleep relative to controls. However, the increased REM sleep amount in ADHD children was more expressed in the second night when it was also significantly related to scores of inattention and hyperactivity. Our results (1) document similar sleep adaptation processes in children with ADHD and typically developing children, (2)

reveal that REM sleep changes in association with ADHD-specific psychopathology may characterize sleep in ADHD children, which is evident only when the FNE is accounted for, (3) indicate that ADHD psychopathology and adaptation night may exert opposite effects on REM sleep in children. These results may prompt the awareness of clinicians about the importance of actual sleep alterations and their precise evaluation in children with ADHD, which could significantly contribute to better diagnostic, treatment and early prevention strategies.

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Eur Child Adolesc Psychiatry. 2012;1-10.

SMOKING DURING PREGNANCY AND PSYCHIATRIC DISORDERS IN PRESCHOOLERS.

Ellis LC, Berg-Nielsen TS, Lydersen S, et al.

The overall objective of this study was to determine whether smoking during pregnancy is related to psychiatric disorders in 4-year-olds while controlling for a wide range of potential confounding variables (i.e. parental anxiety, depression, personality disorders, drug abuse, and socio-economic characteristics). Parents of a community sample of 4-year-olds (N = 995) residing in the city of Trondheim, Norway were interviewed using the Preschool Age Psychiatric Assessment, which includes information on prenatal smoking. After adjusting for potential confounding variables using the propensity score, smoking during pregnancy was found to increase the odds for attention-deficit/hyperactivity disorder (ADHD) OR = 2.59 (CI 1.5-4.34, p < 0.001), oppositional defiant disorder (ODD) OR = 2.69 (CI 1.84-3.91, p = 0.02) and comorbid OR = 2.55 (CI 1.24-5.23, p < 0.001). Prenatal smoking during pregnancy is associated with an increased risk for symptoms of ADHD and ODD independently of each other, in 4-year-olds.

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Eur Child Adolesc Psychiatry. 2012;21:157-64.

THE BEHAVIOURAL PROFILE OF CHILDREN WITH ATTENTION-DEFICIT/ HYPERACTIVITY DISORDER AND OF THEIR SIBLINGS.

Steinhausen HC, Zulli-Weilenmann N, Brandeis D, et al.

The behavioural profiles in N = 69 index children with attention-deficit/ hyperactivity disorder (ADHD), N = 32 siblings with ADHD, N = 35 siblings without ADHD, and N = 36 normal controls were compared by the use of standardized parent and teacher rating scales. The four groups were matched by age and IQ. The behavioural profiles of the two ADHD groups were very similar not only in the behavioural domains of ADHD, but also in scales measuring emotional and conduct problems. Siblings without ADHD shared more similarities with normal controls except for more emotional problems. These general trends were stronger in the parent compared to the teacher ratings. These findings indicate that not only ADHD-related but also other behaviours show a strong family aggregation. The informant differences may reflect context dependent differences in child behaviour and contrast effects particularly in parental ratings.

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Eur Child Adolesc Psychiatry. 2012;21:101-09.

LOW FREQUENCY OSCILLATIONS OF RESPONSE TIME EXPLAIN PARENT RATINGS OF INATTENTION AND HYPERACTIVITY/IMPULSIVITY.

Mairena MA, Di Martino A, Dominguez-Martin C, et al.

Greater intra-subject variability (ISV) in response time is a heritable endophenotype of attentiondeficit/ hyperactivity disorder (ADHD). Spontaneous low frequency oscillations (LFO: 0.01-0.1 Hz) observed in brain functional magnetic resonance signals might account for such behavioral variability. Recently, we demonstrated that ISV in response time (RT) explained ratings of ADHD symptoms. Building on this finding, here we hypothesized that LFO in RT time series would explain these ratings, both independently and in addition to RT coefficient of variation (CV). To measure RT LFO, we applied Morlet wavelet transform to the previously collected RT data. Our community sample consisted of 98 children (including 66 boys, mean age 9.9 (plus or minus) 1.4 years), who completed four computer Tasks of Executive Control.

Conners' Parent Rating Scale ratings were obtained. RT LFO of three tasks significantly explained ratings of inattention, hyperactivity and three global Conners' subscales. In addition, RT LFO during two tasks that included an inhibitory component increased the proportions of variance explained in subscales of both inattention and hyperactivity/impulsivity, beyond the effects of RT-CV. Three specific low frequency bands (Slow-5: 0.01-0.027 Hz; Slow-4: 0.027-0.073 Hz; Slow-3: 0.073-0.20 Hz) were strongly related to the ADHD scales. We conclude that RT LFO predict dimensional ratings of ADHD symptoms both independently and in addition to RTCV. Results suggest that frequency analyses are a suitable methodology to link behavioral responses to putative underlying physiological processes.

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Eur Child Adolesc Psychiatry. 2012;21:75-78.

LATE POTENTIALS IN THE SIGNAL-AVERAGED ELECTROCARDIOGRAM IN PRE-PUBERTAL CHILDREN WITH ADHD, BEFORE AND AFTER METHYLPHENIDATE TREATMENT.

Nahshoni E, Golubchik P, Glazer J, et al.

Reports on sudden cardiac death (SCD) of children and adolescents treated with stimulant agents have raised concerns regarding the need for cardiovascular monitoring and risk stratification schedules. Cardiac ventricular late potentials (LPs) represent delayed ventricular activation that might predispose to fatal ventricular arrhythmias and SCD in cardiac patients. LPs have not previously been measured in children with attention deficit/ hyperactivity disorder (ADHD). LPs were measured in 18 physically healthy ADHD children (5 girls and 13 boys, age 11.9 (plus or minus) 2.5 years, treatment duration 2.6 (plus or minus) 1.9 years) before and 2 h after oral methylphenidate administration. No significant changes were detected and LPs were found to be within normal ranges. In conclusion, this preliminary small-scale study suggests that methylphenidate in physically healthy children with ADHD was not associated with cardiac ventricular LPs, suggesting the safety of the agent in this age group.

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Eur Neuropsychopharmacol. 2012 [e-pub].

THE DOPAMINE TRANSPORTER HAPLOTYPE AND REWARD-RELATED STRIATAL RESPONSES IN ADULT ADHD.

Hoogman M, Onnink M, Cools R, et al.

Attention deficit/hyperactivity disorder (ADHD) is a highly heritable disorder and several genes increasing disease risk have been identified. The dopamine transporter gene, SLC6A3/DAT1, has been studied most extensively in ADHD research. Interestingly, a different haplotype of this gene (formed by genetic variants in the 3' untranslated region and intron 8) is associated with childhood ADHD (haplotype 10-6) and adult ADHD (haplotype 9-6). The expression of DAT1 is highest in striatal regions in the brain. This part of the brain is of interest to ADHD because of its role in reward processing is altered in ADHD patients; ADHD patients display decreased striatal activation during reward processing. To better understand how the DAT1 gene exerts effects on ADHD, we studied the effect of this gene on reward-related brain functioning in the area of its highest expression in the brain, the striatum, using functional magnetic resonance imaging. In doing so, we tried to resolve inconsistencies observed in previous studies of healthy individuals and ADHD-affected children. In a sample of 87 adult ADHD patients and 77 healthy comparison subjects, we confirmed the association of the 9-6 haplotype with adult ADHD. Striatal hypoactivation during the reward anticipation phase of a monetary incentive delay task in ADHD patients was again shown, but no significant effects of DAT1 on striatal activity were found. Although the importance of the DAT1 haplotype as a risk factor for adult ADHD was again demonstrated in this study, the mechanism by which this gene increases disease risk remains largely unknown.

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Eur Neuropsychopharmacol. 2012 [e-pub].

META-ANALYSIS OF INCREASED HEART RATE AND BLOOD PRESSURE ASSOCIATED WITH CNS STIMULANT TREATMENT OF ADHD IN ADULTS.

Mick E, McManus DD, Goldberg RJ.

Compared to children, adults with ADHD are at greater risk for developing adverse cardiovascular related outcomes and, if treated, may be likely to carry a greater burden of exposure to stimulant medications. The goal of this report is to critically review the available literature relevant to the cardiovascular safety of CNS stimulants for adult ADHD (aADHD). Twenty potential clinical trials of a CNS stimulant for aADHD have been published between 1979 and 2012. Of these, ten presented sufficient data to estimate the relative change in various cardiovascular parameters associated with ADHD treatment modalities. These trials were predominantly focused on long-acting stimulant preparations for acute symptom reduction (median duration=6 weeks, range: 4-24 weeks) and enrolled relatively young subjects (median age=36 years, range: 22-40). Using random effects meta-analysis, we found that subjects randomized to CNS stimulant treatment demonstrated a statistically significant increased resting heart rate [+5.7 bpm (3.6, 7.8), p<0.001] and systolic blood pressure findings [+2.0 mmHg (0.8, 3.2), p=0.005] compared with subjects randomized to placebo. There was a statistically significant increased risk for a resting heart rate >90 bpm [4.2% (n=50) vs. 1.7% (n=8), OR=2.75 (1.3, 6.7), p=0.006] associated with CNS stimulant treatment. In light of prognostic value of resting heart rate with regard to cardiovascular morbidity in epidemiological studies, future research of adults with ADHD should focus on the potential clinical impact of the increase in heart rate observed in this meta-analysis.

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Eur Psychiatry. 2012;27:Suppl.1

FAMILY QUALITY OF LIFE IN ASD AND ADHD.

Sipos R, Predescu E, Iftene F.

Introduction: The impact of raising a child with autism on parents' quality of life (QOL) is not yet fully understood. Studies have shown that parents of children with autism have lower QOL than general population and that theirs QOL is influenced by the level of child functioning impairment, the received social support and by the use of maladaptive coping mechanisms.

Objectives: To evaluate the QOL of the families of children with autism compared with that of families of children diagnosed with ADHD.

Aims: To analyze the factors which influence the QOL of these families.

Method: We used data from 60 children, aged between 2 and 18 years, diagnosed with ASD or ADHD, according to DSM IV-TR and ICD-10 and their parents. Tests were administered to assess the presence of autism symptoms, the symptoms of internalization / externalization and the parents' emotional regulation mechanisms. FQOLS (Family Quality of Life Survey) was used to assess the subjects and their families' quality of life.

Results: The areas with the lowest scores in terms of FQOL were the financial status, the support from others and the support from services. These results were similar for the families of children with ASD and ADHD. The level of parental distress was associated with the level of child internalizing problems.

Conclusion: By understanding how the FQOL is affected by these disorders, the needs of the children with developmental disorders and their families will be better recognized and healthcare and support services would be appropriately developed.

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Eur Psychiatry. 2012;27:Suppl.1

THE PREVALENCE AND RELATED FACTORS OF ATTENTION DEFICIT HYPERACTIVITY DISORDER IN SCHOOL AGE CHILDREN OF GORGAN/IRAN.

Salehi M, Mirshahidi M.

Attention Deficit Hyperactivity Disorder (ADHD) is the most common neurobehavioural disorder among schoolchildren. Having information about extent of ADHD and its predisposing factors is essential in psychological services improvement and preventive measure development. The aim of this study was to

determine the prevalence of ADHD and its related epidemiologic factors among school age children. This cross- sectional study was accomplished in 2007 using a representative randomized multistage sampling method of primary school children. Data collection was carried out by using questionnaire included demographic characteristics and CSI-4 (Child Symptom Inventories Manual). Students were evaluated by using CSI-4 (which part in related to diagnose ADHD included an 18-item teacher and 18-item parents rating questionnaire) which included all 18 DSM-IV ADHDdiagnostic criteria. Then the collected data was analyzed by using ?2 statistical test. P-value< 0.05 was considered significant. According to the results, Participants included 58 children with ADHD (40 boys, 18 girls). Most of them were studying in public schools (72.7%) and living in two-parent families (94.5%). The prevalent of ADHD prevalent among primary student in Gorgan was 13.68 % overall, 68.97 % in boys and 31.03 % in girls (the ratio was 2.22 / 1). The prevalence of inattentive subtype was 31.37% and prevalence of hyperactivity subtype was 24.53%. There was significant relation between ADHD and gender, the rank of birth, parents' education and job (P< 0.05). Because of higher prevalence of ADHD in this study than others, it seems development of etiological investigation and educational - counseling programs to be necessary.

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Eur Psychiatry. 2012;27:Suppl.1

TRAINING RESIDENT PHYSICIANS IN PEDIATRIC PSYCHOPHARMACOLOGY FOR ADHD.

Wegner LM, Jensen PS, Stiles AD.

Introduction: Children and adolescents experience significant emotional disorders and the prevalence of these conditions is notable. There is a dearth of pediatric mental health care professionals in the U.S., and among those professionals available, geographic and reimbursement limitations restrict access to the care.

Objectives: Primary health care providers are being encouraged to provide some of the identification and care management to offset this access problem.

Aims: Expand clinical skills of pediatric providers through enhanced training of residents in the use of psychopharmaceuticals for the most common psychiatric diagnosis in U.S. children (ADHD).

Methods: Second- and third-year pediatric residents attended an intensive 10-hour training in pediatric psychopharmacology for ADHD in 2010. The curriculum was based on a well-established 3-day program that teaches primary care clinicians the elements of guideline-level care for common behavioral health conditions. The program included pre- and post- training assessment of resident knowledge of current practice guidelines for ADHD and intention to use them. Special attention was given to proper use of screening instruments, diagnostic scales, treatment options, importance of medication options and increased frequency of visits during drug initiation and titration of dosages, and obstacles to implementation.

Results: Results showed significant and sometimes large post-training increases in intentions to use medication therapies, systematic progression through stimulant and non-stimulant alternatives, parent and teacher symptom rating scales throughout treatment, and side effect scales during dose titration.

Conclusions: A one-day enhanced training program improved knowledge of, attitudes toward, and intention to use guidelines of care for youth with ADHD.

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Eur Psychiatry. 2012;27:Suppl.1

EFFECTS OF METHYLPHENIDATE ON PUPIL SIZE IN CHILDREN WITH ATTENTION DEFICIT HYPERACTIVITY DISORDER.

Turkbay T, Erdem U, Kara K.

Introduction: Methylphenidate is a central dopamine reuptake inhibitor used to treat attention deficit hyperactivity disorder (ADHD). Sympatomimetic effects of methylphenidate have been shown in a number of studies in attention deficit and hyperactivity disorder.

Objectives/aims: The purpose of this study is to investigate the effect of methylphenidate on pupil sizes in 6-11 aged boys diagnosed ADHD.

Methods: Fifteen boys with ADHD were participated in this study. We tried to minimize confounding factors by exclusion of any other psychiatric disorders. Pupil diameter changes of the participants were measured

in photopic and mesopic conditions before oral administration of methylphenidate and after 1 hour of drug intake. The differences between the groups were assessed using the Wilcoxon signed-rank test.
Results: There was a statistically significant difference between photopic pupil diameters of left eye before and after oral administration of methylphenidate (p=0.03), but not between photopic pupil diameters of right eye (p=0.09). The mesopic pupil diameters for two eyes before and after oral administration of methylphenidate didn't show any statistically significant difference.
Conclusions: Although methylphenidate may produce to increase pupil size by sympathomimetic effects; our findings demonstrate that methylphenidate decreases the size of left pupil in photopic conditions. This may be related to an increased response to light.

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Eur Psychiatry. 2012;27:Suppl.1

GENDER AND ETHNIC DISTRIBUTION OF ATTENTION DEFICIT HYPERACTIVITY DISORDER (ADHD) IN SCHOOL POPULATION FROM 6-12 YEARS-A CROSS SECTIONAL STUDY.

Susevska L, Darkovska Serafimovska M.

Background: Attention deficit hyperactivity disorder (ADHD) is a neurobehavioral developmental disorder usually diagnosed in children, with appearance of the first symptoms before the age of seven years. It is diagnosed twice more often in boys than in girls. The disorder is characterized by inattention and/or impulsivity and hyperactivity that can seriously affect many aspects of behavior and performance at school.
Methods: The study was done on a sample of 400 schoolchildren. Presence of ADHD symptoms was estimated using the Vanderbilt Assessment Scale, with teachers and parents as informants, and a specifically designed questionnaire for collecting socio-demographic data. There were 211 boys and 189 girls. Information about the pupils was collected from the pupils' teachers and parents.
Results: Our results showed that boys more often have ADHD symptoms compared to girls-59 boys and 25 girls (boys:girls ratio=2:1). Our results showed that Roma children significantly more often had ADHD symptoms compared to other ethnicities

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Eur Psychiatry. 2012;27:Suppl.1

ATTENTION DEFICIT HYPERACTIVITY DISORDER (ADHD) AND CONDUCT DISORDER IN CHILDREN OF DRUG DEPENDENT PARENTS.

Kheradmand A, Hedayati N, Parvaresh N, et al.

Attention deficit hyperactivity disorder and conduct disorder are among relatively prevalent disorders during childhood and adolescence. Considering the negative impact of the parents' drug dependency and bipolar disorder, the present study aimed to determine the prevalence of ADHD and conduct disorder in children of drug-dependent and bipolar parents. In this case-control study, the case group included two groups of patients with drug dependency and bipolar disorder hospitalized in Shahid Beheshti hospital in Kerman who had 7 to 11-year-old children. The control group included healthy individuals without any drug dependency or other psychiatric disorders. Data were collected using Rutter scale Form A (parents' form) and a demographic questionnaire. Data were analyzed with ANOVA, Chi-square and Tamhane's post-hoc test. Rutter's abnormal scores were generally 7.11% in children of drug dependent parents, 14% in children of bipolar parents and 1.6% in children of healthy parents demonstrating no significant difference. The frequency of conduct disorder in the bipolar and drug dependent group was higher than the healthy group, but the difference was not significant. The frequency of ADHD was 8.9% in the drug dependency group and 1% in the control group which shows a significant difference. Drug dependency in parents may be a leading factor to mental disorders such as ADHD and conduct disorder in children.

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Eur Psychiatry. 2012;27:Suppl.1

PUPILLOMETRIC ASSESSMENT OF AUTONOMIC NERVOUS SYSTEM FUNCTIONS IN CHILDREN WITH ATTENTION DEFICIT HYPERACTIVITY DISORDER.

Kara K, Turkbay T, Erdem U, et al.

Introduction: Attention deficit and hyperactivity disorder (ADHD) is one of the most frequently seen neurobehavioral disorder in school-aged children. Although the main cause of ADHD is unknown, it's thought that numerous biopsychosocial factors have part in etiology of ADHD together.
Objectives/aims: This study aims to compare autonomic nervous system functions by measuring pupil diameters in 6-11 aged boys diagnosed ADHD with age and sex matched healthy controls.
Methods: Thirty-two boys with ADHD and 24 healthy controls were participated into this study. We studied with a more homogeneous group by exclusion of any other psychiatric disorders except oppositional defiant disorder (ODD). The participants were evaluated autonomic nervous system functions by measuring pupil diameter changes in photopic and mesopic conditions.
Results: There were no statistical differences on photopic and mesopic pupil diameters between ADHD and healthy control groups ($p>0.05$). Moreover, there were no significant differences on same parameters between pure ADHD and ADHD+ODD groups ($p>0.05$).
Conclusions: These findings suggest that boys with ADHD don't show difference in pupil diameters from typically children. This might indicate no difference in autonomic nervous system functions.

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Eur Psychiatry. 2012;27:Suppl.1

PSYCHODYNAMIC PSYCHOTHERAPY AND ADULT ATTENTION DEFICIT HYPERACTIVITY DISORDER (ADHD).

Almagor D, Ansari R.

Introduction: Cognitive Behavioral and related psychotherapies such as Meta-Cognitive Psychotherapy are the most commonly cited and researched psychotherapy modalities in treating Adult Attention Deficit Hyperactivity Disorder (ADHD). The structure and goals of these therapies can be directly adapted to address ADHD symptoms. However, Psychodynamic Psychotherapy is not generally thought of as a common treatment alternative in ADHD. Indeed, psychoanalytically derived psychotherapies are not regularly utilized in the treatment of neurobiological disorders/ADHD. Adults with ADHD have commonalities in psychological developments due to secondary effects ADHD may have on the infant-caregiver interactions and the formation of later psychological structures. Research in the treatment of Adult ADHD demonstrates how patients share common defensive configurations secondary to common sequelae of ADHD such as underachievement and social maladjustment.
Objectives: The purpose of this abstract is to examine how the application of psychodynamic theory can be successfully utilized in several ways as a beneficial adjunct treatment of ADHD. Case examples of psychodynamic treatments of adults with ADHD will be presented as will common clinical issues in ADHD treatment.
Methods: This poster will present 4 case studies selected from a clinical population of a large metropolitan ADHD in Toronto, Canada and will discuss how psychotherapeutic techniques were utilized in conjunction with psychopharmacological agents to treat the symptoms of Adult ADHD.
Conclusions: The use and application of psychodynamic theory can be successfully utilized in significant ways as a beneficial adjunct treatment of ADHD as part of an integrative treatment approach which utilizes both psychotherapeutic and psychopharmacological approaches.

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Eur Psychiatry. 2012;27:Suppl.1

CONDUCTUAL EVALUATION OF EXECUTIVE FUNCTIONING IN ATTENTION DEFICIT HYPERACTIVITY DISORDER AND READING DISABILITIES: UTILITY OF THE BRIEF SCALE (GIOIA ET AL., 2000) ADAPTATED INTO SPANISH.

Garcia-Fernandez T, Gonzalez-Castro P, Fernandez-Cueli M, et al.

Association between attention deficit hyperactivity disorder (ADHD) and reading disorder (RD) is frequent. They are two of the most common disorders among school-age children and co-occurrence of both

disorders range from 20% to 40% (Bental et al., 2007; Willcutt et al., 2010). Our main goal was to know if both disorders share common executive deficits and which are the main deficient areas.
Method: we assessed the executive functioning in a sample of 79 children and teens with ADHD (n=43) and ADHD+RD (n=36), aged 6 to 16, through the administration of the BRIEF-Parent form (Behavior Rating Inventory of Executive Function; Gioia, Isquith, Guy, & Kenworthy, 2000). This scale measures eight components of the executive function, focusing in daily behaviors associated with executive functioning. However, it is not available in Spanish language. For this reason we translated the scale into Spanish and we made an exploratory study with an initial sample of 90 boys and girls, aged 5 to 18, getting some acceptable psychometric properties.
Results: The co-morbid group shared the basic characteristic impairments in executive functions with the pure ADHD. In addition, this group showed a more severe impairment in working memory, monitor and planification.
Conclusions: the results point to a different and more impaired clinical profile in the co-morbid condition. Finally, executive functioning should be considered in the diagnosis of RD and in the design of reading learning programs, which have been focused primarily on the linguistic nature of the task forgetting other possible relevant domains.

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Eur Psychiatry. 2012;27:Suppl.1

INTRA-FAMILIAL STUDY OF PREGNANCY COMPLICATIONS IN ATTENTION DEFICIT HYPERACTIVITY DISORDER .

Anon.

Introduction: Epidemiological studies show that the variance in ADHD phenotype has a strong genotypic (75 to 80 %) and environmental (10 to 25%) contribution. The environmental contribution is mainly due to non-shared environmental factors rather than shared environmental factors.
Objectives: Case/control epidemiological studies are unable to distinguish between shared and non-shared environmental factors. Our intra-familial design reduces the number of confounding factors, thus giving a more reliable picture of the environmental and genotypic contributions to the phenotype.
Aims: To compare incidence of Pregnancy, Labor, Delivery and Neonatal Complication (PLDNC) between children with ADHD and their unaffected siblings matched for age and gender.
Methods: Children with ADHD were recruited at the Douglas Mental Health University Institute The Kinney Medical and Gynecological Questionnaire and the McNeil-Sjostrom Scale were used to assess incidence of PLDNC. The study had one hundred and sixteen sibling pairs (n=116) and a Mixed-Model Analysis of Variance (MMANOVA) was carried out.
Results: Rank of birth and gender were significantly different between the two groups and these were taken as covariates. There was a significant difference in PLDNC between the two groups (F=4.49, df=1, p=.03). However, there was no significant interaction between the different stages of PLDNC and presence of ADHD.
Conclusions: PLDNC appear to be among the non-shared environmental factors implicated in ADHD. Children with ADHD have a higher prevalence of overall complications during pregnancy as compared to their non-affected siblings, and the period surrounding pregnancy might be of particular relevance to the aetiology of ADHD.

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Eur Psychiatry. 2012;27:Suppl.1

DEVELOPMENTAL CHANGES IN CHILDREN WITH ADHD.

Ptacek R, Kuzelova H.

Background: ADHD is a common diagnosis characterized by inadequate level of attention, excessive activity and impulsivity, accompanied by biochemical and neuroendocrinological changes. In connection with these changes ADHD children can show differences in growth and in development general. Our study compares anthropometric characteristics in boys with ADHD (according to DSM IV) and non-clinical population (n=250; age: avg=10,5, 19; SD= 4,8). In contrast to the most of the studies which were done on this topic and work mostly only with BMI, the presented study operates with complex anthropometrical

measurements. Differences between medicated (methylphenidate) and non medicated groups were also evaluated. Possible relation between growth and results of psychological tests (WISC-III, attention tests) and questionnaires (CPQ, CTQ) were considered as well.
The results show significant difference in anthropometric parameters between children with ADHD and children without the diagnosis. The differences are especially significant in signs of nutrition. It was also found that boys with ADHD have higher percentage of fat, higher value of abdominal circumference and some other differences in physipue from the norm. Children taking medication show lower percentage of body fat and lower BMI. Differences in height were not statistically significant. Relation of anthropometric and psychological parameters was not found.
Conclusion: The results are in correspondence with previous studies and point not only to significant influence of medication on growth of ADHD children but as well as on other developmental changes connected with this disorder.

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Eur Psychiatry. 2012;27:329-34.

PARENT-REPORTED ATTENTION-DEFICIT HYPERACTIVITY DISORDER AND SUBTYPES OF CONDUCT DISORDER AS RISK FACTOR OF RECIDIVISM IN DETAINED MALE ADOLESCENTS.

Colins O, Vermeiren R, Vahl P, et al.

Objective: Parents are considered to be crucial informants in child psychiatry, particularly for disorders in which age of onset is included in the diagnostic criteria. In detained adolescents, however, parents all too often are difficult to reach or reluctant to cooperate. The clinical relevance of gathering parental information in this context should therefore be demonstrated. This study examines if parent reports of attention-deficit-hyperactivity disorder (ADHD) and age of onset subtypes of conduct disorder (CD) predict official criminal recidivism.
Method: Participants were 110 detained male adolescents from all three Youth Detention Centers in Flanders. Between January 2005 and February 2007, both youth and a parent were interviewed with the Diagnostic Interview Schedule for Children Version IV. Two to 4. years later, information on criminal recidivism was retrieved.
Results: Youth self-reported ADHD and CD (subtypes) were not related with recidivism. Parent-reported ADHD, CD and childhood-onset CD predicted serious property recidivism, while parent-reported adolescent-onset CD predicted future violent arrests. In reverse, childhood-onset CD as reported by parents was negatively associated with violent recidivism.
Conclusion: Obtaining parental diagnostic information in delinquent adolescents is crucial for predicting recidivism. This finding emphasizes the need of including parents when studying mental disorder in detained adolescents.

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Eur Psychiatry. 2012;27:Suppl.1

AVOIDING SPECIFIC FOODS MAY REDUCE ADHD: SHOULD WE CHANGE OUR PRESCRIPTIONS?

Pelsser LM.

The effects of a restricted elimination diet (RED) on Attention Deficit Hyperactivity Disorder (ADHD) have been investigated in eight randomised controlled studies, five of which used a double-blind placebo controlled (DBPC) design (see table 1). The first and the eighth RED trial (the Impact of Nutrition on Children with ADHD (INCA) study), have been published in The Lancet. The RED studies provide convincing evidence for a statistically significant and clinically relevant effect of an RED on ADHD and on comorbid ODD, with an overall effect size on ADHD of 1.2 (see table 2). The INCA study has shown that sixty percent of a heterogeneous group of children with ADHD and ODD do not meet the ADHD and ODD criteria anymore following the RED, showing normal behaviour according to parents', teacher's and blinded paediatrician's measurements (see figure 1 and figure 2). The results of the DBPC RED studies indicate that the beneficial effects of an RED on the behaviour of children with ADHD are not moderated by parental expectations. In addition, a recent randomised controlled pilot study investigating the effects of an RED on family structure and environment has shown that an RED does not seem to affect family structure or family

environment in families motivated to enter RED research. It may be obvious that a restricted diet, commensurable to behavioural therapy, is very difficult to blind. Consequently, in order to conceal the treatment conditions in the DBPC studies, some dietary sacrifices had to be made to secure the blinding, obviously resulting in lower effect sizes than in open studies using an optimally restricted diet (see table 2). Considering that 1) the long-term effects of medication, the current therapy of ADHD, are disappointing; 2) 50% of children discontinue their medication within a two-year period; and 3) children with comorbid ODD have a worse prognosis, interventions that may prevent ADHD and ODD have great clinical potential. Children with ADHD responding favourably to a 5-week RED may be diagnosed Food-Induced ADHD (FI-ADHD); in these children ADHD may be considered a hypersensitivity disorder triggered by food (see figure 3). Children diagnosed FI-ADHD are advised to enter an RED challenge period to identify the incriminated foods, eventually resulting in a diet as elaborate as possible. Children with ADHD not responding favourably to an RED may be diagnosed Classic ADHD (C-ADHD) and may start treatment as usual. Further investigation is necessary to define the mechanism of food in children with FI-ADHD and the long-term effects of an RED. Taking the impressive results of all RED studies into account, a paradigm shift concerning diagnosis and treatment of ADHD is needed, and implementation of RED research in children with parents motivated to follow a 5 week RED is warranted.

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Eur Psychiatry. 2012;27:Suppl.1

FUNCTIONAL CONNECTIVITY OF MOTOR CONTROL IN ATTENTION DEFICIT HYPERACTIVITY DISORDER (ADHD) AND PEDIATRIC BIPOLAR DISORDER (PBD) WITH AND WITHOUT ADHD.

Pavuluri M, Passarotti A, Ellis J, et al.

Introduction: ADHD and PBD are two developmental syndromes with high comorbidity rates and common symptoms of inattention, impulsivity and hyperactivity.

Objectives: Mechanistic comprehension of neural circuitry function will enhance our understanding of the dimensional functions of affect and cognition, and guide rational pharmacological treatment for ADHD and PBD.

Aims: The aim of this research is to further examine the neural bases of impulsivity in distributed brain networks engaged during execution or inhibition of a pre-potent motor response in adolescents with PBD and ADHD relative to healthy controls (HC).

Methods: 31 adolescents with PBD, 24 PBD/ADHD, 22 ADHD and 33 HC (mean age 13.78 (plus or minus) 2.4), underwent fMRI stop signal task, examining the ability to inhibit a prepotent motor response.

Results: Relative to HC, ADHD showed greater connectivity in bilateral cerebellum and decreased connectivity in left precuneus and subgenual ACC (Figure 1, Panel A). The PBD/ADHD group's functional connectivity was reduced in limbic regions relative to the other three groups, while it was increased in right insula relative to ADHD (Figure 1, Panel B).

Conclusions: Findings suggest that within an attentional control network relative to HC, both PBD and ADHD groups exhibit greater functional connectivity in right VLPFC. The PBD/ADHD group showed more severe PBD-like pattern of over-engagement in emotional regions, and a less severe ADHD-like pattern in posterior attentional regions. (Figure Presented).

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Eur Psychiatry. 2012;27:Suppl.1

ATTENTION DEFICIT HYPERACTIVITY DISORDER IN ADULTS: WHAT IS THE APPROACH?

Costa S, Coutinho B, Novo T.

Introduction: The Attention Deficit Hyperactivity Disorder (ADHD) has been regarded for years as a disorder of childhood and adolescence only, without being properly studied and deepened its implications in adulthood.

Objective: To determine the implications of cognitive, emotional and social aspects of ADHD throughout the life cycle and reflect on the continuity of the diagnosis and treatment of childhood and adulthood.

Methodology: Review based on scientific papers published in the last 10 years using nullAttention Deficit Hyperactivity Disordernull and nulladultnull as keywords (MeSH).

Results: Epidemiological studies have shown that 50-80% of children who have ADHD remain the same difficulties in adulthood. The underdiagnosis of ADHD in adults is due to the mitigate of hyperactivity and impulsivity with the age. However, inattention continues to affect the adult presenting these difficulties academically or at work, as low frustration tolerance, sleep disturbances and higher levels of anxiety and depression than the general population. Other studies found that 20-40% of adults with ADHD have a history of substance abuse, especially illicit drugs and tobacco.
Conclusion: The ADHD causes significant and inadequate behavioral changes throughout life. Therefore, it is essential to a proper recognition and treatment of adults with ADHD as a good articulation between Child and Adolescent Psychiatry and Adult Psychiatry, in order to improve the prognosis and quality of life.

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Eur Psychiatry. 2012;27:Suppl.1

DIAGNOSES, TREATMENT AND MANAGEMENT OF ADHD-A PARENTS' SURVEY BY TDAH FRANCE.

Vergnaud-Getin C, Angenon Delerue KG, Regnault-Thery A.

ADHD, Attention Deficit Hyperactivity Disorder stands for a neuro-developmental disorder occurring in childhood before the age of 7. ADHD negatively impairs daily aspects of live including school, work, and interpersonal relationships. Our study was made in august 2011 by gathering information from TDAH-France association adherents' parents using a web based survey. The results are based on a population of 761 collected replies, including 667 considered as fully answered. According to those results, the average detection age is 8.6, with a ratio of 8 boys for one girl, the mean time to obtain a diagnosis is around 22 months. TDAH-France being strongly involved in connecting parents looking for a diagnosis to ADHD specialists - mainly pediatricians, neurologists and psychiatrists with 2/3 working as hospital practitioner - the average wait for the first appointment is below 3 months. Education related issues like school or work are quoted as the main reasons making parents seek for professional help. Clinical assessments is necessary to establish a diagnosis, IQ test being, among the others, the most used. The vast majority of the diagnosed children treatment is based on methylphenidate combined with behavioral and psychosocial treatments. Less than 50% of the parents will ask for official handicap recognition and only a third of the children obtain free appropriation school services or accommodation. Scholarship is a major concern with ADHD: one ADHD child out of 5 is concerned by school exclusion, and a tiers is concerned by year repeating.

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Eur Psychiatry. 2012;27:Suppl.1

REDUCED NEURAL ERROR SIGNALING IN LEFT INFERIOR PREFRONTAL CORTEX IN ADULTS WITH ADHD.

Vasic N, Plichta MM, Wolf RC, et al.

Neuroimaging studies in healthy subjects have shown that the neural network involved in inhibition of inappropriate response tendencies shares commonalities with the error processing network signalling failure of inhibition. It has also been proposed that the observed behavioral response inhibition deficits in patients with attention-deficit/hyperactivity disorder (ADHD) seem to be strongly associated with dysfunctional error processing. Most studies on error processing in ADHD have been conducted in children using electrophysiological methods, while investigations in adult patients with ADHD, and functional magnetic resonance imaging (fMRI) in particular, are sparse. Using event-related fMRI we studied 14 adults with ADHD and 12 group-matched healthy control subjects while performing a modified version of a combined Eriksen Flanker-Go/NoGo-task. The modification permitted for the distinction between congruent and incongruent Go- and NoGo-trials, with incongruent NoGo-trials representing the most demanding condition permitting a response-based analysis of the neural error processing network of failed inhibition. Behaviourally, no differences between groups were observed for reaction times or rates of incorrect NoGo-trials. Compared to healthy controls patients with ADHD demonstrated significant hypoactivation of the left inferior frontal gyrus bordering the anterior insular cortex (BA 47), when contrasting failed against successful inhibitions. The inverse group comparison (ADHD>controls) showed no difference. Our data suggest that hypoactivation in the inferior frontal cortex might represent a neuro-functional marker of

altered error processing in adults with ADHD, possibly signaling dysfunctions in the neural system that operates task-set related representations and conscious evaluation of erroneous performance.

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Eur Psychiatry. 2012;27:Suppl.1

DOES ATTENTION DEFICIT HYPERACTIVITY DISORDER EXIST IN ISOLATED INDIGENOUS CHILDREN LIVING IN TRIBES FROM THE BRAZILIAN AMAZON?

Caixeta L, Azevedo PB, Reimer CH.

The clinical constructs of attention deficit/hyperactivity disorder (ADHD) have been described in several cultures worldwide. Yet this symptomatic presentation still remains to be assessed in remote population groups.

Objective: To explore the possibility of the existence of ADHD' symptoms among settlement-dwelling indigenous children of the Karaja ethnic group in the Brazilian Amazon and to estimate the rate of ADHD' symptoms among 7-16-year-olds.

Method: All parents/caretakers of 7-16-year olds from all (N=5) most populated indigenous groups were invited to participate, if they were worried about their children emotional/behavioural problems. Fifty three parents spontaneously came for a psychiatric interview (DSM-IV criteria applied), individually conducted at the settlement's health post by a child psychiatrist.

Results: The estimated rate of ADHD' symptoms in problematic indigenous children aged 7-16 years was 24.5% (95% CI: 13.6 - 35.4) since 13 out of 53 parents/caretakers reported the classical triad of ADHD symptoms (inattentiveness, hyperactivity, impulsiveness).

Conclusion: ADHD is a clinically relevant construct in the Karaja indigenous population, representing a major concern among parents/caretakers of children and adolescents from this ethnic group.

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Eur Psychiatry. 2012;27:Suppl.1

IDENTIFICATION AND MANAGEMENT OF ATTENTION DEFICIT HYPERACTIVITY DISORDERS: A SURVEY OF SPECIALIST CAMHS STAFF PERCEPTIONS, KNOWLEDGE AND TRAINING NEEDS IN UNITED KINGDOM.

Olety S.

Background and aims: Audit of ADHD caseload identified an open case prevalence of ADHD as 0.2% and 0.6% in Specialist Tier 2 and 3 CAMHS across 2 metropolitan boroughs of Greater Manchester, as opposed to national prevalence of 1-3%. We carried out a survey of CAMHS clinicians to identify and address any internal factors that could contribute towards such an under-representation.

Methods: A Survey questionnaire was designed to look at staff perceptions, knowledge and training needs in identification and management of ADHD. Questionnaires were distributed to 50 CAMHS professionals working across these two Specialist CAMHS, which were completed anonymously and returned yielding a response rate of 84%.

Results: 1 in 10 CAMHS clinicians did not believe in giving children and young people diagnosis of ADHD and a third believed ADHD was medicalization of behavioural problems rather than neurobiological disorder. Only half of CAMHS clinicians were aware of co-morbidities such as conduct disorder and other developmental disorders.

Conclusions: Although ADHD is a professionally well established condition, scepticism amongst significant number of CAMHS clinicians about the validity of diagnosis, relative risks and benefits of diagnosis continues to exist. This may result in under diagnosis of children who are referred to CAMHS with behavioural difficulties. This has an impact on quality and appropriateness of service provided. Specific training on ADHD is especially important among CAMHS teams, with clinicians from a multidisciplinary background and differing attitudes towards ADHD. We anticipate this will help identify missed ADHD cases and improve the quality of care.

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Health Econ. 2012;21:928-45.

THE EFFECT OF CHILDHOOD CONDUCT DISORDER ON HUMAN CAPITAL.

Webbink D, Vujic S, Koning P, et al.

This paper estimates the longer-term effects of childhood conduct disorder on human capital accumulation and violent and criminal behavior later in life using data of Australian twins. We measure conduct disorder with a rich set of indicators based on diagnostic criteria from psychiatry. Using ordinary least squares and twin fixed effects estimation approaches, we find that early-age (pre-18) conduct disorder problems significantly affect both human capital accumulation and violent and criminal behavior over the life course. In addition, we find that conduct disorder is more deleterious if these behaviors occur earlier in life.

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Hum Brain Mapp. 2012;33:1941-51.

DECREASED FRONTOSTRIATAL MICROSTRUCTURAL ORGANIZATION IN ATTENTION DEFICIT/HYPERACTIVITY DISORDER.

De Zeeuw P, Mandl RC, Hulshoff Pol HE, et al.

Frontostriatal brain areas have been implicated in the neurobiology of attention deficit/hyperactivity disorder (ADHD), but little work has directly addressed the white matter connections between these regions. The present study investigates the microstructural organization and myelination of frontostriatal white matter in children with ADHD and controls. Diffusion tensor imaging and magnetization transfer imaging scans were acquired in 30 children with ADHD and 34 controls. A study specific volume of interest (VOI) of frontostriatal white matter was created using a tractography based statistical group map. Fractional anisotropy (FA, indexing microstructural organization) and magnetization transfer ratio (MTR, indexing macromolecular content, myelin in particular) were computed for the frontostriatal VOI and for total cerebral white matter. Exploratory analyses were conducted investigating the effect of stimulant use on these measures. Frontostriatal FA but not MTR was decreased in ADHD compared with controls. There were no differences in FA or MTR for total cerebral white matter. Frontostriatal FA correlated negatively with teacher-rated attention problems in controls but not children with ADHD. The duration of stimulant use did not affect the main results. Changes in frontostriatal connectivity in ADHD appear to be related to changes in microstructural organization rather than myelination per se. A correlation with attention problems for controls suggests that frontostriatal organization is relevant to ADHD-related behaviors.

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Indian J Pediatr. 2012;1-4.

PREVALENCE OF PARENT-RATED ATTENTION DEFICIT HYPERACTIVITY DISORDER AND ASSOCIATED PARENT-RELATED FACTORS IN PRIMARY SCHOOL CHILDREN OF NAVI MUMBAI-A SCHOOL BASED STUDY

Ajinkya S, Kaur D, Gursale A, et al.

Objectives: To study the prevalence of parent-rated attention deficit hyperactivity disorder and associated parent-related factors in primary school children of Navi Mumbai.

Methods: One hundred twenty two children including both boys and girls aged between 6 y and 11 y were selected from a school at Navi Mumbai and their parents were given the National Innovative for Children's Healthcare Quality (NICHQ) Vanderbilt Assessment Scale to be filled and returned, which was subsequently analyzed using SPSS (version 16).

Results: The prevalence of attention deficit hyperactivity disorder was 12.3 % with boy to girl ratio of 3:2. It was more prevalent in nuclear type of family and in families where a single parent was working especially where the father was the sole breadwinner and doing semi-skilled or unskilled type of work. No significant relation was found between the numbers of work-related hours when parents were away from children and attention deficit hyperactivity disorder.

Conclusions: Attention deficit hyperactivity disorder is prevalent in the primary school-going population of Navi Mumbai, especially in boys. The increased prevalence in nuclear families and families with single working parent should further be explored. Further studies with larger sample size and longer period of

follow up may be recommended. The study also recommends screening of school children for symptoms of attention deficit hyperactivity disorder (ADHD) for early diagnosis and treatment.

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Int J Behav Dev. 2012;36:279-92.

DEVELOPMENTAL DIFFERENCES IN STRUCTURE OF ATTENTION-DEFICIT/HYPERACTIVITY DISORDER (ADHD) BETWEEN CHILDHOOD AND ADULTHOOD.

Martel MM, von Eye A, Nigg J.

The current paper utilizes a bifactor modeling approach to evaluate the structure of attention-deficit/hyperactivity disorder (ADHD) in adulthood and assess developmental continuity of ADHD structure between childhood and adulthood. The study compared traditional one-factor, two-factor, three-factor, and second-order factor models of ADHD with a bifactor model of ADHD. Developmental differences in ADHD structure were examined using an extension of the bifactor model: a two-group model comparing children and adults. Participants were 406 adults (49% male; 145 of 406 with ADHD), (18 to 37) years old, and 548 children (58% male; 302 of 548 with ADHD), 6 to 18 years old. A bifactor model of ADHD exhibited the best fit in adults and children compared to traditional models, suggesting continuity in the ADHD latent construct across development. However, significant differences in the factor loadings were evident between children and adults in the two-group bifactor model, suggesting changes in the relative importance of particular symptoms over time. Namely, hyperactivity symptoms appear to decline in importance relative to the ADHD phenotype between childhood and adulthood.

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Int J Obes. 2012;36:963-68.

ASSOCIATION OF SYMPTOMS OF ATTENTION-DEFICIT/HYPERACTIVITY DISORDER WITH CHILDHOOD OVERWEIGHT ADJUSTED FOR CONFOUNDING PARENTAL VARIABLES.

Van Egmond-Frohlich AWA, Widhalm K, De Zwaan M.

Objective: There have been numerous reports on association between attention-deficit/hyperactivity disorder (ADHD) and overweight/obesity in children and adolescents; however, most studies adjusted only for a limited number of possible confounders.

Methods: We analyzed the data of 11 159 six through seventeen-year-old participants in the German Health Interview and Examination Survey for Children and Adolescents. We determined weight status based on measured anthropometry and national reference data by International Obesity Task Force criteria. The parent-rated hyperactivity/inattention subscale of the Strengths and Difficulties Questionnaire (SDQ-HI) was used as a continuous measure of ADHD symptoms. We examined whether the putative confounders socioeconomic status, migrant status, parental body mass index (BMI) and parental smoking were associated with both SDQ-HI and overweight/obesity. Associations between SDQ-HI and overweight/obesity vs normal weight were analyzed by binary logistic regression analyses. In the first model, we adjusted for age and sex only and in the second model also for the parental confounders.

Results: SDQ-HI was associated with an increased risk for overweight/obesity in both sexes adjusting for age and sex. However, after adjusting for all confounders SDQ-HI was associated with an increased risk for overweight/obesity only in adolescent females. Socioeconomic status, parental BMI and parental smoking each were relevant confounders. Migrant status was also significantly associated with both SDQ-HI and overweight/obesity, thus qualifying as a confounder but contributed only weakly to the association.

Conclusions: The association between ADHD symptoms and overweight/obesity is due to confounding by family background variables in all but adolescent girls. Possible reasons for the increased risk for overweight/obesity in this subgroup are discussed. We also propose possible mechanisms for confounding by parental socioeconomic status, BMI and smoking.

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Int J Psychophysiol. 2012;85:93-105.

RESPONSE INHIBITION OF CHILDREN WITH ADHD IN THE STOP-SIGNAL TASK: AN EVENT-RELATED POTENTIAL STUDY.

Senderecka M, Grabowska A, Szewczyk J, et al.

The Stop-Signal Task (SST) is a procedure that can provide a measure of inhibitory control of an ongoing motor response. We used the stop-signal paradigm to determine whether deficient inhibitory control distinguishes children with a diagnosis of attention deficit hyperactivity disorder combined type (ADHD-Com) from normally developing children, matched on age and sex. Participants performed a standard visual two-choice task with an auditory stop-signal stimulus, while an EEG was recorded. The behavioral results indicated that the ADHD group had significantly impaired inhibitory control compared to the performance of normal children. Relative to controls, the go stimulus reaction time (RT) and the stop-signal reaction time (SSRT) were prolonged in children with ADHD. The amplitudes of P2 and P3 components to the auditory stop-signal were more pronounced for successful than for unsuccessful stop-signal trials in both groups. However, the successful-unsuccessful difference was larger in control subjects. In contrast, the amplitude of the N2 component to auditory stop-signal was more pronounced for unsuccessful than for successful stop-signal trials in both groups. The comparison of the N2 component between control and ADHD groups revealed a greater amplitude and longer latency in the latter group, in successful stop-signal trials only. Additionally, the amplitude of response-locked ERPs, containing the ERN-Pe complex related to error-detection, was smaller in ADHD children. These results support the hypothesis of a complex deficit of inhibitory control, conflict monitoring, and error recognition mechanisms in ADHD and corroborate the utility of the stop-signal task in distinguishing hyperactive from normal children.

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Int J Psychophysiol. 2012;85:106-15.

EVENT-RELATED POTENTIALS IN CHILDREN WITH ATTENTION DEFICIT HYPERACTIVITY DISORDER: AN INVESTIGATION USING AN AUDITORY ODDBALL TASK.

Senderecka M, Grabowska A, Gerc K, et al.

The aim of the study was to investigate differences in electrophysiological brain activity between children diagnosed with attention deficit hyperactivity disorder combined type (ADHD-Com) and normally developing children, using the auditory 2-tone oddball paradigm. Forty right-handed subjects aged between 6.9 and 12.3. years participated in the present study, with 16 boys and 4 girls in each of the control and ADHD-Com groups. Children were individually age- and gender-matched. The auditory oddball task consisted of 155 standards (1 KHz, p = .66) and 80 targets (1.5. KHz, p = .34), presented randomly one at a time. Subjects were instructed to listen to the sounds and count the rare tones. Task performance in ADHD children did not differ compared to that in the control group. Event-related potentials (ERPs) elicited to target and standard stimuli were analyzed for between-group differences. The ADHD group showed enhanced P2 and reduced N2 component to both oddball stimuli, followed by reduced P3 component to attended targets compared with controls. The difference in the P3 amplitude between targets and standards was smaller in the ADHD group, particularly over the right hemisphere. These results suggest deficiencies in both automatic and controlled processing in children with ADHD. Enhanced amplitude of the P2 in ADHD children may reflect an early orienting deficit which affects later processing stages in the oddball task. Reduced amplitude of the N2 in the clinical group may be associated with stimulus discrimination impairment and inappropriate conflict monitoring. Reduced amplitude of target P3 and its asymmetrical distribution in ADHD children may reflect a deficit in higher-level executive functions, such as attention allocation and stimulus evaluation, accompanied by an impairment of global aspects of attentional processing that are under right hemisphere control.

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Ir J Med Sci. 2012;181:147-50.

PRELIMINARY EVALUATION AFTER SETTING UP A POST-ASSESSMENT ATTENTION DEFICIT HYPERACTIVITY DISORDER CLINIC IN A COMMUNITY SETTING.

Damodaran J, Bourke M, Dowling B.

Background Attention deficit hyperactivity disorder (ADHD) is a common neuro-behavioural condition affecting school age children, older adolescents and young adults. It often leads to challenging educational, social and personal difficulties and co-morbidities which makes it an appropriate focus for the setting up of a dedicated clinic.

Aim This service innovation was planned to ensure that ADHD patients receive regular multi-disciplinary reviews and to improve the training standards of junior doctors. We hypothesised that multimodal treatment approach shall be more acceptable to parents and children with ADHD than medication alone. It was our belief that the setting up of a post-assessment ADHD clinic will lead to efficient use of existing resources thereby saving clinical time.

Method Our local audit identified 51 young people with ADHD stabilised on medication. One year after setting up the post-assessment ADHD clinic, feedback was obtained using questionnaires from clinicians and parents.

Results Seventy-five percent of parents and all the clinicians responded. Parents indicated that they were quite satisfied with the changes made. Clinicians were of the opinion that the dedicated ADHD clinic was more efficient in meeting the children's needs.

Conclusion This survey validated our hypothesis that multi-modal reviews were more acceptable to parents of children with ADHD. The setting up of the dedicated clinic proved to be an efficient way of using the existing resources without any additional costs.

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J Affective Disord. 2012 [e-pub].

THE IMPACT OF CYCLOTHYMIC TEMPERAMENT IN ADULT ADHD.

Landaas ET, Halmoy A, Oedegaard KJ, et al.

Background: Attention-Deficit/Hyperactivity Disorder (ADHD) is a prevalent neurodevelopmental disorder in children and adults. Many ADHD patients experience affective symptoms that resemble the cyclothymic temperament trait, which is suggested to be a part of the bipolar spectrum. However, the relationship between adult ADHD and cyclothymic temperament has never been systematically studied.

Methods: A sample of 586 clinically diagnosed Norwegian adult ADHD patients and 721 population derived controls responded to the 21-item cyclothymic subscale of the Temperament Evaluation of Memphis, Pisa, Paris and San Diego auto-questionnaire (TEMPS-A). Self-reported data on psychiatric symptoms, comorbidity, educational and occupational level, and known comorbidity in family members, including bipolar disorder, was also obtained.

Results: The mean TEMPS-A scores were 13.0 for patients and 4.6 for controls ($p<0.001$), and 71% of the patients compared to 13% of the controls were classified as having a cyclothymic temperament (TEMPS score (greater-than or equal to)11 points). Among ADHD patients, cyclothymic temperament was strongly associated with more childhood and adult ADHD symptoms, lower educational and occupational achievements and increased psychiatric comorbidity, including bipolar disorder (10%). In addition, 49% screened positive on the Mood Disorder Questionnaire.

Limitations: Although the cyclothymic TEMPS-A scale has been used in clinical settings in Norway for many years, it has not yet been officially validated.

Conclusions: Cyclothymic temperament is highly prevalent in adults with ADHD, and this characterises a subgroup of more psychiatrically impaired individuals, possibly reflecting an underlying affective instability with a pathophysiology closer to the bipolar spectrum disorders.

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J Autism Dev Disord. 2012;1-6.

CHILDREN WITH DISABILITIES ARE OFTEN MISDIAGNOSED INITIALLY AND CHILDREN WITH NEUROPSYCHIATRIC DISORDERS ARE REFERRED TO ADEQUATE RESOURCES 30 MONTHS LATER THAN CHILDREN WITH OTHER DISABILITIES.

Tuominen-Eriksson AM, Svensson Y, Gunnarsson RK.

Disabilities in a child may lead to low self-esteem and social problems. The lives of parents and siblings are also affected. Early intervention may decrease these consequences. To promote early intervention early referral to adequate resources is essential. In a longitudinal retrospective observational study it was found that children with neuropsychiatric disorders without mental retardation were referred 30 months later than other children. Agreement between the referrer's identification of the main disability and the habilitation center's was low with Kappa coefficient 0.44. Whereby agreement on diagnosis between referrer and habilitation centers was low, earlier referral should be promoted.

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J Autism Dev Disord. 2012 Jul;42:1353-63.

DEPRESSION SYMPTOMS IN BOYS WITH AUTISM SPECTRUM DISORDER AND COMPARISON SAMPLES.

Gadow KD, Guttmann-Steinmetz S, Rieffe C, et al.

This study compares severity of specific depression symptoms in boys with autism spectrum disorder (ASD), attention-deficit hyperactivity disorder (ADHD), or chronic multiple tic disorder (CMTD) and typically developing boys (Controls). Children were evaluated with parent and teacher versions of the Child Symptom Inventory-4 (CSI-4) and a demographic questionnaire. Mothers' and teachers' ratings generally indicated the most severe symptoms in boys with ASD ± ADHD. Associations of depression with ASD severity and IQ varied considerably for specific symptoms of depression, ASD functional domain, and informant. Findings provide additional support for the differential influence of neurobehavioral syndromes on co-occurring symptom severity and illustrate how more fine-grained analyses of clinical phenotypes may contribute to a better understanding of etiology and current nosology.

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J Child Neurol. 2012;27:852-58.

RELATIONSHIP OF HYPERACTIVITY/INATTENTION WITH ADIPOSITY AND LIFESTYLE CHARACTERISTICS IN PRESCHOOL CHILDREN.

Ebenegger V, Marques-Vidal PM, Munsch S, et al.

We performed a cross-sectional study in 450 nonreferred preschool children aged 4 to 6 years to assess the association between hyperactivity/inattention with adiposity and lifestyle characteristics. Measurements included scores of hyperactivity/inattention, adiposity, objectively measured physical activity, television viewing, and eating habits. Higher scores of hyperactivity/ inattention were associated with lower percentage body fat, higher levels of physical activity, and less time spent in sedentary activity (all P (less-than or equal to).01). However, higher scores of hyperactivity/inattention were also associated with more television viewing and less healthy eating habits (all P (less-than or equal to).04). Except for some selected eating habits (P >.07), those relationships remained significant after adjustment for age, sex, and sociodemographic confounders. To conclude, higher scores of hyperactivity/inattention are linked to different lifestyle characteristics that may in part contribute to a future development of overweight/obesity. Precise mechanisms explaining these associations and possible preventive approaches should be further investigated.

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Journal of Clinical Nursing. 2012 Jul;21:1932-42.

PARENTING OF CHILDREN WITH ADHD IN SOUTH KOREA: THE ROLE OF SOCIO-EMOTIONAL DEVELOPMENT OF CHILDREN WITH ADHD.

Oh WO, Park ES, Suk MH, et al.

Aims and objectives: The aim was to investigate the factors affecting the self-esteem and social competence of children with attention deficit hyperactivity disorder.

Background: Many studies have reported parenting variables such as parenting attitude and sense of competence have been suggested as significant determinants of socio-emotional development of children with attention deficit hyperactivity disorder. In South Korean society, the traditional culture of Confucianism is a strong influence on parenting practices and children's behaviour. However, there have been few studies that examined the relative significance of the parenting and other associated factors for self-esteem and social competence in children with attention deficit hyperactivity disorder in Korea living in a strict parenting environment.

Design: This study was designed as a cross-sectional and descriptive survey.

Method: The subjects were 124 pairs of mothers and their children with attention deficit hyperactivity disorder, recruited from local paediatric psychiatric clinics in South Korea. Data collection was conducted through the use of questionnaires.

Results: Affectionate parenting attitude and co-morbid condition of the child were the most important predictors of self-esteem. Rejecting parenting attitude was the most important predictor of social competence.

Conclusion: Higher levels of affectionate parenting attitude of mothers and non-co-morbid status of children both contributed unique variance to the overall prediction of higher self-esteem of children. Higher levels of rejecting parenting attitude of mothers contributed unique variance to the overall prediction of lower social competence in children with attention deficit hyperactivity disorder.

Relevance to clinical practice: Parenting attitude is the most important factor to contribute to the healthy socio-emotional development in children with attention deficit hyperactivity disorder. Health care providers need to develop and apply a parenting skills improvement program to improve positive parenting attitudes, which will benefit self-esteem and social competence in children with attention deficit hyperactivity disorder.

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J Intellect Disabil Res. 2012;56:690.

DISTINGUISHING HIGH FUNCTIONING ASD FROM ADHD IN A CLINICAL SAMPLE.

Brooks W, Butter EM.

Aim: High-functioning autism spectrum disorders (HFASD) share many symptoms with attention deficit/hyperactivity disorder (ADHD), including social deficits, attention problems, and self-regulation problems. It is important that screening measures accurately differentiate between these disorders to ensure that proper referral and treatment be provided. It is hypothesized that children with HFASD will present with more social problems and less externalizing problems than children with ADHD.

Method: A record review of children presenting for evaluation at a developmental disability clinic was conducted. Participants included 94 children (mean age = 9.4 years), with either a primary diagnosis of ADHD or HFASD, who were matched on age, gender, and intellectual functioning. Participants had been rated by parents using the Child Behavior Checklist- Ages 6 to 18 years (CBCL/6-18), to assess for social and behavioral problems.

Results: Participants diagnosed with ADHD scored significantly higher than children with HFASD on the attention problems subscale ($p = .001$), the aggression subscale ($p = .006$), the externalizing domain ($p = .017$), and the ADHD scale ($p < .001$) of the CBCL.

Conclusions: Several of the externalizing subscales on the CBCL were effective at differentiating children with HFASD from children with ADHD in this clinical sample.

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Journal of Learning Disabilities. 2012 Jul;45:361-70.

CENTRAL PROCESSING ENERGETIC FACTORS MEDIATE IMPAIRED MOTOR CONTROL IN ADHD COMBINED SUBTYPE BUT NOT IN ADHD INATTENTIVE SUBTYPE.

Egeland J, Ueland T, Johansen S.

Participants with attention-deficit/hyperactivity disorder (ADHD) are often impaired in visuomotor tasks. However, little is known about the contribution of modal impairment in motor function relative to central processing deficits or whether different processes underlie the impairment in ADHD combined (ADHD-C) versus ADHD inattentive (ADHD-I) subtype. The present study analyzes performance on the Visual Motor Integration Test relative to less effortful motor tests as well as on measures of energetics. Both ADHD groups showed evidence of impaired motor function on both visual-motor integration (VMI) and the less effortful motor tests. The ADHD-C group performed below the ADHD-I group on VMI, but their performance correlated highly with the measures of the energetic pools of arousal and effort. Different mechanisms may underlie impaired fine motor skills in ADHD. Central processing deficits contribute significantly to the deficit of ADHD-C but do not explain the motor impairment in ADHD-I.

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J Neural Transm. 2012;1-9.

IN VITRO STUDY METHODOLOGIES TO INVESTIGATE GENETIC ASPECTS AND EFFECTS OF DRUGS USED IN ATTENTION-DEFICIT HYPERACTIVITY DISORDER.

Grunblatt E, Bartl J, Marinova Z, et al.

Attention-deficit/hyperactivity disorder (ADHD) is one of the most common psychiatric disorders in children and adolescents, with up to 5 % affected worldwide. Twin and family studies on ADHD show its high familiality with heritability estimated around 70 %, but, to date, no specific polymorphism or gene was found to be specifically affected. Psychostimulants (amphetamine, methylphenidate) and non-psychostimulants (atomoxetine) are used successfully in ADHD therapy, but many of their mechanisms of action and their adverse effects are not yet fully understood. Therefore, both genetic findings and therapeutic interventions should be further investigated. One easy platform for such studies is in vitro analyses, which encompass neuronal cell culture studies, transfections of genetic constructs, binding and electrophysiology analyses. In this review, different methods will be referred in particular to ADHD findings, and new techniques will be mentioned for future studies of drug or genetic effects in vitro.

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J Neural Transm. 2012;1-10.

A SYSTEMATIC REVIEW ON OLFACTION IN CHILD AND ADOLESCENT PSYCHIATRIC DISORDERS.

Schecklmann M, Schwenck C, Taurines R, et al.

There is substantial evidence that olfactory function may serve as biomarker in adult neuropsychiatric disorders, e.g. overall diminished olfaction in Parkinson's disease as parameter for early pre-motor and differential diagnosis. Here, we present data from a systematic literature review in olfactory function in child and adolescent psychiatric disorders and report two unpublished data sets of autism and obsessive-compulsive disorder. The overall number of olfaction studies is low-even after taking into account adult samples. In addition, heterogeneity of findings is high due to methodological limitations such as the use of different olfactory tests and odours targeting the olfactory and/or the trigeminal system and neglecting possible confounders, e.g., intelligence or oto-rhino-laryngological affections. Despite these limitations, there is some indication for specific alterations of olfactory function especially in disorders with dopaminergic pathology (e.g. attention deficit/hyperactivity disorder, autism, schizophrenia, 22q11 deletion syndrome). Dopamine is a relevant modulator of early processes in the olfactory bulb. Our systematic review provides the basis for future confirmatory studies investigating olfaction as putative biomarker in child and adolescent psychiatric disorders. We further propose studies of thorough and elaborate methodological standards in combination with imaging techniques and the investigation of the influence of genetic variation on olfactory function.

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J Neural Transm. 2012;119:729-33.

CATHECHOL-O-METHYLTRANSFERASE VAL158MET POLYMORPHISM IS ASSOCIATED WITH DISRUPTIVE BEHAVIOR DISORDERS AMONG CHILDREN AND ADOLESCENTS WITH ADHD.

Salatino-Oliveira A, Genro JP, Guimaraes AP, et al.

COMT Val158Met polymorphism has been associated with both symptoms of attention-deficit/hyperactivity disorder (ADHD) and disruptive behavior disorders (DBD): that is, oppositional defiant disorder (ODD) and conduct disorder (CD) often comorbid with ADHD. The aim of this study was to test the association between COMT Val158Met polymorphism and the presence of DBD in children with ADHD (n = 516). Homozygous Val/Val children showed a higher prevalence of ADHD comorbid with DBD (X2 = 5.762; p = 0.016; OR = 1.58; CI95% = 1.07-2.35). Our findings replicate previous results and suggest a role for COMT in the etiology of DBD in children and adolescents with ADHD.

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J Pediatr Neurol. 2012;10:101-04.

EPILEPTIFORM ABNORMALITIES IN NON-EPILEPTIC CHILDREN WITH ADHD: CORRELATION WITH CLINICAL SUBTYPES.

Elsayed RM, Sayyah HE, Zakarya S.

There is high prevalence rate of attention deficit/hyperactive disorders (ADHD), and there is vague relation between it and epileptiform abnormalities. The objective of this study is to assess the relation between epileptiform abnormalities and ADHD. We studied 50 ADHD children and 25 sex and age matched controls. We used 20 channels electroencephalography under standard condition for assessing patients and control. ADHD rating scale was used for assessing patients. Epileptiform abnormalities were detected in 15 (30%) of ADHD children, in comparison with two (8%) of control group (P < 0.005). While, we did not find any correlation between ADHD subtypes and pattern of epileptiform discharge.

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J Psychiatr Res. 2012 [e-pub].

THE RELATIONSHIP BETWEEN PSYCHOTIC-LIKE EXPERIENCES AND ATTENTION DEFICITS IN ADOLESCENTS.

Kim SJ, Lee YJ, Jang JH, et al.

Objective: The present study focused on the relationship between psychotic-like experiences (PLEs) and attention deficits in adolescents.

Methods: A total of 2325 students, ages 14-19 years, across eight high schools in the Republic of Korea were recruited. Students performed the computerized Comprehensive Attention Test (CAT), which measures sustained and divided attention, and completed the Eppendorf Schizophrenia Inventory (ESI) and Beck Depression Inventory (BDI). One hundred sixty-six participants were excluded from the present study due to incomplete answers on the ESI; thus, data from 2159 students were included in the final analysis.

Results: Higher ESI scores predicted more omission and commission errors in divided-attention tasks after controlling for age, sex, and depressed mood (p = 0.024; p = 0.001, respectively). Attention and speech impairments on the ESI were the most frequent predictors of an increased number of errors in the attention tasks. All four ESI domains predicted the number of commission errors in divided-attention tasks (p < 0.001, p = 0.040, p = 0.046, and p = 0.013, respectively). In the high-risk group for psychosis (ESI (greater-than or equal to) 29), higher scores on the ideas of reference subscale were significantly associated with a higher number of both omission and commission errors in divided-attention tasks (p = 0.006, p = 0.017, respectively).

Conclusions: PLEs during adolescents were associated with impaired attention on the divided-attention task, which demands increased attentional effort. Attention deficits in adolescents prone to psychosis may be related to thought-content disturbances rather than to cognitive and perceptual symptoms.

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J Psychiatr Res. 2012;46:1066-72.

SMALLER VOLUMES OF CAUDATE NUCLEI IN PREPUBERTAL CHILDREN WITH ADHD: IMPACT OF AGE .

Carrey N, Bernier D, Emms M, et al.

Objective: Age-related abnormalities in caudate volumes have been reported to differ across the periods of childhood and puberty in children with ADHD. This study assessed caudate volumetric abnormalities across two narrow age clusters within the childhood period.
Method: Three-dimensional manual tracings of the head and body of the caudate nucleus and of the cerebrum were acquired from 26 medication-naive boys with a diagnosis of ADHD (ages 5.9-10.8 years), and 24 age-matched normal controls.
Results: Boys with ADHD had smaller total caudate volumes relative to controls, $F(1, 48) = 4.29$, $p = 0.04$. Adjustment of caudate volumes with respect to age demonstrated that this group difference was driven solely by participants in the 5.9-7.3 year range, $F(1, 46) = 5.64$, $p = 0.022$, with an effect size of $d = 0.69$. No Group effect was found in older participants, $F(1, 46) = 0.82$, $p = 0.37$.
Conclusions: These novel findings suggest a different pattern of caudate volume abnormalities across narrow age clusters prior to puberty in boys with ADHD. Anatomical differences in brain structures related to ADHD in prepubertal children should be evaluated with respect to the changing developmental trajectory of brain regions within this period of rapid brain growth.

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J Psychopathol Behav Assess. 2012;34:1-10.

COMPARING FOUR METHODS OF INTEGRATING PARENT AND TEACHER SYMPTOM RATINGS OF ATTENTION-DEFICIT/HYPERACTIVITY DISORDER (ADHD).

Shemmassian SK, Lee SS.

Although parents and teachers are valid informants in the assessment of childhood attention-deficit/ hyperactivity disorder (ADHD), there is relatively little systematic research on how these ratings should be optimally combined. We compared four methods of ADHD assessment to determine how well they identified impaired children: (1) parent only, (2) teacher only, (3) parent or teacher ('or rule'), and (4) parent and teacher ('and rule'). We obtained parent and teacher ratings of ADHD from the Disruptive Behavior Disorder Rating Scale on 232 5- to 10-year-old children (69% male; 47% Caucasian) with (n= 121) and without (n=111) ADHD. We used receiver operating characteristic curves (ROC) and seemingly unrelated regression analyses (SUR) to evaluate how accurately each method identified categorically- and dimensionally-defined measures of functional impairment. Parent ratings of ADHD optimally identified globally impaired children based on categorical and dimensional measures. However, teacher ratings of ADHD most accurately identified children who were negatively regarded by peers using categorical, but not dimensional, measures. No ADHD assessment method effectively identified children with academic difficulties. Although multiple informants are valuable in the assessment of ADHD, no single method was consistently superior in identifying impaired children across domains. We consider alternative assessment strategies in ADHD as well as other potential factors that may contribute to modest agreement among informants.

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J Am Acad Child Adolesc Psychiatry. 2012;51:733-41.

A RANDOMIZED DOUBLE-BLIND STUDY OF ATOMOXETINE VERSUS PLACEBO FOR ATTENTION-DEFICIT/HYPERACTIVITY DISORDER SYMPTOMS IN CHILDREN WITH AUTISM SPECTRUM DISORDER.

Harfterkamp M, Loo-Neus G, Minderaa RB, et al.

The efficacy of atomoxetine as treatment of symptoms of attention-deficit/hyperactivity disorder (ADHD) in patients with autism spectrum disorder (ASD) has not been established. In this study, 97 patients aged 6 to 17 years with ADHD and ASD were randomly assigned to double-blind treatment with 1.2 mg/kg/day atomoxetine or placebo for 8 weeks. The primary endpoint was the ADHD Rating Scale (ADHD-RS) score; secondary endpoints were the Clinical Global Impression of ADHD-Improvement (CGI-I) and the Conners Teacher Rating Scale-Revised: Short Form (CTRS-R:S) score. Baseline mean ADHD-RS scores for atomoxetine versus placebo were 40.7 and 38.6; after 8 weeks, mixed-effect model repeated-measure

means were 31.6 (95% confidence interval 29.2-33.9) and 38.3 (36.0-40.6), respectively, with a difference in least square means of -6.7 (-10.0 to -3.4; p < .001). The CTRS-R:S Hyperactivity subscore also improved significantly for atomoxetine compared with placebo, but not the other CTRS-R:S subscores. However, there were not significantly more patients on atomoxetine (20.9%) who improved much, or very much according to the CGI-I, than on placebo (8.7%; p = 0.14). Adverse events (mostly nausea, decrease in appetite, fatigue, and early morning awakening) were reported in 81.3% of atomoxetine patients and 65.3% of placebo patients (p > .1). There were no serious adverse events. Atomoxetine moderately improved ADHD symptoms in patients with ASD and was generally well tolerated. Adverse events in this study were similar to those in other studies with ADHD patients without ASD. Clinical trial registration information--A Randomized Double-Blind Study of Atomoxetine Versus Placebo for ADHD Symptoms in Children with ASD; www.clinicaltrials.gov; NCT00380692.

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J Formos Med Assoc. 2012 [e-pub].

SECULAR TRENDS OF ADHD AND DEVELOPMENTAL DELAY IN TAIWANESE CHILDREN WITH EPILEPSY: A 13-YEAR NATIONAL HEALTH INSURANCE DATA RETROSPECTIVE ANALYSIS.

Tai YM, Gau CS.

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Klin Psikofarmakol Bul. 2012;22:161-66.

COMPARISON OF SYMPTOMS OF PEDIATRIC BIPOLAR DISORDER IN THE MANIC PHASE AND ATTENTION DEFICIT AND HYPERACTIVITY DISORDER.

Ceylan MF, Akca OF, Yuce M, et al.

Objectives: The clinical presentation of Bipolar Disorder (BD) in adults often has an episodic course. However, pediatric onset BD often presents with higher rates of mixed episodes, rapid cycling, and co-occurring Attention-Deficit/Hyperactivity Disorder (ADHD) than adults with BD. The aim of this study is to describe the clinical characteristics of pediatric onset BD in a Turkish sample and to compare these characteristics with children with a diagnosis of Attention Deficit and Hyperactivity Disorder (ADHD).
Methods: A total of 19 child or adolescent patients diagnosed with BD in the manic state and 19 child or adolescent patients diagnosed with ADHD based on DSM-IV criteria were included in the study. The children were analyzed in terms of age of onset, symptoms, and comorbidity. Subsequently, both groups were compared in terms of symptoms of BD according to the Child Mania Rating Scale.
Results: Irritable mood (94%), rapid mood swings (89%), delusions (94%), auditory (63%) and visual hallucinations (47%) were detected statistically more commonly in the bipolar disorder patients. There were no significant differences between the two groups in terms of hyperactivity, distractibility, and irritability.
Conclusion: Children and adolescents with BD often present with higher rates of rapid mood swings, irritable mood, and psychotic features. However, irritability does not seem to be a specific symptom for pediatric BD.

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Klin Psikofarmakol Bul. 2012;22:148-60.

TREATMENT DURATION IS ASSOCIATED WITH FUNCTIONING AND PROGNOSIS IN CHILDREN WITH ATTENTION DEFICIT HYPERACTIVITY DISORDER.

Ercan ES, Kose S, Kutlu A, et al.

Objective: Attention Deficit Hyperactivity Disorder (ADHD) persists through adolescence and adulthood, and 15-80% of the children diagnosed with ADHD continue to have the disorder into adulthood, depending on the diagnostic criteria used; however, these findings have mostly been derived from follow-up studies in North America. The longitudinal outcomes of ADHD children from non-Western countries, such as Turkey, and the prognostic differences between ADHD+Oppositional Defiant Disorder (ODD) and ADHD+Conduct

Disorder (CD) cases require further exploration. Six years after an initial study of 18 months conducted between 2000 and 2002, we sought to evaluate 120 cases of ADHD with comorbid ODD or CD.
Methods: The original sample included 120 ADHD + ODD/CD children, followed for 18 months during 2000-2002. We evaluated the last-known psychiatric status, academic achievement, substance use, and social functionality of 60 children who were interviewed six years earlier. The treatment duration was divided into three groups: less than 15 months, 15-45 months, and greater than 45 months.
Results: In the initial study, we found that both combined treatment (parent training and stimulant treatment) and only stimulant treatment were effective in reducing ADHD, ODD, and CD symptoms. Six years after the initial study, the ADHD treatment was found to be effective in many areas, including academic success ($p<0.001$), grade retention ($p=0.026$), expulsion or suspension from school ($p=0.009$), rate of accidents and broken bones requiring reduction ($p=0.001$), and cigarette smoking ($p=0.018$).
Conclusions: ADHD symptoms are associated with impairments in multiple functional domains, and ADHD treatment is effective for Turkish children in many of these domains. There is a statistically significant difference in treatment success between groups created according to the treatment duration.

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Nervenarzt. 2012;83:618-29.

SURVEY OF ATTENTION DEFICIT HYPERACTIVITY DISORDER IN ADULTS.

Hausotter W.

Attention deficit hyperactivity disorder (ADHD) represents a serious illness which involves impairments in childhood and adolescence that are of considerable importance for the process of social adaptation and thus the development of social competence. If left untreated this leads in a high percentage of cases to disturbances which seriously affect all areas of life reaching into adulthood. Hence, it makes sense and is necessary that adequate treatment is carried out preferably during childhood and adolescence and also at an adult age. Due to the persistence of the disorder in adults with ADHS, various problems arise in formulating expert opinions in conjunction with criminal, social and civil law, in road traffic law and within the scope of conscription. They result from the essential symptoms of ADHS like inattentiveness, overactivity and impulsiveness, but also particularly from the diverse comorbidities.

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Neuropsychiatr Enfance Adolesc. 2012 May;60:160-65.

PREVALENCE OF ATTENTION DEFICIT HYPERACTIVITY DISORDER IN SCHOOLCHILDREN IN SFAX, TUNISIA: CROSS SECTIONAL STUDY.

Khemakhem K, Yaich S, Ayedi H, et al.

Introduction: Attention deficit-hyperactivity disorder (ADHD) is a problem of public health because of its frequency and impact. The objective of our work was to study the prevalence of ADHD in school population in the region of Sfax.
Population and methods: The study was cross running from 1/4/2008 until 1/10/2008, caring on 513 students, 240 boys and 273 girls. They were enrolled in the first year of teaching basis until 5th year of basic education. Schools were randomly selected from a list provided by the Regional Directorate education in all schools of communal areas in the region of Sfax. The Conners scale of teachers and parents was used as a screening tool. Children who had at least one pathological test have benefited clinical evaluation with their parents. The diagnoses were according to DSM-IV-TR.
Results: The award of the Conners scale has identified 404 students for high scores were normal in the two versions of the scale for hyperactivity, impulsiveness and inattention, and 109 students who had a pathological score on at least one of the Conners scales. The interview with the 109 students, allowing clinical evaluation of children with reference to DSM-IV-TR, has enabled us to carry at least one diagnosis nosographic for 92 pupils of whom 51 had ADHD. Of a total of 513 students, 51 students were affected by ADHD DSM-IV. Thus, the prevalence of ADHD in schools in our study was 9.94%. In our study, ADHD was 5.26% in mixed-type cases, inattention prevalent in 2.7% and hyperactivity in impulsive 1.94% cases.

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Neuropsychopharmacology. 2010;35:S262.

THE ROLE OF NOREPINEPHRINE TRANSPORTER IN ATTENTION DEFICIT HYPERACTIVITY DISORDER.

Ding YS, Planeta-Wilson B, Hannestad J, et al.

Background: Attention Deficit Hyperactivity Disorder (ADHD) is a prevalent psychiatric disorder in children that continues into adulthood; however, its pathogenesis is poorly understood. It is widely accepted that dysfunction in DA and NE circuits underlies the cognitive and behavioral impairments characteristic of ADHD. We have previously shown that methylphenidate, the most commonly used drug for treatment of ADHD, significantly occupies the norepinephrine transporter (NET) at clinically relevant doses with an ED50 even more potent than that for the dopamine transporter (0.14 and 0.25 mg/ kg for NET and DAT, respectively), suggesting an important role for NET in ADHD. The purpose of this study is to determine whether adults with ADHD have altered NET availability compared to matched controls (HC) as measured by the ligand (S,S)-[11C]MRB ([11C]MRB) and PET.

Methods: Adults who met DSM-IV criteria for ADHD were recruited (n=5). Their binding potential (BPND) values were compared with the mean BPND values obtained from HCs (n=23). Subjects underwent dynamic PET acquisition using HRRT for 120 min following a bolus injection of B740 MBq of [11C]MRB. BPND images were computed using the multilinear reference tissue model (2-parameter version: MRTM2 with tnull=20) with occipital cortex as the reference region. The mean BPND values were estimated for 11 ROIs (including small brain regions; i.e., locus coeruleus (LC), brainstem nuclei, hypothalamus (hypoTH), and thalamic subnuclei) and compared between the two groups using two-tailed unpaired t-test.

Results: In two subjects with ADHD (ages 40 and 49) who had not used stimulants for over 10 years, a decrease in BPND values was observed in most NET-rich regions; specifically in thalamus (-28%), LC (-24%), hypoTH (-61%), and thalamic subnuclei: dorsomedial (-36%) and pulvinar (-42%). The highest decrease in BPND was observed in nucleus ruber (-63%). Interestingly, in a third ADHD subject (age 27, who used cocaine between age 21-25), the trend of decreased BPND was still observed [e.g., thalamus (-13%), hypoTH (-40%), and thalamic subnuclei: dorsomedial (-20%) and pulvinar (-23%), with the highest decease still in nucleus ruber (-62%)]; however, higher BPND values in the NET-rich regions were noticed in this subject when compared to the other two ADHD subjects. Based on our previous finding that NET is decreased with age and up-regulated with cocaine use (Ding et al., Synapse, 2010), higher BPND values in this ADHD subject could be explained by the younger age and cocaine use. Detailed results for all subjects will be presented.

Discussion: These preliminary data show a trend for altered NET in ADHD subjects, with a down-regulation in most NET-rich regions. These results are also consistent with our previous finding that NET is decreased with age and up-regulated with stimulant use. More ADHD subjects are under investigation and a careful statistical analysis will be required to confirm these encouraging results.

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Neuropsychopharmacology. 2010;35:S39.

CO-OCCURRING CHILDHOOD DISRUPTIVE DISORDERS, ADHD AND PSYCHOPHYSIOLOGICAL DEFICITS IN ADOLESCENTS AND YOUNG ADULTS.

Iacono WG.

Background: Attention-deficit/hyperactivity disorder (ADHD) is comorbid with other childhood disruptive disorders (conduct and oppositional disorder), occurs in the offspring of substance abusing and antisocial parents, and is associated with the development of substance use disorders (SUDs) and antisociality. Factors that underlie these associations are not well understood. We hypothesize that a genetic vulnerability to behavioral disinhibition underlies these relationships, and that gene-environment interplay over the course of development influences which of these combinations of externalizing psychopathology are likely to arise in any given individual.

Methods: Participants were drawn from the 1900 twin families that are part of the Minnesota Center for Twin and Family Research. Two cohorts were recruited, one older, consisting of 17-year-old twins and their biological mothers and fathers, and the other younger consisting of 11-year-old twins and their parents. Twins in both cohorts were followed up at regular intervals (3-4 years) spanning adolescence and young adulthood. In-person psychiatric interviews with parents and their twins covered childhood disruptive disorders when the twins were younger and nicotine, alcohol, illicit drug use, and antisocial personality

disorder when the twins were older. Participants were also underwent a two-hour psychophysiological assessment designed to tap putative endophenotypes associated with the development of substance use and related disorders, including the P300 event related potential derived from the nullrotated headsnull task originally introduced by Begleiter and colleagues.
Results: Parents with substance use disorders tend to have offspring at elevated risk for ADHD and each of the other externalizing disorders. Each of these disorders is moderately to highly heritable. At age 17, the covariance among externalizing traits and disorders can be modeled as a highly heritable general liability for externalizing behavior. At age 11, the covariance among the three childhood disruptive disorders can be similarly modeled as a highly heritable externalizing liability. At both ages, parent-offspring transmission reflects the influence of a general externalizing liability captured by substance use and antisociality in parents and expressed in offspring as childhood disruptive disorders (at age 11) and substance use and antisocial disorders (at age 17). P300 amplitude also shows moderate heritability; is associated with ADHD, substance use and abuse, and antisocial behavior; and forecasts the subsequent development of SUDs. The association between P300 amplitude and externalizing disorders reflects shared genetic effects.
Discussion: A highly heritable general liability, transmitted from parent to child, accounts in part for the association of ADHD with other childhood disruptive disorders and the eventual development of SUDs. This general liability can be indexed as reduced amplitude of the P300 brain potential. The general liability manifest as the covariance among externalizing disorders and the P300 endophenotype provide an alternative avenue for research aimed at uncovering the etiology of externalizing disorders by focusing on underlying mechanisms that tie them together. Molecular genetic studies focused on these phenotypes may provide a particularly attractive supplement to studies focused on the etiology of each disorder alone.

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Neuropsychopharmacology. 2010;35:S243-S244.

REDUCED SEROTONERGIC NEUROTRANSMISSION AND LAPSES OF ATTENTION IN CHILDREN AND ADOLESCENTS WITH ATTENTION DEFICIT HYPERACTIVITY DISORDER.

Zepf F, Gaber T, Baurmann D, et al.

Background: Changed serotonergic (5-HT) neurotransmission has been linked to altered attention and memory processes. Attention deficit hyperactivity disorder (ADHD) was shown to be associated with impaired attention and working memory. However, studies on serotonergic functioning involving children and adolescents with ADHD are scarce. The present study investigated the effects of a diminished 5-HT turnover achieved by rapid tryptophan depletion (RTD) on attentional performance in children and adolescents with ADHD.
Methods: A sample of twenty-two male patients with ADHD (aged 9-15 yr) enrolled in the study. All patients received the RTD procedure Moja-De and a tryptophan (Trp)-balanced placebo in a randomized, double-blind, within-subject crossover design on two separate study days. Lapses of attention and phasic alertness were assessed within the test battery for attentional performance under depleted and shamdepleted conditions at three time-points: 120 (T1), 220 (T2) and 300 (T3) minutes after intake of RTD/Placebo.
Results: At T1 there was a significant main effect for RTD, indicating more lapses of attention under intake of a Trp-balanced placebo compared to diminished 5-HT neurotransmission. For the time-points T2 and T3 there were no such effects. Phasic alertness was not affected by the factors RTD/Placebo and time.
Discussion: The results of the present study are in line with findings in adults suggesting that changed availability of the 5-HT precursor Trp influences gating functions in the human brain, which in turn can affect attentional performance. Interactions of 5-HT with other neurotransmitters as possible underlying neurochemical processes could be subject to further investigations involving healthy controls as regards altered attentional performance in children and adolescents.

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Neuropsychopharmacology. 2010;35:S156.

EVIDENCE OF AGE EFFECTS IN CORTICAL AREAS BUT NOT IN THE SUBCORTEX OF ADHD CHILDREN: A MULTI-VOXEL IN VIVO 31P SPECTROSCOPY STUDY AT 4 TESLA.

Stanley J, Khatib D, Dick R, et al.

Background: Attention-deficit/hyperactivity disorder (ADHD) is one of the most prevalent neurodevelopmental disorders in children, which is not well understood. In vivo 31P spectroscopy is a neuroimaging method that is sensitive in detecting biochemical changes as the brain develops. Using 31P spectroscopy, we have shown subcortical and cortical deficits in membrane phospholipids (MPL) precursor levels that are suggestive of an alteration of an earlier developing region influencing the maturational integration of later or slower developing regions1,2. The purpose of this study is to further our investigation, using a high-field system, which dramatically improves regional specificity and biochemical resolution [e.g., the individual MPL precursors, phosphoethanolamine (PE) and phosphocholine (PC), and MPL breakdown products, glycerophospho-ethanolamine (GPE) and glycerophosphocholine (GPC)].

Methods: A total of 20 children with DSM-IV ADHD (13M + 7F; mean age 9.1(plus or minus)1.4 yrs; 14 with the combined subtype and 6 with the predominantly inattentive type) and 16 healthy controls (HC; 4M + 12F; mean age 9.3(plus or minus)2.2 yrs) participated in this study. All ADHD children were not on any psychostimulant medication for at least a 24-hr period prior to the MR examination and no sedation was used on any subjects during the MR examination. A 3D whole-brain, multi-voxel 31P spectroscopy measurement was collected in each subject on a 4 Tesla scanner using a dual-tuned 31P-1H head coil. The acquisition parameters of the 31P spectroscopy included: FOV=280x280x160 mm3, phase encoding steps=14x14x8, zero-filled to 16x16x8 (nominal voxel dimension=1.75x1.75x2.0 cm3), excitation slab thickness=80 cm (which was placed parallel to the AC-PC line to cover the wholebrain), TR=0.54 sec, flip-angle=331 reflecting the Ernst angle of the combined phosphocreatine (PCr), PE and PC signal, data points=2,048, bandwidth=4.0kHz, 24 averages (weighted-average and elliptical k-space sampling), pre-acquisition delay time of 1.3 ms and acquisition time 23 minutes. For each bilateral region of interest (DLPFC [BA 9/46], inferior frontal gyrus [iFG; BA 44/45], dorsal anterior cingulate [dACC], striatum, and superior parietal lobe [sPL]), the 16x16x8 grid was shifted in all three directions relative to the MRI images accordingly to ensure optimal voxel placements. The MR signals of those voxels were then extracted, apodized (5 Hz Gaussian), and modeled in the time domain. A generalized linear regression model (PROC GENMOD; SAS) with PE, PC, GPE and GPE as the dependent variables, and with subject group, gender and side (right vs. left side) as the main effects, was used. A second model with the additional group-by-age interaction was included to address age effects.

Results: In the striatum of ADHD children compared with HC, PE levels were significantly lower and GPC levels tended to be higher (p=0.040 and p=0.069, respectively). Regarding prefrontal cortices, PE levels were significantly higher and GPC tended to be higher in the dACC of ADHD children compared with HC (p=0.0056 and p=0.068, respectively). In terms of age effects, there was a significant group-by-age interaction for PE in the dACC (p=0.019), PC in the iFG (p=0.026) and PE in the sPL (p=0.0056), all with converging values in the younger subjects and diverging values with increasing age.

Discussion: In healthy development, PE levels decrease with age reflecting a possible reduction in the demand MPL synthesis of neuronal and synaptic processes. In contrast, the other MPL precursor PC behaves differently by showing increasing levels followed by decreasing levels with age (i.e., similar to the inverted nullUnull) at least in prefrontal cortices, which appear to reflect growth spurts in these later developing brain areas. Therefore, the lower PE in subcortical areas may reflect reduced density of dendrites and synaptic connections, which is consistent with an underdeveloped subcortical area in young ADHD children. In the dACC, the non-significant difference of PE levels in the younger subjects followed by a lack of progressive decreasing PE levels in ADHD with age compared with HC suggests a deviation in the developmental trajectory. Lastly, the increasing PC levels in the iFG of HC children are consistent with that of prefrontal areas experiencing a developmental growth spurt, which is underachieved in the ADHD children. Ultimately, longitudinal measurements will be required to definitively address whether developmental trajectories in the brain biochemistry are altered in pediatric ADHD.

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Neuropsychopharmacology. 2010;35:S255.

AMPHETAMINE-INDUCED DOPAMINE RELEASE IN TREATMENT-NAIVE ADULTS WITH ADHD: A PET/[11C]RACLOPRIDE STUDY.

Cherkasova MV, Faridi N, Casey KF, et al.

Background: Converging evidence suggests a dysfunction in dopamine (DA) neurotransmission in attention deficit/hyperactivity disorder (ADHD): the DA system plays an important role in a range of behaviors affected in ADHD, DA genes are implicated in ADHD's aetiology, and DA augmenting agents, such as methylphenidate (MPH) and dextroamphetamine (d-AMP) produce significant symptom improvement. Neuroreceptor imaging studies have provided the most direct evidence of DA dysregulation in ADHD, suggesting abnormalities in DA D2 receptor and DA transporter binding. Responsivity of the DA system to stimulant drug challenge has been investigated by two studies with somewhat conflicting results: one reported blunted MPH-induced DA responses in adults with ADHD (Volkow et al, 2007), whereas the other presented evidence that measures of inattention and impulsivity are associated with greater MPH-induced DA responses in adolescents (Rosa-Neto et al, 2005). The current study aimed to resolve the conflicting findings by investigating DA release in treatment-naive adults with ADHD in response to a challenge with d-AMP.

Methods: Fifteen treatment-naive men with ADHD (mean age 29.87) and fifteen healthy male controls (mean age 24.87) underwent two [11C]raclopride PET scans given double-blind: one following d-AMP (0.3 mg/kg, p.o.) and the other following placebo. [11C]Raclopride binding to dopamine D2/3 receptors following d-AMP and placebo administration was assessed in three regions of interest (ROIs) based on functional organization of the striatum (Martinez et al, 2003): limbic, associative, and sensorimotor subregions. A battery of neurocognitive tasks evaluating executive functions, impulsivity, and motor activity, as well as personality questionnaires were administered to all participants, and symptom severity was assessed with the Conners Adult ADHD Rating Scale (CAARS).

Results: As expected, compared to the healthy controls, the ADHD group had significantly higher symptom scores (CAARS ADHD index: $p<0.001$) and performed more poorly on tasks of response inhibition, showing longer inhibitory reaction times on the stop signal reaction time task ($p=0.008$), a higher error rate on the antisaccade task ($p=0.006$), and a higher error rate on a version of the go/no-go task ($p=0.05$). The ADHD group also showed greater d-AMP induced [11C]raclopride responses relative to controls across all three ROIs ($p=0.03$), with the most pronounced difference in the sensorimotor subregion ($p=0.006$). In addition, a quadratic inverted U relationship was observed between the d-AMP induced [11C]raclopride response in sensorimotor striatum and CAARS hyperactivity scores across both groups, with the largest [11C]raclopride response in individuals reporting moderate levels of activity and smaller responses in both non-hyperactive and highly hyperactive individuals ($r=0.56$; $p=0.009$).

Discussion: The findings are consistent with a model proposing abnormally low striatal DA tone coupled with an exaggerated phasic DA release in ADHD (Grace, 2001), with greater increases in extracellular DA in the ADHD group likely reflecting the exaggerated phasic component. Stimulant medications might increase DA tone and diminish phasic reactivity. Since the most severely affected patients had lower DA responses, the inverted-U association is also consistent with reports that the clinical response to stimulants is greatest in patients with the most severe ADHD (Sahakian & Robbins 1977; Robbins & Sahakian 1979; Buitelaar et al 1995). Though limitations of the study include a relatively small sample size and inclusion of only male participants, the results support previous findings of altered DA response to stimulant challenge in ADHD and extend them by suggesting that this response may vary as a function of symptom severity.

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Neuropsychopharmacology. 2010;35:S38-S39.

STIMULANT TREATMENT HISTORY, ASSIGNED AND SELF-SELECTED, AS PREDICTOR OF LATE ADOLESCENT SUBSTANCE ABUSE IN ADHD.

Molina BSG.

Background: A controversial issue in research on ADHD is the effect of the CNS stimulant treatments on risk for substance use disorders (SUDs). The small literature that has examined this question has yielded mixed results with some studies reporting worsening, and others reporting attenuation, of SUD risk. A limited number of large longitudinal studies of children with ADHD exist, and none provide prospectively

gathered treatment data that follow an initial period of random assignment to evidence-based treatments. The longitudinal follow-up of the children in the multisite Multimodal Treatment of ADHD study (MTA) provides this opportunity.
Methods: The original MTA sample consists of 579 children who were diagnosed with DSM-IV Combined Type ADHD and randomly assigned to one of 4 treatment groups for 14 mos: intensive medication management, intensive behavior therapy (Beh), the combination (Comb), or referral to community care. The sample was interviewed at immediate post-treatment, 2, 3, 6, 8, 10, and most recently 12, yrs post baseline. A local normative comparison group (LNCG; n=289) of classmate controls was recruited at the 2-year assessment and has been interviewed in parallel. This abstract describes results from the 8-year assessment (80% study retention; M age=17).
Results: Substance use/SUD was examined as a function of 1) childhood ADHD diagnosis; b) randomly assigned treatment in childhood and past year stimulant treatment; and c) cumulative stimulant treatment since baseline. Use of any substance beyond selected levels was the primary outcome. Random effects regression indicated a main effect of ADHD group on substance use overall, p<.0001, and at all time points, p=.0025 to.0394. Using GEE models, neither treatment assignment nor past year stimulant treatment were significant predictors of substance use with one exception: children who received Beh or Comb were less likely to report substance use at 3 yrs than were the other children, p=.038. Propensity score matching analyses were used to create matched pairs of subjects with minimal differences in potential confounders (e.g., ADHD symptom severity, treatment group assignment) but large differences in cumulative stimulant treatment. Using these matched pairs, no significant associations were found between cumulative medication treatment and substance use or SUD, all p-values >.25 (up to.73).
Discussion: Our results provide confirmation of substance use risk in adolescence for children diagnosed with combined type ADHD. Our results extend findings of potential behavior therapy benefit on the initiation of substances in early adolescence, but these early protective effects appear to have worn off, as they did for other symptom and functioning variables by the 8 year follow-up (Molina et al., 2009, JAACAP). We previously reported no significant associations between past year stimulant treatment and substance use in early adolescence (Molina et al., 2007, JAACAP). Our current findings provide a carefully statistically controlled extension of those results at the age when substance use is ascending. Results suggest that prolonged stimulant treatment affords no visible protection from or predisposition toward adolescent substance use or SUD. A limitation of these findings is that the peak period of SUD risk in early adulthood has not occurred. If complete by December 2010, we will present the results of parallel analyses with the 12-year data.

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Neuropsychopharmacology. 2010;35:S263.
DECREASED FRONTO-STRIATAL STRUCTURAL CONNECTIVITY IN ADHD.
De Zeeuw P, Mandl RCW, Hulshoff Pol HE, et al.
Background: Fronto-striatal regions have been implicated in the neurobiology of ADHD, but little work has addressed the white matter connections between them directly. The present study investigates the microstructural organization and myelination of fronto-striatal white matter in children with ADHD and controls.
Method: Diffusion Tensor Imaging (DTI) and Magnetization Transfer Imaging (MTI) imaging scans were acquired from 30 children with ADHD and 34 controls. A study-specific volume of interest (VOI) of fronto-striatal white matter was created using a tractography-based statistical group map. Fractional anisotropy (FA) is a measure of directional diffusion derived from DTI and indexes microstructural organization. The magnetization transfer ratio (MTR) is derived from MTI and indexes myelination more directly. Both measures were computed for the fronto-striatal VOI and for total cerebral white matter.
Results: Fronto-striatal FA but not MTR was decreased in ADHD. There were no differences in FA or MTR for total cerebral white matter. Fronto-striatal FA correlated negatively with teacher-rated attention problems in controls, but not children with ADHD.
Discussion: Changes in fronto-striatal connectivity in ADHD appear to be related to changes in microstructural organization rather than myelination per se. A correlation with attention problems for

controls but not children with ADHD, suggest that fronto-striatal organization is relevant to ADHD symptoms, but that additional neurobiological factors may be involved for children with ADHD.

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Noropsikiyatr Ars. 2012;49:114-18.

PSYCHIATRIC COMORBIDITY IN CHILDREN AND ADOLESCENTS WITH ATTENTION DEFICIT HYPERACTIVITY DISORDER.

Herguner S, Herguner A.

Objective: It is well known that more than half of subjects with attention-deficit hyperactivity disorder (ADHD) have comorbid psychiatric disorders. There is increasing evidence that psychiatric comorbidity effects the manifestation and severity of symptoms, long-term prognosis, treatment response and quality of life in patients diagnosed with ADHD. The aim of this study was to investigate the frequency of psychiatric disorders and effects of age, gender and ADHD subtypes on comorbidity in children and adolescents with ADHD.

Methods: The study group included 133 children and adolescents who were referred to the Department of Child and Adolescent Psychiatry, Meram Faculty of Medicine, Selcuk University. All cases were diagnosed as ADHD according to DSM-IV criteria. Comorbid psychopathology was evaluated by using a standardized diagnostic instrument, The Kiddie-Schedule for Affective Disorders and Schizophrenia-Present and Lifetime Version (K-SADS-PL).

Results: Ninety-eight (73.7%) subjects had at least one comorbid psychiatric disorder. The most common comorbid disorders were disruptive behavior disorders and anxiety disorders. There was no effect of gender on psychiatric comorbidity. Conduct disorder, mood disorders and substance abuse were more frequent in adolescents than in children. In ADHD - Combined subtype, disruptive behavior disorders were more prevalent.

Conclusion: The results of this study confirm that psychiatric comorbidity in children and adolescents with ADHD is very high as it was demonstrated in previous studies. Evaluation of comorbid psychiatric disorders during assessment of cases with ADHD is important.

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Noropsikiyatr Ars. 2012;49:96-101.

EVALUATION OF SERUM BRAIN-DERIVED NEUROTROPHIC FACTOR LEVELS IN CHILDREN WITH ATTENTION DEFICIT HYPERACTIVITY DISORDER: PRELIMINARY DATA.

Sargin E, Akay AP, Resml H, et al.

Objective: Brain-derived neurotrophic factor (BDNF) has an important role in the survival, differentiation and synaptic plasticity of a series of neuronal systems including dopaminergic neurons. For this reason, it is proposed that BDNF plays a role in the attention deficit hyperactivity disorder (ADHD) pathophysiology. In this study, serum BDNF levels in children diagnosed with ADHD were compared with those in healthy subjects.

Methods: 30 children diagnosed with ADHD and 31 healthy control subjects aged 6-12 years were recruited to the study. The psychiatric diagnoses were determined by applying a semi-structured interview using the Kiddies Schedule for Affective Disorders and Schizophrenia for School-Age Children-Present and Lifetime Version (K-SADS-PL) and serum BDNF levels of the subjects were measured. Both parents were asked to fill out the Child Behavior Checklist (CBCL) for children 4-18 years of age.

Results: When ADHD cases and the controls were compared, no statistically significant difference was found in mean levels of serum BDNF (p=0.885). In ADHD cases, no statistically significant correlation was found between serum BDNF levels and ADHD subtypes (p=0.093). However, although there was no statistically significant difference, serum BDNF levels were found to be low in children diagnosed with attention deficit predominant type ADHD compared to children diagnosed with combined type ADHD.

Conclusion: This study does not support the hypothesis that BDNF plays a role in the etiology of ADHD. However, to interpret accurately the levels of BDNF, the factors that affect the levels, the reliable measurement source of the peripheral blood BDNF and its method must be enlightened.

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Pediatrics. 2012;130:e53-e62.

A POPULATION-BASED STUDY OF STIMULANT DRUG TREATMENT OF ADHD AND ACADEMIC PROGRESS IN CHILDREN.

Zoega H, Rothman KJ, Huybrechts KF, et al .

OBJECTIVE: We evaluated the hypothesis that later start of stimulant treatment of attention-deficit/hyperactivity disorder adversely affects academic progress in mathematics and language arts among 9- to 12- year-old children.

METHODS: We linked nationwide data from the Icelandic Medicines Registry and the Database of National Scholastic Examinations. The study population comprised 11 872 children born in 1994-1996 who took standardized tests in both fourth and seventh grade. We estimated the probability of academic decline (drop of (greater-than or equal to)5.0 percentile points) according to drug exposure and timing of treatment start between examinations. To limit confounding by indication, we concentrated on children who started treatment either early or later, but at some point between fourth-grade and seventh-grade standardized tests.

RESULTS: In contrast with nonmedicated children, children starting stimulant treatment between their fourth- and seventh-grade tests were more likely to decline in test performance. The crude probability of academic decline was 72.9% in mathematics and 42.9% in language arts for children with a treatment start 25 to 36 months after the fourthgrade test. Compared with those starting treatment earlier ((less-than or equal to)12 months after tests), the multivariable adjusted risk ratio (RR) for decline was 1.7 (95% confidence interval [CI]: 1.2-2.4) in mathematics and 1.1 (95% CI: 0.7-1.8) in language arts. The adjusted RR of mathematics decline with later treatment was higher among girls (RR, 2.7; 95% CI: 1.2-6.0) than boys (RR, 1.4; 95% CI: 0.9-2.0).

CONCLUSIONS: Later start of stimulant drug treatment of attentiondeficit/hyperactivity disorder is associated with academic decline in mathematics.

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Pediatrics. 2012;130:e152-e158.

AUTISM SPECTRUM DISORDER, ADHD, EPILEPSY, AND CEREBRAL PALSY IN NORWEGIAN CHILDREN.

Suren P, Bakken IJ, Aase H, et al.

BACKGROUND: Numerous studies have investigated the prevalence of neurologic and neurodevelopmental disorders individually, but few have examined them collectively, and there is uncertainty as to what extent they overlap.

METHODS: The study has determined the proportions of children aged 0 to 11 years with diagnoses of autism spectrum disorder (ASD), attention-deficit/hyperactivity disorder (ADHD), epilepsy, and cerebral palsy (CP) in Norway. The data were obtained from the Norwegian Patient Register, which is nationwide and contains diagnoses assigned by Norwegian specialist health services (hospitals and outpatient clinics). The Norwegian Patient Register started collecting individual-level data in 2008, and the follow-up period for the study is years 2008 through 2010.

RESULTS: For ASD, ADHD, and epilepsy, the proportions were highest in the oldest children. At age 11 years, the incidence was 0.7% for ASD, 2.9% for ADHD, and 0.9% for epilepsy. The cumulative incidence is likely to be higher because some cases diagnosed before 2008 were probably missed. For CP, the proportions were ~0.3% for age (greater-than or equal to)5 years. There was considerable overlap between diagnoses. For all disorders, boys had a significantly increased risk. In school-age children (aged 6-11 years) the male/female ratio was 4.3 for ASD, 2.9 for ADHD, 1.2 for epilepsy, and 1.3 for CP.

CONCLUSIONS: The findings demonstrate the significant burden of disease associated with neurologic and neurodevelopmental disorders in children and that this burden is disproportionately skewed toward boys.

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PharmacoEconomics. 2012;30:e1-e15.

COST EFFECTIVENESS OF GUANFACINE EXTENDED RELEASE AS AN ADJUNCTIVE THERAPY TO A STIMULANT COMPARED WITH STIMULANT MONOTHERAPY FOR THE TREATMENT OF ATTENTION-DEFICIT HYPERACTIVITY DISORDER IN CHILDREN AND ADOLESCENTS.

Sikirica V, Haim Erder M, Xie J, et al.

Background: Attention-deficit hyperactivity disorder (ADHD) is a common psychiatric disorder in childhood, affecting 3-7% of school-age children in the US and imposing substantial economic burden. Stimulants are considered first-line pharmacological treatment and are the most prescribed treatment for ADHD. However, approximately 30% of children with ADHD do not have an optimal response to a single stimulant and may require adjunctive therapy.

Objective: Our objective was to conduct a cost-effectiveness analysis (CEA) of adding a non-stimulant, guanfacine extended release (GXR), to stimulants versus maintaining existing stimulant monotherapy in the treatment of ADHD in children and adolescents with suboptimal response to stimulant monotherapy.

Methods: A 1-year Markov model was developed to estimate costs and effectiveness from a US third-party payer perspective. Effectiveness was measured by the QALY. The model assumed that patients transitioned among four health states (normal, mild, moderate and severe), defined by the Clinical Global Impression-Severity (CGI-S) scale. Transition probabilities were estimated in an ordered logit model using patient-level data from a multicentre, 9-week, double-blind, placebo-controlled, dose-optimization study, where subjects (n = 461) continued their stable morning stimulant and were randomized to GXR administered in the morning, GXR administered in the evening, or placebo. The model assumed that patients in moderate/severe health states after week 8 would discontinue ADHD treatment and remain in that state for the rest of the study period. Direct costs included drug wholesale acquisition costs and health state costs, all in $US, year 2010 values. Utility associated with each health state was obtained from the literature and disutilities associated with adverse events were applied for the first 4 weeks. Oneway sensitivity analyses and probabilistic sensitivity analysis (PSA) were conducted by varying costs, utilities, adverse-event duration, and transition probabilities.

Results: Compared with maintaining existing stimulant monotherapy, adding GXR to existing stimulant monotherapy was associated with an incremental drug cost of $US1016 but a lower medical cost of $US124, resulting in a total incremental cost of $US892 at 1 year. The addition of GXR to stimulants led to an incremental QALY of 0.03 and an incremental cost-effectiveness ratio (ICER) of $US31 660/QALY. In one-way sensitivity analysis, ICER values ranged from $US19 723, when 100%of patients were assumed to be severe in their initial health state, to $US46631, when the last observed states from the clinical trial were carried forward to the end of the 1-year analysis period. PSA demonstrated a 94.6% likelihood that the ICER falls below $US50 000/QALY.

Conclusions: The impairment associated with residual ADHD symptoms after stimulant therapy is becoming increasingly recognized. This is the first analysis of the cost effectiveness of stimulants combined with an adjunctive medication. This study suggests that the adjunctive therapy of GXR with stimulants is a cost-effective treatment based on a willingness-to-pay threshold of $US50 000/QALY. This may address an unmet need among patients with suboptimal response to stimulant monotherapy.

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PLoS ONE. 2012;7 [e-pub].

SOCIAL-SKILLS AND PARENTAL TRAINING PLUS STANDARD TREATMENT VERSUS STANDARD TREATMENT FOR CHILDREN WITH ADHD - THE RANDOMISED SOSTRA TRIAL.

Storebo OJ, Gluud C, Winkel P, et al.

Objective: To investigate the effects of social-skills training and parental training programme for children with attention deficit hyperactivity disorder (ADHD).

Methods: We conducted a randomized two-armed, parallel group, assessor-blinded superiority trial consisting of social-skills training plus parental training and standard treatment versus standard treatment alone. A sample size calculation showed at least 52 children should be included for the trial with follow up three and six months after randomization. The primary outcome measure was ADHD symptoms and secondary outcomes were social skills and emotional competences.

Results 56: children (39 boys, 17 girls, mean age 10.4 years, SD 1.31) with ADHD were randomized, 28 to the experimental group and 27 to the control group. Mixed-model analyses with repeated measures showed that the time course (y = a + bt + ct2) of ADHD symptoms (p = 0.40), social skills (p = 0.80), and emotional competences (p = 0.14) were not significantly influenced by the intervention.
Conclusions: Social skills training plus parental training did not show any significant benefit for children with attention deficit hyperactivity disorder when compared with standard treatment. More and larger randomized trials are needed.

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PLoS ONE. 2012;7 [e-pub].

IMPAIRED EXECUTIVE FUNCTION MEDIATES THE ASSOCIATION BETWEEN MATERNAL PRE-PREGNANCY BODY MASS INDEX AND CHILD ADHD SYMPTOMS.

Buss C, Entringer S, Davis EP, et al.

Background: Increasing evidence suggests exposure to adverse conditions in intrauterine life may increase the risk of developing attention-deficit/hyperactivity disorder (ADHD) in childhood. High maternal pre-pregnancy body mass index (BMI) has been shown to predict child ADHD symptoms, however the neurocognitive processes underlying this relationship are not known. The aim of the present study was to test the hypothesis that this association is mediated by alterations in child executive function.
Methodology/Principal Findings: A population-based cohort of 174 children (mean age = 7.3(plus or minus)0.9 (SD) yrs, 55% girls) was evaluated for ADHD symptoms using the Child Behavior Checklist, and for neurocognitive function using the Go/No-go task. This cohort had been followed prospectively from early gestation and birth through infancy and childhood with serial measures of maternal and child prenatal and postnatal factors. Maternal pre-pregnancy BMI was a significant predictor of child ADHD symptoms ($F(1,158) = 4.80$, $p = 0.03$) and of child performance on the Go/No-go task ($F(1,157) = 8.37$, $p = 0.004$) after controlling for key potential confounding variables. A test of the mediation model revealed that the association between higher maternal pre-pregnancy BMI and child ADHD symptoms was mediated by impaired executive function (inefficient/less attentive processing; Sobel Test: t = 2.39 ((plus or minus)0.002, SEM), p = 0.02).
Conclusions/Significance: To the best of our knowledge this is the first study to report that maternal pre-pregnancy BMI-related alterations in child neurocognitive function may mediate its effects on ADHD risk. The finding is clinically significant and may extrapolate to an approximately 2.8-fold increase in the prevalence of ADHD among children of obese compared to those of non-obese mothers. These results add further evidence to the growing awareness that neurodevelopmental disorders such as ADHD may have their foundations very early in life.

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Prog Neuro-Psychopharmacol Biol Psychiatry. 2012.

ASSOCIATION BETWEEN GLYCOGEN SYNTHASE KINASE-3(BETA) GENE POLYMORPHISMS AND ATTENTION DEFICIT HYPERACTIVITY DISORDER IN KOREAN CHILDREN: A PRELIMINARY STUDY.

Shim SH, Hwangbo Y, Kwon YJ, et al.

Glycogen synthase kinase (GSK)-3(beta) plays a key role in the phosphorylation and regulation of metabolic enzymes and many transcription factors. Recent studies have suggested the involvement of GSK-3(beta) in the pathogenesis and treatment target of DA-associated neuropsychiatric disorders, which has led to consider GSK-beta as one of the candidate genes for those disorders. GSK-3(beta) genes are likely to be involved in mechanisms underlying attention deficit hyperactivity disorder (ADHD). We investigated the association between - 1727A/T and - 50T/C SNPs of GSK-3(beta) gene with ADHD. All ADHD subjects completed a comprehensive and standardized diagnostic test and psychological evaluation battery, including the parents' Korean version of the ADHD Rating Scale-IV (ARS). The genotype and allele frequencies of 103 ADHD patients and 173 normal controls were analyzed for - 1727A/T and - 50T/C SNPs of GSK-3(beta) gene. There were statistically significant differences in the genotype distributions of the - 1727A/T SNP of GSK-3(beta) gene between the ADHD group and the control group. The frequency of the genotype AT was significantly higher in the ADHD patients. Concerning the haplotype, there was a

significant difference in the A-C haplotype frequency between the two samples. However, no differences in either the genotype distribution or in allele frequencies of - 50C/T were observed between the two samples. In the parents version of K-ARS of all subjects, ANCOVA revealed that two subscales and the total score were significantly higher in the subjects with AT + TT genotypes than those with AA genotype after adjusting for age and gender. The odds ratio for the ADHD patients was 1.79, comparing the AT genotype group with the AA genotype group. Therefore, genotype AT is associated with a higher risk of ADHD. Our results suggest that the - 1727A/T SNP of GSK-3(beta) gene may affect susceptibility in ADHD. Further investigation with a larger number of subjects is needed to validate this finding.

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Psychiatr Genet. 2012;22:197-201.

SEX-SPECIFIC INFLUENCE OF DRD2 ON ADHD-TYPE TEMPERAMENT IN A LARGE POPULATION-BASED BIRTH COHORT.

Nyman ES, Loukola A, Varilo T, et al.

Attention-deficit/hyperactivity disorder (ADHD) is a childhood-onset neurodevelopmental disorder with a significant public-health impact. Previously, we described a candidate gene study in a population-based birth cohort that demonstrated an association with ADHD-affected males and the dopamine receptor D2 (DRD2). The current study evaluates potential associations of dopamine receptor genes and Cloninger temperament traits within this same sample. Participants with stringent lifetime ADHD diagnoses were ascertained systematically from the genetically isolated Northern Finland 1986 Birth Cohort (n=9432), resulting in 178 cases and 157 controls. Markers in all known dopamine receptor genes were genotyped. We report an association of DRD2 with low Persistence in females (rs1079727 P=0.02, rs1124491 P=0.02, rs1800497 P=0.03). The associated DRD2 minor allelic haplotype (CAA, P=0.03) is the same haplotype we previously associated with ADHD in males in this birth cohort. The current study further supports previous results on the role of DRD2 in individuals with ADHD. Investigations suggest that DRD2 may have an impact on both males and females, but the particular outcome appears sex-specific, manifesting as ADHD in males and low Persistence in females. Furthermore, these findings suggest that the putative role of low Persistence as an endophenotype for ADHD deserves further investigation.

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Psychiatr Genet. 2012;22:202-05.

ATTENTION-DEFICIT HYPERACTIVITY DISORDER AND BINGE EATING DISORDER IN A PATIENT WITH 2Q21.1-Q22.2 DELETION.

Porfirio MC, Lo-Castro A, Giana G, et al.

We report the case of a young male with attention-deficit hyperactivity disorder, oppositional defiant disorder, eating problems and overweight, and mild mental retardation. Karyotype analysis detected an apparently balanced translocation: t(1;2)(p34.1;q21.1) de novo. Array comparative genomic hybridization analysis defined a de-novo cryptic deletion of 2q21.1-q22.2 bands. The deletion, here first associated with this complex phenotype, encompasses several genes with a putative role in different domains of behavioral control and neurocognitive functions; their deregulated expression may influence metabolic pathways and the role of dopamine in reward, explaining the complex psychiatric phenotype and the pharmacotherapy response described in our patient.

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Psychiatr Invest. 2012;9:150-53.

SMELL IDENTIFI{DOTLESS}CATION FUNCTION IN CHILDREN WITH ATTENTION DEFI{DOTLESS}CIT HYPERACTIVITY DISORDER.

Ghanizadeh A, Bahrani M, Miri R, et al.

Objective Deficits in olfactory function are common features in neurodegenerative and neuropsychiatric disorders. Olfactory processing is related to dopamine metabolism and orbitofrontal cortex functioning, both

known to be involved in the neurobiology of ADHD. Some investigations suggested alterations in olfactory processing (identification and detection threshold) in patients with ADHD. Despite increasing knowledge, controversy about this topic still exists regarding children with ADHD. This study was conducted to help elucidate some of this controversy.
Methods aa50 participants (8-15 years, mean=10.70(plus or minus)1.77) with ADHD were compared to 50 controls. Te two groups were well matched for age, gender and Mean School Scores (MSS). We assessed odor identification and threshold through a smell test composed of two tests of identification and detection threshold. Odor detection threshold was assessed with the odorant phenyl ethyl alcohol solved in propylene glycol using a single staircase method. Odor identification was assessed with chemical essences of five common odorants.
Results The mean Sensory Identification Score for children with ADHD and the control groups were 3.76 (1.06) and 4.46 (0.76), respectively (p<0.001). Te mean for Sensory Threshold Score for ADHD and control group was 6.4 (3.35) and 9.75 (2.16), respectively (p<0.001).
Conclusion This study replicated altered olfactory performance in ADHD. Substantial olfactory deficits across the two domains of identification and detection threshold are observed in children with ADHD. These deficits do not seem to be a result of olfactory task difficulty and are not influenced by age, gender and MSS. Further studies are required to investigate whether olfactory function can be used as a biological marker for early diagnosis, treatment and prognosis of ADHD.

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Psychiatry Res. 2012 [e-pub].
TRAIT AGGRESSION, DEPRESSION AND SUICIDAL BEHAVIOR IN DRUG DEPENDENT PATIENTS WITH AND WITHOUT ADHD SYMPTOMS.
Bacskai E, Czobor P, Gerevich J.
The objective of this study was to investigate trait-aggression, depression and suicidal behavior of drug dependent patients with and without ADHD symptoms. The cross sectional survey was conducted in outpatient drug centers in Hungary. The Adult Self-Report Scale (ASRS), the Buss-Perry Aggression Questionnaire (AQ), the European Version of the ADolescent Assessment Dialogue (EuroADAD), and the Beck Depression Inventory (BDI) were used for measures. GLM analyses, adjusting for age and gender, indicated that patients who screened positive for ADHD (ADHD+ group) had significantly higher severity of overall trait aggression, as well as physical and verbal aggression than patients who did not (ADHD negative group). The highest severity of aggression was observed when the ADHD+ status co-occurred with heroin use, while the lowest severity of aggression was detected when ADHD- status co-occurred with the use of marijuana. ADHD+ patients showed a marked increase in depression symptoms, suicidal ideation, suicidal attempts as well as self-injuries associated with suicidal attempts. Considering the substantial costs of aggression and suicide from a societal perspective and from the point of view of the individual sufferer, our results highlight the importance of the diagnostic investigation of ADHD in the treatment of drug dependent patients.

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Psychiatry Res Neuroimaging. 2012;202:150-54.
DIFFUSION TENSOR IMAGING REVEALS WHITE MATTER ABNORMALITIES IN ATTENTION-DEFICIT/HYPERACTIVITY DISORDER.
Tamm L, Barnea-Goraly N, Reiss AL.
The specific brain structures or neural mechanisms underlying dysfunction in individuals with Attention-Deficit/Hyperactivity Disorder (ADHD) are not well established, particularly in regard to white matter (WM). Diffusion tensor imaging (DTI) was used to investigate WM in 12 adolescent males diagnosed with ADHD only and 12 typically developing controls (group matched; mean age = 15.64. years, SD = 1.15). In addition to fractional anisotropy (FA), we also examined axial and radial diffusivity (AD and RD) in an effort to help elucidate conflicting findings suggesting that both lower and higher FA values are characteristic of ADHD. Tract-based spatial statistics and voxel-wide analyses were conducted on the data utilizing a pre-frontal mask to enable focus on fronto-striatal and prefrontal pathways. Adolescents with ADHD had significantly

higher FA and AD values in fronto-striatal pathways compared with controls. No differences were observed for RD. These results contribute to the growing literature implicating prefrontal WM variations in neuropsychiatric disorders, and are consistent with findings suggesting a role for fronto-striatal pathways in ADHD pathophysiology.

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Psychopharmacol Bull. 2011;44:6.

LONG ACTING RISPERIDONE IN AN ADOLESCENT WITH CONDUCT DISORDER: A CASE REPORT.

Tutkunkardas MD, Abali O.

Adolescent conduct disorder (CD) is generally hard to manage clinically, as this population often refuses to take oral medications. Families and acquaintances of these adolescents usually suffer from extreme psychological, financial and social difficulties. Oral antipsychotics are the primary drugs of choice clinically, after behavioral treatments. Here we report a case with attention deficit hyperactivity disorder and conduct disorder who refuses to take any medications, was not eligible for behavioral treatments and was treated successfully with long acting risperidone.

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Res Autism Spectr Disord. 2012;6:1401-05.

PRENATAL PREGNANCY COMPLICATIONS AND PSYCHIATRIC SYMPTOMS: CHILDREN WITH ASD VERSUS CLINIC CONTROLS.

Tudor ME, DeVincent CJ, Gadow KD.

The current study examined the association between prenatal pregnancy complications (PPC) and childhood psychiatric symptoms in children with an autism spectrum disorder (ASD) and non-ASD children who were referred to a psychiatric clinic (Controls). Parents completed a DSM-IV-referenced rating scale and developmental history questionnaire. Participants were classified as having (greater-than or equal to)1 PPC (+PPC) versus none (-PPC). Children with ASD were significantly more likely to have PPC than Controls. Intra-group comparisons demonstrated that children in the ASD + PPC group had more severe anxiety than ASD/-PPC group. The Control + PPC group obtained higher symptom ratings of inattention, hyperactivity, and oppositional behavior than Control/-PPC. Children in the ASD + PPC group were rated as having more severe anxiety and depression symptoms than Control + PPC. Dissimilar associations in ASD and non-ASD samples were found, suggesting divergent pathogenic processes in different clinical phenotypes.

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Res Dev Disabil. 2012 Jul;33:1301-09.

HANDWRITING PERFORMANCE AND UNDERLYING FACTORS IN CHILDREN WITH ATTENTION DEFICIT HYPERACTIVITY DISORDER.

Shen IH, Lee TY, Chen CL.

Preliminary evidence suggests that handwriting difficulties are common to children with Attention Deficit Hyperactivity Disorder (ADHD). However, the nature of the task-specific impairments is needed to be clarified. The aim of this study was to describe handwriting capacity in ADHD children without DCD and identify underlying factors of performance by use of outcome-oriented assessments and a digitizing tablet. Twenty-one children with ADHD (8.59 ± 1.25 years) and 21 match controls (8.5 ± 1.08 years) were recruited. Children with ADHD scored lower than controls on Tseng Handwriting Problem Checklist and writing composite of Basic Reading and Writing Test, indicating the ADHD group wrote less legibly. The ADHD group spent more on-paper time to copy 50 Chinese characters and exhibited more writing time during the writing process. The ADHD group scored significantly lower on tasks demanding upper limb and eye–hand coordination and visual-motor integration compared with controls. Furthermore, motor skill and

visual-motor integration were positively correlated with the legibility. Motor skill was negatively correlated with writing time, in-air time, and in-air trajectory.

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Res Dev Disabil. 2012;33:2040-49.

A META-ANALYSIS OF BEHAVIORAL PARENT TRAINING FOR CHILDREN WITH ATTENTION DEFICIT HYPERACTIVITY DISORDER.

Lee PC, Niew WI, Yang HJ, et al.

This meta-analysis examined the effect of behavioral parent training on child and parental outcomes for children with attention deficit hyperactivity disorder. Meta-analytic procedures were used to estimate the effect of behavioral parent training on children with attention deficit hyperactivity disorder. Variables moderating the intervention effect were examined. Forty studies were included and generated an overall moderate effect size at post-treatment and a small effect size at follow-up. The majority of outcome categories were associated with a moderate effect size at post-treatment that decreased to a small effect size at follow-up. Parenting competence was the only outcome that had a large effect, which decreased to moderate at follow-up. The strength of the effect differed between questionnaire and observation measures. Behavioral parent training is an effective intervention for children with attention deficit hyperactivity disorder. Sustainability of the effects over time is a problem that awaits further scrutiny. Recommendations for further research and clinical practices are provided.

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Res Dev Disabil. 2012;33:2080-87.

MOTOR SKILLS OF CHILDREN NEWLY DIAGNOSED WITH ATTENTION DEFICIT HYPERACTIVITY DISORDER PRIOR TO AND FOLLOWING TREATMENT WITH STIMULANT MEDICATION.

Brossard-Racine M, Shevell M, Snider L, et al.

Motor difficulties are common in children with Attention Deficit Hyperactivity Disorder (ADHD). Although preliminary evidence has suggested that methylphenidate can improve the motor skills in children with ADHD and Developmental Coordination Disorder (DCD), the effect of stimulant medication on motor performance in children newly diagnosed with ADHD with or without motor impairment remains unclear. A cohort study of 49 medication-naive children (39 male; mean age 8.4(plus or minus)1.3 years) with ADHD was conducted. Children were evaluated using the Movement Assessment Battery for Children and the developmental test of visual motor integration at diagnosis and again three months following daily treatment with a stimulant medication. Motor difficulties were highly present at baseline (73.5%) but resolved in a subset after treatment with stimulant medication, suggesting that their motor difficulties may be attributed in part to their attentional problems. Nevertheless, motor impairment persisted in 55.1% of the sample. The severity of the behavioural symptoms was significantly associated with balance skills in children without motor impairments ($r2=0.30$, $p<0.01$) and with visual motor integration skills in children with persisting motor difficulties ($r2=0.27$, $p<0.01$). Attentional difficulties negatively affect the motor skills of children with ADHD. Following the use of stimulant medication, an important subset continued to demonstrate motor difficulties. The improvement in behaviour was insufficient to resolve motor problems and these children should therefore be targeted for rehabilitation services.

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Yonsei Med J. 2012;53:806-11.

PARENT-REPORTED SYMPTOMS OF ATTENTION DEFICIT HYPERACTIVITY DISORDER IN CHILDREN WITH INTERMITTENT EXOTROPIA BEFORE AND AFTER STRABISMUS SURGERY.

Chung SA, Chang YH, Rhiu S, et al.

Purpose: To investigate the symptoms of attention deficit hyperactivity disorder (ADHD) as reported by parents in children with intermittent exotropia [X(T)] and to determine whether strabismus surgery for X(T) affects ADHD symptoms.

Materials and Methods: Fifty-one consecutive children undergoing muscle surgery for X(T) were prospectively recruited. One parent of each child completed the ADHD rating scale IV (ADHD RS-IV) assessment consecutively before and one year after surgery. Patients whose preoperative scores were above the cut-off point, the 90th percentile based on a Korean sample, were regarded as demonstrating the ADHD trait. The impact of muscle surgery on ADHD symptoms was assessed by comparing the preoperative scores with the post-operative scores.
Results: Eight (15.7%) of the 51 patients demonstrated the ADHD trait. ADHD RS-IV scores following strabismus surgery significantly decreased in patients with the ADHD trait (p=0.014), while they did not differ in patients without the ADHD trait. Seven (87.5%) of the 8 patients with the ADHD trait showed improvement in their ADHD RS-IV scores after surgery. There was no difference in surgical success rates between X(T) patients with and without the ADHD trait.
Conclusion: The ADHD trait was relatively common in children with X(T), and the parent-reported symptoms of the children with the ADHD trait improved after strabismus surgery. These results suggest that childhood X(T) may be one contributing factor to ADHD- related symptoms.

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