



# ADHD

ATTENTION DEFICIT HYPERACTIVITY DISORDER

  
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### **Latent class subtyping of attention-deficit/hyperactivity disorder and comorbid conditions.**

**Acosta MT, Castellanos FX, Bolton KL, et al.**

**Objective:** Genetic studies of attention-deficit/hyperactivity disorder (ADHD) generally use discrete DSM-IV subtypes to define diagnostic status. To improve correspondence between phenotypic variance and putative susceptibility genes, multivariate classification methods such as latent class analysis (LCA) have been proposed. The aim of this study was to perform LCA in a sample of 1,010 individuals from a nationwide recruitment of unilineal nuclear families with at least one child with ADHD and another child either affected or clearly unaffected.

**Method:** LCA models containing one through 10 classes were fitted to data derived from all DSM-IV symptoms for ADHD, oppositional defiant disorder, and conduct disorder (CD), as well as seven items that screen for anxiety and depression from the National Initiative for Children's Healthcare Quality Vanderbilt Assessment Scale for Parents.

**Results:** We replicated six to eight statistically significantly distinct clusters, similar to those described in other cross-cultural studies, mostly stable when comorbidities are included. For all age groups, anxiety and depression are strongly related to Inattentive and Combined types. Externalizing symptoms, especially CD, are strongly associated with the Combined type of ADHD. Oppositional defiant disorder symptoms in young children are associated with either conduct disorder or anxiety-related symptoms.

**Conclusions:** Methods such as LCA allow inclusion of information about comorbidities to be quantitatively incorporated into genetic studies. LCA also permits incorporation of milder but still impairing phenotypes than are allowed using the DSM-IV. Such methods may be essential for analyses of large multicenter datasets and relevant for future clinical classifications. This population-based ADHD classification may help resolve the contradictory results presented in molecular genetic studies. (PsycINFO Database Record (c) 2008 APA, all rights reserved) (from the journal abstract).

Bahrain Med Bull. 2008;30:67-71.

### **Attention deficit hyperactivity disorder (ADHD): Is it a health problem among male primary school children.**

**Al Hamed JH, Taha AZ, Sabra AA, et al.**

**Objective:** The aim of this study was to determine the prevalence of Attention Deficit Hyperactivity Disorder (ADHD) among male primary school children. Design: Cross-sectional study. Setting: Male primary schools, Dammam, Saudi Arabia.

**Method:** One thousand two hundred and eighty-seven students, aged 6-13 years, in 67 government and 10 private primary schools were selected by multistage systematic random sampling. Data were collected using two types of questionnaires: the modified Arabic version of the Attention Deficit Disorders Evaluation Scale (ADDES) school version, and Parents' questionnaire to diagnose the three main subtypes of ADHD namely: inattention, hyperactivity-impulsivity, and combined ADHD.

**Result:** It was found that the majority of the boys were from government schools (83.0%), aged 6-<9 years (40.5%) and of Saudi nationality (80.7%). One thousand two hundred and sixty-eight out of 1287 completed all parts of the questionnaire concerned with diagnosing all the three types of ADHD. The overall prevalence

Per la ricerca degli articoli pubblicati nella letteratura scientifica nel mese in esame sono state consultate le banche dati Medline, Embase e PsycINFO 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.

of combined ADHD was 16.4% (208), 12.4% (157) hyperactivity-impulsivity and 16.3% (207) inattention disorders respectively. The study also revealed a variety of socioeconomic factors to be significantly associated with the development of ADHD. These included parents' low level of education, mother's occupation, and low socioeconomic status.

**Conclusion:** In this study, the overall prevalence of ADHD was higher than previous studies in Saudi population. ADHD prevention and control should be an integral part of the primary health care (family medicine) system. Education and training programs for parents, school teachers, and caregivers regarding different aspects of ADHD should be established.

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Journal of Attention Disorders. 2008 Jul;12:76-82.

**CBCL Clinical Scales discriminate ADHD youth with structured-interview derived diagnosis of oppositional defiant disorder (ODD).**

**Biederman J, Ball SW, Monuteaux MC, et al.**

**Objective:** To evaluate the association between the clinical scales of the Child Behavior Checklist (CBCL) and the comorbid diagnosis of oppositional defiant disorder (ODD) in a large sample of youth with attention deficit hyperactivity disorder (ADHD).

**Method:** The sample consisted of 101 girls and 106 boys ages 6 to 17 with ADHD. Conditional probability analysis was used to examine the correspondence between CBCL Clinical Scales with the structured-interview derived diagnosis of ODD.

**Results:** Conditional probability analysis showed that the CBCL Aggression Scale best predicted a structured-interview derived diagnosis of ODD in boys and girls with ADHD.

**Conclusion:** These findings suggest that the CBCL Aggression Scale could serve as a rapid and cost-effective screening instrument to help identify cases likely to meet clinical criteria for ODD in the context of ADHD. (PsycINFO Database Record (c) 2008 APA, all rights reserved) (from the journal abstract).

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Child Neuropsychol. 2008;14:353-71.

**Are sensation seeking and emotion processing related to or distinct from cognitive control in children with ADHD?**

**Blaskey LG, Harris LJ, Nigg JT.**

This study evaluated the relationship of (a) reactive inhibition and right-lateralized emotion processing to each other and (b) to executive control of response suppression, and (c) with regard to ADHD in 134 children ages 7-12 years. Reactive inhibition was indexed by child ratings of sensation seeking on the Sensation Seeking Scales, executive control by the Stop Signal Task, emotion processing by performance on the Chimeric Faces Test, and ADHD by parent- and teacher-reported symptoms. The results were consistent with a two-process model in which executive control, conceived as a right-hemisphere lateralized function, was distinct from sensation seeking and lateralized emotion processing. Supporting this distinction, ADHD was associated with executive control, but not with sensation seeking/reactive inhibition or lateralized emotion processing. The findings suggest that ADHD cannot be understood as a global right-lateralized neuropsychological weakness, but rather that it involves only particular functions that may be right lateralized. Findings further suggest that risk for comorbid disorders in ADHD (e.g., conduct disorder or mood disorders) may increase as a function of independent factors such as temperament. Mechanisms underlying executive inhibition and emotional processing could be functionally independent yet interact to multiply psychopathological risk in some children (leading, for example, to comorbid disorders). (copyright) 2007 Psychology Press.

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J Abnorm Child Psychol. 2008;36:679-92.

**Reciprocal relationships between parenting behavior and disruptive psychopathology from childhood through adolescence.**

**Burke JD, Pardini DA, Loeber R.**

Theoretical models suggest that child behaviors influence parenting behaviors, and specifically that unpleasant child behaviors coerce parents to discontinue engaging in appropriate discipline. This study examined reciprocal relationships between parenting behaviors (supervision, communication, involvement,

timid discipline and harsh punishment) and child disruptive disorder symptoms (ADHD, ODD and CD) in a clinic-referred sample of 177 boys. Annual measures, including structured clinical interviews, were obtained from the beginning of the study (when boys were between the ages of 7 to 12) to age 17. Specific reciprocal influence was observed; only timid discipline predicted worsening behavior, namely ODD symptoms, and ODD symptoms predicted increases in timid discipline. Greater influence from child behaviors to parenting practices was found: ODD also predicted poorer communication and decreased involvement, and CD predicted poorer supervision. ADHD was neither predictive of, nor predicted by, parenting behaviors. The results are specifically supportive of a coercive process between child behaviors and parenting behaviors, and generally suggestive of greater influence of child behaviors on parenting behaviors than of parenting behaviors on child behaviors. (copyright) 2008 Springer Science+Business Media, LLC.

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Can J Psychiatry. 2008;53:392-99.

**Mathematical learning disorder in school-age children with attention-deficit hyperactivity disorder.**

**Capano L, Minden D, Chen SX, et al.**

**Objectives:** To explore the prevalence of mathematics disorder (MD) relative to reading disorders (RD) in school-age children with attention-deficit hyperactivity disorder (ADHD) and examine the effects of age, sex, cooccurring conduct disorder (CD), and ADHD subtype on this comorbidity.

**Methods:** Participants were school-age children (n = 476) with confirmed DSM-IV diagnosis of ADHD. The assessment included semistructured parent and teacher interviews and standardized measures of intelligence, academic attainment, and language abilities. Based on the presence or absence of concurrent learning disorders, we compared the emerging 4 groups: ADHD-only, ADHD + MD, ADHD + RD, and ADHD + MD + RD.

**Results:** Overall prevalence of comorbid ADHD + MD was 18.1%. Age, sex, ADHD subtypes, or comorbid CD did not affect the frequency of MD. Children with concurrent ADHD and either MD or RD attained lower IQ, language, and academic scores than those with ADHD alone. Children with ADHD + MD + RD were more seriously impaired and demonstrated distinct deficits in receptive and expressive language.

**Conclusion:** MDs are relatively common in school-age children with ADHD and are frequently associated with RDs. Children with ADHD + MD + RD are more severely impaired. These deficits simply cannot be explained as consequences of ADHD and might have unique biological underpinnings, with implications for diagnostic classification and therapeutic interventions.

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Arch Clin Neuropsychol. 2008;23:455-66.

**A psychometric study of the Test of Everyday Attention for Children in the Chinese setting.**

**Chan RCK, Wang L, Ye J, et al.**

**OBJECTIVE:** To explore the psychometric properties of the Test of Everyday Attention for Children (TEA-Ch) in the context of a Chinese setting.

**METHODS:** Confirmatory factor analysis was conducted to examine the construct validity of the Chinese version of the TEA-Ch among a group of 232 children without attention deficit hyperactivity disorder (ADHD). Test-retest reliability was tested on a random sub-sample of 20 children at a 4-week interval. Clinical discrimination was also examined by comparing children with and without ADHD (22 in each group) on the performances of the TEA-Ch.

**RESULTS:** The current Chinese sample demonstrated a three-factor solution for attentional performance among children without ADHD, namely selective attention, executive control/switch, and sustained attention ( $\chi^2(24) = 34.56$ ; RMSEA = .044;  $p = .075$ ). Moreover, the whole test demonstrated acceptable test-retest reliability at a 4-week interval among a small sub-sample. Children with ADHD performed significantly more poorly than healthy controls in most of the subtests of the TEA-Ch.

**CONCLUSIONS:** The results of the present study demonstrate that the test items remain useful in China, a culture very different from that in which the test originated. Finally, the TEA-Ch also presents several advantages when compared to other conventional objective measures of attention.

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Aust New Zealand J Psychiatry. 2008;42:526-35.

**Validation of attention-deficit-hyperactivity disorder subtypes among Taiwanese children using neuropsychological functioning.**

**Chiang M, Gau SSF.**

**Objective:** The findings regarding the validity of attention-deficit-hyperactivity disorder (ADHD) subtypes using neuropsychological functioning have been inconsistent; and no such study has been conducted in an ethnic Chinese population. The aim of the present paper was therefore to examine the validity of attention tasks in distinguishing the ADHD-combined type (ADHD-C) from the ADHD-inattention type (ADHD-I), as compared to children without ADHD in Taiwan.

**Methods:** Participants included 52 children with ADHD-C, 17 with ADHD-I, and 52 controls, aged 7-10 years. The clinical diagnosis of DSM-IV ADHD was further confirmed by a standardized psychiatric interview. Four attention components were examined: sensory selection, response selection, capacity/focus, and sustained attention, using the Cancellation Test, Digit Span, Trail-Making Test (TMT), Continuous Performance Test (CPT), and Circle-Tracing Test. Behaviour symptoms were rated by the parents, teachers, and investigators.

**Results:** Compared to children without ADHD, children with ADHD scored significantly higher in parent-reported and investigator-rated behavioural symptoms, and performed worse in the four domains of attention. Multiple comparisons indicated that children with ADHD-C had a worse performance on most tests than children with ADHD-I, except that children with ADHD-I had more off-target errors on the TMT with alphanumeric sequencing than children with ADHD-C.

**Conclusions:** Attention tests can distinguish Taiwanese children with ADHD from those without ADHD, and these tests also demonstrate different profiles between the ADHD-C and ADHD-I groups. Further investigation on this topic should include the ADHD-hyperactivity-impulsivity subtype (ADHD-HI) and increase sample sizes of the children with ADHD-I and ADHD-HI.

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Journal of the American Academy of Child & Adolescent Psychiatry. 2008 Jul;47:808-16.

**Inhibitory performance, response speed, intraindividual variability, and response accuracy in ADHD.**

**De Zeeuw P, arnoudse-Moens C, Bijlhout J, et al.**

**Objective:** To determine the potential of inhibitory performance, response speed, and response accuracy and variability, measures central to the conceptualization of attention-deficit/hyperactivity disorder (ADHD), in distinguishing children with ADHD from healthy controls (HCs).

**Method:** The stop signal paradigm was administered to 38 children with ADHD and 31 NCs. The stop signal reaction time (SSRT), mean reaction time (MRT), intraindividual coefficient of variation (ICV), and number of errors were used to predict diagnostic status.

**Results:** Univariate tests showed that the ADHD group performed worse than NCs on all of the dependent variables. Exploratory univariate analyses showed that oppositional defiant disorder comorbidity and ADHD type did not influence results except for the ICV, the effect for this variable (more variability in the ADHD group) being less pronounced for the Predominantly Inattentive type than for the Hyperactive-Impulsive and Combined types. A logistic regression model of the MRT, ICV, and number of errors combined showed best predictive performance, with the MRT contributing the most to group classification (56% of the variance). The final model (MRT, ICV, and number of errors) predicted 87% of the sample in the correct diagnostic category. Operating characteristics showed excellent sensitivity and specificity of 89.5% and 83.9%, respectively.

**Conclusions:** Our results contrast with theoretical accounts emphasizing inhibitory control as the pivotal measure characterizing cognitive performance in ADHD. Results are discussed in the context of a delay aversion perspective of ADHD.

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J Abnorm Child Psychol. 2008 Jul;36:745-58.

**Response style differences in the inattentive and combined subtypes of attention-deficit/hyperactivity disorder.**

**Derefinko KJ, Adams ZW, Milich R, et al.**

This study examined potential differences between the inattentive and combined ADHD subtypes using laboratory tasks assessing behavioral inhibitory processes. Seventy-five children completed two tasks of behavioral inhibition believed to isolate different processes: the cued reaction time task (CRT), a basic inhibition task, and the go/no-go task (GNG), a complex inhibition task that incorporates motivational

contingencies. Three groups of participants were identified, including ADHD/Inattentive (n=17), ADHD/Combined (n=37), and comparison (n= 21). Results indicated that rather than showing behavioral inhibition deficits, the ADHD/I children appeared overly inhibited, as evidenced by slower reaction times across the two tasks and significantly higher errors of omission in the GNG task. Additionally, the ADHD/I children did not demonstrate cue dependency effects on the CRT task, suggesting that they were failing to incorporate relevant information before making a response. The sluggish and inhibited performance of the ADHD/I group challenges the idea that it is a subtype of ADHD. (PsycINFO Database Record (c) 2008 APA, all rights reserved) (from the journal abstract).

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J Abnorm Child Psychol. 2008 Jul;36:779-91.

**The positive illusory bias: Do inflated self-perceptions in children with ADHD generalize to perceptions of others?**

**Evangelista NM, Owens JS, Golden CM, et al.**

This study examined whether children with symptoms of attention-deficit/hyperactivity disorder (ADHD) demonstrate positive illusory perceptions of their own competence and others' competence. Participants (67 children with ADHD symptoms; 40 non-ADHD children) completed the Self-Perception Profile for Children and rated actors' competence in videos clips where inconsistent cues of performance had to be integrated in order to determine the actor's competence. Teachers completed the Teacher Rating Scale of Child's Actual Behavior. Children with ADHD symptoms overestimated their own competence relative to teachers' estimates in all domains significantly more than non-ADHD children. There were no significant group differences in perceptions of others' competence. Findings suggest that positive illusions are exclusive to perceptions of self and do not extend to perceptions of others. (PsycINFO Database Record (c) 2008 APA, all rights reserved) (from the journal abstract).

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Clin Ther. 2008;30:942-57.

**Evolution of the treatment of attention-deficit/hyperactivity disorder in children: A review.**

**Finding RL.**

**Background:** Efficacious and well-tolerated medications are available for the treatment of attention-deficit/hyperactivity disorder (ADHD). Stimulants such as methylphenidate (MPH) and amphetamines are the most widely used medications approved by the US Food and Drug Administration for the treatment of ADHD in children.

**Objective:** This article reviews the literature on the development and use of medications for the treatment of ADHD in children.

**Methods:** A search of MEDLINE was conducted to identify relevant studies and critical reviews on the treatment of ADHD in children. The main criteria for inclusion of a study were that it have a controlled design, enroll >100 subjects if a clinical trial and >20 subjects if a classroom study, assess symptoms with the most widely used scales and tests, and be published from 2000 to 2008. A few older pivotal studies were also included.

**Results:** Many studies have reported the long-term efficacy and tolerability of immediate-release formulations of MPH. The disadvantages of such formulations include the need for multiple daily dosing and a potential for abuse. Various extended-release formulations of MPH have been found effective in controlled studies enrolling large numbers of children with ADHD. The efficacy and tolerability of dexamethylphenidate, the active D-isomer of MPH, in an extended-release formulation have also been reported. An extended-release formulation of mixed amphetamine salts (MMAS-XR) that is dosed once daily has been found to be efficacious and well tolerated. The non-stimulant atomoxetine has been reported to be well tolerated and efficacious, although it may not be as effective as stimulants; this formulation is, however, less likely than stimulants to be associated with abuse and diversion. A recently approved prodrug stimulant, lisdexamfetamine dimesylate (LDX), was developed to provide a long duration of effect that is consistent throughout the day, with a reduced potential for abuse. In a placebo-controlled study in children with ADHD, less intersubject variability in T<sub>max</sub>, C<sub>max</sub>, and AUC from time zero to the last quantifiable concentration was seen in the 8 subjects who received LDX (percent coefficient of variation, 15.3, 20.3, and 21.6, respectively) compared with the 9 subjects who received MAS-XR (52.8, 44.0, and 42.8). In 2 clinical trials, significantly greater improvements in teacher and parent ratings of ADHD symptoms were seen with LDX compared with placebo (P<0.001). A study of the abuse potential of LDX evaluated subjective responses to

the effects of oral LDX and immediate-release d-amphetamine in adults with a history of stimulant abuse. LDX was associated with a significantly lower abuse-related liking effect than d-amphetamine ( $P = 0.039$ ).

**Conclusions:** Currently available treatments for ADHD in children are efficacious and well tolerated, but many of them are limited by the requirement for multiple daily dosing and abuse potential. LDX, a long-acting prodrug of d-amphetamine, has been reported to be effective and appears to overcome some of these limitations. (copyright) 2008 Excerpta Medica Inc. All rights reserved.

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Journal of Attention Disorders. 2008 Jul;12:83-91.

**Treatment of ADHD with amphetamine: Short-term effects on family interaction.**

**Gustafsson P, Hansson K, Eidevall L, et al.**

**Objective:** This research seeks to study the impact on family function after 3 months of treatment with amphetamine.

**Method:** A total of 43 children, 6 to 11 years of age, with ADHD were treated with amphetamine for 3 months. Family function was studied before and after treatment by parent self-rating and independent observer ratings of videotaped parent-child interactions.

**Results:** The families with a child with ADHD were found to be more dysfunctional than control families. Families with children with severe ADHD behavior showed evidence of more family dysfunction compared to families with children with less severe ADHD behavior. After 3 months of treatment with amphetamine, the children's behavior and the mother's well-being and some aspects of parent-reported and observer-rated family functioning improved.

**Conclusion:** This study gives support to the notion that some aspects of family dysfunction may be related to the child's ADHD behavior. (PsycINFO Database Record (c) 2008 APA, all rights reserved) (from the journal abstract).

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J Abnorm Child Psychol. 2008 Jul;36:771-78.

**The impact of impairment criteria on rates of ADHD diagnoses in preschoolers.**

**Healey DM, Miller CJ, Castelli KL, et al.**

Behaviors characteristic of ADHD are common among preschool children, and as such, their clinical significance is oftentimes difficult to ascertain. Thus a focus on impairment is essential in determining the clinical significance of these behaviors. In order to explore the impact of impairment criteria on rates of diagnoses in inattentive/hyperactive children aged 36 through 60-months-old, we first developed, and psychometrically evaluated, the Children's Problem Checklist (CPC) which was designed to assess psychosocial impairment associated with ADHD in a community sample of preschoolers ( $n=394$ ), and found its reliability and validity to be acceptable. We then examined the impact of the inclusion of various CPC-determined impairment criteria, over and above symptom criteria measured by the ADHD-RS-IV, using various cut points ranging from the 75th to 90th percentile of our community sample. This reduced the number of children meeting criteria for ADHD by 46-77%. These findings are discussed in terms of the importance of using impairment criteria, rather than just severity of inattention, impulsivity and hyperactivity, when diagnosing ADHD in preschool children. (PsycINFO Database Record (c) 2008 APA, all rights reserved) (from the journal abstract).

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Neuropsychologia. 2008 Jul;46:2234-42.

**Electrophysiological evidence of atypical motivation and reward processing in children with attention-deficit hyperactivity disorder.**

**Holroyd CB, Baker TE, Kerns KA, et al.**

Behavioral and neurophysiological evidence suggest that attention-deficit hyperactivity disorder (ADHD) is characterized by the impact of abnormal reward prediction error signals carried by the midbrain dopamine system on frontal brain areas that implement cognitive control. To investigate this issue, we recorded the event-related brain potential (ERP) from typical children and children with ADHD as they navigated a "virtual maze" to find monetary rewards, and physically gave them their accumulated rewards halfway through the task and at the end of the experiment. We found that the amplitude of a reward-related ERP component

decreased somewhat for typical children after they received their first payment, but increased for children with ADHD following the payment. This result indicates that children with ADHD are unusually sensitive to the salience of reward and suggests that such sensitivity may be mediated in part by the midbrain dopamine system. (PsycINFO Database Record (c) 2008 APA, all rights reserved) (from the journal abstract).

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Int J Psychophysiol. 2008;69:69-77.

**Mismatch negativity (MMN) elicited by duration deviations in children with reading disorder, attention deficit or both.**

**Huttunen-Scott T, Kaartinen J, Tolvanen A, et al.**

According to several studies auditory discrimination as measured by mismatch negativity (MMN) is compromised in participants with reading disorder. However, studies on duration discrimination have produced conflicting findings [Baldeweg, T., Richardson, A., Watkins, S., Foale, C., & Gruzelier, J., 1999. Impaired auditory frequency discrimination in dyslexia detected with mismatch evoked potentials. *Annals of Neurology*, 4, 1-9; Corbera, S., Escera, C., & Artigas, J., 2006. Impaired duration mismatch negativity in developmental dyslexia. *Neuroreport*, 17, 1051-1055]. Auditory sensitivity has not been as actively investigated among children with attention deficit, although attention problems often co-occur with dyslexia. The present study is a reanalysis of MMN data gathered from control children and children with reading disorder (RD) and/or attention deficit (AD). In our previous analysis [Huttunen, T., Halonen, A., Kaartinen, J. & Lyytinen, H., 2007. Does mismatch negativity show differences in reading disabled children as compared to normal children and children with attention deficit? *Developmental Neuropsychology*, 31, 453-470.], the only significant difference between the groups was in the lateralization of the MMNs in the RD and the control group: the MMNs of the RD group were more pronounced over the left hemisphere, while those of the control group appeared larger over the right hemisphere. A reanalysis was conducted to study whether the group definition criteria and/or overlap of the attention and reading deficits in the AD group might have affected the results. For this purpose participants were divided to four groups: control children, children with RD, children with AD, and children with both RD and AD. MMN was elicited by duration deviations in a continuous sound. Significant differences were observed in the MMN peaks between the control group and all clinical groups: the MMNs were diminished in the right hemisphere in the RD group, in all frontal and central channels in the RD + AD group, and the MMN peaks appeared earlier in frontal channels in the AD group. (copyright) 2008 Elsevier B.V. All rights reserved.

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Child Abuse Negl. 2008;32:261-75.

**Dissociation predicts later attention problems in sexually abused children.**

**Kaplow JB, Hall E, Koenen KC, et al.**

**Objective:** The goals of this research are to develop and test a prospective model of attention problems in sexually abused children that includes fixed variables (e.g., gender), trauma, and disclosure-related pathways.

**Methods:** At Time 1, fixed variables, trauma variables, and stress reactions upon disclosure were assessed in 156 children aged 8-13 years. At the Time 2 follow-up (8-36 months following the initial interview), 56 of the children were assessed for attention problems.

**Results:** A path analysis involving a series of hierarchically nested, ordinary least squares multiple regression analyses indicated two direct paths to attention problems including the child's relationship to the perpetrator ((beta) = .23) and dissociation measured immediately after disclosure ((beta) = .53), while controlling for concurrent externalizing behavior ((beta) = .43). Post-traumatic stress symptoms were only indirectly associated with attention problems via dissociation. Taken together, these pathways accounted for approximately 52% of the variance in attention problems and provided an excellent fit to the data.

**Conclusions:** Children who report dissociative symptoms upon disclosure of CSA and/or were sexually abused by someone within their family are at an increased risk of developing attention problems. Practice implications: Findings from this study indicate that children who experienced sexual abuse at an earlier age, by someone within their family, and/or report symptoms of dissociation during disclosure are especially likely to benefit from intervention. Effective interventions should involve (1) providing emotion regulation and coping skills; and (2) helping children to process traumatic aspects of the abuse to reduce the cyclic nature of traumatic reminders leading to unmanageable stress and dissociation. (copyright) 2008 Elsevier Ltd. All rights reserved.

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Int J Psychiatry Clin Pract. 2008;12:48-54.

**Can we predict short-term side effects of methylphenidate immediate-release?**

**Karabekiroglu K, Yazgan YM, Dedeoglu C.**

**Objective.** In children and adolescents who were prescribed immediate-release methylphenidate (MPH-IR) for the first time, we aimed to investigate the effect of gender, psychiatric co-morbidity and the baseline severity of clinical symptoms on the short-term side-effects of the medication.

**Method.** In a clinical sample, over a period of 6 months, all MPH-naive patients with attention deficit hyperactivity disorder (ADHD) (N=90; male, n=73; female, n=17) age: 9.0(plus or minus)2.2 years (5-16 years)) were included. Patients were prescribed MPH-IR 10-30 mg/day (17.6(plus or minus)4.95). The assessment included structured measurements, including the Turgay Diagnostic and Statistical Manual of Mental Disorders, 4th edition (DSM-IV)-Based Child and Adolescent Behavior Disorders Screening and Rating Scale (T-DSM-IV-S) (parents and teachers), Conners' Teacher Rating Scale for ADHD-Short version (teachers). Parents also completed the "Barkley Stimulants' Side Effects Rating Scale" (BSSERS) at baseline and on the third, seventh and 15th days of medication.

**Results.** Repeated measures multiple ANOVA revealed an overall significant difference in BSSERS between the baseline measures and the 15th day ( $P<0.01$ ). On the 15th day, only the "loss of appetite" item severity scores increased ( $P=0.001$ ), whereas the scores of "irritability", "proneness to cry", "anxiety", "nail biting" and "euphoria" items decreased significantly. In post hoc analyses, when subjects whose side effects increased and did not increase were compared, chi-square tests revealed a significant difference ( $P=0.029$ ) only for the presence of co-morbidity, and no difference for the gender, age, dosage of MPH, and the baseline severity of inattentiveness and/or hyperactivity.

**Discussion.** The only significant increase during MPH treatment was for the "loss of appetite" item on BSSERS. Our results suggest that some of the BSSERS items may represent both the ADHD symptoms and the side effects. When overall BSSERS item severity is considered, having a co-morbid diagnosis may be predictive of more severe adverse effects.

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BMC Psychiatry. 2008;8.

**Dopamine transporter 3'UTR VNTR genotype is a marker of performance on executive function tasks in children with ADHD.**

**Karama S, Grizenko N, Sonuga-Barke E, et al.**

**Background:** Attention-Deficit/Hyperactivity Disorder (ADHD) is a heterogeneous disorder from both clinical and pathogenic viewpoints. Executive function deficits are considered among the most important pathogenic pathways leading to ADHD and may index part of the heterogeneity in this disorder.

**Methods:** To investigate the relationship between the dopamine transporter gene (SLC6A3) 3'-UTR VNTR genotypes and executive function in children with ADHD, 196 children diagnosed with ADHD were sequentially recruited, genotyped, and tested using a battery of three neuropsychological tests aimed at assessing the different aspects of executive functioning.

**Results:** Taking into account a correction for multiple comparisons, the main finding of this study is a significant genotype effect on performances on the Tower of London ( $F = 6.902$ ,  $p = 0.009$ ) and on the Wechsler Intelligence Scale for Children, Third Edition (WISC-III) Freedom From Distractibility Index ( $F = 7.125$ ,  $p = 0.008$ ), as well as strong trends on Self Ordered Pointing Task error scores ( $F = 4.996$ ,  $p = 0.026$ ) and WISC-III Digit Span performance ( $F = 6.28$ ,  $p = 0.023$ ). Children with the 9/10 genotype exhibited, on average, a poorer performance on all four measures compared to children with the 10/10 genotype. No effect of genotype on Wisconsin Card Sorting Test measures of performance was detected.

**Conclusion:** Results are compatible with the view that SLC6A3 genotype may modulate components of executive function performance in children with ADHD.

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Am J Med Genet Part B Neuropsychiatr Genet. 2008;147:485-90.

**The - 1021 C/T DBH polymorphism is associated with neuropsychological performance among children and adolescents with ADHD.**

**Kieling C, Genro JP, Hutz MH, et al.**

Catecholaminergic imbalance has increasingly been implicated in the pathophysiology of attention-deficit/hyperactivity disorder (ADHD). The enzyme dopamine-(beta)-hydroxylase (D(beta)H) - critical to catecholaminergic regulation - is under strong genetic control, with the 1021 C/T polymorphism accounting for up to 50% of the enzymatic activity. This work aimed to investigate association between this functional polymorphism and the performance of children and adolescents with ADHD in neuropsychological measures of executive function (EF). Sixty-four drug-naive patients with ADHD undertook a Continuous Performance Test and the Wisconsin Card Sorting Test. By means of a factorial analysis, a composite measure of EF was extracted. Performance according to genotypic group was analyzed, including age as a confounder. In addition, a family-based association test was conducted as a confirmatory analysis. Principal components analysis of neuropsychological measures loaded two factors that explained 83.8% of total variance. Cognitive performance, as measured by the composite score, showed significant difference between genotypic groups after adjustment for age ( $P = 0.002$ ). The CC homozygosity was associated with a diminished global EF performance, a result that was corroborated by the intra-familial analysis. The present study demonstrated an association between the neuropsychological performance of children with ADHD and a functional polymorphism in the promoter region of the DBH gene. The refinement of the ADHD phenotype by means of composite measures of EF can contribute to uncover the molecular underpinnings of ADHD. (copyright) 2007 Wiley-Liss, Inc.

Journal of Learning Disabilities. 2008 Jul;41:371-84.

**Estimated prevalence of attention-deficit/hyperactivity disorder symptoms among college freshmen: Gender, race, and rater effects.**

**Lee DH, Oakland T, Jackson G, et al.**

Group differences and prevalence rates for attention-deficit/hyperactivity disorder (ADHD) symptoms in a matched sample of college freshmen ( $n = 956$ ) and their parents ( $n = 956$ ) were investigated for gender and race (African American and Caucasian) effects using current self-report and retrospective parent-report ratings. On self-report, compared to female students, male students displayed higher mean scores on subscales and lower rates for reporting symptom totals beyond DSM-IV thresholds for the three subtypes of ADHD. Mean differences in ADHD symptoms were not apparent for race. However, African American students displayed higher rates for reporting symptom totals beyond DSM-IV thresholds for all subtypes. On retrospective parent report, male students and Caucasian students displayed higher mean scores on all scales and higher rates for reporting symptom totals beyond DSM-IV thresholds for all subtypes. Prevalence rates varied by gender and race on self-report and parent report. Prevalence was examined based on combined data of self-report and parent report and using age-adjusted cutoff criteria. Findings and implications are discussed.

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Res Dev Disabil. 2008;29:247-55.

**Increased risk of injury in children with developmental disabilities.**

**Lee LC, Harrington RA, Chang JJ, et al.**

The objective of this study was to examine injury risk in children with autism, ADD/ADHD, learning disability, psychopathology, or other medical conditions. Children aged 3-5 years who participated in the National Survey of Children's Health were included. Six study groups were analyzed in this report: autism ( $n = 82$ ), ADD/ADHD ( $n = 191$ ), learning disability ( $n = 307$ ), psychopathology ( $n = 210$ ), other medical conditions ( $n = 1802$ ), and unaffected controls ( $n = 13,398$ ). The weighted prevalence of injury in each group was 24.2% (autism), 26.5% (ADD/ADHD), 9.3% (learning disability), 20.5% (psychopathology), 14.6% (other medical conditions), and 11.9% (unaffected controls). Compared to unaffected controls, the risk of injury was 2.15 (95% confidence interval (CI): 1.00-4.60), 2.74 (95% CI: 1.63-4.59), 2.06 (95% CI: 1.24-3.42), and 1.26 (95% CI: 1.00-1.58) in children with autism, ADD/ADHD, psychopathology, and other medical conditions, respectively, after adjusting for child sex, child age, number of children in the household, child race, and family poverty level. Children with autism, ADD/ADHD, and other psychopathology were about 2-3 times more likely to experience an injury that needs medical attention than unaffected controls. Future studies

need to clarify the extent to which injuries in young children with autism, ADD/ADHD, and psychopathology are related to core symptoms, comorbid conditions, associated behaviors, or unintentional injuries due to lack of additional supervision from caregivers.  
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Journal of Autism and Developmental Disorders. 2008 Jul;38:1147-60.

**Children with autism: Quality of life and parental concerns.**

**Lee LC, Harrington RA, Louie BB, et al.**

Past research has shown that children with autism and their families have compromised quality of life (QOL) in several domains. This study examined QOL and parental concerns in children with autism during early childhood, childhood, and adolescence compared to children with Attention Deficit Disorder/Attention Deficit Hyperactivity Disorder (ADD/ADHD) and to typical controls from a US national sample. Families with children diagnosed with autism reported more profound QOL effects than families of children with ADD/ADHD or unaffected controls. Children with autism were significantly less likely to attend religious services, more likely to miss school, and less likely to participate in organized activities. Parental concerns over learning difficulty, being bullied, stress-coping, and achievement were overwhelming in the autism group relative to the comparison groups.

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Child Neuropsychol. 2008;14:314-22.

**The Test of Variables of Attention (TOVA): Internal consistency (Q 1 vs. Q2 and Q3 vs. Q4) in children with attention deficit/hyperactivity disorder (ADHD).**

**Llorente AM, Voigt R, Jensen CL, et al.**

The internal consistency of the Test of Variables of Attention (TOVA) was examined in a cohort of 6- to 12-year-old children (N = 63) strictly diagnosed with ADHD. The internal consistency of errors of omission (OMM), errors of commission (COM), response time (RT), and response time variability (RTV) of different test conditions (stimulus infrequent condition [Q1 vs. Q2] and stimulus frequent condition [Q3 vs. Q4]) was assessed via correlation analyses. All TOVA index scores under investigation assessing its internal consistency exhibited statistically significant correlations. All correlations fell in the moderate-high range.  
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Dev Med Child Neurol. 2008;50:524-29.

**Are amygdalar volume alterations in children with Tourette syndrome due to ADHD comorbidity?**

**Ludolph AG, Pinkhardt EH, Tebartz van Elst L, et al.**

Recent studies have shown that changes in the basal ganglia circuitry and limbic loops may play an important role both in Tourette syndrome (TS) and attention-deficit-hyperactivity disorder (ADHD). This study aimed to investigate in vivo possible morphological alterations of the amygdala as a key component of the limbic system. Amygdalar and total brain volumes were measured in three-dimensional magnetic resonance imaging data sets of 17 male patients with TS (mean age 11y 8mo [SD 2y]; range 9-16y) and 17 age-matched comparison children (mean age 12y 6mo (SD 2y 1mo); range 9-17y) by volume-of-interest-based volumetry. Eight members of the TS group also fulfilled the diagnostic criteria for ADHD. A significant decrease in the left-hemispheric amygdalar volumes and in the proportions of amygdalar to total brain volumes was observed in members of the TS group compared with the comparison group. Amygdalar volumes did not correlate with tic severity, but with behavioural impairment and especially with symptoms of ADHD. The amygdalar volume reduction might be the pathoanatomical correlate of an impaired input of the amygdala to the striatum and frontal cortex. Future studies should investigate if the involvement of the amygdala is due to TS or rather caused by the genetically-linked most frequent comorbidity ADHD.  
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Journal of Child Psychology and Psychiatry. 2008 Jul;49:712-22.

**Decision-making in ADHD: Sensitive to frequency but blind to the magnitude of penalty?**

**Luman M, Oosterlaan J, Knol DL, et al.**

**Background:** Decision-making and reinforcement sensitivity were investigated in 23 children with ADHD and 20 healthy controls using a gambling paradigm.

**Methods:** Children were required to choose between three alternatives that carried (A) small rewards and small penalties (advantageous), (B) large rewards and increasing penalties and (C) small rewards and increasing penalties (both disadvantageous). Penalties increased either in frequency or magnitude in two independent conditions. Heart rate (HR) and skin conductance (SC) were measured to examine whether impaired decision-making was accompanied by autonomic abnormalities.

**Results:** Children with ADHD showed a maladaptive response style compared to controls by demonstrating a smaller preference for the advantageous alternative, when penalties increased in magnitude. When penalties increased in frequency, children with ADHD performed like controls. Group differences in decision-making attenuated after the task was administered twice. Compared to controls, performance of children with ADHD in the magnitude condition was accompanied by increased HR acceleration following reward. In this condition, the post-selection SC of children with ADHD was larger for advantageous than for disadvantageous alternatives, in contrast to controls who showed an opposite SC pattern.

**Conclusions:** The current findings suggest that during decision-making, children with ADHD may be sensitive to the frequency but blind to the magnitude of penalty.

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Journal of Attention Disorders. 2008 Jul;12:64-69.

**Injury among stimulant-treated youth with ADHD.**

**Marcus SC, Wan GJ, Zhang HF, et al.**

**Objective:** To assess risk factors for injury among children and adolescents treated with stimulants for ADHD.

**Method:** An analysis was performed of pharmacy and service claims data from 2000-2003 California Medicaid (Medi-Cal) focusing on children and adolescents ages 6 to 17 years who initiated stimulant therapy for ADHD. Bivariate and multivariate analyses were performed to examine associations of demographic and clinical characteristics with injury.

**Results:** In a Cox proportional hazard model that controlled for background patient characteristics, patients ages 13 to 17 years, male gender, prescription of anxiolytic/hypnotic medications, and diagnosis of a mood disorder were each independently associated with increased risk of injury, whereas African American ancestry and other minority racial/ethnic ancestry were associated with lower risk. Youth with high stimulant medication possession ratios (MPR) had a nonsignificantly lower risk of injury as compared to those with a low stimulant MPR.

**Conclusion:** These findings reveal several patient characteristics that may be associated with increased risk of injury among children and adolescents treated for ADHD.

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Child Psychiatry Hum Dev. 2008;39:311-22.

**Prevalence rates of attention deficit/hyperactivity disorder in a school sample of Venezuelan children.**

**Montiel C, Pena JA, Montiel-Barbero I, et al.**

A total of 1,535 4-12 year-old children were screened with the Conners' rating scales, followed by diagnostic confirmation by the diagnostic interview schedule for children-IV-parent version. The prevalence of ADHD was estimated to be 10.03%, and only 3.9% of children had received medication for the treatment of ADHD symptoms. Prevalence rates and demographic profile of Venezuelan children with ADHD are very similar to those found in samples from other countries. Authorities need to develop public health policies to correctly identify and treat affected subjects. Furthermore, clinicians must actively search for children with ADHD in order to provide the best-available treatment.

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Journal of Attention Disorders. 2008 Jul;12:44-53.

**Literature review: Visual search by children with and without ADHD.**

**Mullane JC, Klein RM.**

**Objective:** To summarize the literature that has employed visual search tasks to assess automatic and effortful selective visual attention in children with and without ADHD.

**Method:** Seven studies with a combined sample of 180 children with ADHD (M age = 10.9) and 193 normally developing children (M age = 10.8) are located.

**Results:** Using a qualitative approach, the authors find no group difference in automatic search, but results are variable for effortful serial search. Using a novel, graphical approach, the authors find that the ADHD group demonstrated less efficient serial search. This overall effect is explored as a function of search display complexity. Children with ADHD search less efficiently at the lowest and highest levels of display complexity.

**Conclusion:** Children with ADHD show impairments in aspects of their effortful visual selective attention, as measured by visual search. (PsycINFO Database Record (c) 2008 APA, all rights reserved) (from the journal abstract).

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Journal of Attention Disorders. 2008 Jul;12:103-05.

**A case of ADHD and a major Y chromosome abnormality.**

**Mulligan A, Gill M, Fitzgerald M.**

**Background:** ADHD is a common, heritable disorder of childhood. Sex chromosome abnormalities are relatively rare conditions that are sometimes associated with behavioral disorders.

**Method:** The authors present a male child with ADHD and a major de-novo Y chromosome abnormality consisting of deletion of the long arm and duplication of the short arm. It is possible that the Y chromosomal abnormality is causing the ADHD syndrome in this boy.

**Conclusion:** Considering this case and considering that (a) ADHD is more common in boys than in girls, (b) the transmission of some genes associated with ADHD may occur preferentially from fathers rather than from mothers, and (c) ADHD is more common in children with XYY syndrome and Turner's syndrome than in other children, the authors propose that the sex chromosomes may contain risk genes for ADHD.

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Am J Psychiatry. 2008;165:721-30.

**Atomoxetine and osmotically released methylphenidate for the treatment of attention deficit hyperactivity disorder: Acute comparison and differential response.**

**Newcorn JH, Kratochvil CJ, Allen AJ, et al.**

**Objective:** Response to atomoxetine, a nonstimulant norepinephrine-specific reuptake inhibitor, was compared with the effect of osmotic-release oral methylphenidate, a long-acting methylphenidate preparation, in patients with attention deficit hyperactivity disorder (ADHD).

**Method:** In a large placebo-controlled, double-blind study, patients ages 6-16 with ADHD, any subtype, were randomly assigned to receive 0.8-1.8 mg/kg per day of atomoxetine (N=222), 18-54 mg/day of osmotically released methylphenidate (N=220), or placebo (N=74) for 6 weeks. The a priori specified primary analysis compared response (at least 40% decrease in ADHD Rating Scale total score) to osmotically released methylphenidate with response to atomoxetine and placebo. After 6 weeks, patients treated with methylphenidate were switched to atomoxetine under double-blind conditions.

**Results:** The response rates for both atomoxetine (45%) and methylphenidate (56%) were markedly superior to that for placebo (24%), but the response to osmotically released methylphenidate was superior to that for atomoxetine. Each medication was well tolerated, with completion rates and discontinuations for adverse events not significantly different from those for placebo. Of the 70 subjects who did not respond to methylphenidate, 30 (43%) subsequently responded to atomoxetine. Likewise, 29 (42%) of the 69 patients who did not respond to atomoxetine had previously responded to osmotically released methylphenidate.

**Conclusion:** Response was significantly greater with osmotically released methylphenidate than with atomoxetine. One-third of patients who received methylphenidate followed by atomoxetine responded better to one or the other, suggesting that there may be preferential responders.

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Child Psychiatry Hum Dev. 2008;39:323-30.

**Relationship of ferritin to symptom ratings children with attention deficit hyperactivity disorder: Effect of comorbidity.**

**Oner P, Oner O.**

Our aim was to investigate the relation between behavioral symptoms and hematological variables which are related with iron deficiency and anemia, ferritin, hemoglobin, mean corpuscular volume (MCV), and reticulocyte distribution width (RDW) in children and adolescents with pure Attention Deficit Hyperactivity Disorder (ADHD) or ADHD comorbid with other psychiatric disorders. The sample consisted of 151 subjects with ADHD, 45 of these subjects had other comorbid conditions. Conners Parent (CPRS) and Teacher Rating Scales (CTRS) were obtained. Comorbid ADHD subjects had lower mean hemoglobin and MCV. In the ADHD group in general, CPRS and CTRS Total scores were significantly negatively correlated with ferritin level. When only pure ADHD subjects were taken into account, the correlations did not reach statistical significance. Overall, these results suggested that lower ferritin level was associated with higher behavioral problems reported by both parents and teachers. Presence of comorbid conditions might increase the effect of lower iron stores on behavioral measures.

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Br J Anaesth. 2008;100:421-22.

**Cardiac arrest during induction of anaesthesia in a child on long-term amphetamine therapy.**

**Perruchoud C, Chollet-Rivier M.**

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Brain Cogn. 2008;67:324-39.

**Selective attention and inhibitory deficits in ADHD: Does subtype or comorbidity modulate negative priming effects?**

**Pritchard VE, Neumann E, Rucklidge JJ.**

Selective attention has durable consequences for behavior and neural activation. Negative priming (NP) effects are assumed to reflect a critical inhibitory component of selective attention. The performance of adolescents with Attention Deficit/Hyperactivity Disorder (ADHD) was assessed across two conceptually based NP tasks within a selective attention procedure. Comorbidity (non-comorbid ADHD vs. comorbid ADHD) and subtype (ADHD combined vs. ADHD inattentive) were considered key issues. Results found NP effects to differ as a function of comorbidity but not subtype. Findings are discussed in light of functional neuroimaging evidence for neuronal enhancement for unattended stimuli relative to attended stimuli that strongly complements an inhibitory-based explanation for NP. Implications for the 'AD' in ADHD and contemporary process models of the disorder are considered. (copyright) 2008 Elsevier Inc. All rights reserved.

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J Pediatr Psychol. 2008;33:563-75.

**Effects of inattention and hyperactivity/impulsivity symptoms on development of nicotine dependence from mid adolescence to young adulthood.**

**Rodriguez D, Tercyak KP, Udrain-McGovern J.**

**Objective:** The relationship of Attention-Deficit/Hyperactivity Disorder (ADHD) and smoking is well documented. However, it is unclear whether ADHD symptoms relate to nicotine dependence (ND) symptoms from adolescence to young adulthood. We sought to assess the relationship of ADHD Hyperactivity-Impulsivity (H/I) and Inattention (I) symptoms with ND symptoms in a community sample from adolescence to young adulthood (ages 18-21).

**Methods:** Participants were adolescents (n = 672) smoking at least one whole cigarette in their lifetime. Participants are members of a prospective cohort study (ages 14-22) evaluating the bio-behavioral predictors of smoking. Data were analyzed with a two-piece latent growth curve model.

**Results:** ADHD-I symptoms were associated with ND symptoms acceleration in adolescence, but slowing acceleration in young adulthood, whereas ADHD-H/I symptoms were associated with ND symptoms acceleration in young adulthood.

**Conclusions:** The results suggest the relationship of ADHD and ND symptoms may differ by symptom type, and the developmental period assessed.  
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J Abnorm Child Psychol. 2008;36:731-43.

**The shifting subtypes of ADHD: Classification depends on how symptom reports are combined.**

**Rowland AS, Skipper B, Rabiner DL, et al.**

Research on the correlates of ADHD subtypes has yielded inconsistent findings, perhaps because the procedures used to define subtypes vary across studies. We examined this possibility by investigating whether the ADHD subtype distribution in a community sample was sensitive to different methods for combining informant data. We conducted a study to screen all children in grades 1-5 (N = 7847) in a North Carolina County for ADHD. Teachers completed a DSM-IV behavior rating scale and parents completed a structured telephone interview. We found substantial differences in the distribution of ADHD subtypes depending on whether one or both sources were used to define the subtypes. When parent and teacher data were combined, the procedures used substantially influenced subtype distribution. We conclude the ADHD subtype distribution is sensitive to how symptom information is combined and that standardization of the subtyping process is required to advance our understanding of the correlates of different ADHD subtypes.

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Rev Neurol. 2008;46:602-08.

**Neuropsychological assessment of the effectiveness of OROS-methylphenidate in attention deficit hyperactivity disorder.**

**Rubio-Morell B, Martin-Gonzalez R, Herreros-Rodriguez O, et al.**

**Introduction.** There is wide evidence about dopaminergic and noradrenergic mechanisms in fronto-striatal circuits which are thought to be related with attention deficit hyperactivity disorder (ADHD) neurobiology. That dysfunction may explain core symptoms and part of executive deficits in cognitive functioning. Methylphenidate is effective in alleviating core symptoms, enhancing dopaminergic and noradrenergic bioavailability. Less evidence in improving executive functions, specially working memory is found.

**Aims.** To assess if methylphenidate-OROS has a potential effect increasing working memory and attention parameters in ADHD children, and to determine if initial working memory and attention differences between ADHD and control group disappear after one month of daily methylphenidate-OROS treatment. Subjects and methods. Eleven children with ADHD were selected and as control group was chosen eleven children compared in age, intelligence quotient, school grade, and social-demographic status. Neuropsychological battery was administered in naive ADHD patients at three times, before treatment, after the first methylphenidate-OROS dose, and after one month of daily treatment. Simultaneously neuropsychological battery was administered to control group.

**Results.** Statistically significant differences were found in neuropsychological variables of working memory after one month daily treatment with methylphenidate-OROS and attention parameters after only one dose in ADHD group. Differences between naive ADHD and control group in terms of working memory were statistically significant before treatment but not after one month daily treatment.

**Conclusion.** Methylphenidate-OROS improves attention achievement after the first dose and working memory after one month of daily treatment.

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Journal of Attention Disorders. 2008 Jul;12:54-63.

**ADHD symptoms and associated psychopathology in a community sample of adolescents from the European north of Russia.**

**Ruchkin V, Lorberg B, Kuposov R, et al.**

**Objective:** To assess the prevalence of ADHD symptoms and their relationship to psychopathology in adolescents from the European North of Russia.

**Method:** The prevalence of ADHD symptoms is assessed by teacher reports in 536 adolescents. Internalizing and externalizing problems are assessed by teacher ratings and student self-reports.

**Results:** Prevalence of individual ADHD symptoms ranges between 3.3% and 35%. Only 8.9% of boys and 3.6% of girls have positive ratings on six items in either inattention or hyperactivity subtype. These adolescents fare significantly worse regarding externalizing but not internalizing problems. Compared to girls with ADHD, boys with ADHD report higher levels of violent and nonviolent delinquency and are described by teachers as having more conduct problems. Possible ADHD status is associated with depressive symptoms in boys but not in girls.

**Conclusion:** The estimates of ADHD prevalence rates obtained in this study are similar to those of other countries, suggesting the need for identification and treatment of the disorder. Evaluation of associated disruptive behavior disorders and depression, particularly in boys, is warranted. (PsycINFO Database Record (c) 2008 APA, all rights reserved) (from the journal abstract).

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Environ Health Perspect. 2008;116:666-73.

**Prenatal organochlorine exposure and measures of behavior in infancy using the Neonatal Behavioral Assessment Scale (NBAS).**

**Sagiv SK, Nugent JK, Brazelton TB, et al.**

**Background:** Previous literature suggests an association between organochlorines and behavioral measures in childhood, including inattention.

**Objective:** This study was designed to assess whether prenatal organochlorine exposure is associated with measures of attention in early infancy.

**Methods:** We investigated an association between cord serum polychlorinated biphenyls (PCBS) and p,p'-dichlorodiphenyl dichloroethene (DDE) levels and measures of attention from the Neonatal Behavioral Assessment Scale (NBAS) in a cohort of 788 infants born 1993-1998 to mothers residing near a PCB-contaminated harbor and Superfund site in New Bedford, Massachusetts.

**Results:** Medians (ranges) for the sum of four prevalent PCB congeners and DDE levels were 0.19 (0.01-4.41) and 0.30 (0-10.29) ng/g serum, respectively. For the 542 subjects with an NBAS exam at 2 weeks, we observed consistent inverse associations between cord serum PCB and DDE levels and NBAS measures of alertness, quality of alert responsiveness, cost of attention, and other potential attention-associated measures including self-quieting and motor maturity. For example, the decrement in quality of alert responsiveness score was -0.51 (95% confidence interval, -0.99 to -0.03) for the highest quartile of exposure to the sum of four prevalent PCB congeners compared, with the lowest quartile. We found little evidence for an association with infant orientation, habituation, and regulation of state, assessed as summary cluster measures.

**Conclusions:** Our findings provide evidence for an association between low-level prenatal PCB and DDE exposures and poor attention in early infancy. Further analyses will focus on whether organochlorine-associated decrements in attention and attention-related skills in infancy persist in later childhood.

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J Psychiatr Res. 2008 Jul;42:644-52.

**Externalizing disorders in the offspring from the San Diego prospective study of alcoholism.**

**Schuckit MA, Smith TL, Pierson J, et al.**

**Object:** Conduct disorder (CD) and attention deficit hyperactivity disorder (ADHD) may be more prevalent in relatives of alcoholics and may predict alcohol and drug problems, but not all studies agree. This paper evaluates these questions in well-educated families of alcoholics and controls.

**Methods:** Data from 165, 14-25-year-old offspring in the San Diego Prospective Study were used to create Group 1 (n = 17) with CD or ADHD and Group 2 (n = 148) with no such diagnoses. Correlations and hierarchical logistic regressions evaluated characteristics associated with these disorders, comparing the impact of CD and ADHD.

**Results:** The rates of CD (6.1%) and of ADHD (4.8%) were not strikingly elevated, and did not relate to the family history of alcohol or drug use disorders. Group 1 offspring were more likely to have divorced parents, a relative with bipolar disorder, a higher intake of alcohol and illicit substances, and associated problems. (PsycINFO Database Record (c) 2008 APA, all rights reserved) (from the journal abstract).

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Child Neuropsychol. 2008;14:211-26.

**Effect of treatment with stimulant medication on nonverbal executive function and visuomotor speed in children with attention deficit/hyperactivity disorder (ADHD).**

**Snyder AM, Maruff P, Pietrzak RH, et al.**

This study used a novel hidden maze learning test to examine the nature and magnitude of impairment on separable aspects of executive function in 36 children with ADHD. A within-subject analysis of children with ADHD was also conducted to assess cognitive effects of open-label stimulant treatment. Compared to 31 age-matched controls, unmedicated children with ADHD were slower and made significantly more errors that were indicative of relative impairment in prepotent response inhibition and ability to "maintain set" while using simple rules to complete the task. Open-label administration of stimulant medication led to faster and more efficient performance, with children with ADHD making fewer perseverative and rule-break errors than when off medication. This instrument might be useful in monitoring treatment response in specific aspects of executive function and in assisting with dose-titration decisions.

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Journal of Attention Disorders. 2008 Jul;12:4-14.

**Evidence, interpretation, and qualification from multiple reports of long-term outcomes in the Multimodal Treatment study of children with ADHD (MTA): Part I: Executive summary.**

**Swanson J, Arnold LE, Kraemer H, et al.**

**Objective:** To review the primary and secondary findings from the Multimodal Treatment study of ADHD (MTA) published over the past decade as three sets of articles.

**Method:** In a two-part article--Part I: Executive Summary (without distracting details) and Part II: Supporting Details (with additional background and detail required by the complexity of the MTA)--we address confusion and controversy about the findings.

**Results:** We discuss the basic features of the gold standard used to produce scientific evidence, the randomized clinical trial, for which was used to contrast four treatment conditions: medication management alone (MedMgt), behavior therapy alone (Beh), the combination of these two (Comb), and a community comparison of treatment "as usual" (CC). For each of the three assessment points we review three areas that we believe are important for appreciation of the findings: definition of evidence from the MTA, interpretation of the serial presentations of findings at each assessment point with a different definition of long-term, and qualification of the interim conclusions about long-term effects of treatments for ADHD.

**Conclusion:** We discuss the possible clinical relevance of the MTA and present some practical suggestions based on current knowledge and uncertainties facing families, clinicians, and investigators regarding the long-term use of stimulant medication and behavioral therapy in the treatment of children with ADHD.

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Journal of Attention Disorders. 2008 Jul;12:15-43.

**Evidence, interpretation, and qualification from multiple reports of long-term outcomes in the Multimodal Treatment Study of Children with ADHD (MTA): Part II: Supporting details.**

**Swanson J, Arnold LE, Kraemer H, et al.**

**Objective:** To review and provide details about the primary and secondary findings from the Multimodal Treatment study of ADHD (MTA) published during the past decade as three sets of articles.

**Method:** In the second of a two part article, we provide additional background and detail required by the complexity of the MTA to address confusion and controversy about the findings outlined in part I (the Executive Summary).

**Results:** We present details about the gold standard used to produce scientific evidence, the randomized clinical trial (RCT), which we applied to evaluate the long-term effects of two well-established unimodal treatments, Medication Management (MedMGT) and behavior therapy (Beh), the multimodal combination (Comb), and treatment "as usual" in the community (CC). For each of the first three assessment points defined by RCT methods and included in intent-to-treat analyses, we discuss our definition of evidence from the MTA, interpretation of the serial presentations of findings at each assessment point with a different definition of long-term varying from weeks to years, and qualification of the interim conclusions about long-term effects of treatments for ADHD based on many exploratory analyses described in additional published articles.

**Conclusions:** Using a question and answer format, we discuss the possible clinical relevance of the MTA and present some practical suggestions based on current knowledge and uncertainties facing families, clinicians, and investigators regarding the long-term use of stimulant medication and behavioral therapy in the treatment of children with ADHD. (PsycINFO Database Record (c) 2008 APA, all rights reserved) (from the journal abstract).

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Emot Behav Difficulties. 2008;13:111-25.

**Examination-related anxiety in students diagnosed with AD/HD and the case for an allocation of extra time: Perspectives of teachers, mothers and students.**

**Taylor M, Houghton S.**

This study details the perspectives of Western Australian teachers, students and mothers on the case for an allocation of extra exam time to students diagnosed with Attention-Deficit/Hyperactivity Disorder (AD/HD). Eighteen teachers of students with AD/HD (14 high and four primary), 15 students with AD/HD (10 high and 5 primary), and their mothers participated in a series of semi-structured interviews (n = 48). Data analysis revealed that while 56% of teachers and 53% of parents support an allocation of extra exam time for students diagnosed with AD/HD, 67% of students are opposed. This paper details the reasons teachers, parents and students give for their support, ambivalence or opposition to the allocation of extra time for exams.

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Journal of Child Psychology and Psychiatry. 2008 Jul;49:691-704.

**Dopamine transfer deficit: A neurobiological theory of altered reinforcement mechanisms in ADHD.**

**Tripp G, Wickens JR.**

This review considers the hypothesis that changes in dopamine signalling might account for altered sensitivity to positive reinforcement in children with ADHD. The existing evidence regarding dopamine cell activity in relation to positive reinforcement is reviewed. We focus on the anticipatory firing of dopamine cells brought about by a transfer of dopamine cell responses to cues that precede reinforcers. It is proposed that in children with ADHD there is diminished anticipatory dopamine cell firing, which we call the dopamine transfer deficit (DTD). The DTD theory leads to specific and testable predictions for human and animal research. The extent to which DTD explains symptoms of ADHD and effects of pharmacological interventions is discussed. We conclude by considering the neural changes underlying the etiology of DTD. (PsycINFO Database Record (c) 2008 APA, all rights reserved) (from the journal abstract).

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Am J Addict. 2008;17:195-98.

**Is attention deficit hyperactivity disorder (ADHD) symptom severity associated with tobacco use?**

**Upadhyaya HP, Carpenter MJ.**

Several studies report a strong link between ADHD and tobacco use; however, the nature of this relationship is not entirely clear. We examined the relationship between attention deficit hyperactivity disorder (ADHD) symptoms and tobacco use within a sample of college students. Although tobacco use was the main focus, we also examined alcohol and marijuana use. We examined the association between the number of ADHD symptoms endorsed (severity), and tobacco, alcohol, and marijuana use in a convenience sample of 334 college students in the southeastern United States. Survey data were based on the annual Core Alcohol and Drug Survey for substance use, and the Current Symptom Scale (CSS) for ADHD, conduct disorder (CD), and antisocial personality disorder (ASPD) symptoms. Among ever users of a substance, the number (severity) of current ADHD symptoms, including inattentive and hyperactive symptoms, were significantly associated with the frequency of tobacco and marijuana use in the past month and past year, as well as to the frequency of alcohol use in the past month. The results suggest that the number of ADHD symptoms is proportionally associated with tobacco, alcohol, and marijuana use.

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J Am Med Assoc. 2008;299:2633-41.

**Hypericum perforatum (St John's Wort) for attention-deficit/hyperactivity disorder in children and adolescents: A randomized controlled trial.**

**Weber W, Vander Stoep A, McCarty RL, et al.**

**Context:** Stimulant medication can effectively treat 60% to 70% of youth with attention-deficit/hyperactivity disorder (ADHD). Yet many parents seek alternative therapies, and Hypericum perforatum (St John's wort) is 1 of the top 3 botanicals used.

**Objective:** To determine the efficacy and safety of H perforatum for the treatment of ADHD in children. Design, Setting, and Participants: Randomized, double-blind, placebo-controlled trial conducted between March 2005 and August 2006 at Bastyr University, Kenmore, Washington, among a volunteer sample of 54 children aged 6 to 17 years who met Diagnostic and Statistical Manual of Mental Disorders (Fourth Edition) criteria for ADHD by structured interview.

**Intervention:** After a placebo run-in phase of 1 week, participants were randomly assigned to receive 300 mg of H perforatum standardized to 0.3% hypericin (n = 27) or a matched placebo (n = 27) 3 times daily for 8 weeks. Other medications for ADHD were not allowed during the trial.

**Main Outcome Measures:** Performance on the ADHD Rating Scale-IV (range, 0-54) and Clinical Global Impression Improvement Scale (range, 0-7), and adverse events.

**Results:** One patient in the placebo group withdrew because of an adverse event. No significant difference was found in the change in ADHD Rating Scale-IV scores from baseline to week 8 between the treatment and placebo groups: inattentiveness improved 2.6 points (95% confidence interval [CI], -4.6 to -0.6 points) with H perforatum vs 3.2 points (95% CI, -5.7 to -0.8 points) with placebo (P = .68) and hyperactivity improved 1.8 points (95% CI, -3.7 to 0.1 points) with H perforatum vs 2.0 points (95% CI, -4.1 to 0.1 points) with placebo (P = .89). There was also no significant difference between the 2 groups in the percentage of participants who met criteria for improvement (score (less-than or equal to)2) on the Clinical Global Impression Improvement Scale (H perforatum, 44.4%; 95% CI, 25.5%-64.7% vs placebo, 51.9%; 95% CI, 31.9%-71.3%; P = .59). No difference between groups was found in the number of participants who experienced adverse effects during the study period (H perforatum, 40.7%; 95% CI, 22.4%-61.2% vs placebo, 44.4%; 95% CI, 25.5%-64.7%; P = .78).

**Conclusion:** In this study, use of H perforatum for treatment of ADHD over the course of 8 weeks did not improve symptoms. Trial Registration: clinicaltrials.gov Identifier: NCT00100295.

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**Emotional well-being in children and adolescents treated with atomoxetine for attention-deficit/hyperactivity disorder: Findings from a patient, parent and physician perspective using items from the pediatric adverse event rating scale (PAERS).**

**Wehmeier PM, Schacht A, Lehmann M, et al.**

**Background:** The objective of this analysis was to measure changes in items on the Pediatric Adverse Event Rating Scale (PAERS) that relate to emotional well-being of children and adolescents with Attention-Deficit/ Hyperactivity Disorder (ADHD) during treatment with atomoxetine for up to 24 weeks from the perspective of the patient, the parent, and the physician.

**Methods:** Patients aged 6-17 years with ADHD were treated with atomoxetine (target dose 1.2 mg/kg/day). In the two studies on which this secondary analysis is based the PAERS was used to assess the tolerability of atomoxetine in children and adolescents. This scale has a total of 48 items. The ten items that reflect emotional well-being were selected to measure changes over time from a patient, parent, and physician perspective.

**Results:** 421 patients were treated with atomoxetine. 355 patients completed the 8-week treatment period, and 260 patients completed the 24-week treatment period. The ten items that reflect emotional well-being were grouped in five dimensions: Depressed mood, self-harm, irritability/agitation, drowsiness, and euphoria. The scores of these dimensions decreased over time, both from a patient as well as from a parent and physician perspective. Only the dimension self-harm was extremely low at baseline and stayed low over time. The mean scores for the ten items depended on the rater perspective.

**Conclusion:** The emotional well-being of children and adolescents with ADHD improved in terms of depressed mood, irritability/agitation, drowsiness, and euphoria during treatment with atomoxetine for up to 24 weeks.

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**Diminished 5-HT functioning in CBCL pediatric bipolar disorder-profiled ADHD patients versus normal ADHD: Susceptibility to rapid tryptophan depletion influences reaction time performance.**

**Zepf FD, Wockel L, Poustka F, et al.**

**Objective:** There is a current debate on characterizing children with pediatric bipolar disorder (PBD) through a profile within the child behaviour checklist (CBCL), and on the involvement of the 5-HT system in the underlying neurobiological processes of PBD. The aim of the present paper was to investigate reaction time performance in patients with CBCL-PBD and to discriminate ADHD from ADHD with CBCL-PBD with respect to diminished 5-HT functioning and reaction time.

**Methods:** Twenty-two patients with ADHD received the rapid tryptophan depletion test (RTD) thus lowering the central-nervous 5-HT synthesis rate within a placebo-controlled double-blind within-subject crossover design. Reaction time was assessed using a competitive reaction time game with low and high provocation after both depletion and placebo intake. The study sample was divided into high and low scorers according to their CBCL-PBD scores.

**Results:** Comparing those six patients with the highest and clinically significant CBCL-PBD scores versus those six patients with the lowest, patients with a high CBCL-PBD score showed a slower reaction time under RTD compared to patients with low CBCL-PBD scores after high provocation. CBCL-'aggression' discriminated between the two groups.

**Conclusions:** The results suggest alterations in 5-HT functioning in CBCL-PBD-spectrum patients, and 'aggression' as a potential moderator variable to ADHD.

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