



# ADHD

ATTENTION DEFICIT HYPERACTIVITY DISORDER

  
Laboratorio per la Salute  
Materno Infantile

  
MARIO NEGRI  
ISTITUTO DI RICERCHE  
FARMACOLOGICHE

NEWSLETTER

N. 32 anno III - Agosto 2010

Journal of Attention Disorders. 2010 Jul;14:52-56.

### **The prevalence of ADHD-like symptoms in a community sample.**

**Alloway T, Elliott J, Holmes J.**

**Objective:** The aim of the present study was to explore the prevalence of ADHD symptoms in a community sample of children in the United Kingdom.

**Method:** There were 964 ten year olds (55% boys; M = 10.4 years; SD = 0.6) from mainstream schools in the United Kingdom in this study. The ADHD Rating Scale-IV, which provides ratings on the frequency of ADHD symptoms drawn from DSM-IV criteria, was administered to class teachers.

**Results:** The findings indicated an overall 8% prevalence rate, with the majority of children identified as the Hyperactive/Impulsive subtype (5%). Almost half of these children were receiving additional support in the classroom as a result of learning difficulties.

**Conclusion:** It is therefore of value for educators to be able to conduct early screening to support these children before problems worsen.

Neuropsychiatr Enfance Adolesc. 2010;58:293-97.

### **Cognitive and relationship correlates associated with Attention-Deficit-Disorders with/without hyperactivity.**

**Abou-Abdallah T, Guile JM, Menuisier C, et al.**

**Objective:** To retrospectively examine visual attention performances and early parent-child relationship characteristics in an OPD clinical sample of ADHD youths.

**Method:** The sample included 20 hyperactive drug naive youths consecutively referred for attention evaluation to a Child & Adolescent Psychiatry OPD between 2004 and 2006. Demographic and clinical data were collected through a chart review process whereas attentional performances were independently assessed using the Conners's Continuous Performance Task device (CPT-II). Early parent-child relationships data were ascertained through the team consensus best-estimate procedure with respect to Berger's psychoanalytically-derived classification.

**Results:** Sixty percent of the sample presented with a DSM-IV-TR inattentive (n=1) or mixed (n=11) ADHD subtype whereas others participants displayed ADHD nos. Reaction Time (RT) variability was negatively correlated with age and was significantly associated with the DSM-IV-TR ADHD group. Taken separately, none of the Berger's correlates was correlated with either the clinical picture or the CPT performances.

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.

However, a composite score of early mother-child adversity was significantly associated with the DSM IV-TR ADHD group and not with the RT variability.

**Conclusion:** Our results are consistent with current literature which shows that a high variability in RT is associated with ADHD. However, no association was found between those early nurturing disturbances and cognitive variables such as RT overvariability.

---

J Am Acad Child Adolesc Psychiatry. 2010;49:841-49.

**COMT Val158Met genotype as a risk factor for problem behaviors in youth.**

**Albaugh MD, Harder VS, Althoff RR, et al .**

**Objective:** To test the association between the catechol-O-methyltransferase (COMT) Val158Met polymorphism and both aggressive behavior and attention problems in youth. We hypothesized that youth carrying a Met allele would have greater average aggressive behavior scores, and that youth exhibiting Val-homozygosity would have greater average attention problems scores.

**Method:** Complete data on maternally rated Child Behavior Checklist (CBCL) measures of aggressive behavior (AGG) and attention problems (AP), COMT polymorphism data, demographics, and maternal parenting quality were available for 149 youth (6 to 18 years old). Multivariable linear regression models were used to test the degree to which youth COMT Val158Met genotype was associated with AGG and AP while statistically controlling for age, gender, parental socioeconomic status (SES), and maternal parenting quality from the Alabama Parenting Questionnaire.

**Results:** Mothers of Met-carriers rated their children higher on average AGG scores when compared with mothers of Val-homozygotes ( $p = .016$ ). Further analyses revealed that this association was even more robust for maternal ratings of direct aggression ( $p = .007$ ). The hypothesized association between Val-homozygosity and higher average AP scores relative to average AP scores of Met-carriers did not quite reach statistical significance ( $p = .062$ ).

**Conclusions:** After controlling for demographics, SES, and maternal parenting quality as confounders, there remains a strong association between youth carrying a Met allele and higher average AGG scores relative to Val-homozygotes.

---

Biol Psychol. 2010;85:19-32.

**Variants of the SLC6A3 (DAT1) polymorphism affect performance monitoring-related cortical evoked potentials that are associated with ADHD.**

**Althaus M, Groen Y, Wijers AA, et al.**

Although the 10-repeat (10R) variant of the dopamine transporter gene (DAT1 or SLC6A3) is suggested to be a risk allele for Attention Deficit Hyperactivity Disorder (ADHD) no relationships between DAT1 and measures of cognition in children with ADHD have yet been demonstrated. We studied neurophysiological correlates of performance monitoring during a feedback-based learning task by measuring cortical event-related potentials (ERPs) in a group of 65 10-13-year-old children half of whom were diagnosed as ADHD. The first part of the study investigates correlations between parent-reported behaviour problems and several performance monitoring components, while the second part investigates the relationship between DAT1 and these components. Specifically ADHD problems correlated significantly with an error-related positivity (Pe) and a feedback-anticipatory negativity (the SPN). Only these two components discriminated between the DAT1 10/10R and 9R carriers. The 10/10R carriers showed a smaller Pe to errors and a smaller SPN in anticipation of negative feedback, particularly with learning.

---

Psychiatr Genet. 2010;20:160-65.

**Dopamine risk and paternal ADHD symptomatology associated with ADHD symptoms in four and a half-year-old boys.**

**Auerbach JG, Atzaba-Poria N, Berger A, et al.**

**Objective:** This study examined the influence of allelic variation in two dopamine genes, the dopamine receptor D4 (DRD4) gene and the dopamine transporter D1 (DAT1) gene, and paternal attention-deficit hyperactivity disorder (ADHD) symptomatology on the level of ADHD symptoms in 96 four and a half-year-old boys.

**Method:** DNA was collected by means of a buccal swab and genotyped for DRD4 and DAT1. Mothers completed the Dupaul ADHD checklist on their sons. ADHD symptomatology ratings for fathers were based on a summed father self-reported and spouse-reported symptoms (Conners Adult ADHD Rating Scale).

**Results:** There were main effects for DAT1 and father symptomatology for the child Total ADHD and Hyperactivity-Impulsivity scores. The main effects for DRD4 were limited to the child Hyperactivity-Impulsivity scores. Child Inattentive scores were influenced only by father symptomatology. Interaction effects between DAT1 and DRD4 and between DAT1 and the father ADHD risk group were found for child Hyperactivity-Impulsivity scores. Boys with the highest level of symptomatology were those with the 10/10 DAT1 genotype and the DRD4-7 genotype or fathers with high symptomatology.

**Conclusion:** The findings of this study indicate that the risk for ADHD, particularly hyperactivity-impulsivity, is exacerbated in the presence of dopamine risk genes and paternal ADHD symptomatology. This study adds to the growing literature on the efficacy of including multiple genetic and environmental risk factors in studies related to the development of psychopathology.

---

Journal of Clinical Child and Adolescent Psychology. 2010 Jul;39:492-505.

**Mental disorders in five-year-old children with or without developmental delay: Focus on ADHD.**

**Baker BL, Neece CL, Fenning RM, et al.**

Epidemiological studies of children and adolescents with intellectual disability have found 30 to 50% exhibiting clinically significant behavior problems. Few studies, however, have assessed young children, included a cognitively typical comparison group, assessed for specific disorders, and/or studied family correlates of diagnosis. We assessed 236 5-year-old children—95 with developmental delay (DD) and 141 with typical development—for clinical diagnoses using a structured interview. Every disorder assessed was more prevalent in the DD group. The percent of children meeting criteria for Attention Deficit Hyperactivity Disorder (ADHD) most highly differentiated the two groups (ratio = 3.21:1). There was high stability from externalizing behavior problems at age 3 to ADHD diagnoses at age 5 in both groups. In regression analyses, parenting stress at child age 3 related to later ADHD diagnosis in both groups and maternal scaffolding (sensitive teaching) also predicted ADHD in the DD group.

---

Acta Paediatrica. 2010 Jun;99:925-28.

**Intrauterine exposure to caffeine and inattention/overactivity in children.**

**Bekkhuis M, Skjøthaug T, Nordhagen R, et al.**

**Aim:** To determine the association between intrauterine exposure to timing and sources of caffeine and inattention/overactivity, suggesting ADHD in the child.

**Method:** This study used prospectively collected data from the large population-based study, The Norwegian Mother and Child Cohort Study (MoBa). Participants were 25,343 mothers and their 18-month-old children. Mothers reported on consumption of a number of caffeine sources at the 17th week and 30th week of gestation, as well as child inattention/overactivity at 18 months. Data were analysed using univariate analyses of covariance (ANCOVA).

**Results:** Once we controlled for confounders, there was a small effect of caffeine intake at 17th week of gestation on inattention/overactivity combined, and both 17th and 30th week of gestation on overactivity, when investigated separately from inattention. Surprisingly, the caffeine effect was only found for soft drinks, not tea or coffee.

**Conclusion:** Intrauterine exposure to soft drinks rather than coffee, the traditional focus, is associated with maternal reports of overactive behaviour in children aged 18 months.

---

Clin Pediatr. 2010;49:768-76.

**Post hoc analysis: Early changes in ADHD-RS items predict longer term response to atomoxetine in pediatric patients.**

**Block SL, Williams D, Donnelly CL, et al.**

Data from 5 atomoxetine trials in pediatric outpatients with attention-deficit/hyperactivity disorder (ADHD) were divided into training and validation data sets to develop models predicting atomoxetine treatment response, using changes in individual ADHD Rating Scale (ADHD-RS) items early in treatment. Treatment

response was predicted after 1 week by a (greater-than or equal to)1-point score decrease in ADHD-RS item 15 ("easily distracted;" positive predictive values [PPVs]: 84.9%, 74.3%, and 73.3%; negative predictive values [NPVs]: 52.6%, 50.5%, and 46.3%; training and 2 validation data sets, respectively); after 2 to 3 weeks, by a (greater-than or equal to)1-point score decrease in ADHD-RS item 1 ("fails to give close attention or makes careless mistakes;" PPV = 77.7% and 77.9%) and by the absence of a (greater-than or equal to)1-point score decrease on ADHD-RS items 1 and 10 ("on the go;" NPV = 72.2% and 77.5%), or by the combination of items 1 and 10 (PPVs: 75.1% and 75.4%; NPVs: 72.2% and 77.5%; training and validation data sets, respectively). (copyright) The Author(s) 2010

---

Arq Neuro-Psiquiatr. 2010;68:282-86.

#### **Reaction time assessment in children with ADHD.**

**Bolfer C, Casella EB, Baldo MVC, et al.**

Attention deficit, impulsivity and hyperactivity are the cardinal features of attention deficit hyperactivity disorder (ADHD) but executive function (EF) disorders, as problems with inhibitory control, working memory and reaction time, besides others EFs, may underlie many of the disturbs associated with the disorder.

**Objective:** To examine the reaction time in a computerized test in children with ADHD and normal controls.

**Method:** Twenty-three boys (aged 9 to 12) with ADHD diagnosis according to Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, 2000 (DSM-IV) criteria clinical, without comorbidities, Intelligence Quotient (IQ) (greater-than or equal to)89, never treated with stimulant and fifteen normal controls, age matched were investigated during performance on a voluntary attention psychophysical test.

**Results:** Children with ADHD showed reaction time higher than normal controls.

**Conclusion:** A slower reaction time occurred in our patients with ADHD. This findings may be related to problems with the attentional system, that could not maintain an adequate capacity of perceptual input processes and/or in motor output processes, to respond consistently during continuous or repetitive activity.

---

Pediatrics. 2010;126:323-32.

#### **Psychopathology in children and adolescents with migraine in clinical studies: A systematic review.**

**Bruijn J, Locher H, Passchier J, et al.**

**BACKGROUND:** In past decades, numerous population- and hospital-based studies have revealed a relationship between migraine or headache and psychopathology in children.

**OBJECTIVE:** To describe and assess all clinical studies on the prevalence and manifestations of psychological functioning and psychiatric comorbidity in children with migraine and to provide recommendations for its diagnosis and treatment.

**METHODS:** A literature search was performed in Medline, Embase, PsycINFO, and the Cochrane Database to identify clinical studies that assessed psychological functioning and/or psychiatric comorbidity in children with migraine. Trial quality was assessed according to a standardized and validated set of criteria.

**RESULTS:** Seven studies met our inclusion criteria. Evidence assessment was performed by using the best-evidence synthesis method of Slavin. On the basis of this method, we found strong evidence that children with migraine in a clinical setting do not exhibit more withdrawn behavior, do not have more thought problems, do not have more social problems, and do not exhibit more delinquent or aggressive behavior than healthy children. Furthermore, there is strong evidence that children with migraine have more somatic complaints and exhibit internalizing behavior which is, given the construct of the outcome measure used, a consequence of the nature of their disease rather than a sign of psychological dysfunctioning. Finally, compared with healthy children, there is limited evidence that children with migraine in a clinical setting are more frequently diagnosed with oppositional defiant disorder, and they are not more frequently diagnosed with attention-deficit/ hyperactivity disorder, conduct disorder, dysthymia, or depression.

**CONCLUSIONS:** On the basis of this review, we conclude that children with migraine at referral to a specialist do not exhibit more psychological dysfunctioning and (to a lesser extent) do not exhibit more psychiatric comorbidity compared with healthy controls.

---

Progress in Neuro-Psychopharmacology & Biological Psychiatry. 2010 Aug;34:1065-69.

**Neurotrophin-3 gene, intelligence, and selective attention deficit in a Korean sample with attention-deficit/hyperactivity disorder.**

**Cho SC, Kim HW, Kim BN, et al.**

**Objective:** Attention-deficit/hyperactivity disorder (ADHD) is a complex neurodevelopmental disorder with a strong genetic component. Neurotrophin-3 (NTF3), which participates in the differentiation and survival of dopaminergic and noradrenergic neurons, has been identified as a factor in the development of ADHD. We investigated the relationships between ADHD and NTF3 gene polymorphism.

**Methods:** We conducted a case-control analysis of 202 ADHD subjects and 159 controls, performed a transmission disequilibrium test (TDT) on 151 trios, and compared the intelligence quotient (IQ) and a continuous performance test (CPT) according to the genotype of two single-nucleotide polymorphisms (SNPs) (rs6332 and rs6489630) in the NTF3 gene.

**Results:** In the case-control and family-based analyses, NTF3 was not significantly associated with ADHD. However, in the ADHD probands, the subjects with AA genotype in the rs6332 SNP had significantly higher mean T-scores for commission errors on the CPT than did those with the AG genotypes ( $p = 0.045$ ). The mean IQ of the ADHD probands who had the CC genotype of the rs6489630 SNP were higher compared with those who had the CT or TT genotype ( $p = 0.035$ ). The mean T-score for response time on the CPT was higher in the subjects with TT genotype in the rs6489630 SNP compared to those with the CC or CT genotype, even after adjusting for the effect of IQ ( $p = 0.021$ ).

**Conclusions:** These results provide preliminary evidence of an association between NTF3 and the intelligence and selective attention deficit in the Korean population.

---

Behav Brain Funct. 2010;6.

**Does the cortisol response to stress mediate the link between expressed emotion and oppositional behavior in Attention-Deficit/Hyperactivity-Disorder (ADHD)?**

**Christiansen H, Oades RD, Psychogiou L, et al.**

**Background:** Expressed Emotions (EE) are associated with oppositional behavior (OPB) in children with Attention Deficit/Hyperactivity Disorder (ADHD). EE has been linked to altered stress responses in some disorders, but ADHD has not been studied. We test the hypothesis that OPB in ADHD is mediated by altered stress-related cortisol reactivity to EE.

**Methods:** Two groups of children (with/without ADHD) and their respective parents were randomly assigned to two different conditions with/without negative emotion and participated in an emotion provocation task. Parents' EE, their ratings of their children's OPB and their children's salivary cortisol levels were measured.

**Results:** Low parental warmth was associated with OPB in ADHD. High levels of parental EE elicited a larger cortisol response. Stress-related cortisol reactivity mediated the EE-OPB link for all children. This highlights the general importance of parent-child interactions on externalizing behavior problems.

**Conclusion:** High EE is a salient stressor for ADHD children that leads to increased levels of cortisol and OPB. The development of OPB might be mediated by the stress-response to high EE.

---

Journal of Clinical Child and Adolescent Psychology. 2010 Jul;39:581-87.

**Effects of maternal stimulant medication on observed parenting in mother-child dyads with attention-deficit/hyperactivity disorder.**

**Chronis-Tuscano A, Rooney M, Seymour KE, et al.**

This pilot study of 23 mothers with attention-deficit/hyperactivity disorder (ADHD) and their offspring with ADHD examined the effects of maternal stimulant medication on observed interactions. Parent-child interactions were observed using a structured protocol before and after mothers underwent a 5-week, double-blind stimulant titration. Despite dramatic effects of medication on adult ADHD symptoms, this small pilot and open label laboratory-based study did not identify maternal stimulant effects on observed parenting or child behavior. Given the documented impairments in parenting displayed by adults with ADHD, behavioral parenting interventions may be needed in conjunction with medication for mothers with ADHD to optimize family outcomes.

---

Pediatrics. 2010;126:239-46.

**Electronic health record decision support and quality of care for children with ADHD.**

**Co JPT, Johnson SA, Poon EG, et al.**

**OBJECTIVES:** The objective of this study was to assess the effect of electronic health record (EHR) decision support on physician management and documentation of care for children with attention-deficit/hyperactivity disorder (ADHD).

**METHODS:** This study involved 79 general pediatricians in 12 pediatric primary care practices that use the same EHR who were caring for 412 children who were aged 5 to 18 years and had a previous diagnosis of ADHD. We conducted a cluster randomized trial of EHR-based decision support that included (1) clinician reminders to assess ADHD symptoms every 3 to 6 months and (2) an ADHD note template with structured fields for symptoms, treatment effectiveness, and adverse effects. The main outcome measures were (1) proportion of children with visits during the 6-month study period in which ADHD was assessed and (2) quality of documentation of ADHD assessment. Generalized estimating equations were used to control for the clustering by providers.

**RESULTS:** Children at intervention sites were more likely to have had a visit during the study period in which their ADHD was assessed. The ADHD template was used at 32% of visits at which patients were scheduled specifically for ADHD assessment, and its use was associated with improved documentation of symptoms, treatment effectiveness, and treatment adverse effects.

**CONCLUSIONS:** EHR-based decision support improved the likelihood that children with ADHD had visits for as well as care related to managing this condition. Better understanding of how to optimize provider use of the decision support and templates could promote additional improvements in care.

---

Afr J Psychiatry (South Africa). 2009;12:275-79.

**Sleep and daytime sleepiness in methylphenidate medicated and un-medicated children with attention-deficit/hyperactivity disorder (ADHD).**

**Cockcroft K, Ashwal J, Bentley A.**

**Objective:** Excessive daytime sleepiness due to any cause can result in various symptoms similar to those used for the diagnosis of attention deficit/hyperactivity disorder (ADHD). A common treatment for children diagnosed with ADHD is methylphenidate which is also used to treat excessive daytime sleepiness. This paper reports on a study which compared the perceived levels of daytime sleepiness and prevalence of sleep disorders in medicated and un-medicated children with ADHD.

**Method:** The sample consisted of two matched groups of children who had been formally diagnosed with ADHD. One group (n=12) was taking immediate release methylphenidate twice daily, while the other group (n=11) had never, and were not currently, taking any medication. The two groups, as well as their parents, rated their levels of daytime sleepiness at three points in a single day.

**Results:** Significantly higher levels of daytime sleepiness were reported by the parents of the un-medicated children between the hours of 13:00 and 15:00, compared to the medicated children. The medicated children became increasingly sleepier from the first to the second measurement in both the morning and afternoon. There was no significant difference in the number of sleep disorders/disruptions reported by the parents of either group.

**Conclusion:** In a group of children with ADHD taking methylphenidate, there was a significant increase in sleepiness a few hours after taking the medication, which may then have a significant impact on their learning. The data also imply that part of the mechanism of action of methylphenidate effects in these children may be by reduction of daytime sleepiness.

---

Neuropsychiatr Enfance Adolesc. 2010;58:298-305.

**The effects of the ritalin: A point of view of the behavior and the mental functioning in the hyperactive child.**

**Combret R.**

The infantile hyperactivity is today a matter of concern to the society in relation to the difficulties to manage the behavior of these children, as well at the house as at the school. From a theoretical point of view, the debate is conflicting on the genesis of the disorder between the partisans of the Anglo-Saxon and French-speaking approaches within the background the proposition of treatment with the prescription drug or psychoanalytical therapies. This research work presents at first a group of 22 children and reports their medical examination in order to establish the attention deficit hyperactivity disorder (ADHD). Secondly, our

understanding of the psychomotor instability is given, from our psychologist's training clinician, by being interested in the sense and in the value of the symptoms in the family and individual psychic savings of these children. The last part, presenting a longitudinal approach, brings the question of the effects of the ritaline, both from the point of view of the symptoms of the hyperactivity and of the mental functioning.

---

Psychiatr Serv. 2010;61:811-16.

#### **Stigmatizing experiences of parents of children with a new diagnosis of ADHD.**

**DosReis S, Barksdale CL, Sherman A, et al.**

**Objective:** The experiences of parents of a child who received an initial diagnosis of attention-deficit hyperactivity disorder (ADHD) were examined to determine the ways in which they may have encountered stigmatizing situations.

**Methods:** Forty-eight parents of children aged six to 18 years were interviewed about their experiences leading up to their child's ADHD diagnosis, including their decisions to seek treatment. All interviews were recorded, transcribed, and analyzed using grounded theory methods. Codes were identified using a constant comparative approach, which led to theoretically defined thematic constructs of stigma.

**Results:** Stigmatizing experiences were noted by 77% of the sample. Nearly half (N=21, 44%) were concerned about how society would label their child, 40% (N=19) felt social isolation and rejection, and 21% (N=10) perceived health care professionals and school personnel as being dismissive of their concerns. Parents' own attitudes about ADHD treatment were shaped by their exposure to negative media (N=10, 21%), their mistrust of medical assessments (N=8, 17%), and the influence of general public views (N=3, 6%). These stigmatizing views were related to parental concerns about the impact that diagnosis and treatment would have on their child's self-esteem and opportunities for future success.

**Conclusions:** The range of ways in which parents in the study experienced stigma highlights the need for multiple perspectives for community outreach and public health programs that are aimed at addressing and eliminating mental health stigma. Even though stigma is a well-established barrier to mental health service use, the anticipated benefits of treatment may outweigh parents' experiences with stigma.

---

Behav Brain Funct. 2010;6.

#### **The impact of instruction and response cost on the modulation of response-style in children with ADHD.**

**Drechsler R, Rizzo P, Steinhausen H.**

**Background:** The present study investigated the impact of divergent instructions and response cost on strategic cognitive control in children with ADHD.

**Methods:** Children with ADHD (N = 34), combined subtype, and control children (N = 34) performed a series of self-paced computerized visual search tasks. The tasks varied by verbal instructions: after a baseline task, children were either instructed to work as fast as possible (speed instruction) or as accurately as possible (accuracy instruction). In addition, tasks were performed with and without response cost.

**Results:** Both groups modulated latencies and errors according to instructions in a comparable way, except for latency in the accuracy - instruction without response cost, where control children showed a larger increase of response time. Response cost did not affect the modulation of response style in children with ADHD to a larger extent than in controls. However, with instructions group differences related to target criteria became clearly more accentuated compared to baseline but disappeared when response cost was added.

**Conclusions:** Delay aversion theory and motivational or state regulation models may account for different aspects of the results. Modifications related to task presentation, such as the emphasis put on different details in the verbal instruction, may lead to divergent results when comparing performances of children with ADHD and control children on a self-paced task.

---

J Paediatr Child Health. 2010;46:392-97.

**The diagnostic outcomes of children with suspected attention deficit hyperactivity disorder following multidisciplinary assessment.**

**Efron D, Sciberras E.**

**Aim:** To undertake a retrospective analysis of the patients referred with suspected attention deficit hyperactivity disorder (ADHD) to a multidisciplinary clinic at the Royal Children's Hospital, Melbourne between 2004 and 2007. This study aimed to determine the proportion of children diagnosed with ADHD, the frequency of comorbid diagnoses, and the level of functional impairment of referred children.

**Methods:** Data regarding the demographic characteristics, clinical features, assessment findings and suggested management of patients who attended the ADHD Assessment Clinic were reviewed.

**Results:** Sixty-four children (58 males, 6 females) aged between age 4 and 8 years 11 months ( $M = 6.84$ ,  $SD = 1.24$ ) were referred. 43 children (67%) were diagnosed with ADHD and 32 (74%) of these were diagnosed with at least one comorbid condition, most commonly, oppositional defiant disorder (ODD; 51%) and speech/language disorder (23%). Of the 21 children who were not diagnosed with ADHD, approximately one-third were diagnosed with ODD and one-third were diagnosed with a specific learning disorder. Overall, the children referred to the clinic had poor quality of life by caregiver report; however, this did not differ between children who were diagnosed with ADHD and children who were not.

**Conclusion:** Comprehensive evaluation of children with suspected ADHD resulted in an alternative primary diagnosis in one-third of cases. Three-quarters of children diagnosed with ADHD had one or more comorbid diagnoses. A multidisciplinary model of assessment can be effective in identifying a range of problems in this patient group, and help to inform targeted interventions.

---

Yeni Symp. 2010;48:172-83.

**Correlation between perceived parenting style children and adolescents with ADHD and marital adjustment of their parents.**

**Ertugrul G, Toros F.**

**Objective:** The aim of this study was to evaluate the sociodemographic features of children and adolescents with Attention Deficit Hyperactivity Disorder (ADHD) whose age are between 11-18 and to determine whether significant differences are between perceived parenting style and adolescent with ADHD and marital adjustment of their parents.

**Method:** One hundred and three children and adolescents and their mothers were included in this study. Children and adolescents with DEHB were also applied "Parenting Style Scale" to evaluate perceived parenting style of them and their mothers were also applied "Marital Adjustment Test (MAT) to evaluate marital adjustment of parents. Besides, mothers were given an individual information form which was prepared by researcher to get information about the sociodemographic features of children and their parents.

**Findings:** Marital adjustments of their parents of score means in point of perceived parenting style of children with ADHD were found significant differences ( $F(3,102) = 2,709$ ,  $p < .05$ ). According to this finding, marital adjustment score of parents who were perceived as indifferent or authoritarian parents by their children were found out lower than parents who were perceived permissive parents by their children.

**Discussion and Conclusion:** As a result, parenting style and marital adjustment become risk factors for ADHD in children and adolescents. Other findings explained and discussed by literature

---

Clin Neurophysiol. 2010 Aug;121:1336-42.

**Alterations in theta activity associated with novelty and routinization processing in ADHD.**

**Fallahpour K, Clarke SD, Goldberg E, et al.**

**Objective:** Novelty and routinization-related information processing disturbances were examined in adolescent males with ADHD using an oddball paradigm and electrophysiological measurement of theta (4–7Hz) activity.

**Methods:** Fifty-four unmedicated adolescent males (12–18 years) with Attention Deficit Hyperactivity Disorder (ADHD) and matched controls performed an auditory oddball task. Theta activity was sub-averaged, and Fourier Integrals with simultaneous measurement of electrodermal activity (EDA) was used to index response to stimulus novelty and routinization.

**Results:** ADHD participants showed an overall increase in theta activity to both novel and routine stimuli relative to controls. While controls showed increased theta activity in response to novel compared to routine

targets across the brain, ADHD participants did not show this novelty-related increase in theta activity in the right anterior/frontal brain.

**Conclusions:** The findings of this study are consistent with disturbances in theta activity and the brain substrates of novelty relative to routinization-related processing in ADHD. Significance: These findings show that there are distinct alterations in theta activity related to stimulus novelty and routinization during an auditory oddball task in ADHD, and they highlight the value of using an event-related approach to elucidate the neural substrates of stimulus processing in ADHD.

---

Pediatrics. 2010;126:306-14.

**Shared decision-making in pediatrics: A national perspective.**

**Fiks AG, Localio AR, Alessandrini EA, et al.**

**OBJECTIVES:** To identify patterns of shared decision-making (SDM) among a nationally representative sample of US children with attention-deficit/hyperactivity disorder (ADHD) or asthma and determine if demographics, health status, or access to care are associated with SDM.

**PATIENTS AND METHODS:** We performed a cross-sectional study of the 2002-2006 Medical Expenditure Panel Survey, which represents 2 million children with ADHD and 4 million children with asthma. The outcome, high SDM, was defined by using latent class models based on 7 Medical Expenditure Panel Survey items addressing aspects of SDM. We entered factors potentially associated with SDM into logistic regression models with high SDM as the outcome. Marginal standardization then described the standardized proportion of children's households with high SDM for each factor.

**RESULTS:** For both ADHD and asthma, 65% of children's households had high SDM. Those who reported poor general health for their children were 13% less likely to have high SDM for ADHD (64 vs 77%) and 8% less likely for asthma (62 vs 70%) when adjusting for other factors. Results for behavioral impairment were similar. Respondent demographic characteristics were not associated with SDM. Those with difficulty contacting their clinician by telephone were 26% (ADHD: 55 vs 81%) and 29% (asthma: 48 vs 77%) less likely to have high SDM than those without difficulty.

**CONCLUSIONS:** These findings indicate that households of children who report greater impairment or difficulty contacting their clinician by telephone are less likely to fully participate in SDM. Future research should examine how strategies to foster ongoing communication between families and clinicians affect SDM.

---

Child Adolesc Ment Health. 2010;15:85-90.

**Undertreatment of motor problems in children with ADHD.**

**Fliers EA, Franke B, Lambregts-Rommelse NN, et al.**

**Background:** Motor problems occur in 30% to 50% of children with ADHD, and have a severe impact on daily life. In clinical practice there seems to be little attention for this comorbidity with the possible consequence that these motor problems go undertreated.

**Method:** Clinical interview and questionnaire survey of treatment by physiotherapy and factors predicting treatment of motor problems in 235 children with ADHD and 108 controls.

**Results:** Half of motor-affected children had received physiotherapy. Treated children had more severe motor problems, and less frequently presented with comorbid anxiety and conduct disorder. Treated and untreated children were similar in age, and rated similarly on ADHD inattentive and hyperactive-impulsive scales and parental socio-economic status.

**Conclusion:** Currently, undertreatment of motor problems in ADHD occurs. Behavioural factors play a role in referral and intervention.

---

Psychiatr Psychol Klin. 2010;10:115-19.

**ADHD diagnosis - A help or an obstacle?**

**Gaweda A, Nowak M, Janas-Kozik M.**

The authors of this paper discuss the importance of the diagnosis of attention-deficit hyperactivity disorder (ADHD) in an effective treatment as well as social functioning of children diagnosed with ADHD, stressing at the same time the meaning of a processual psychiatric and psychological diagnosis. This publication is an attempt to relate to numerous controversies around the ADHD diagnosis - to what extent it is a reliable

identification which explains the problems of young patients and which enables the patient to receive adequate help. Or, whether it may serve as a dispensation from responsibility of the parents who cannot cope with the bringing-up tasks, or "a label" which restricts the understanding of a young patient and limits his or her development as well as further functioning in the world. The authors emphasise the meaning of a comprehensive observation of a child during hospitalisation at a psychiatric ward for children and adolescents, which becomes indispensable when the clinical picture, despite a long diagnostic process within an outpatient clinic, still remains unclear or when, despite all the undertaken steps, the symptoms are increasing. The purpose of the clinical observation is to verify the diagnosis on the basis of a twenty-four-hour observation which in turn may invaluablely contribute to the understanding of the meaning and context of a child's behaviour. The article presents cases of three children: Kuba, Weronika and Maciej who are treated at the Developmental Age Psychiatry and Psychotherapy Ward of the Paediatric Centre in Sosnowiec, Poland. The diagnosis of the children has been gradually evolving from ADHD towards a more complex understanding of their problems - taking into account their family background as well as the individual dynamics of their emotional problems.

---

Journal of Developmental and Physical Disabilities. 2010 Aug;22:359-66.

**Utility of the Social and Communication Questionnaire in the differentiation of autism from ADHD.**

**Ghaziuddin M, Welch K, Mohiuddin S, et al.**

Autism spectrum disorder (ASD) and attention deficit hyperactivity disorder (ADHD) often occur together. However, since symptoms of hyperactivity and inattention often occur in individuals with autism, distinguishing between the two conditions can be difficult. The purpose of this paper is to determine if the Social and Communication Questionnaire (SCQ), a commonly used screening measure for autism, can differentiate between the two conditions. Nineteen participants with ASD (17 males; mean age 10 years; SD 3.9) were compared with 57 participants with ADHD (43 males; mean age 8.4 years; SD 2.8); and 22 participants with ASD + ADHD (19 males; mean age 9.2 years; SD 2.8). Significant differences were found between the ASD and ADHD groups (13.43 versus 7.08,  $p < 0.0001$ ) but not between the ASD and the mixed ASD + ADHD groups. A multinomial regression analysis identified the following nine questions as being especially important in differentiating between the ASD and ADHD groups: 6, 7, 13, 14, 26, 27, 33, 36 and 37. Implications of these findings are discussed.

---

J Child Adolesc Psychopharmacol. 2010;20:179-86.

**Sex differences in attentional performance and their modulation by methylphenidate in children with attention-deficit/hyperactivity disorder.**

**Gunther T, Herpertz-Dahlmann B, Konrad K.**

**Background:** Still little is known about neuropsychological differences between boys and girls with attention-deficit/hyperactivity disorder (ADHD) and whether there are sex-specific differences in the modulation of attentional performance by methylphenidate (MPH).

**Method:** In this study, 27 males and 27 females between 8-12 years old and with ADHD were investigated in a double-blind, placebo-controlled trial on five computerized attention tests (0.25 vs. 0.5 mg/kg MPH as a single dose, versus placebo).

**Results:** Boys and girls with ADHD did not differ with respect to age, intelligence quotient (IQ), symptom severity, co-morbidity patterns, and ADHD subtype. However, ADHD boys were more impulsive on a sustained attention task, whereas girls with ADHD had more deficits on tasks measuring selective attention. Attentional performance increased differentially as a function of MPH dose, with some tasks showing linear improvement with higher dosage whereas more complex tasks in particular showed inverse U-shaped patterns of MPH effects. However, these effects were comparable between girls and boys.

**Conclusions:** Our data suggest that there are some gender differences in attentional performance in subjects with ADHD in a clinical sample, even if symptom severity and co-morbidity are controlled; however, modulation of attention by MPH does not seem to differ between sexes.

---

Salud Ci. 2010;17:520-24.

**Pharmacological management of attention-deficit/hyperactivity disorder in adolescents: An update.**

**Hazell P.**

The aim of this paper is to provide an update to a previously published selective review of the recent literature on the pharmacology of attention-deficit/hyperactivity disorder (ADHD) in adolescents. About one half of children medicated for ADHD will continue to experience sufficient impairment during adolescence to warrant the continuation of their treatment. A smaller number of people with ADHD may require treatment for the first time in adolescence. The academic and social demands of adolescence can exaggerate the impairment caused by attentional problems. Adolescents, more so than children, have activities in the afternoon and evening that will tax their attentional abilities. Stimulant and non-stimulant medications are likely to be as effective for adolescent patients as they are for younger children, provided treatment adherence is satisfactory. Long-acting medications are preferred over immediate release compounds as they provide better coverage of symptoms throughout the day. Patterns of comorbidity with ADHD change from childhood to adolescence and may require a shift in treatment strategy. Picking a time to discontinue treatment should be a decision shared by the clinician and the patient. A negotiated trial off treatment followed by a review can avert premature discontinuation of treatment.

---

Acta Paediatrica, International Journal of Paediatrics 2010 99:6 (920-924)

**Social adversity predicts ADHD-medication in school children a national cohort study.**

**Hjern A, Weitoft GR, Lindblad F.**

**Aims:** To test the hypothesis that psychosocial adversity in the family predicts medicated ADHD in school children.

**Method:** ADHD-medication during 2006 was identified in the Swedish Prescribed Drug Register in national birth cohorts of 1.1 million 6-19 year olds. Logistic regression models adjusted for parental psychiatric disorders were used to test our hypothesis.

**Results:** There was a clear gradient for ADHD medication with level of maternal education, with an adjusted odds ratio of 2.20 (2.04-2.38) for the lowest compared with the highest level. Lone parenthood and reception of social welfare also implied higher risks of ADHD-medication with adjusted ORs of 1.45 (1.38-1.52) and 2.06 (1.92-2.21) respectively. Low maternal education predicted 33 of cases with medicated ADHD and single parenthood 14.

**Conclusions:** Social adversity in the family predicts a considerable proportion of ADHD-medication in school children in Sweden. (PsycINFO Database Record (c) 2010 APA, all rights reserved) (journal abstract)

---

Brain Dev. 2010;32:609-12.

**Comparison of the strengths and difficulties questionnaire (SDQ) scores between children with high-functioning autism spectrum disorder (HFASD) and attention-deficit/hyperactivity disorder (AD/HD).**

**Iizuka C, Yamashita Y, Nagamitsu S, et al.**

The aim of this research was to compare the Strengths and Difficulties Questionnaire (SDQ) scores and subscale scores in children with high-functioning autism spectrum disorder (HFASD) and attention-deficit/hyperactivity disorder (AD/HD), and also to clarify the differences between parent- and teacher-assessed SDQ scores/subscores in HFASD and AD/HD children. These patients' total difficulties scores were significantly high compared to the community sample. In the parent rating, HFASD children had significantly higher scores in the subscales of emotional symptoms and peer problems. In the teacher rating, AD/HD children showed significantly higher scores in the subscales of hyperactivity/inattention and conduct problems, whereas peer problems were significantly higher in HFASD. The teacher rating showed significantly greater difficulties than the parent rating on the subscale of prosocial behavior in both the AD/HD and HFASD groups. These results suggest that each subscale may reflect behavioral, emotional, and social characteristics of HFASD and AD/HD.

Nicotine Tob Res. 2010;12:344-54.

**Attentional and executive dysfunction as predictors of smoking within the childhood cancer survivor study cohort.**

**Kahalley LS, Robinson LA, Tyc VL, et al.**

**Introduction:** Previous research has suggested that childhood cancer survivors initiate smoking at rates approaching those of healthy individuals, even though smoking presents unique risks to survivors. The present study explores whether the attentional and executive functioning (EF) deficits associated with cancer and treatment place survivors of childhood cancer at increased risk for smoking.

**Methods:** Data from the Childhood Cancer Survivor Study were examined to identify concurrent and longitudinal correlates of tobacco use. We explored whether childhood attention problems and adulthood executive dysfunction were associated with smoking among adult survivors of childhood cancer.

**Results:** Childhood attention problems emerged as a striking predictor of adult smoking nearly a decade later on average. Nearly half (40.4%) of survivors who experienced attention problems in childhood reported a history of smoking, a significantly higher rate of ever smoking, than reported by those without childhood attention problems (relative risk [RR] = 1.53, 95% CI = 1.31-1.79). Furthermore, they were nearly twice as likely to be current smokers in adulthood compared with those without childhood attention problems (RR = 1.71, 95% CI = 1.38-2.11). Similar associations were found between components of adult executive dysfunction and adult smoking.

**Discussion:** Childhood cancer and treatment are associated with subsequent deficits in attention and EF. Early detection of these deficits will allow clinicians to identify patients who are at increased risk for smoking, an important step in promoting and maintaining health in this medically vulnerable population.

---

Psychiatry Res. 2010 Jul;178:363-69.

**Assessment of stigma associated with attention-deficit hyperactivity disorder: Psychometric evaluation of the ADHD Stigma Questionnaire.**

**Kellison I, Bussing R, Bell L, et al.**

This study evaluated the psychometric properties of the attention deficit hyperactivity disorder (ADHD) Stigma Questionnaire (ASQ) among a community sample of 301 adolescents ages 11–19 years at high (n=192) and low risks (n=109) for ADHD. Study subjects were drawn from a cohort study assessing ADHD detection and service use. The 26-item ASQ demonstrated good internal consistency. Confirmatory factor analysis using random parceling supported a three-factor structure with highly correlated subscales of disclosure concerns, negative self image, and concern with public attitudes, and a Schmid–Leiman analysis supported an overall stigma factor. Test–retest stability was assessed after two weeks (n=45) and found to be adequate for all three subscales. Construct validity was supported by relationships with related constructs, including clinical maladjustment, depression, self-esteem, and emotional symptoms, and the absence of a relationship with school maladjustment. Findings indicate that the ASQ has acceptable psychometric properties in a large community sample of adolescents, some of whom met Diagnostic and Statistical Manual of Mental Disorders, 4th Edition (DSM-IV) criteria for ADHD.

---

Europ J Spec Needs Educ. 2010;25:269-81.

**Teachers' evaluations for the detection of primary-school children with attention deficit hyperactivity disorder.**

**Kypriotaki M, Manolitsis G.**

The early detection of children with attention deficit hyperactivity disorder (ADHD) by teachers can contribute to the prevention of secondary disorders in a child and this can have serious implications for the child's overall development. The aims of the present study were to examine: (1) the validity of the original assessment of the teachers in detecting school-age children nominated as children with ADHD by their teachers; and (2) the factors that influence teachers' evaluations on a rating scale assessing ADHD, such as child's gender, the parents' level of education, the child's social and academic behaviour in the classroom, the teacher-student relationship, as well as the teachers' cooperation with the parents. Teachers were asked to fill in a Greek standardised rating scale for the detection of children with ADHD and a student behaviour questionnaire for 420 primary-school students nominated as children with ADHD by teachers. The study's findings showed that teachers detect far more students with ADHD than the number expected from the norms based on the standardised ADHD rating scale. Teachers not only nominated more boys than girls as students with ADHD, but also made more accurate identifications for girls than for boys, particularly in the

later primary-school grades. Children's age or parental educational background did not influence the teachers' initial nominations or their later ratings. Multiple regression analyses indicated that the teachers' beliefs about a child's peer relations and the quality of teacher-child relationships predicted teachers' ratings on the ADHD scale more than other factors did.

---

Biol Psychiatry. 2010;68:329-36.

**Delayed maturation in brain electrical activity partially explains the association between early environmental deprivation and symptoms of attention-deficit/hyperactivity disorder.**

**McLaughlin KA, Fox NA, Zeanah CH, et al.**

**Background:** Children raised in institutional settings are exposed to social and environmental circumstances that may deprive them of expected environmental inputs during sensitive periods of brain development that are necessary to foster healthy development. This deprivation is thought to underlie the abnormalities in neurodevelopment that have been found in previously institutionalized children. It is unknown whether deviations in neurodevelopment explain the high rates of developmental problems evident in previously institutionalized children, including psychiatric disorders.

**Methods:** We present data from a sample of children raised in institutions in Bucharest, Romania (n=117) and an age- and sex-matched sample of community control subjects (n=49). Electroencephalogram data were acquired following entry into the study at age 6 to 30 months, and a structured diagnostic interview of psychiatric disorders was completed at age 54 months.

**Results:** Children reared in institutions evidenced greater symptoms of attention-deficit/hyperactivity disorder, anxiety, depression, and disruptive behavior disorders than community controls. Electroencephalogram revealed significant reductions in alpha relative power and increases in theta relative power among children reared in institutions in frontal, temporal, and occipital regions, suggesting a delay in cortical maturation. This pattern of brain activity predicted symptoms of hyperactivity and impulsivity at age 54 months, and significantly mediated the association between institutionalization and attention-deficit/hyperactivity disorder symptoms. Electroencephalogram power was unrelated to depression, anxiety, or disruptive behaviors.

**Conclusions:** These findings document a potential neurodevelopmental mechanism underlying the association between institutionalization and psychiatric morbidity. Deprivation in social and environmental conditions may perturb early patterns of neurodevelopment and manifest as psychiatric problems later in life.

---

Educational Psychology in Practice. 2010 Jun;26:217-18.

**Review of 'Adolescents and adults with learning disabilities and ADHD'.**

**McNamara E.**

Reviews the book, "Adolescents and adults with learning disabilities and ADHD" by Noel Gregg (see record 2009-02715-000). This book addresses the US situation but is, nonetheless, a significant contribution to a consideration of the issues surrounding assessment and special arrangements for students with learning disabilities not only in the United States but also the UK. The author has divided the subject matter of the book into four major themes, namely (i) the justification for accommodation, (ii) the legal framework which generates the practice of accommodation, (iii) the implications for assessment and accommodation of specific learning difficulties in the areas of cognitive processing, the social/emotional domain, reading, writing and different symbol systems, for example, mathematics, science and second languages, and finally, (iv) accommodations and large scale assessments.

---

Journal of Abnormal Child Psychology: An official publication of the International Society for Research in Child and Adolescent Psychopathology. 2010 Aug;38:721-36.

**Parental influence on children with attention-deficit/hyperactivity disorder: I. Relationships between parent behaviors and child peer status.**

**Mikami AY, Jack A, Emeh CC, et al.**

We examined associations between children's peer relationships and (a) their parents' social competence as well as (b) their parents' behaviors during the children's peer interactions. Participants were families of 124 children ages 6–10 (68% male), 62 with ADHD and 62 age- and sex-matched comparison youth. Children's

peer relationships were assessed via parent and teacher report, and sociometric nominations in a lab-based playgroup. Parental characteristics were assessed via parent self-report and observations of behavior during their child's playgroup. After statistical control of relevant covariates, parents of children with ADHD reported poorer social skills of their own, arranged fewer play dates for their children, and displayed more criticism during their child's peer interaction than did parents of comparison youth. Parents' socialization with other parents and facilitation of the child's peer interactions predicted their children having good peer relationships as reported by teachers and peers, whereas parental corrective feedback to the child and praise predicted poor peer relationships. Parents' ratings of their child's social skills were positively associated with ratings of their own social skills, but negatively associated with criticism and facilitation of the child's peer interactions. Relationships between parental behaviors and peer relationships were stronger for youth with ADHD than for comparison youth. The relevance of findings to interventions is discussed.

---

Journal of Abnormal Child Psychology: An official publication of the International Society for Research in Child and Adolescent Psychopathology. 2010 Aug;38:737-49.

**Parental influence on children with attention-deficit/hyperactivity disorder: II. Results of a pilot intervention training parents as friendship coaches for children.**

**Mikami AY, Lerner MD, Griggs MS, et al.**

We report findings from a pilot intervention that trained parents to be "friendship coaches" for their children with Attention-Deficit/Hyperactivity Disorder (ADHD). Parents of 62 children with ADHD (ages 6–10; 68% male) were randomly assigned to receive the parental friendship coaching (PFC) intervention, or to be in a no-treatment control group. Families of 62 children without ADHD were included as normative comparisons. PFC was administered in eight, 90-minute sessions to parents; there was no child treatment component. Parents were taught to arrange a social context in which their children were optimally likely to develop good peer relationships. Receipt of PFC predicted improvements in children's social skills and friendship quality on playdates as reported by parents, and peer acceptance and rejection as reported by teachers unaware of treatment status. PFC also predicted increases in observed parental facilitation and corrective feedback, and reductions in criticism during the child's peer interaction, which mediated the improvements in children's peer relationships. However, no effects for PFC were found on the number of playdates hosted or on teacher report of child social skills. Findings lend initial support to a treatment model that targets parental behaviors to address children's peer problems.

---

Neurophysiol Clin. 2010;40:137-49.

**Visual sensory processing deficit in the occipital region in children with attention-deficit/hyperactivity disorder as revealed by event-related potentials during cued continuous performance test.**

**Nazari MA, Berquin P, Missonnier P, et al.**

**Aims of the study:** Recent studies described several changes of attention-related components of late frontal event-related potentials (ERPs) during Go/NoGo paradigm in children with attention-deficit/hyperactivity disorder (ADHD). We aimed to determine whether ERP components corresponding to earlier encoding of visual incoming information are also modulated by attentional disorders.

**Methods:** We recorded high-resolution EEG in 15 children meeting DSM-IV criteria for ADHD, comprising 15 age-matched control groups during an equiprobable Go/NoGo task in a cued continuous performance test (CPT-AX) paradigm. Both P100 and N200 ERP components were measured in response to both Go and NoGo stimuli. We analyzed both components with SwLORETA in order to localize their brain sources.

**Results:** A low rate of Go correct response and high rate of omission errors were observed in ADHD children. When compared to controls, these displayed delayed P100 and N200 latency, and lower P100-NoGo amplitude. In addition, the P100 latency was delayed for NoGo compared to Go condition. The source of P100 was located in occipital area. A sizable decrease in early electrical activity was found in ADHD, especially in the NoGo condition.

**Conclusion:** Our results suggest an early deficit in visual sensory integration within the occipital cortex in children with ADHD.

---

J Child Adolesc Psychopharmacol. 2010;20:187-96.

**Dose-response characteristics in adolescents with attention-deficit/ hyperactivity disorder treated with OROS(registered trademark) methylphenidate in a 4-week, open-label, dose-titration study.**

**Newcorn JH, Stein MA, Cooper KM.**

**Objective:** The aim of this study was to evaluate dose-response characteristics in adolescents with attention-deficit/hyperactivity disorder (ADHD) treated with once-daily OROS(registered trademark) methylphenidate (OROS (registered trademark) MPH) during the 4-week, open-label, escalating dose-titration phase of a larger multisite, placebo-controlled trial. Patient factors such as age, height, weight, and baseline symptom severity were evaluated as predictors of selected dose, as was the degree of incremental response with each successive dose escalation.

**Methods:** Adolescents 13-18 years of age with ADHD underwent a 4-week, open-label, escalating dose-titration trial to determine the minimal effective dose (18, 36, 54, or 72 mg once daily) of OROS(registered trademark) to be used in a multiphase, placebo-controlled study (NCT00249353). Both final absolute dose and mean weight-adjusted dose were used to assess predictors of response, using a one-way analysis of variance and regression analyses.

**Results:** The majority of subjects who did not respond at lower doses achieved response at each escalating dose level. Approximately two-thirds of subjects required a dose of 54 mg or greater to achieve improvement criteria. Minimal effective dose correlated modestly with baseline symptom severity. Age, height, and weight did not correlate with absolute dose and accounted for only a small percentage of variance in weight-based dose. Weight was not a major factor in predicting effective dose; however, using weight-adjusted rather than absolute dose proved slightly superior for modeling of adverse effects.

**Conclusions:** Adolescents required, on average, a higher absolute dose but a lower weight-adjusted dose (mg/kg) of OROS(registered trademark) than was previously reported in children. There were few predictors of optimal dose of OROS(registered trademark) other than baseline symptom severity. The increased percentage of adolescent responders at each dose level using this clinically driven approach to titration differs from recent findings from randomized forced dose titration studies in adults with ADHD.

---

Environ Res. 2010;110:476-83.

**Environmental exposure to lead, but not other neurotoxic metals, relates to core elements of ADHD in Romanian children: Performance and questionnaire data'Study approval: This study has been reviewed and approved by the Ethics Committee of the "Romanian College of Physicians"thom.**

**Nicolescu R, Petcu C, Cordeanu A, et al.**

Neurobehavioral measures of attention, and clinical features of the attention-deficit hyperactivity disorder (ADHD) have been studied in pediatric environmental lead research. However rarely, if ever, have performance measures of attention or executive functions and questionnaire-based quantitative ADHD-observations been studied in the same subjects. We examined associations between pediatric blood lead concentrations (PbB), as well as those of mercury (Hg), and aluminum (Al), and performance in four different attention tasks, as well as behavioral ratings from an ICD-10 (hyperactivity) and DSM-IV-coded (attention deficit) German questionnaire (FBB-ADHS). Asymptomatic, 8-12 year old children from two Romanian cities were studied, namely Bucharest and Pantelimon, a city near a metal-processing plant. Blood was analyzed for Pb, Al, and Hg. Data from 83 children were available for final analysis. We assessed attention performance by means of four tasks of the computer-based ADHD-tailored German KITAP-battery. We also received questionnaire ratings from parents and teachers covering three ADHD-dimensions. Multiple linear regression analysis was used to estimate associations between the three neurotoxic trace metals in blood and the different ADHD features. After adjusting for eleven potentially confounding variables we found consistent borderline to significant associations between Pb, but not other metals, in blood and various performance- and questionnaire data. False alarm responses (FAR) in the KITAP subtests rather than response latencies exhibited positive associations with PbB. Questionnaire ratings for ADHD dimensions also revealed PbB-related adversity. With any two-fold increase of PbB outcome changed markedly, namely up to 35%. Restriction to children with PbBs<10 (mu)g/dl had only a marginal influence on outcome. The converging evidence from performance- and questionnaire data confirms that core elements of ADHD are adversely affected by low environmental PbB even below 10 (mu)g/dl, but not by other neurotoxic trace metals. Observed effect-sizes are considerably larger than those typically found for lead-related IQ-deficit,

thus suggesting that attention deficit could be the more basic adverse effect of lead in children. This is the first study from Central and Eastern Europe dealing with links between environmental exposure of children to neurotoxic metals and ADHD.

---

J Am Acad Child Adolesc Psychiatry. 2010;49:675-85.

**Identifying loci for the overlap between attention-deficit/hyperactivity disorder and autism spectrum disorder using a genome-wide QTL linkage approach.**

**Nijmeijer JS, Arias-Vsquez A, Rommelse NNJ, et al.**

**Objective:** The genetic basis for autism spectrum disorder (ASD) symptoms in children with attention-deficit/hyperactivity disorder (ADHD) was addressed using a genome-wide linkage approach.

**Method:** Participants of the International Multi-Center ADHD Genetics study comprising 1,143 probands with ADHD and 1,453 siblings were analyzed. The total and subscale scores of the Social Communication Questionnaire (SCQ) were used as quantitative traits for multipoint regression-based linkage analyses on 5,407 autosomal single-nucleotide polymorphisms applying MERLIN-regress software, both without and with inclusion of ADHD symptom scores as covariates.

**Results:** The analyses without ADHD symptom scores as covariates resulted in three suggestive linkage signals, i.e., on chromosomes 15q24, 16p13, and 18p11. Inclusion of ADHD symptom scores as covariates resulted in additional suggestive loci on chromosomes 7q36 and 12q24, whereas the LOD score of the locus on chromosome 15q decreased below the threshold for suggestive linkage. The loci on 7q, 16p, and 18p were found for the SCQ restricted and repetitive subscale, that on 15q was found for the SCQ communication subscale, and that on 12q for the SCQ total score.

**Conclusions:** Our findings suggest that QTLs identified in this study are ASD specific, although the 15q QTL potentially has pleiotropic effects for ADHD and ASD. This study confirms that genetic factors influence ASD traits along a continuum of severity, as loci potentially underlying ASD symptoms in children with ADHD were identified even though subjects with autism had been excluded from the IMAGE sample, and supports the hypothesis that differential genetic factors underlie the three ASD dimensions.

---

European Child & Adolescent Psychiatry. 2010 Jul;19:549-57.

**COMT Val158Met polymorphism and socioeconomic status interact to predict attention deficit/hyperactivity problems in children aged 10–14.**

**Nobile M, Rusconi M, Bellina M, et al.**

The functional Val158Met COMT polymorphism appears to affect a host of behaviours mediated by the prefrontal cortex, and has been found associated to the risk for disruptive behaviours including ADHD. Parental socioeconomic status (SES) has also been reported as a predictor for the same childhood disorders. In a general population sample of 575 Italian pre-adolescents aged 10–14, we examined the association of the functional Val158Met COMT polymorphism and SES—both as linear and interactive effects—with oppositional defiant problems, conduct problems, and attention deficit/hyperactivity problems, as defined by the newly established Child Behaviour Check-List/6-18 DSM oriented scales. Multivariate- and subsequent univariate-analysis of covariance showed a significant association of COMT × SES interaction with CBCL 6/18 DOS attention deficit/hyperactivity problems ( $p = 0.004$ ), and revealed higher scores among those children with Val/Val COMT genotype who belonged to low-SES families. We also found a significant association of SES with attention deficit/hyperactivity problems and conduct problems DOS ( $p = 0.04$  and  $0.01$ , respectively). Our data are consistent with a bulk of recent literature suggesting a role of environmental factors in moderating the contribution of specific genetic polymorphisms to human variability in ADHD. While future investigations will refine and better clarify which specific environmental and genetic mechanisms are at work in influencing the individual risk to ADHD in pre-adolescence, these data may contribute to identify/prevent the risk for ADHD problems in childhood. (PsycINFO Database Record (c) 2010 APA, all rights reserved) (journal abstract)

---

Early Hum Dev. 2010;86:419-24.

**The link between sleep problems in infancy and early childhood and attention problems at 5 and 14 years: Evidence from a birth cohort study.**

**O'Callaghan FV, Al Mamun A, O'Callaghan M, et al.**

**Background:** Little research has examined the associations between early sleep problems and attention problems over several developmental periods.

**Aims:** To examine whether sleep problems in infancy and early childhood are independently related to attention difficulty at 5 and 14. years, and to the continuity of attention difficulties from 5 to 14. years.

**Study design:** The study was a prospective, population-based birth cohort study.

**Subjects:** 7223 women who delivered a live, singleton child between 1981 and 1983 were recruited at the first antenatal visit. Of these, 4204 had complete information on all key measures.

**Outcome measures:** Attention problems were assessed with items from the Child Behaviour Checklist (CBCL) and were classified as adolescent onset (i.e. problems at 14 but not at 5); early remitter (problems at 5, no problem at 14); and persistent (i.e. at both 5 and 14).

**Results:** At 6. months, sleep problems 'sometimes' were associated with the early remitter group in boys. For sleep problems between 2 and 4. years of age, findings were generally similar for boys and girls with strong associations with adolescent attention. Sleep problems 'often' were independently associated with early remitter and persistent attention problems, and 'sometimes' with early remitter and adolescent onset attention problems.

**Conclusions:** Sleep problems in early childhood are an indicator of subsequent attention problems that may persist into adolescence. Whether these associations are causal requires further research, however their presence provides an opportunity for early intervention and monitoring.

---

Child Psychiatry Hum Dev. 2010 Aug;41:441-47.

**Effects of zinc and ferritin levels on parent and teacher reported symptom scores in attention deficit hyperactivity disorder.**

**Oner O, Oner P, Bozkurt OH, et al.**

**Objective:** It has been suggested that both low iron and zinc levels might be associated with Attention Deficit Hyperactivity Disorder (ADHD) symptoms. However, the association of zinc and iron levels with ADHD symptoms has not been investigated at the same time in a single sample.

**Method:** 118 subjects with ADHD (age = 7–14 years, mean = 9.8, median = 10) were included in the study. The relationship between age, gender, ferritin, zinc, hemoglobin, mean corpuscular volume and reticulocyte distribution width and behavioral symptoms of children and adolescents with ADHD were investigated with multiple linear regression analysis.

**Results:** Results showed that subjects with lower zinc level had higher Conners Parent Rating Scale (CPRS) Total, Conduct Problems and Anxiety scores, indicating more severe problems. CPRS Hyperactivity score was associated both with zinc and ferritin levels. Conners Teacher Rating Scale (CTRS) scores were not significantly associated with zinc or ferritin levels.

**Conclusions:** Results indicated that both low zinc and ferritin levels were associated with higher hyperactivity symptoms. Zinc level was also associated with anxiety and conduct problems. Since both zinc and iron are associated with dopamine metabolism, it can be speculated that low zinc and iron levels might be associated with more significant impairment in dopaminergic transmission in subjects with ADHD.

---

Neuropediatrics. 2009;40:32-38.

**Cognitive versus behavioral ADHD phenotype: What is it all about?**

**Perez-Alvarez F, Serra-Amaya C, Timoneda-Gallart CA.**

The ADHD PASS assessment is discussed. 100 combined and 50 inattentive ADHD patients with DSM IV TR criteria, no comorbidity, and no previous treatment were enrolled. Those with SNAP-IV2.5/1.8 (teacher/parents) [n=96] were randomly assigned to 1 of 3 treatment groups: Concerta(registered trademark), humanistic psychology, and Concerta(registered trademark)+psychology. Those with SNAP-IV<2.5/1.8 [n=54] to 1 of 2 groups: Concerta(registered trademark) and Concerta(registered trademark)+psychology. All of them [n=150] we administered the SNAP-IV and cognitive DN:CAS battery at baseline and 6 and 12 months later. Cluster analysis and paired Student t-test were applied. The cluster analysis produced three cognitive profiles: one [n=96] with planning dysfunction and SNAP-IV2.5/1.8, the majority [n=76] combined ADHD; another [n=38] with successive processing dysfunction and SNAP-

IV<2.5/1.8, the majority [n=28] inattentive ADHD; and another [n=16] without cognitive dysfunction and with SNAP-IV<2.5/1.8, [n=8] combined and [n=8] inattentive. Only planning ameliorated at 12 months assessment. It was better in group 3 (p<0.1) than in group 1 (p<0.5), than in group 2 (p<0.4/0.3). Remission was parallel to planning improvement, group 3>group 1> group 2. PASS assessment in ADHD may be relevant.

---

Aust New Zealand J Psychiatry. 2010 Jun;44:528-34.

**A brief office-based hazard perception intervention for drivers with ADHD symptoms.**

**Poulsen AA, Horswill MS, Wetton MA, et al.**

**Objective:** The aim of this study was to develop a simple and brief hazard perception training intervention tailored to meet the needs of male drivers with attention-deficit-hyperactivity disorder symptoms.

**Methods:** Twenty male drivers with attention-deficit-hyperactivity disorder symptoms were quasi-randomly assigned to either a hazard perception training package (trained group) or a control intervention video (untrained group), presented in an office setting. Video-based hazard perception tests involving real-life driving scenes were conducted both before and after the interventions.

**Results:** The hazard perception response times of the trained group significantly improved compared with the untrained group,  $t(18) = 3.21, p < 0.005$ .

**Conclusions:** Significant improvements in hazard perception response times in male drivers with attention-deficit-hyperactivity disorder symptoms were found following the training intervention. This indicates that such training has potential for inclusion in a management plan for reducing the crash rates of this high risk group of drivers. The training is practical, quick, and affordable, and has the potential to translate into real-world driving outcomes. Key words: attention-deficit-hyperactivity disorder, driving, hazard perception.

---

School Mental Health. 2010 Jun;2:52-61.

**Getting to first base: Promoting engagement in family-school intervention for children with ADHD in urban, primary care practice.**

**Power TJ, Hughes CL, Helwig JR, et al.**

The optimal model of intervention for children with ADHD is typically a multimodal approach involving a partnership across the family, school, and primary care health systems. Unfortunately, even when multimodal interventions are available, mental health services generally are underutilized, particularly by children and families of racial and ethnic minority background who often reside in under-resourced, urban settings. Partnering to Achieve School Success (PASS) was developed as a service based in urban primary care settings to foster partnerships among the family, school, and primary care practice and promote engagement in intervention. This study was designed to examine the pre-treatment telephone history of contacts between clinicians and families to determine early indicators of engagement and potential strategies to improve treatment initiation. The data were derived from a retrospective analysis of 80 cases referred by primary care providers to PASS. Findings indicated that success rates of clinician-initiated contact and number of parent-initiated attempts were independent predictors of treatment initiation. Also number of minutes of actual phone contact predicted treatment initiation. Follow-up analyses suggested that amount of phone contact may serve as a mediator in the relationship between phone contact (clinician-initiated and parent-initiated) and treatment initiation. The predictive value of telephone contact was affirmed, and strategies for using phone contact to improve treatment initiation were discussed.

---

The Clinical Neuropsychologist. 2010 Jul;24:793-810.

**Do executive function deficits differentiate between children with attention deficit hyperactivity disorder (ADHD) and ADHD comorbid with oppositional defiant disorder? A cross-cultural study using performance-based tests and the behavior rating inventory of executive function.**

**Qian Y, Shuai L, Cao Q, et al.**

This study examined the differential executive dysfunction of children with attention deficit hyperactivity disorder (ADHD) and those with ADHD and oppositional defiant disorder (ODD) in Han Chinese. A total of 258 children (89 ADHD, 53 ADHD + ODD, 116 controls) completed performance-based executive function tests and had their everyday life executive skills rated by their parents using the Behavior Rating Inventory of

Executive Function (BRIEF). Both the ADHD and ADHD + ODD groups performed worse than the controls in the Stroop and Trail-making tests and the BRIEF. The ADHD + ODD group were rated worse than the ADHD group on the BRIEF, but the two groups showed no significant difference in the performance-based tests. These findings suggest Han Chinese children with ADHD display executive dysfunction in performance-based tests and everyday life scenarios, in a similar way to findings in Western counterparts. However, children with ADHD + ODD showed more severe executive dysfunction in everyday life scenarios than those with ADHD only.

---

Clin Neurophysiol. 2010;121:1511-18.

**EEG-vigilance and response to stimulants in paediatric patients with attention deficit/hyperactivity disorder.**

**Sander C, Arns M, Olbrich S, et al.**

**Objective:** In a pilot study it was investigated whether assessment of EEG-vigilance is useful for the prediction of treatment outcome in ADHD patients.

**Methods:** Resting EEG recordings of 49 unmedicated ADHD patients and 49 age-matched controls were analyzed. Vigilance level was determined for 1-s segments with a computer-based algorithm, distinguishing six stages from higher vigilance stages A1, A2 and A3 with dominant alpha activity to lower stages B1 and B2/3 with low amplitude non-alpha and increasing theta and delta activity and further onto stage C characterizing sleep onset. Treatment outcome was measured as changes in continuous performance test (CPT) results from baseline after at least 4. weeks of medication.

**Results:** ADHD patients spend less time in higher A1-stages (ADHD=66%, controls=81%) and showed more switching between vigilance stages (ADHD=26.02%, controls=19.09%), indicating a more unstable vigilance regulation. Patients with less stable vigilance showed a worse pre-treatment CPT performance but achieved a better post-treatment result compared to patients with more stable vigilance regulation. These differences did not reach statistical significance.

**Conclusions:** Signs of vigilance instability were found in ADHD patients compared to controls. Those patients with a higher degree of vigilance instability seemed to benefit more from stimulant medication. Significance: This is the first investigation of EEG-vigilance in ADHD-patients. Results are limited by a short recording time but the results strongly suggest further investigation of the vigilance regulation in ADHD patients.

---

Psychiatry Clin Neurosci. 2010;64:394-402.

**Neuroanatomical correlates of attention-deficit-hyperactivity disorder accounting for comorbid oppositional defiant disorder and conduct disorder.**

**Sasayama D, Hayashida A, Yamasue H, et al.**

**Aim:** An increasing number of neuroimaging studies have been conducted to uncover the pathophysiology of attention-deficit-hyperactivity disorder (ADHD). The findings are inconsistent, however, at least partially due to methodological differences. In the present study voxel-based morphometry (VBM) was used to evaluate brain morphology in ADHD subjects after taking into account the confounding effect of oppositional defiant disorder (ODD) and conduct disorder (CD) comorbidity.

**Methods:** Eighteen children with ADHD and 17 age- and gender-matched typically developing subjects underwent high-spatial resolution magnetic resonance imaging. The regional gray matter volume differences between the children with ADHD and controls were examined with and without accounting for comorbid ODD and CD in a voxel-by-voxel manner throughout the entire brain.

**Results:** The VBM indicated significantly smaller regional gray matter volume in regions including the bilateral temporal polar and occipital cortices and the left amygdala in subjects with ADHD compared with controls. Significantly smaller regional gray matter volumes were demonstrated in more extensive regions including the bilateral temporal polar cortices, bilateral amygdala, right occipital cortex, right superior temporal sulcus, and left middle frontal gyrus after controlling for the confounding effect of comorbid ODD and CD.

**Conclusion:** Morphological abnormalities in ADHD were seen not only in the regions associated with

executive functioning but also in the regions associated with social cognition. When the effect of comorbid CD and ODD was taken into account, there were more extensive regions with significantly smaller volume in ADHD compared to controls.

---

Psychiatr Serv. 2010;61:803-10.

#### **Trends in recognition of and service use for attention-deficit hyperactivity disorder in Britain, 1999-2004.**

**Sayal K, Ford T, Goodman R .**

**Objective:** National data suggest that attention-deficit hyperactivity disorder (ADHD) is underdiagnosed in Britain and that parental factors determine service use. This situation may have changed in recent years following policy and research recommendations. This study investigated changes in rates and correlates of service use for ADHD in Britain between 1999 and 2004.

**Methods:** Use of various services by children aged five to 16 with ADHD (N=176) who were identified in the cross-sectional, nationally representative 2004 British Child and Adolescent Mental Health Survey was examined. The 2004 sample was compared with a community sample identified in a similar survey conducted in 1999.

**Results:** Most parents (90%) of children with ADHD recognized the presence of a problem, and 55% thought that their child had hyperactivity. Past-year contacts with education-based professionals exceeded those with professionals in specialist health services (74% versus 51%). One-third of children with ADHD were taking medication. Child factors, including severity of ADHD and a comorbid emotional or behavioral disorder, were the main determinants of service use. Parental burden was also associated with specialist service use. Specialist service use increased over five years after adjustment for severity and parental perceptions and burden (odds ratio=1.76, 95% confidence interval=1.13-2.75, p=.013).

**Conclusions:** Barriers to care for ADHD in Britain appear to have been reduced in recent years. Medication for ADHD appears to be used cautiously, and the study found little empirical evidence of overuse. There is a need for health services to provide training and support for education-based professionals to help them recognize and manage children with ADHD.

---

Curr Med Res Opin. 2010;26:2087-95.

#### **Effects of atomoxetine on self-reported high-risk behaviors and health-related quality of life in adolescents with ADHD.**

**Saylor K, Williams DW, Schuh KJ, et al.**

**Objective:** This study measured the effects of atomoxetine HCl on high-risk behaviors and health-related quality of life in adolescents with attention-deficit/hyperactivity disorder (ADHD), using a subgroup analysis of data from a previous clinical trial.

**Research design and methods:** In the base study, which was conducted at 26 sites in the United States, patients ages 13-16 years were randomized in a double-blind manner to atomoxetine treatment by one of two dose titration schedules for 8 weeks. Patients who responded to treatment were rerandomized to atomoxetine at a daily dose of 0.8 or 1.4mg/kg for 40 weeks. Patients in the highest-risk quartile for each category of behavior or domain were included and the dosing groups combined. Main outcome measures: Efficacy measures included the Youth Risk Behavior Surveillance (YRBS) and Child Health and Illness Profile Adolescent Edition (CHIP-AE). The YRBS has six categories of behavior, and the CHIP-AE has six domains. Data for mean change from baseline were analyzed using a last-observation-carried-forward analysis. Results: A total of 267 patients were randomized, but the high-risk subgroup analyzed in the present study was much smaller (range of n568 per group). YRBS scores for tobacco use, unhealthful dietary behaviors, inadequate physical activity, and behaviors contributing to unintentional injuries showed statistically significant improvements (p<0.05) by atomoxetine treatment at Week 8. At the end of the 40-week maintenance period, unhealthful dietary behaviors, inadequate physical activity, and behaviors contributing to unintentional injuries continued to show statistically significant improvements (p<0.001). When the highest-risk quartile of the CHIP-AE data was analyzed, there were statistically significant improvements on all six domains after atomoxetine treatment at 8 weeks (p<0.001) and on five of the six domains at 40 weeks (p(less-than or equal to)0.01).

**Conclusions:** Atomoxetine improved self-reported high-risk behaviors and overall health-related quality of life in adolescents with ADHD. Potential limitations of this study include small sample sizes and the fact that it involved a subgroup analysis, which is by nature hypothesis-generating. Further, well-controlled,

prospective studies in larger and more heterogeneous ADHD populations, including older patients, are warranted to confirm or reject these findings.

---

J Child Adolesc Psychopharmacol. 2010;20:197-203.

**Factors associated with atomoxetine efficacy for treatment of attention-deficit/hyperactivity disorder in children and adolescents.**

**Scott NG, Ripperger-Suhler J, Rajab MH, et al.**

**Objectives:** The aims of this study were to determine if relationships exist between the efficacy of atomoxetine for treatment of attention-deficit/hyperactivity disorder (ADHD) and demographic characteristics, specific co-morbid diagnoses, subtype of ADHD, and/or additional use of a stimulant medication.

**Method:** A retrospective chart review was performed using data from an institutional electronic medical record system. Children aged 5-17 years who were diagnosed with ADHD and prescribed atomoxetine were included; 432 study subjects were categorized as treatment success (TS), treatment failure (TF), or undetermined. Co-morbid diagnoses, demographic factors, subtype of ADHD, and additional use of stimulant medications were examined for association with TS.

**Results:** A total of 88 children were categorized as TS, 197 as TF, and 147 as undetermined. More subjects in the TS group were receiving stimulant medication in addition to the atomoxetine than in the TF group ( $p = .0319$ ; 95% Wald confidence interval [CI], 1.064-3.972). There was no significant difference between groups for any demographic characteristic, the presence of any co-morbid diagnosis, or type of ADHD. In particular, the presence of anxiety or depression was not associated with a response to atomoxetine.

**Conclusion:** Children who were prescribed a stimulant medication in addition to atomoxetine had better outcomes in treating ADHD than those receiving only atomoxetine.

---

Rehabil Psychol. 2010;55:188-93.

**Inspection time and attention-deficit/hyperactivity disorder symptoms in children with cerebral palsy.**

**Shank LK, Kaufman J, Leffard S, et al.**

**Objective:** To examine between-groups differences in the associations between aspects of processing speed assessed with an inspection time task and attention-deficit/hyperactivity disorder (ADHD) symptoms.

**Research Design:** Two groups comprising 34 children with cerebral palsy (CP) and 70 nonaffected peers (control), ages 8-16 years, participated in a prospective correlational study. Measures included a visual inspection time task and the Conners' Parent Rating Scale-Revised: Long Version.

**Results:** Children with CP exhibited significantly slower processing speed and more symptoms of inattention and hyperactivity than controls. Significant associations between inspection time and ADHD symptoms were found only in the control group.

**Conclusions:** Findings have implications for clinical assessment and understanding of attentional risks associated with CP.

---

Depression Anxiety. 2010 Jul;27:667-74.

**ADHD prevalence and association with hoarding behaviors in childhood-onset OCD.**

**Sheppard B, Chavira D, Azzam A, et al.**

**Background:** It has been suggested that attention-deficit hyperactivity disorder (ADHD) and obsessive-compulsive disorder (OCD), both neurodevelopmental disorders with onset in childhood, are highly comorbid, but previous studies examining ADHD and OCD comorbidity have been quite variable, partly because of inconsistency in excluding individuals with tic disorders. Similarly, ADHD has been postulated to be associated with hoarding although this potential relationship is largely methodologically unexplored. This study aimed to examine the prevalence of ADHD among individuals with childhood-onset OCD but without comorbid tic disorders, as well as to examine the relationship between clinically significant hoarding behaviors (hoarding) and ADHD.

**Method:** ADHD prevalence rates and the relationship between ADHD and hoarding were examined in 155 OCD-affected individuals (114 probands and 41 relatives, age range 4-82 years) recruited for genetic studies and compared to pooled prevalence rates derived from previously published studies.

**Results:** In total, 11.8% met criteria for definite ADHD, whereas an additional 8.6% had probable or definite ADHD (total=20.4%). In total, 41.9% of participants with ADHD also had hoarding compared to 29.2% of participants without ADHD. Hoarding was the only demographic or clinical variable independently associated with ADHD (odds ratio=9.54,  $P<0.0001$ ).

**Conclusion:** ADHD rates were elevated in this sample of individuals with childhood-onset OCD compared to the general population rate of ADHD, and there was a strong association between ADHD and clinically significant hoarding behavior. This association is consistent with recent studies suggesting that individuals with hoarding may exhibit substantial executive functioning impairments and/or abnormalities, including attentional problems.

---

Prog Neuro-Psychopharmacol Biol Psychiatry. 2010;34:974-79.

**A case-control association study of serotonin 1A receptor gene and tryptophan hydroxylase 2 gene in attention deficit hyperactivity disorder.**

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

Serotonergic system-related genes are likely to be involved in mechanisms underlying attention deficit hyperactivity disorder (ADHD). We investigated the association of serotonin the 1A receptor C-1019G single nucleotide polymorphism (HTR1A C-1019G SNP) and tryptophan hydroxylase 2 gene -703G/T (TPH2 -703G/T) SNP with ADHD. All of the ADHD subjects completed a comprehensive and standardized diagnostic and psychological evaluation battery including the parents' Korean version of the ADHD Rating Scale-IV (ARS). The genotype and allele frequencies of 78 ADHD patients and 107 normal controls were analyzed for 5-HTR1A C-1019G and TPH2 -703G/T. There were statistically significant differences in the genotype distributions and allele frequencies of HTR1A C-1019G between the ADHD group and the control group. The homozygous allele C frequency was significantly higher in ADHD patients than in controls. However, no differences in either genotype distribution or in allele frequencies of TPH2 -703G/T were observed between the ADHD patients and the controls. In the ADHD patients, ANCOVA revealed that there were no significant differences in the subscales and total score between the ADHD probands with the CC genotype and those with the CG and GG genotypes in ARS and the Continuous Performance Test (CPT) when adjusting for age and gender. The odds ratio comparing the CC genotype group with the CG genotype group and the C allele with G was 2.12 and 1.79 respectively. Therefore, genotype CC was associated with higher risk of ADHD. Our results suggest that the HTR1A C-1019G SNP may affect susceptibility to ADHD. Further investigation with a larger number of subjects is needed in order to confirm this finding.

---

Eur J Psychiatry. 2009;23:115-20.

**Clinical evaluation of children testing positive in screening tests for attention-deficit/hyperactivity disorder: A preliminary report.**

**Skounti M, Mpitzaraki K, Philalithis A, et al.**

**Background and Objectives:** Screening tests are of great diagnostic value in attention-deficit/hyperactivity disorder (ADHD), however final diagnosis relies on a clinical examination by an expert. The objective of the present study was to clinically evaluate children who had been screened positive for ADHD through both a parent and a teacher questionnaire.

**Methods:** Parent interview and child behavior checklist and clinical assessment were used to confirm the preliminary diagnosis in 42 children aged 8 years, who have been screened positive for ADHD out of 1,708 children, in a large, two-setting screening study conducted in Crete, Greece.

**Results:** The diagnosis of ADHD was confirmed for 31 children (74%). In the remaining 11 children, ADHD manifestations were attributed to other primary disorders. None of the 42 children was classified as lacking symptoms suggesting ADHD. Among the 31 children with confirmed ADHD, only 2 had been diagnosed prior to the screening test.

**Conclusions:** Although clinical evaluation is the golden standard for diagnosis of ADHD, two-setting screening questionnaires by parent and teacher are useful tools in identifying children who need further investigation and intervention.

---

Am J Psychiatry. 2010 Aug;167:977-86.

**Basal ganglia surface morphology and the effects of stimulant medications in youth with attention deficit hyperactivity disorder.**

**Sobel LJ, Bansal R, Maia TV, et al.**

**OBJECTIVE:** Disturbances in the basal ganglia portions of cortico-striato-thalamo-cortical circuits likely contribute to the symptoms of attention deficit hyperactivity disorder (ADHD). The authors examined the morphologic features of the basal ganglia nuclei (caudate, putamen, and globus pallidus) in children with ADHD.

**METHOD:** A total of 104 individuals (combined-type ADHD patients: N=47; healthy comparison subjects: N=57), aged 7 to 18 years, were examined in a cross-sectional case-control study using anatomical magnetic resonance imaging. Conventional volumes and the surface morphology for the basal ganglia were measured.

**RESULTS:** Overall volumes were significantly smaller only in the putamen. Analysis of the morphological surfaces revealed significant inward deformations in each of the three nuclei, localized primarily in portions of these nuclei that are components of limbic, associative, and sensorimotor pathways in the cortico-striato-thalamo-cortical circuits in which these nuclei reside. The more prominent these inward deformations were in the patient group, the more severe the ADHD symptoms. Surface analyses also demonstrated significant outward deformations of all basal ganglia nuclei in the ADHD children treated with stimulants compared with those ADHD youth who were untreated. These stimulant-associated enlargements were in locations similar to the reduced volumes detected in the ADHD group relative to the comparison group. The outward deformations associated with stimulant medications attenuated the statistical effects of the primary group comparisons.

**CONCLUSIONS:** These findings potentially represent evidence of anatomical dysregulation in the circuitry of the basal ganglia in children with ADHD and suggest that stimulants may normalize morphological features of the basal ganglia in children with the disorder.

---

Acta Paediatrica. 2010 Aug;99:1199-204.

**Motor function and methylphenidate effect in children with attention deficit hyperactivity disorder.**

**Stray LL, Ellertsen B, Stray T.**

**Aim:** Hyperactivity, impulsivity and poor attention are the core problems of ADHD and central stimulant medication is the preferred treatment. Many children with ADHD also display motor problems. The present study investigated the presence of motor problems in subjects who showed positive response to central stimulants on ADHD symptoms, compared with non-responders.

**Method:** This is a retrospective study of 73 children diagnosed ADHD, aged 5–17 years, who had been assessed with parts of the 'Motor Function Neurological Assessment' (MFNU) and evaluated with regard to effect of central stimulant medication. The sample was divided into two subgroups based on the responses to methylphenidate: Medicine responders and Non medicine responders.

**Results:** Stimulant responders showed significantly more motor problems than the non-responders on all sub-tests and on the total problem score of the MFNU. Motor problems were present both in younger (age 5–10 years) and older (11–17 years) stimulant responders. There were no gender differences in motor performance.

**Conclusion:** Our findings indicate that the probability of positive effect of central stimulants on core problems of ADHD is higher when motor problems are present in addition to ADHD symptoms, than when motor problems are absent.

---

Pediatrics. 2010;126:214-21.

**Television and video game exposure and the development of attention problems.**

**Swing EL, Gentile DA, Anderson CA, et al.**

**OBJECTIVES:** Television viewing has been associated with greater subsequent attention problems in children. Few studies have examined the possibility of a similar association between video games and attention problems, and none of these has used a longitudinal design.

**METHODS:** A sample of 1323 middle childhood participants were assessed during a 13-month period by parent- and child-reported television and video game exposure as well as teacher-reported attention problems. Another sample of 210 late adolescent/early adult participants provided self-reports of television exposure, video game exposure, and attention problems.

**RESULTS:** Exposure to television and video games was associated with greater attention problems. The association of television and video games to attention problems in the middle childhood sample remained significant when earlier attention problems and gender were statistically controlled. The associations of screen media and attention problems were similar across media type (television or video games) and age (middle childhood or late adolescent/early adult).

**CONCLUSIONS:** Viewing television and playing video games each are associated with increased subsequent attention problems in childhood. It seems that a similar association among television, video games, and attention problems exists in late adolescence and early adulthood. Research on potential risk factors for attention problems should be expanded to include video games in addition to television. Copyright

---

The Canadian Journal of Psychiatry / La Revue canadienne de psychiatrie. 2010 May;55:305-12.

**Clinical response to methylphenidate in children diagnosed with attention-deficit hyperactivity disorder and comorbid psychiatric disorders.**

*Ter-Stepanian M, Grizenko N, Zappitelli M, et al.*

**Objective:** To determine to what extent the clinical response to methylphenidate (MPH) is affected by psychiatric comorbidities in children diagnosed with attention-deficit hyperactivity disorder (ADHD).

**Methods:** Children (n = 267) aged 6 to 12 years diagnosed with ADHD participated in a double-blind, placebo-controlled, 2-week medication trial of MPH. Children were assessed using parent and teacher ratings and laboratory measures. Clinical response to MPH was determined by integrating all obtained measures.

**Results:** Meeting criteria for conduct disorder (CD) was 27.7% of children, 40.8% for oppositional defiant (ODD), 47.2% for anxiety, and 7.9% for depressive disorders. The presence of CD or ODD was associated with good response to MPH. In contrast, children diagnosed with only comorbid anxiety were more likely to receive poor response rating independent of age, sex, or socioeconomic status. Low family income was found to be predictive of good response to MPH.

**Conclusions:** The response to MPH in children with ADHD may be dependent on the type of comorbid disorder present.

---

Pediatr Neurol. 2010;43:159-62.

**Recognition of impaired atomoxetine metabolism because of low CYP2D6 Activity.**

*Ter Laak MA, Temmink AH, Koeken A, et al.*

Ten out of 100 children treated for attention deficit hyperactivity disorder with standard doses of atomoxetine were selected by a neurologist for cytochrome P450 2D6 and cytochrome P450 2C19 genotyping, based on late response (>9 weeks) and adverse effects (gastrointestinal problems, sleeping disorders, malaise, inactivity, and mood instabilities). After genotyping, eight children were confirmed to have compromised cytochrome P450 2D6 activity because of at least one nonfunctional or less functional allele. Cytochrome P450 C19 is a minor pathway in atomoxetine metabolism and therefore of less importance. Tailored therapeutic advice was given to the neurologist. Four children with compromised cytochrome P450 2D6 activity responded better after decreasing their atomoxetine dose. The other four ceased treatment because of initial adverse effects. These cases indicate that compromised atomoxetine metabolism can be recognized, based on adverse effects and late response to atomoxetine. Physicians should be aware of the typical pattern of adverse effects and late response in atomoxetine treatment, possibly indicating compromised cytochrome P450 2D6 activity. Cytochrome P450 2D6 genotyping before atomoxetine treatment may be beneficial in preventing overdosing or early cessation. Further research is needed to establish the cost versus benefit ratio of prospective cytochrome P450 2D6 genotyping in atomoxetine treatment.

---

East Mediterr Health J. 2010;16:505-10.

**Attention deficit-hyperactivity symptoms among Palestinian children.**

*Thabet AM, Al Ghamdi H, Abdulla T, et al.*

We aimed to establish the prevalence and distribution of attention deficit-hyperactivity disorder (ADHD) symptoms and other associated comorbid mental health problems in Palestinian schoolchildren. Thus 349

children aged 6-15 years were randomly selected from 23 schools in Gaza and the West Bank and were rated by their parents and teachers using both the ADHD DSM-IV Checklist and the Strengths and the Difficulties Questionnaire, which also measures conduct and emotional problems. There was a significant agreement between parents and teachers, with 4.3% of the children rated above the established cut-off scores on both the parent and teacher DSM-IV Checklist. Male gender, family size and living in an area of socioeconomic deprivation were independently associated with ADHD symptoms.

---

BMC Psychiatry. 2010;10.

**The 5-HTTLPR polymorphism of the serotonin transporter gene and short term behavioral response to methylphenidate in children with ADHD.**

**Thakur GA, Grizenko N, Sengupta SM, et al.**

**Background:** Animal models of ADHD suggest that the paradoxical calming effect of methylphenidate on motor activity could be mediated through its action on serotonin transmission. In this study, we have investigated the relationship between the 5-HTTLPR polymorphism in the serotonin transporter gene (SLC6A4) and the response of ADHD relevant behaviors with methylphenidate treatment.

**Methods:** Patients between ages 6-12 (n = 157) were assessed with regard to their behavioral response to methylphenidate (0.5 mg/kg/day) using a 2-week prospective within-subject, placebo-controlled (crossover) trial. The children were then genotyped with regard to the triallelic 5-HTTLPR polymorphism in the SLC6A4 gene. Main outcome measure: Conners' Global Index for parents (CGI-Parents) and teachers (CGI-Teachers) at baseline and at the end of each week of treatment with placebo and methylphenidate. For both outcome measurements, we used a mixed model analysis of variance to determine gene, treatment and gene null treatment interaction effects.

**Results:** Mixed model analysis of variance revealed a gene null treatment interaction for CGI-Parents but not for CGI-Teachers. Children homozygous for the lower expressing alleles (s+IG = s') responded well to placebo and did not derive additional improvement with methylphenidate compared to children carrying a higher expressing allele (IA). No genotype main effects on either CGI-Parents or CGI-teachers were observed.

**Conclusions:** A double blind placebo-controlled design was used to assess the behavioral effects of methylphenidate in relation to the triallelic 5-HTTLPR polymorphism of the SLC6A4 gene in children with ADHD. This polymorphism appears to modulate the behavioral response to methylphenidate in children with ADHD as assessed in the home environment by parents. Further investigation is needed to assess the clinical implications of this finding. Trial Registration: ClinicalTrials.gov NCT00483106.

---

An Pediatr. 2010;73:78-83.

**Methylphenidate and sleep: Results of a multicentre study on a population of children with attention deficit hyperactivity disorder.**

**Tomos Vila M, Aleu Porez-Gramunt M, Beseler Soto B, et al.**

**Introduction:** The attention-deficit/hyperactivity disorder (ADHD) is the most common neuro-behavioural disorder in children and adolescents. Methylphenidate (MPH) is the drug most often used in the treatment of this disorder. It is important to know the effects methylphenidate can have on sleep due to the repercussions that insufficient sleep can have on the behaviour and cognitive function of children and adolescents.

**Objectives:** The purpose of this study was to find out the repercussions that methylphenidate can have on sleep, using a questionnaire. Methodology: This is a multicentre study in which six hospitals in the Valencian Community took part. All those patients who were diagnosed with ADHD over a period of 6 months were given a questionnaire, before starting treatment, and after three months of this treatment. The questionnaire was a version of the Paediatric Sleep Questionnaire. The differences found were analysed.

**Results:** A total of 114 children were studied. Significant differences were found in the questions associated with enuresis, somnambulism and night-wakings, these sleep disorders decreasing after starting the treatment. The rest of variables did not show any changes.

**Conclusions:** According to our results we can say that the MPH not only does not make worse the sleep, but that it improves the quality of the sleep in those patients with sleep disorders.

---

Biol Psychiatry. 2010;68:359-67.

**Neural substrates of impaired sensorimotor timing in adult attention-deficit/hyperactivity disorder.**

*Valera EM, Spencer RMC, Zeffiro TA, et al.*

**Background:** Timing abilities are critical to the successful management of everyday activities and personal safety, and timing abnormalities have been argued to be fundamental to impulsiveness, a core symptom of attention-deficit/hyperactivity disorder (ADHD). Despite substantial evidence of timing deficits in ADHD youth, only two studies have explicitly examined timing in ADHD adults and only at the suprasecond time scale. Also, the neural substrates of these deficits are largely unknown for both youth and adults with ADHD. The present study examined subsecond sensorimotor timing and its neural substrates in ADHD adults.

**Methods:** Using functional magnetic resonance imaging, we examined paced and unpaced finger tapping in a sample of 20 unmedicated adults with ADHD and 19 control subjects comparable on age, sex, and estimated IQ. The blood oxygenation level-dependent contrast response was used to estimate task-related neural activity.

**Results:** Behavioral data showed no between-group differences in mean tapping rates but greater within-subject variability in tap-to-tap intervals for ADHD adults relative to control subjects. Importantly, ADHD adults had greater clock rather than motor variability, consistent with a central timing locus for the atypical movements. The imaging results demonstrated that, relative to control subjects, ADHD adults showed less activity in a number of regions associated with sensorimotor timing, including prefrontal and precentral gyri, basal ganglia, cerebellum, inferior parietal lobule, superior temporal gyri, and insula.

**Conclusions:** Our findings show that subsecond timing abnormalities in ADHD youth persist into adulthood and suggest that abnormalities in the temporal structure of behavior observed in ADHD adults result from atypical function of corticocerebellar and corticostriatal timing systems.

---

Dev Med Child Neurol. 2010;52:e174-e178.

**Stability of motor problems in young children with or at risk of autism spectrum disorders, ADHD, and or developmental coordination disorder.**

*Van Waelvelde H, Oostra A, Dewitte G, et al.*

**Aim:** The aim of this study was to investigate the stability of motor problems in a clinically referred sample of children with, or at risk of, autism spectrum disorders (ASDs), attention-deficit-hyperactivity disorder (ADHD), and/or developmental coordination disorder (DCD).

**Method:** Participants were 49 children (39 males, 10 females; mean age 5y 6mo, SD 10mo) with various developmental problems, a Movement Assessment Battery for Children (M-ABC) score on or below the 15th centile, and an IQ of 70 or more. Sixteen children were at risk of developing ADHD, 15 children had a diagnosis of, or were at risk of developing ASD, and 18 children had neither diagnosis. Children were reassessed 2 to 3 years later.

**Results:** At follow-up (mean age 7y 11mo; SD 1y), the mean M-ABC score was significantly increased, and in 22 children was no longer below the 15th centile. A general linear model to compare the difference in M-ABC scores in the three groups of children demonstrated a significant difference between groups ( $p=0.013$ ), with the age at the initial assessment as a significant covariate ( $p=0.052$ ). The group of children with or at risk of ASD showed less improvement in motor performance.

**Interpretation:** Motor problems among preschool age children are not always stable, but appear to be so in most children with ASDs.

---

Psychiatry Res. 2010;179:64-68.

**Associations between common arginine vasopressin 1b receptor and glucocorticoid receptor gene variants and HPA axis responses to psychosocial stress in a child psychiatric population.**

*Van West D, Del-Favero J, Deboutte D, et al.*

On the one hand, a suitable response to daily stressors is crucial for adequate functioning in any natural environment. On the other hand, depending on the individual's genetic makeup, prolonged stress that is accompanied by an inappropriate level of responsiveness may lead to physiological and psychiatric disorders. Several psychiatric conditions have been linked with stress and alterations in hypothalamic-pituitary-adrenal (HPA) activity. While stress is a general phenomenon, illness is only seen in a proportion of individuals, suggesting that genetic factors may play a role in the ability to cope with stress. In children, relatively little research has been conducted to determine the impact of genetic factors on the variability in HPA axis functioning. In the present exploratory investigation, 106 prepubertal children were studied to

estimate the impact of four glucocorticoid receptor gene (NR3C1) polymorphisms (NR3C1-1 [rs10482605], ER22/23EK [rs6190], N363S [rs6195], N766N [rs6196]) and five arginine vasopressin (AVP) receptor 1b gene (AVPR1b) polymorphisms (AVPR1b\_s1 [rs28536160], AVPR1b\_s2 [rs28373064], AVPR1b\_s3 [rs33976516], AVPR1b\_s4 [rs33985287], AVPR1b\_s5 [rs33933482]) on cortisol responses after a psychosocial stress test (public speaking task). ER22/23EK carriers had significantly lower cortisol responses to psychosocial stress compared with noncarriers. These findings provide evidence for the relevance of the ER22/23EK polymorphism in childhood HPA axis regulation. However, the small number of ER22/23EK subjects does not allow us to draw definitive conclusions about the genotypic effect.

---

J Affective Disord. 2010 Aug;124:283-90.

### **Impact of anxiety disorders on attentional functions in children with ADHD.**

**Vloet TD, Konrad K, Herpertz-Dahlmann B, et al.**

**Introduction:** The impact of internalizing comorbid disorders on cognitive functions in attention-deficit hyperactivity disorder (ADHD) is hardly understood. While inconsistent findings exist with respect to the modulating effect of anxiety on impulsivity in ADHD, only few neuropsychological studies focused on other attention parameters. This is the first study that examines the influence of anxiety disorders (ANX) on ADHD in a model-oriented approach including selectivity and intensity parameters of attention.

**Methods:** Children with ADHD, ADHD + ANX and healthy controls (n = 34 for each group, all aged 8–15 years) participated in five neuropsychological tasks (alertness, sustained attention, divided attention, go/no-go and set-shifting). Group differences were evaluated using analysis of variance (ANOVA) for each dependent variable, with group as independent variable.

**Results:** Data indicated that children with ADHD performed worse than healthy controls with regard to almost all parameters of attention. While ANX had no mitigating effect on impulsivity in ADHD, performance in sustained attention and selective attention tasks of children with ADHD + ANX was better than that of children with ADHD only.

**Limitations:** Since the present data were derived from a large neuropsychological data base which focused primarily on children with ADHD and different comorbidities no comparison to a “pure” ANX group was possible.

**Conclusions:** These findings might indicate that ADHD + ANX constitute a cognitively distinct subtype, with possible individual symptomatology, development and therapeutic needs. Further investigations are needed to clarify the specificity of these findings and to disentangle the impact of trait versus state anxiety on neuropsychological performance in children with ADHD.

---

Child Neuropsychol. 2010 Jul;16:350-65.

### **DSM-IV-defined inattention and sluggish cognitive tempo: Independent and interactive relations to neuropsychological factors and comorbidity.**

**Wahlstedt C, Bohlin G.**

The aim of the present study was to investigate the independent relations of DSM-IV-defined inattention and behaviors characteristic of sluggish cognitive tempo (SCT) to neuropsychological factors and problem behaviors often comorbid with attention deficit/hyperactivity disorder (ADHD). By controlling for symptoms of DSM-IV-defined inattention, unique relations to SCT could be ascertained. Additionally, interactive relations of DSM-IV-defined inattention and SCT were of interest. A community-based sample of school children (N = 209; the higher end of the ADHD-symptom range was oversampled) completed neuropsychological tasks designed to measure executive function (EF), sustained attention, and state regulation. Behavioral symptoms were measured using parental and teacher ratings of the DSM-IV criteria for ADHD and Oppositional Defiant Disorder (ODD). The results showed that these two domains of inattention, DSM-IV-defined inattention and SCT, have neuropsychological processes and comorbid behavioral problems in common. However, when controlling for the overlap, DSM-IV-defined inattention was uniquely related to EF and state regulation, while SCT was uniquely related to sustained attention. In addition, the results showed an interactive relation of DSM-IV-defined inattention and SCT to ODD. Findings from the present study support the notion that DSM-IV-defined inattention constitutes a somewhat heterogeneous condition. Such results can further our theoretical understanding of the neuropsychological impairments and comorbid behavioral problems associated with ADHD symptoms.

---

Psychological Medicine: A Journal of Research in Psychiatry and the Allied Sciences. 2010 Jun;40:1027-37.  
**Separation of genetic influences on attention deficit hyperactivity disorder symptoms and reaction time performance from those on IQ.**

**Wood AC, Asherson P, Van Der Meere JJ, et al.**

**Background:** Attention deficit hyperactivity disorder (ADHD) shows a strong phenotypic and genetic association with reaction time (RT) variability, considered to reflect lapses in attention. Yet we know little about whether this aetiological pathway is shared with other affected cognitive processes in ADHD, such as lower IQs or the generally slower responses (mean RTs). We aimed to address the question of whether a shared set of genes exist that influence RT variability, mean RT, IQ and ADHD symptom scores, or whether there is evidence of separate aetiological pathways.

**Method:** Multivariate structural equation modelling on cognitive tasks data (providing RT data), IQ and ADHD ratings by parents and teachers collected on general population sample of 1314 twins, at ages 7-10 years.

**Results:** Multivariate structural equation models indicated that the shared genetic influences underlying both ADHD symptom scores and RT variability are also shared with those underlying mean RT, with both types of RT data largely indexing the same underlying liability. By contrast, the shared genetic influences on ADHD symptom scores and RT variability (or mean RT) are largely independent of the genetic influences that ADHD symptom scores share with IQ.

**Conclusions:** The finding of unique aetiological pathways between IQ and RT data, but shared components between mean RT, RT variability and ADHD symptom scores, illustrates key influences in the genetic architecture of the cognitive and energetic processes that underlie the behavioural symptoms of ADHD. In addition, the multivariate genetic model fitting findings provide valuable information for future molecular genetic analyses.

---

J Intellect Disabil Res. 2010 Jul;54:668-77.

**ADHD symptom presentation and trajectory in adults with borderline and mild intellectual disability.**

**Xenitidis K, Paliokosta E, Rose E, et al.**

**Background:** This study examined symptoms and lifetime course of Attention Deficit Hyperactivity Disorder (ADHD) in adults with borderline and mild Intellectual Disability (ID).

**Method:** A total of 48 adults with ID and ADHD were compared with 221 adults with ADHD without ID using the informant Barkley scale for childhood and adulthood symptoms.

**Results:** The ADHD/ID group presented with greater severity of (adult and childhood) symptoms compared with the non-ID group. For the ADHD/non-ID group, most symptoms improved significantly from childhood to adulthood, whereas only two symptoms changed significantly for the ID group. Principal component analysis revealed scattered loading of different items into five components for the ADHD/ID group that were not consistent with the classic clusters of inattentive, hyperactive and impulsive symptoms. A negative correlation was found between severity of symptoms and IQ.

**Conclusions:** ADHD in adults with ID may have a more severe presentation and an uneven and less favourable pattern of improvement across the lifespan in comparison with adults without ID.

---

Nat Med J China. 2009;89:377-80.

**Event-related potentials in character semantic priming of attention deficit hyperactivity disorder children and normal children: A comparative study.**

**Xie N, Wang SH, Ren YL, et al.**

**Objective:** To investigate the cognitive event related potentials in Chinese character priming effect of children with attention deficit hyperactivity disorder (ADHD) and to analyze the neural mechanism of the priming effect.

**Methods:** Fifty-two ADHD children aged (9.5 (plus or minus) 1.7) and 45 age-matched children without ADHD were asked to perform a Chinese character semantic priming task while electroencephalogram was recorded. During the Chinese character semantic priming task the subjects were instructed to judge whether the presented target word was a related word, unrelated word, or a pseudoword and event-related potentials (ERPs) were elicited and analyzed with the brain electricity source analysis (BESA) software.

**Results:** (1) The behavioral results showed that the reaction time to the unrelated character stimuli in the ADHD children was (1252 (plus or minus) 256) ms, significantly longer than that in the normal control [(1131 (plus or minus) 194) ms,  $P < 0.05$ ]. (2) The amplitude of the character related N2 at the Cz lead in the ADHD

children was -7.7(-12.8, -5.0) ( $\mu$ )V, significantly larger than that of the normal controls [-5.6 (-9.4, -3.2) ( $\mu$ )V,  $P < 0.05$ ]. (3) The amplitude of character unrelated stimuli P3 at the Cz lead of the ADHD children was 5.4(2.0, 9.5) ( $\mu$ )V, significantly lower than that of the normal control [9.5(4.2, 16.9) ( $\mu$ )V,  $P < 0.01$ ].

**Conclusion:** There is a positive correlation between the amplitude of N2 and the difficulty in character semantic priming. It is more difficult for the ADHD children than normal controls to accomplish the same semantic task. ADHD children need more attention resources than normal controls. The amplitudes of character related-N2 and unrelated-P3 may become markers to measure the development of recognition in the ADHD children, thus being helpful in the ADHD diagnosis.

---

Curr Psychiatry Rep. 2010;12:111-15.

**Peripheral vasculopathy associated with psychostimulant treatment in children with attention-deficit/hyperactivity disorder.**

**Yu ZJ, Parker-Kotler C, Tran K, et al.**

Psychostimulants (methylphenidate and amphetamine salt) are the pharmacologic treatment of choice for children with attention-deficit/hyperactivity disorder. However, psychostimulants have been linked to a variety of vascular problems, including peripheral vasculopathy. This article describes four boys with attention-deficit/hyperactivity disorder who developed vasculopathy during treatment with psychostimulants.

---

Child Neuropsychol. 2010 Jul;16:338-49.

**Time-based prospective memory performance and time-monitoring in children with ADHD.**

**Zinke K, Altgassen M, Mackinlay RJ, et al .**

The current study investigated prospective memory (PM) performance in children with attention deficit/hyperactivity disorder (ADHD) and controls and aimed at exploring possible underlying factors of PM performance. Twenty-two children with ADHD and 39 age- and ability-matched typically developing children performed a computerized time-based PM task. As predicted, children with ADHD had fewer correct PM responses than controls. Neither differences in overall ongoing task performance nor, remarkably, differences in overall frequency and accuracy of time monitoring were found. Exploratory analyses suggest that individual differences in time monitoring in the final interval before target times may be related to PM performance in ADHD.

Per ricevere la newsletter iscriversi al seguente indirizzo:

<http://crc.marionegri.it/bonati/adhdnews/subscribe.html>

Iniziativa nell'ambito del Progetto di ricerca indipendente AIFA

*“Sicurezza a lungo termine dei farmaci utilizzati nel trattamento di bambini in età scolare con sindrome da deficit di attenzione e iperattività ed epidemiologia della malattia nella popolazione italiana”.*

---

**ISTITUTO DI RICERCHE FARMACOLOGICHE MARIO NEGRI**  
**DIPARTIMENTO DI SALUTE PUBBLICA**  
**Laboratorio per la Salute Materno Infantile**

Via Giuseppe La Masa, 19 - 20156 Milano MI - Italia - [www.marionegri.it](http://www.marionegri.it)  
tel +39 02 39014.511 - fax +39 02 3550924 - [mother\\_child@marionegri.it](mailto:mother_child@marionegri.it)