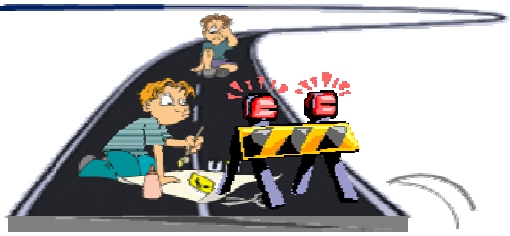
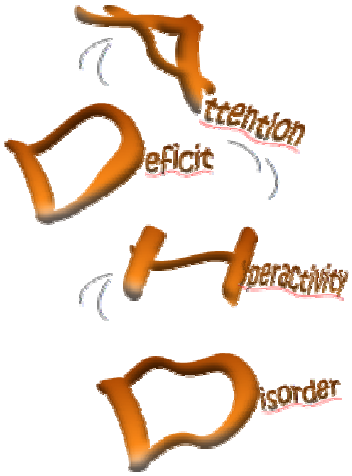
NEWSLETTER





INDICE:

BIBLIOGRAFIA ADHD GIUGNO 2012

Acta Neuropsychiatr. 2012;24:24.

EFFICACY AND SAFETY OF LISDEXAMFETAMINE DIMESYLATE IN CHILDREN AND ADOLESCENTS WITH ADHD: A PHASE 3, RANDOMIZED, DOUBLE-BLIND, MULTICENTER, PARALLEL-GROUP, PLACEBO-AND ACTIVE-CONTROLLED, DOSE-OPTIMIZED STUDY IN EUROPE.

Gasior M, Coghill D, Soutullo C, et al.

Background: Stimulant medications are commonly used as first-line pharmacotherapies for attention-deficit/hyperactivity disorder (ADHD), but prescribing practices vary greatly across different countries. Several long-acting methylphenidate-and amfetamine-based products are licensed in the US, but fewer treatment options are available in Europe. Lisdexamfetamine dimesylate (LDX) is the first long-acting, prodrug stimulant approved for the treatment of ADHD. To date, all LDX trials have been conducted outside of Europe.

Objectives: To investigate the efficacy and safety of LDX, compared with placebo in children and adolescents with at least moderately symptomatic ADHD in Europe. This study also included a reference arm of osmotic-release oral-system methylphenidate (OROS-MPH).

Methods: Children (6'C12 years) and adolescents (13C17 years) with an ADHD Rating Scale IV (ADHD-RS-IV) total score 28 were randomized to LDX, OROS-MPH or placebo over 7 weeks at 48 European sites. Primary and key secondary efficacy measures were the change from baseline at endpoint in ADHD-RS-IV total score and Clinical Global Impressions-Global Improvement (CGI-I) score, respectively. Endpoint was defined as the last on-treatment, post-randomization visit at which a valid ADHD-RS-IV total score was observed. Safety assessments included treatment-emergent adverse events (TEAEs) and vital signs.

Results: Of 336 subjects randomized, 196 completed the study. The least squares mean change from baseline at endpoint (95% confidence intervals [CI]) in ADHD-RS-IV total score was C24.3 (C26.6, C22.0) for LDX, C18.7 (C21.0, C16.5) for OROS-MPH and C5.7 (C7.9, C3.5) for placebo ($p < 0.001$ for each active treatment vs placebo). Effect sizes based on the difference (active -placebo) in LS mean change in ADHD-RS-IV total score from baseline to endpoint were 1.804 for LDX and 1.263 for OROS-MPH. The percentage (95% CI) of subjects showing improvement (CGI-I of 1 or 2) at endpoint was 78% (70, 86) for LDX, 61% (51, 70) for OROS-MPH and 14% (8, 21) for placebo ($p < 0.001$ for each active treatment vs placebo). The most common TEAEs for LDX were decreased appetite (25%), headache (14%) and insomnia (14%). Mean changes in vital signs were small and consistent with the known profile of LDX.

Conclusions: LDX was effective and generally well tolerated in children and adolescents with ADHD.

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Per la ricerca degli articoli pubblicati nella letteratura scientifica nel mese in esame sono state consultate le banche dati Medline, Embase, PsycINFO e PsycArticle utilizzando le seguenti parole chiave (o i loro sinonimi): 'Attention deficit disorder', 'Attention deficit hyperactivity disorder', 'Infant', 'Child', 'Adolescent', 'Human'. Sono qui riportate le referenze considerate rilevanti e pertinenti.

ADHD Atten Deficit Hyperact Disord. 2012;4:85-91.

HEART RATE VARIABILITY AND METHYLPHENIDATE IN CHILDREN WITH ADHD.

Buchhorn R, Conzelmann A, Willaschek C, et al.

Although an extensive number of studies support the efficacy and tolerability of stimulants in the treatment of attention deficit/hyperactivity disorder (ADHD), in recent years, increasing concerns have been raised about their cardiovascular safety. We investigated whether a time domain analysis of heart rate variability (HRV) recordings in 24-h ECG under medication with stimulants yielded new information about therapy control in ADHD. We analysed the HRV parameter standard deviation of all normal sinus RR intervals over 24 h (SDNN), percentage of successive normal sinus RR intervals > 50 ms (pNN50) and root-mean-square of the successive normal sinus RR interval difference (rMSSD) from 23 children diagnosed by ADHD (19 boys and 4 girls), aged 10. 5 (plus or minus) 2. 2 years, who were consecutively referred to our outpatient clinic for paediatric cardiology. Eleven children received medication with methylphenidate (MPH), while twelve children were initially examined without medication. Of these, eight probands were re-examined after therapy with MPH was established. Controls comprised 19 children (10 boys, 9 girls) from our Holter ECG data base without any cardiac or circulatory disease. Compared to healthy controls, the ADHD children with and without MPH treatment showed significantly higher mean heart rates (ADHD without MPH: 94. 3 (plus or minus) 2. 2; ADHD with MPH: 90. 5 (plus or minus) 1. 8, controls: 84. 7 (plus or minus) 1. 8). pNN50 (ADHD without MPH: 6. 5 (plus or minus) 2. 7; ADHD with MPH: 14. 2 (plus or minus) 6. 9, controls: 21. 5 (plus or minus) 9. 0) and rMSSD (ADHD without MPH: 26. 1 (plus or minus) 4. 1; ADHD with MPH: 36. 7 (plus or minus) 8. 3, controls: 44. 5 (plus or minus) 10. 1) were lowest in ADHD children without MPH, middle in ADHD children with MPH and highest in controls. SDNN values were not significantly different. The hourly analysis shows highly significant reduced pNN50 and rMSSD values in untreated ADHD children between 5:00 pm and 6:00 am while the pattern approaches to levels of controls during MPH treatment. Data of this pilot study indicate a decreased vagal tone with significantly diminished HRV and higher heart rates in unmedicated ADHD children. These parameters of autonomic activation are ameliorated by MPH treatment. No evidence for negative impact of MPH on HRV was detected. Further studies will clarify a potential cardio-protective effect of MPH in ADHD.

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Adolesc Psychiatry. 2012;2:86.

THE INFLUENCE OF ADHD ON THE CLINICAL PRESENTATION OF FEMALE ADOLESCENTS WITH A BORDERLINE PERSONALITY DISORDER.

Speranza M, Revah-Levy A, Perez-Diaz F, et al.

Objectives: The aim of this study was to explore the prevalence and the impact of a comorbid ADHD diagnosis on the clinical presentation of borderline personality disorder in female adolescents and to explore which type of impulsiveness is specifically associated with BPD-ADHD adolescents.

Method: To explore the influence of ADHD on the clinical presentation of borderline personality disorder, a sample of 74 BPD adolescents drawn from the European Research Network on Borderline Personality Disorder (EURNET BPD), were investigated. BPD adolescents with (BPD-ADHD) and without (BPD) a current comorbid ADHD disorder were compared on clinical characteristics (Axis-I and Axis-II, BPD severity, impulsiveness, family functioning and general functioning).

Results: A co-occurring ADHD diagnosis influences the clinical presentation of female subjects with a borderline personality disorder. ADHD in BPD female adolescents was associated with a specific comorbid profile of oppositional defiant disorders, with a strong tendency for cluster B personality disorders and with higher levels of impulsiveness, especially of the cognitive type.

Conclusions: These results suggest that a sub-group of BPD patients could be more developmentally driven with ADHD symptoms and impairments of the inhibitory system persisting since childhood. This proposal could be of interest in the hypothesis of including a developmental perspective into DSM classifications of personality disorders. Longitudinal studies are needed to explore the role of these developmental features as risk factors for borderline personality disorders

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Alcohol Clin Exp Res. 2012;36:206A.

PRENATAL ALCOHOL EXPOSURE X ADHD: INTERACTIVE EFFECTS ON ADAPTIVE FUNCTIONING.

Ware AL, Glass L, Crocker N, et al.

Background: Prenatal alcohol exposure (AE) and attention-deficit/hyperactivity disorder (ADHD) both have effects on adaptive behavior in children. Although several studies have compared children with AE or ADHD, no study has examined the interaction between these two factors on adaptive functioning. The current study examined this interaction by including children with and without AE and ADHD.

Methods: As part of a multisite study, primary caregivers of 318 children (8-16y, M=12.36) completed the Vineland Adaptive Behavior Scales-II (VABS-II). Four subject groups were included: with AE and ADHD (AE+, n = 78), with AE but without ADHD (AE-, n = 37), nonexposed with ADHD (ADHD, n = 71), and nonexposed without ADHD (CON, n = 132). VABS-II domain scores (Communication, Daily Living Skills, Socialization) were analyzed using three, 2 (AE) X 2 (ADHD diagnosis) between-subjects ANCOVAs, with Age included as a model covariate.

Results: There were significant main effects of AE ($p < .001$) and ADHD ($p < .001$) on Communication, Daily Living Skills, and Socialization domains. For all domain scores, children with AE had lower scores than those without AE and children with ADHD had lower domain scores than those without ADHD. Age was a significant covariate ($p < .01$) in all analyses. There was a significant AE X ADHD interaction [$F (1, 310) = 7.76$, $p = .006$] effect for Communication scores, but not Daily Living Skills or Socialization domains ($p > .40$). The AE+ group had lower Communication scores than the AE- ($p < .001$) and ADHD ($p < .001$) groups, which did not differ from each other. All three clinical groups had lower Communication scores than the CON group ($p < .001$).

Conclusion: Consistent with previous studies, both AE and ADHD elevate the risk of adaptive dysfunction. However, AE exacerbates the effect of ADHD on communication abilities in children, whereby children with both AE and ADHD have significantly poorer outcomes than those with either condition alone. These results further demonstrate the unique effects of AE on this functional domain and support the use of specialized clinical services in this population

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Alcohol Clin Exp Res. 2012;36:129A.

PARALLEL PROCESS GROWTH MODELS FOR ADOLESCENT AND PEER DRINKING IN INDIVIDUALS WITH AND WITHOUT CHILDHOOD ADHD.

Belendiuk KA, Pedersen SL, Marshal MP, et al.

Adolescent alcohol use may be influenced by exposure to peer drinking, adolescents may select drinking peers with whom to affiliate to support drinking behavior, and adolescent and peer alcohol use may be reciprocally influenced. ADHD is associated with long-term risk of alcohol-related problems; this risk could be associated with adolescent peer alcohol socialization that operates more strongly in individuals with than without ADHD. The current study conducted multiple-group parallel process latent growth curve models to examine associations between growth in adolescent drinking and growth in both peer alcohol use and peer alcohol tolerance and determined if these associations differed as a function of ADHD. 159 adolescents with childhood ADHD and 117 demographically-similar youth without ADHD were followed in the Pittsburgh ADHD Longitudinal Study. A cohort-sequential design collected up to 4 annual assessments from 14 to 17 year olds. Adolescents reported on the frequency of their own alcohol use in the prior 12 months, the number of peers who used alcohol regularly or occasionally (peer alcohol use), and how their close friends feel about regular or occasional drinking (peer alcohol tolerance). Parallel process models fit the data well. For the full sample, higher initial levels of adolescent alcohol use predicted slower growth in peer alcohol tolerance ((beta)=)0.07, $p<0.05$). Multiple-group parallel process models also fit the data well and showed that increases in both peer alcohol use and tolerance were more strongly associated with increases in alcohol use for individuals with ADHD (peer use: (beta)=0.48, $p<0.001$; peer tolerance: (beta)=0.08, $p<0.01$) than without (peer use: (beta)=0.12, $p<0.01$; peer tolerance: (beta)=0.03, ns). These results suggest an important role for peer socialization to alcohol use in the etiology of AUDs for children with ADHD. Additional research would benefit from social network characterization to better understand whether peer alcohol socialization is stronger in adolescents with than without ADHD as a result of peer (i.e. increased deviance) or adolescent (i.e. misperception of peer alcohol use) characteristics. Further

research on the persistence of differences in peer alcohol socialization in individuals with and without ADHD into early adulthood, the period of greatest risk for alcohol use problems, will be important to understand developmental manifestations of the increased propensity for individuals with ADHD to be at risk for AUDs.

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Alcohol Clin Exp Res. 2012;36:207A.

PRENATAL ALCOHOL EXPOSURE X ADHD: INTERACTIVE EFFECTS ON NEUROPSYCHOLOGICAL PERFORMANCE.

Glass L, Ware AL, Crocker N, et al.

Background: The adverse effects of heavy prenatal alcohol exposure (AE) and attentiondeficit/ hyperactivity disorder (ADHD) on neuropsychological functioning have been well documented independently. The current study examined the interaction between these factors on cognitive ability in children.

Methods: As part of a multisite study, 344 children (8-16y, M = 12.28) completed the Wechsler Intelligence Scale for Children-IV (WISC-IV), and selected subtests of the Delis- Kaplan Executive Function System (D-KEFS) and the Cambridge Neuropsychological Test Automated Battery (CANTAB). Four groups were tested: children with AE and ADHD (AE+, n = 90), with AE but without ADHD (AE-, n = 38), nonexposed with ADHD (ADHD, n = 80), and nonexposed without ADHD (CON, n = 136). Neuropsychological performance was analyzed using a 2 (AE) x 2 (ADHD) MANOVA for each measure.

Results: The three MANOVAs indicated significant ($p < .05$) main and interactive effects on overall WISC-IV, D-KEFS, and CANTAB performance. Follow-up univariate tests revealed significant main effects of AE and ADHD on all analyzed variables except for AE on D-KEFS Tower Test, and ADHD on CANTAB Intra-Extra Dimensional Shift Stages Completed (IED). AE x ADHD interactions were significant for two WISC-IV index scores (Verbal Comprehension, Perceptual Reasoning), three D-KEFS subtests (Design Fluency, Verbal Fluency, Trail Making), and two CANTAB subtests [IED, Spatial Working Memory (SWM)]. For all measures, clinical groups were more impaired than controls. Both AE groups were more impaired than the ADHD group on Verbal Comprehension and Perceptual Reasoning, although all clinical groups were similarly impaired on Design Fluency, Trail Making, IED, and SWM.

Conclusion: Both ADHD and AE increase impairment across neuropsychological domains. AE resulted in greater verbal comprehension and perceptual reasoning deficits than ADHD; however, both AE and ADHD groups had impaired D-KEFS and CANTAB performance. These results support prior findings of neuropsychological deficits in children with AE and nonexposed children with ADHD. Clinically, these findings demonstrate task-dependent patterns of impairment across clinical groups and indicate discrete profiles of deficits resulting from AE and/or ADHD. These patterns may facilitate the creation of a more precise neuropsychological profile and assist in the identification of alcohol-exposed children.

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Alcohol Clin Exp Res. 2012;36:291A.

CHILDHOOD ATTENTION DEFICIT HYPERACTIVITY DISORDER, IMPULSIVITY, AND DRINKING AND DRIVING IN YOUNG ADULTS: A LONGITUDINAL EXAMINATION.

Pedersen SL, Molina BSG, Pelham WE, et al.

Drinking and driving poses serious health risks for young adults. Risk for experiencing a fatal motor vehicle accident is higher at any BAC for youth and increases more sharply for younger people as BAC increases (Zador et al., 2000). In 2009, 19% of 16-20 year olds killed in motor vehicle accidents had a BAC at or above .08 (NHTSA, 2010). Impulsivity predicts drinking and driving (e.g., Ryb et al., 2006). However, research has not examined drinking and driving in individuals with Attention Deficit Hyperactivity Disorder (ADHD), a population marked by elevated levels of impulsivity. An exception is a cross-sectional finding from a portion of the current sample that did not find group differences (Thompson et al., 2007). Research has not examined change in drinking and driving over time for young adults with and without a childhood diagnosis of ADHD or examined the indirect association that childhood ADHD may have with drinking and driving through impulsivity. Data were used from the Pittsburgh ADHD Longitudinal Study, an ongoing study of individuals with and without childhood ADHD. The current sample was restricted to individuals with

a driver's license at one or more timepoints during the assessment period. This reduced sample included 359 young adults aged 18-20 years (n = 181 non-ADHD; n = 178 ADHD; 90% male; 87% White). Self-reported frequency of drinking and driving after 1 or 2 drinks was assessed annually while self-reported impulsivity was assessed at age 18. An unconditional latent growth curve model of drinking and driving fit the data well ((chi)2=0.14, p = .71; CFI = 1.00). Drinking and driving behavior significantly increased between ages 18 and 20 (Ms = .50, p = .01). Childhood ADHD did not directly predict change in drinking and driving over time ((beta) = -.10, p = .36), but it predicted impulsivity at age 18 ((beta) = -.22, p < .001). Moreover, age 18 impulsivity was significantly associated with sharper increases in drinking and driving ((beta) = .30, p = .04). A significant indirect effect of childhood ADHD on change in drinking and driving through impulsivity was found ((beta) = -.12, p = .03). Taken together with MacKinnon et al's (2002) recommendation that mediation may be established without a direct effect from the predictor to the outcome, these findings highlight the possibility that persistence of inhibitory control problems in children with ADHD may increase their risk for a very high-risk behavior with potentially expensive and tragic consequences.

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Aust New Zealand J Psychiatry. 2012 May;46:400-03.

THE RISE AND FALL OF ADHD CHILD PRESCRIBING IN WESTERN AUSTRALIA: LESSONS AND IMPLICATIONS.

Whitely M.

From 1989 to 2000 the number of Western Australians prescribed stimulant medication grew twenty-threefold. By 2000 there were 20,648 Western Australians on prescription stimulants. The Western Australia (WA) Health Department estimated 85% to 90% (17,551 to 18,583) were children. This represented 4.2% to 4.5% of all WA children aged between 4–17 years. All through this period WA was the highest per capita prescribing Australian state or territory and in 2000 exceeded the USA national rate. Even if in 2000 the WA Health Department estimate of children as a 85-90% proportion (based on ADHD prescription cohort in New South Wales) of the ADHD cohort was an overestimate, and the proportion of children in the ADHD cohort was only 70% (14,597), this still indicates a fall in the number of WA children prescribed ADHD 'medications' of over 60% between 2000 and 2010. Over a similar time period (2002–08) there was a 51% decline in teenage amphetamine abuse rates. Throughout the 1990's and early 2000's there was considerable anecdotal evidence of the diversion of ADHD amphetamines amongst WA teenagers and young adults. When data became available through the 2005 Australian Secondary Students' Alcohol and Drug Survey (ASSAD) these suspicions were confirmed. WA's history as the world's first ADHD hot spot to see a massive decline in child prescribing rates offers valuable insights into the consequences of diagnosing and prescribing for ADHD. In conclusion, WA's unique experience indicates that in the absence of effective external controls, enthusiastic prescribers may create a child ADHD epidemic which facilitates the widespread abuse of prescription amphetamines and exposes children to the risk of permanent cardiovascular damage and academic failure.

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Behav Ther. 2012.

INCREMENTAL BENEFITS OF A DAILY REPORT CARD INTERVENTION OVER TIME FOR YOUTH WITH DISRUPTIVE BEHAVIOR.

Owens JS, Holdaway AS, Zoromski AK, et al.

This study examined the percentage of children who respond positively to a daily report card (DRC) intervention and the extent to which students achieve incremental benefits with each month of intervention in a general education classroom. Participants were 66 children (87% male) with attention-deficit hyperactivity disorder or disruptive behavior problems who were enrolled in a school-based intervention program in rural, low-income school districts in a Midwest state. The DRC was implemented by each child's teacher, who received consultation from a graduate student clinician, school district counselor, or school district social worker. A latent class analysis using growth-mixture modeling identified two classes of response patterns (i.e., significant improvement and significant decline). Results indicated that 72% of the sample had all of their target behaviors classified as improved, 8% had all of their targets classified as

declining, and 20% had one target behavior in each class. To examine the monthly incremental benefit of the DRC, individual effect sizes were calculated. Results for the overall sample indicated that most children experience a benefit of large magnitude (.78) within the first month, with continued incremental benefits through Month 4. The differential pattern of effect sizes for the group of improvers and the group of decliners offer data to determine when and if the DRC should be discontinued and an alternative strategy attempted. Evidence-based guidelines for practical implementation of the DRC are discussed.

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Behav Brain Funct. 2012;25.

THE COMT VAL158 ALLELE IS ASSOCIATED WITH IMPAIRED DELAYED-MATCH-TO-SAMPLE PERFORMANCE IN ADHD.

Matthews N, Vance A, Cummins TDR, et al.

Background: This study explored the association between three measures of working memory ability and genetic variation in a range of catecholamine genes in a sample of children with ADHD.

Methods: One hundred and eighteen children with ADHD performed three working memory measures taken from the CANTAB battery (Spatial Span, Delayed-match-to-sample, and Spatial Working Memory). Associations between performance on working memory measures and allelic variation in catecholamine genes (including those for the noradrenaline transporter [NET1], the dopamine D4 and D2 receptor genes [DRD4; DRD2], the gene encoding dopamine beta hydroxylase [DBH] and catechol-O-methyl transferase [COMT]) were investigated using regression models that controlled for age, IQ, gender and medication status on the day of test.

Results: Significant associations were found between performance on the delayed-match-to-sample task and COMT genotype. More specifically, val/val homozygotes produced significantly more errors than did children who carried a least one met allele. There were no further associations between allelic variants and performance across the other working memory tasks.

Conclusions: The working memory measures employed in the present study differed in the degree to which accurate task performance depended upon either the dynamic updating and/or manipulation of items in working memory, as in the spatial span and spatial working memory tasks, or upon the stable maintenance of representations, as in the delay-match-to-sample task. The results are interpreted as evidence of a relationship between tonic dopamine levels associated with the met COMT allele and the maintenance of stable working memory representations required to perform the delayed-match-to-sample-task.

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Biol Psychol. 2012;90:249-57.

BAROREFLEX SENSITIVITY DURING REST AND EXECUTIVE FUNCTIONING IN ATTENTION-DEFICIT/HYPERACTIVITY DISORDER. THE TRAILS STUDY.

Dietrich A, Althaus M, Hartman CA, et al.

Children with attention-deficit/hyperactivity disorder (ADHD) often show executive function (EF) problems and neurophysiological hypoarousal. Baroreceptor activation, as part of the baroreflex short-term blood pressure regulatory mechanism, has been linked to cortical inhibition and attenuated cognitive-attentional functioning. We investigated the hypothesis that higher resting baroreflex sensitivity (BRS) predicts poorer EF performance in children with ADHD. EF measures of speed and accuracy were regressed upon resting BRS in 10-12-year-old children with ADHD from a clinic-referred sample (n= 181) and healthy (n=194) and clinic-referred (n=260) comparison samples. Resting BRS was positively associated with poorer EF performance (e.g., response variability, working memory, response inhibition), especially in ADHD combined type, boys, and unmedicated children. Comparison samples partly suggested negative associations. We conclude that higher resting BRS is related to poorer cognitive performance in children with ADHD. Findings suggest afferent influences of the body's visceral state on higher-order cognitive functioning and imply energetic state dysregulation in ADHD.

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BJOG Int J Obstet Gynaecol. 2012.

THE EFFECTS OF LOW TO MODERATE ALCOHOL CONSUMPTION AND BINGE DRINKING IN EARLY PREGNANCY ON SELECTIVE AND SUSTAINED ATTENTION IN 5-YEAR-OLD CHILDREN.

Underbjerg M, Kesmodel U, Landro N, et al.

Objective The aim was to examine the effects of low to moderate maternal alcohol consumption and binge drinking in early pregnancy on children's attention at 5years of age. Design Prospective follow-up study.
Setting Neuropsychological testing in four Danish cities 2003-2008.
Population A cohort of 1628 women and their children sampled from the Danish National Birth Cohort.
Methods Participants were sampled based on maternal alcohol consumption during pregnancy. At 5years of age, the children were tested with the recently developed Test of Everyday Attention for Children at Five (TEACh-5). Parental education, maternal IQ, maternal smoking in pregnancy, the child's age at testing, gender, and tester were considered core confounding factors, whereas the full model also controlled the following potential confounding factors: maternal binge drinking or low to moderate alcohol consumption, age, body mass index (BMI), parity, home environment, postnatal smoking in the home, child's health status, and indicators for hearing and vision impairments. Main outcome measures TEACh-5 attention scores.
Results There were no significant effects on test performance in children of mothers drinking up to 8 drinks per week compared with children of mothers who abstained, but there was a significant association between maternal consumption of 9 or more drinks per week and risk of a low overall attention score (OR 3.50, 95% CI 1.15-10.68). No consistent or significant associations were observed between binge drinking and attention test scores.
Conclusions The findings suggest an effect of maternal consumption of 9 or more drinks per week on attention functions in children, but the study detected no effects of lower levels of maternal consumption and no consistent effects of maternal binge drinking.

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Brain Res. 2012.

FLUID REASONING DEFICITS IN CHILDREN WITH ADHD: EVIDENCE FROM FMRI.

Tamm L, Juranek J.

Attention-Deficit/Hyperactivity Disorder (ADHD) is associated with deficits in fluid reasoning, which may be related to self-regulation of cognition and behavior, and requires intact attention, working memory, and inhibition skills. No functional magnetic resonance imaging (fMRI) studies have directly examined fluid reasoning in ADHD which is surprising given that studies demonstrate a consistent network of brain regions involved in fluid reasoning that are also implicated in the pathogenesis of ADHD. Twenty-two right-handed, non-medicated children (12 ADHD, 10 controls) ages 8-12 years completed a fluid reasoning task during which fMRI data were collected. The primary comparison of interest was activation during the fluid reasoning compared to the control condition. Behavioral data showed that children with ADHD tended to be less accurate with faster reaction times in the fluid reasoning condition compared to controls, and were significantly less accurate in the control condition. Controls activated more than participants with ADHD in the right intraparietal sulcus and the left lateral cerebellum in the fluid reasoning condition. Results showed hypoactivation in ADHD in regions critical for fluid reasoning. These results add to the literature suggesting a role for parietal and cerebellar regions in cognition and ADHD.

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Child Neuropsychol. 2012 May;18:242-55.

THE IMPACT OF A MULTIMODAL SUMMER CAMP TRAINING ON NEUROPSYCHOLOGICAL FUNCTIONING IN CHILDREN AND ADOLESCENTS WITH ADHD: AN EXPLORATORY STUDY.

Gerber WD, Gerber-von Müller G, Andrasik F, et al.

This study examined the combined effects of methylphenidate (MPD) and response cost and token strategy (RCT), administered in an intensive ADHD Summer Camp Training (ASCT) format, on neuropsychological functions. Forty children with ADHD were randomly assigned to either the ASCT treatment (MPD plus RCT) or a control group (MPD plus a 1-hour session of standardized parental

education/counselling [SPC]). This latter group was structured to be similar to the more typical current treatment. The ASCT treatment was administered for 2½ weeks and included RCT, consisting of elements of social skill training, attention training, and sports participation. RCT was systematically applied in all daily situations and activities. Executive functions and state of regulation using the Test for Attention Performance (TAP) and the Trail-Making Test (TMT) were assessed before training and at a 6-month follow-up. Participants receiving the ASCT improved specific neuropsychological functions in attention regulation and inhibitory control tasks at the 6-month follow-up. No changes occurred for participants assigned to the control condition. The data suggest that an intensive multimodal summer camp treatment program including strategies of instrumental learning can lead to substantial and enduring improvements in neuropsychological functioning of children and adolescents with ADHD.

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Clin Pediatr. 2012;51:584-89.

ATTENTION-DEFICIT/HYPERACTIVITY DISORDER AMONG CHILDREN AND ADOLESCENTS IN THE UNITED STATES: TREND IN DIAGNOSIS AND USE OF PHARMACOTHERAPY BY GENDER.

Sclar DA, Robison LM, Bowen KA, et al.

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Clinical Psychology & Psychotherapy. 2012 May;19:270-78.

THE ADOLESCENT OUTCOME OF CHILDREN WITH ATTENTION DEFICIT HYPERACTIVITY DISORDER TREATED WITH METHYLPHENIDATE OR METHYLPHENIDATE COMBINED WITH MULTIMODAL BEHAVIOUR THERAPY: RESULTS OF A NATURALISTIC FOLLOW-UP STUDY.

Van der Oord S, Prins PJM, Oosterlaan J, et al.

Objective: Children with attention deficit hyperactivity disorder (ADHD) who participated in a randomized clinical trial, which compared a brief intensive multimodal behaviour therapy combined with optimally titrated methylphenidate to optimally titrated methylphenidate alone (n = 45), were reassessed at adolescence in a naturalistic follow-up 4.5 to 7.5 years after treatment. Also a matched normal control group was recruited (n = 23).

Methods: Assessments at follow-up included diagnostic status, ADHD symptoms, oppositional and conduct behaviour, substance abuse symptoms and parenting stress.

Results: Of the 24 adolescents participating in the follow-up study, 50% still met diagnostic criteria for ADHD. There were no significant differences between adolescents at follow-up and those lost for follow-up. At follow-up, adolescents in the combined treatment condition used significantly less medication than children in the methylphenidate condition; there were no other significant differences between the treatment conditions. The adolescents showed a significant decline in hyperactivity/impulsivity, oppositional and conduct disorder symptoms from post-test to follow-up. Only inattention symptoms increased from post-test to follow-up but not to pre-test levels. The adolescents originally diagnosed with ADHD fared significantly worse than the matched controls on all outcomes, except on conduct disorder and substance abuse symptoms.

Conclusions: Our study shows in adolescents, diagnosed with ADHD in childhood, age-dependent decline of ADHD symptoms, although they still fared significantly worse than matched normal controls. Implications of results are restricted by small samples size, and the results may be subject to chance findings and need replication before firm conclusions can be drawn.

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Dusunen Adam. 2012;25:17-26.

ACCURACY OF WISC-R AND RAVEN STANDARD PROGRESSIVE MATRICES TESTS IN MATHEMATICAL SUCCESS OF CHILDREN WITH ADHD.

Soysal S, Tan S, Aldemir S .

Accuracy of WISC-R and Raven Standard Progressive Matrices Tests in mathematical success of children with ADHD This study investigated whether Wechsler Intelligence Scale for Children - Revised Form (WISC-R) and Raven Standard Progressive Matrices (RSPM) tests can accurately predict the mathematical success of children in elementary school with Attention Deficit Hyperactivity Disorder (ADHD).

Method: In this study, WISC-R and RSPM tests were performed on 150 elementary school children (25 attention deficit, 25 hyperactivity-impulsivity, 25 combined type, 75 Control) aged 6 to 10 years. In the evaluation process, children's attitude toward mathematics was determined and their scores were recorded.

Results: Children in the control group scored higher in WISC-R subtests. Also there were significant differences in some WISC-R subtests (Vacobulary, Picture Arrangement, Picture Arrangement and Coding) scores between ADHD subtypes. When the relationship between WISC-R and RSPM tests was examined using Spearman's rank correlation coefficient, a weak but significant positive correlation was found.

Conclusion: This study showed that WISC-R and RSPM tests did not predict mathematical success. Also it showed that there was no linear correlation between mathematical skills and cognitive activity speed of studied elementary school children with ADHD.

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Environ Health Perspect. 2012;120:904-09.

NEUROPSYCHOLOGICAL MEASURES OF ATTENTION AND IMPULSE CONTROL AMONG 8-YEAR-OLD CHILDREN EXPOSED PRENATALLY TO ORGANOCHLORINES.

Sagiv SK, Thurston SW, Bellinger DC, et al.

Background: We previously reported associations between organochlorines and behaviors related to attention deficit hyperactivity disorder among boys and girls at 8 years of age using a teacher's rating scale for a birth cohort in New Bedford, Massachusetts (USA).

Objectives: Our goal was to corroborate these findings using neuropsychological measures of inattentive and impulsive behaviors.

Methods: We investigated the association between cord serum polychlorinated biphenyls (PCBs) and p,p '-dichlorodiphenyl dichloroethylene (p,p'-DDE) and attention and impulse control using a Continuous Performance Test (CPT) and components of the Wechsler Intelligence Scale for Children, 3rd edition (WISC-III). Participants came from a prospective cohort of children born during 1993-1998 to mothers residing near a PCB-contaminated harbor in New Bedford. Median (range) cord serum levels for the sum of four prevalent PCBs [congeners 118, 138, 153, and 180 ((Sigma)PCB4)] and p,p'-DDE were 0.19 (0.01-2.59) and 0.31 (0-14.93) ng/g serum, respectively.

Results: We detected associations between PCBs and neuropsychological deficits for 578 and 584 children with CPT and WISC-III measures, respectively, but only among boys. For example, boys with higher exposure to (Sigma)PCB4 had a higher rate of CPT errors of omission [rate ratio for the exposure interquartile range (IQR) = 1.12; 95% confidence interval (CI): 0.98, 1.27] and slower WISC-III Processing Speed (change in score for the IQR = -2.0; 95% CI: -3.5, -0.4). Weaker associations were found for p,p'-DDE. For girls, associations were in the opposite direction for the CPT and null for the WISC-III.

Conclusions: These results support an association between organochlorines (mainly PCBs) and neuropsychological measures of attention among boys only. Sex-specific effects should be considered in studies of organochlorines and neurodevelopment.

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Eur Child Adolesc Psychiatry. 2012;1-15.

EVALUATION OF ATTITUDES TOWARDS TREATMENT IN ADOLESCENTS WITH ATTENTION DEFICIT HYPERACTIVITY DISORDER (ADHD).

Ferrin M, Ruiz-Veguilla M, Blanc-Betes M, et al.

A substantial proportion of adolescents with attention deficit hyperactivity disorder (ADHD) do not appropriately adhere to prescribed treatments, especially to pharmacological treatments. It is important to disentangle the specific attitudes that contribute to treatment adherence. A 33-item questionnaire was applied to 120 adolescents diagnosed with ADHD and their respective parents. Reliability of the scale was explored using factor analysis, Cronbach's alpha, and test-retest. Validity was explored by face validity and the known-groups method. For the young people's version, three main dimensions (preoccupations, insight and self-concept) emerged. The parents' version showed six main dimensions (child's personal attitudes, worries, social stigma, insight, future side effects and knowledge). The potential of this questionnaire to explore the attitudes of patients and their families towards treatments and for clinicians to predict treatment adherence is discussed.

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Eur Child Adolesc Psychiatry. 2012;1-12.

DEVELOPMENT OF AN INTERNET-BASED SUPPORT AND COACHING MODEL FOR ADOLESCENTS AND YOUNG ADULTS WITH ADHD AND AUTISM SPECTRUM DISORDERS: A PILOT STUDY.

Wentz E, Nyden A, Krevers B.

The aims of this paper were to develop an internet-based support and coaching model for young people with autism spectrum disorder (ASD) and/or attention-deficit/hyperactivity disorder (ADHD), and to validate the model. A user-centred design was applied to develop a model for internet-based support and coaching, where individuals received 8-week support via internet (chat). The model was validated by 10 individuals, 15-26 years of age, with ASD and/or ADHD. Self-report questionnaires [Sense of Coherence (SOC), the Rosenberg Self Esteem Scale, the Manchester Short Assessment of Quality of Life, Montgomery Asberg Depression Rating Scale, and the Hospital Anxiety and Depression Scale] were distributed before and after intervention. A structured interview regarding the quality of the model, the Patient perspective of Care and Rehabilitation process (POCR), was used after the intervention. The validation showed significant improvement of SOC, self-esteem and subjective Quality of Life at follow-up and the majority perceived high fulfilment/importance on the POCR. In conclusion, The model can be an important complement to other interventions for young people with ASD and/or ADHD.

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Eur Child Adolesc Psychiatry. 2012;1-7.

TRAITS OF ADHD AND AUTISM IN GIRLS WITH A TWIN BROTHER: A MENDELIAN RANDOMIZATION STUDY.

Attermann J, Obel C, Bilenberg N, et al.

It has been hypothesized that prenatal exposure to testosterone may be associated with traits of attention-deficit/hyperactivity disorder (ADHD) or autism spectrum disorder (ASD). We conducted a population-based study of dizygotic female twins to elucidate this hypothesis, assuming that the sex of the co-twin influences the level of prenatal exposure to testosterone. We invited parents of 24,552 3- to 15-year-old twins to answer questionnaires on traits of ADHD and ASD. We analysed the data using a proportional odds model with sex of the co-twin as an instrumental variable for prenatal exposure to testosterone of female twins. We received responses for 6,339 girls from dizygotic twin pairs. Odds ratios for male versus female co-twin were 0.71 (95 % confidence interval 0.61-0.81) for ADHD traits and 0.74 (0.66-0.83) for ASD traits, indicating that a twin brother reduces traits of ADHD and ASD in females. In conclusion, we found that female twins with a twin brother scored significantly lower in parent-reported traits of ADHD and ASD than those with a twin sister. The reason for this may be parental reporting bias, or confounding by unmeasured variables, or a causal effect of an intrauterine environment modified by the sex of the co-twin in the opposite direction of what we expected.

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Journal of Applied School Psychology. 2012 Apr;28:133-54.

DIAGNOSTIC UTILITY OF WISC-IV GENERAL ABILITIES INDEX AND COGNITIVE PROFICIENCY INDEX DIFFERENCE SCORES AMONG CHILDREN WITH ADHD.

Devena SE, Watkins MW.

The Wechsler Intelligence Scale for Children-Fourth Edition General Abilities Index and Cognitive Proficiency Index have been advanced as possible diagnostic markers of attention deficit hyperactivity disorder. This hypothesis was tested with a hospital sample with attention deficit hyperactivity disorder (n = 78), a referred but nondiagnosed hospital sample (n = 66), a school sample with attention deficit hyperactivity disorder (n = 196), a school matched comparison sample (n = 196), and a simulated standardization sample (n = 2,200). On the basis of receiver operating characteristic analyses, the General Abilities Index-Cognitive Proficiency Index discrepancy method had an area under the curve of (a) .64, 95% CI [0.58, 0.71] for the hospital attention deficit hyperactivity disorder sample compared with the simulated normative sample, (b) .46, 95% CI [0.37, 0.56] for the hospital attention deficit hyperactivity disorder sample compared with the referred but nondiagnosed hospital sample, (c) .63, 95% CI [0.59, 0.67] for the school attention deficit hyperactivity disorder sample compared with the simulated sample, and (d) .50, 95% CI [0.45, 0.56] for the school attention deficit hyperactivity disorder sample compared with the matched comparison sample. These area-under-the-curve values indicate that the General Abilities Index-Cognitive Proficiency Index discrepancy method has low accuracy in identifying children with attention deficit hyperactivity disorder.

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J Child Adolesc Psychopharmacol. 2012 Apr;22:149-56.

ADVERSE EVENTS IN MEDICATION TREATMENT-NAÏVE CHILDREN WITH ATTENTION-DEFICIT/HYPERACTIVITY DISORDER: RESULTS FROM A SMALL, CONTROLLED TRIAL OF LISDEXAMFETAMINE DIMESYLATE.

Wigal SB, Wong AA, Jun A, et al.

Objective: To evaluate the type, frequency, duration, and severity of treatment emergent adverse events (TEAEs) of the prodrug lisdexamfetamine dimesylate (LDX) in children with and without previous exposure to stimulant medication in the treatment of attention-deficit/hyperactivity disorder (ADHD).

Methods: This single-blind, modified laboratory school study used open-label, dose optimization of children aged 6–12 years. LDX, initiated at 30 mg, was dose titrated in 20 mg increments to a possible 70mg over 4–5 weeks. Safety was assessed using adverse effects and LDX levels.

Results: Twenty-eight subjects enrolled in the study, with 27 safety protocol completers (n = 14 previous stimulant exposure; n = 13 stimulant naïve). The stimulant-naïve group reported more trouble sleeping, stomach pain, and hyperfocus, but only previous-exposure subjects experienced dizziness. Previous-exposure subjects showed trends of more decreased appetite, less talkativeness, and less lip sucking. There were no differences in the mean duration of TEAEs. The epidemiological method of percent person-weeks applied to ADHD treatment offers a novel approach to interpreting the pattern of TEAEs.

Conclusion: LDX reduced the core symptoms of ADHD with more severe adverse events in stimulant-naïve than previous-exposure subjects. Future controlled studies with larger samples should address the impact of previous stimulant exposure on other ADHD treatments.

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J Child Adolesc Psychopharmacol. 2012 Apr;22:120-25.

ARIPIRAZOLE IN CHILDREN WITH TOURETTE'S DISORDER AND CO-MORBID ATTENTION-DEFICIT/HYPERACTIVITY DISORDER: A 12-WEEK, OPEN-LABEL, PRELIMINARY STUDY.

Masi G, Gagliano A, Siracusano R, et al.

Tourette's disorder (TD) in children and adolescents is frequently co-morbid with attention-deficit/hyperactivity disorder (ADHD). Dopamine-blockers are the first line treatment for TD, whereas dopamine-agonists, such as stimulants, are the gold-standard in the treatment of ADHD. These contrasting effects supported concerns about the risk that stimulants for treating ADHD may trigger or worsen co-morbid tics. Aripiprazole, a partial dopamine agonist, acts as an antagonist at dopamine D2 receptors in hyperdopaminergic conditions and displays agonist properties under hypodopaminergic conditions. The

present study describes the use of aripiprazole (10.0 ± 4.8mg/day) in a consecutive group of 28 patients with a primary diagnosis of TD and co-morbid ADHD, combined subtype. The Yale Global Tic Severity Scale (YGTSS) and the ADHD-Rating Scale (ADHD-RS-IV)were used as primary outcome measures and both significantly improved ($p < 0.001$) after the treatment. Global measures of severity (Clinical Global Impressions–Severity) and of functional impairment (Children's Global Assessment Scale) also significantly improved during the treatment ($p < 0.001$). At the YGTSS there was a reduction of 42.5%, in motor tics, of 47.9% in phonic tics (44.7% for the combined scores), and of 32.3% in tic impairment. Nineteen patients (67.9%) had a reduction of at least 50% of the YGTSS score (motor + phonic tics). The improvement at the ADHD-RS-IV score was 22.5%, 12 patients (42.8%) presented an improvement of 30%, but only 2 (7.1%) an improvement greater than 50%. Using a logistic regression model, a reduction of at least 30% in ADHD-RS-IV score was more likely to occur in the obsessive-compulsive disorder co-morbid group. Aripiprazole was well tolerated and none of the patients discontinued medication because of side effects. In summary, aripiprazole resulted in an effective treatment for TD, but it was only moderately effective on co-occurring ADHD symptomatology. Our preliminary data suggest that aripiprazole may represent a possible therapeutic option, among other possible monotherapies addressing both tics and ADHD.

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J Child Adolesc Psychopharmacol. 2012;22:226-37.

PARENT PERSPECTIVES ON THE DECISION TO INITIATE MEDICATION TREATMENT OF ATTENTION-DEFICIT/HYPERACTIVITY DISORDER.

Coletti DJ, Pappadopulos E, Katsiotas NJ, et al.

Objectives: Despite substantial evidence supporting the efficacy of stimulant medication for children with attention-deficit/hyperactivity disorder (ADHD), adherence to stimulant treatment is often suboptimal. Applying social/cognitive theories to understanding and assessing parent attitudes toward initiating medication may provide insight into factors influencing parent decisions to follow ADHD treatment recommendations. This report describes results from formative research that used focus groups to obtain parent input to guide development of a provider-delivered intervention to improve adherence to stimulants.

Methods: Participants were caregivers of children with ADHD who were given a stimulant treatment recommendation. Focus groups were recorded and transcribed verbatim. Data were analyzed by inductive, grounded theory methods as well as a deductive analytic strategy using an adapted version of the Unified Theory of Behavior Change to organize and understand parent accounts.

Results: Five groups were conducted with 27 parents (mean child age=9.35 years; standard deviation [SD]=2.00), mean time since diagnosis=3.33 years (SD=2.47). Most parents (81.5%) had pursued stimulant treatment. Inductive analysis revealed 17 attitudes facilitating adherence and 25 barriers. Facilitators included parent beliefs that medication treatment resulted in multiple functional gains and that treatment was imperative for their children's safety. Barriers included fears of personality changes and medication side effects. Complex patterns of parent adherence to medication regimens were also identified, as well as preferences for psychiatrists who were diagnostically expert, gave psychoeducation using multiple modalities, and used a chronic illness metaphor to explain ADHD. Theory-based analyses revealed conflicting expectancies about treatment risks and benefits, significant family pressures to avoid medication, guilt and concern that their children required medication, and distorted ideas about treatment risks. Parents, however, took pride in successfully pursuing efforts to manage their child behaviorally and to avoid medication when possible.

Conclusions: Focus group data identified social, cognitive, and affective influences on treatment decision making. Results support prior research comparing family/social functioning, physician characteristics, and adherence. Findings suggest that parent attitudes to psychiatric care need to be assessed comprehensively at initial evaluation to aid the development of psychoeducational messages, and a more careful consideration about how parents interpret and respond to adherence-related questioning.

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J Child Adolesc Psychopharmacol. 2012 Apr;22:102-11.

A PHASE 2A RANDOMIZED, PARALLEL GROUP, DOSE-RANGING STUDY OF MOLINDONE IN CHILDREN WITH ATTENTION-DEFICIT/HYPERACTIVITY DISORDER AND PERSISTENT, SERIOUS CONDUCT PROBLEMS.

Stocks JD, Taneja BK, Baroldi P, et al.

Objective: To evaluate safety and tolerability of four doses of immediate-release molindone hydrochloride in children with attention-deficit/hyperactivity disorder (ADHD) and serious conduct problems.

Methods: This open-label, parallel-group, dose-ranging, multicenter trial randomized children, aged 6–12 years, with ADHD and persistent, serious conduct problems to receive oral molindone thrice daily for 9–12 weeks in four treatment groups: Group 1-10 mg (5 mg if weight <30 kg), group 2-20 mg (10 mg if <30 kg), group 3-30 mg (15 mg if <30 kg), and group 4-40 mg (20 mg if <30 kg). The primary outcome measure was to evaluate safety and tolerability of molindone in children with ADHD and serious conduct problems. Secondary outcome measures included change in Nisonger Child Behavior Rating Form-Typical Intelligence Quotient (NCBRF-TIQ) Conduct Problem subscale scores, change in Clinical Global Impressions-Severity (CGI-S) and -Improvement (CGI-I) subscale scores from baseline to end point, and Swanson, Nolan, and Pelham rating scale-revised (SNAP-IV) ADHD-related subscale scores.

Results: The study randomized 78 children; 55 completed the study. Treatment with molindone was generally well tolerated, with no clinically meaningful changes in laboratory or physical examination findings. The most common treatment-related adverse events (AEs) included somnolence (n = 9), weight increase (n = 8), akathisia (n = 4), sedation (n = 4), and abdominal pain (n = 4). Mean weight increased by 0.54 kg, and mean body mass index by 0.24 kg/m². The incidence of AEs and treatment-related AEs increased with increasing dose. NCBRF-TIQ subscale scores improved in all four treatment groups, with 34%, 34%, 32%, and 55% decreases from baseline in groups 1, 2, 3, and 4, respectively. CGI-S and SNAP-IV scores improved over time in all treatment groups, and CGI-I scores improved to the greatest degree in group 4.

Conclusions: Molindone at doses of 5–20 mg/day (children weighing <30 kg) and 20–40 mg (=30 kg) was well tolerated, and preliminary efficacy results suggest that molindone produces dose-related behavioral improvements over 9–12 weeks. Additional double-blind, placebo-controlled trials are needed to further investigate molindone in this pediatric population.

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J Child Adolesc Psychopharmacol. 2012 Apr;22:139-48.

PERSISTENCE OF STIMULANTS IN CHILDREN AND ADOLESCENTS WITH ATTENTION-DEFICIT/HYPERACTIVITY DISORDER.

Palli SR, Kamble PS, Chen H, et al.

Objective: To examine the persistence of three newly initiated stimulant preparations among Medicaid children and adolescents with attention-deficit/hyperactivity disorder (ADHD) diagnosis.

Methods: A retrospective longitudinal claims analysis was conducted by using Medicaid analytical extract data of four states. The study focused on patients between 6 and 19 years of age with ADHD diagnosis and a stimulant prescription from January 2003 to December 2005. Stimulants were grouped into short-acting stimulants (SAS), intermediate-acting stimulants (IAS), and long-acting stimulants (LAS). Persistence was measured by totaling the number of days the patient remained on the index stimulant therapy from the index prescription date provided the refill gap between two consecutive stimulant claims was no more than 30 days. All the stimulant recipients were uniformly followed for 1 year (365 days). Survival time ratios (STR) were calculated by using accelerated failure time models to examine variation in index stimulant persistence for each stimulant class.

Results: Among the 46,135 patients with ADHD continuously followed for 1 year, 8,260 were SAS users, 4,314 were IAS users, and 33,561 were LAS users. Children who received IAS medications had 4% shorter persistence (STR, 0.96 [95% confidence interval [CI], 0.93–0.98]) when compared with those who received SAS medications, whereas those who received index LAS medications had 29% longer persistence (STR, 1.29 [95% CI, 1.27–1.32]). Multivariate accelerated failure time models revealed that Blacks and Hispanics had consistently lower persistence than their counterparts. Foster care was positively associated with index stimulant persistence in the three stimulant types. Further, addition of another stimulant and other

psychotropic medications significantly improved persistence of index stimulant in all three stimulant classes.
Conclusions: LAS had comparatively longer persistence than other stimulants. An understanding of demographic and clinical characteristics that influence treatment continuation can help improve stimulant persistence rates in ADHD.

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J Child Adolesc Psychopharmacol. 2012;22:215-25.
REMISSION IN CHILDREN AND ADOLESCENTS DIAGNOSED WITH ATTENTION-DEFICIT/ HYPERACTIVITY DISORDER VIA AN EFFECTIVE AND TOLERABLE TITRATION SCHEME FOR OSMOTIC RELEASE ORAL SYSTEM METHYLPHENIDATE.
Chou WJ, Chen SJ, Chen YS, et al.
Objectives: The purpose of this study was to identify the optimal dose of osmotic release oral system methylphenidate (OROS-MPH) using a dosage forced-titration scheme to achieve symptomatic remission in children with attention- deficit/hyperactivity disorder (ADHD). We also evaluated the efficacy and safety of, and patient and parent satisfaction with, the change in therapy from immediate-release methylphenidate (IR-MPH) to OROS-MPH over 10 weeks.
Method: We recruited 521 children and adolescents aged 6-18 years with an American Psychiatric Association, Diagnostic and Statistical Manual of Mental Disorders, 4th ed. (DSM-IV) diagnosis of ADHD, who had received IR-MPH treatments (<70 mg/day) for at least 1 month. The treatment, switched from IR-MPH to OROS-MPH according to a conversion scheme, started with a 6-week forced-titration phase of OROS-MPH to achieve symptomatic remission (defined as a score of 0 or 1 for each of the first 18 ADHD items in the Chinese version of the Swanson, Nolan, and Pelham, Version IV [SNAP-IV]), followed by a 4-week maintenance phase. The global ADHD severity and drug side effects of the participants were evaluated. Parents completed the ratings scales for the ADHD-related symptoms. Patient and parent satisfaction for the OROS-MPH treatment was also assessed.
Results: Among the 439 participants with ADHD who completed the trial, 290 participants (66.1%) achieved symptomatic remission. The mean dose of OROS-MPH among participants in remission was 36.7 mg (1.08 mg/kg) per day. Increased efficacy, superior satisfaction, and safety equivalent to that of IR-MPH were demonstrated in intra-individual comparisons from the baseline to the end of study. Determinants for remission included less severe ADHD symptoms (SNAP-IV score < 40), no family history of ADHD, and an appropriate dosage of medication according to the patient's weight.
Conclusions: The findings suggest remission as a treatment goal for ADHD therapy by providing an optimal dosage of medication for children and adolescents with ADHD through using an effective and tolerable forced-titration scheme.

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J Child Adolesc Psychopharmacol. 2012 Apr;22:131-38.
MODULATION OF ATTENTION-DEFICIT/HYPERACTIVITY DISORDER SYMPTOMS BY SHORT- AND LONG-ACTING METHYLPHENIDATE OVER THE COURSE OF A DAY.
Günther T, Kahraman-Lanzerath B, Knospe EL, et al.
The purpose of this study was to investigate whether a long-acting methylphenidate formulation (MPH-ret) is as effective as two doses of immediate-release methylphenidate (MPH-IR) in reducing attention-deficit/hyperactivity disorder (ADHD) symptoms including inattention, impulsivity, and hyperactivity during the course of the day. Two groups of children (n = 18 each) with ADHD aged between 8 and 12 years completed a continuous performance test in combination with a motion-tracking system four times a day within 8 hours. Inattention (standard deviation of reaction time), impulsivity (commission error rate), and hyperactivity (path length of the headband) were simultaneously measured. We included a control group (n = 20) to rule out circadian fluctuations of attentional performance and motor activity. We observed a postlunch dip in attentional performance and an increasing trend of motor activity throughout the day whereas impulsivity remained stable in controls. The MPH-ret and MPH-IR groups had comparable treatment effects on measures of hyperactivity and inattention and normalized participant performance to control levels. In contrast, MPH-IR seems to have an advantage over MPH-ret in impulsivity treatments.

Thus, our data suggest that it is crucial to assess the different domains of ADHD symptoms precisely over the course of a day to determine the optimal titration and stimulant formulation for a person with ADHD.

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J Child Adolesc Psychopharmacol. 2012;22:238-44.

PRELIMINARY EXAMINATION OF THE RELIABILITY AND CONCURRENT VALIDITY OF THE ATTENTION-DEFICIT/HYPERACTIVITY DISORDER SELF-REPORT SCALE V1.1 SYMPTOM CHECKLIST TO RATE SYMPTOMS OF ATTENTION-DEFICIT/HYPERACTIVITY DISORDER IN ADOLESCENTS.

Adler LA, Shaw DM, Spencer TJ, et al.

Objective: To validate the attention-deficit/hyperactivity disorder (ADHD) Self-Report Scale (ASRS) v1.1 Symptom Checklist versus the clinician- administered ADHD Rating Scale (ADHD-RS) in adolescents with ADHD.

Method: A total of 88 adolescents with ADHD aged 13-17 years participated in the study. The study was completed in one or two visits, 1-9 weeks apart. At each visit, participants completed the ASRS v1.1 Symptom Checklist, after which raters administered the ADHD-RS. Internal consistency of the ASRS v1.1 Symptom Checklist was assessed by Cronbach's alpha (Cronbach's (alpha)). Concurrent validity between the scales was assessed using Pearson's correlation coefficients. Item-by-item reliability between the scales was assessed by the Kappa coefficient of agreement.

Results: The mean age of participants was 14.9(plus or minus)1.5 SD years. 76.1% (n=67) were male. 73.9% (n=65) were currently receiving medication for ADHD. Internal consistency of ASRS v1.1 Symptom Checklist items was high, with Cronbach's (alpha) coefficients of 0.93 at Visit 1 and 0.94 at Visit 2. Pearson's correlation coefficients between the ASRS v1.1 Symptom Checklist and ADHD-RS were highly significant at Visit 1 ($r=0.72$, $p<0.0001$) and Visit 2 ($r=0.73$, $p<0.0001$). There was moderate item-by-item agreement between individual items on the scales (% agreement: 35.2%-63.4%) with statistically significant kappa coefficients for 17 of the 18 items.

Conclusion: The ASRS v1.1 Symptoms Checklist showed high internal consistency and high concurrent validity with the clinician-administered ADHD-RS in adolescents with ADHD. Results of this study suggest that the ASRS v1.1 Symptom Checklist is an internally consistent self-report scale for the assessment of adolescent ADHD and is moderately associated with a concurrently administered clinician measure of ADHD symptoms.

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J Child Adolesc Psychopharmacol. 2012;22:206-14.

EFFICACY OF GUANFACINE EXTENDED RELEASE IN THE TREATMENT OF COMBINED AND INATTENTIVE ONLY SUBTYPES OF ATTENTION-DEFICIT/HYPERACTIVITY DISORDER.

Sallee FR, Kollins SH, Wigal TL.

Background: Extended-release guanfacine (GXR) is approved for the treatment of attention-deficit/hyperactivity disorder (ADHD) in children and adolescents aged 6-17 years. This post-hoc analysis further examines the effects of GXR on hyperactivity-impulsivity and inattentiveness.

Method: Data from two large double-blind placebo-controlled pivotal trials of GXR in the treatment of ADHD were analyzed. Using the pooled population to provide sufficient sample size and associated statistical power, the impact of GXR treatment on core ADHD symptoms was examined by comparing ADHD Rating Scale IV (ADHD-RS-IV) total scores in the overall GXR and placebo groups in subjects with each of the three ADHD subtypes. ADHD-RS-IV Hyperactivity-Impulsivity and Inattentiveness subscale scores in the overall study population by randomized dose group (vs. placebo) were also examined.

Results: The full analysis set included 631 subjects aged 6-17 years (GXR: n = 490; placebo: n = 141). Among subjects with the predominantly inattentive subtype of ADHD, differences in least squares (LS) mean reductions from baseline in ADHD-RS-IV total scores were significantly greater in GXR-treated subjects (n = 127) than in placebo-treated subjects (n = 38) at treatment weeks 3 through 5 and end point (p (less-than or equal to) 0.020). Among subjects with combined type ADHD, differences in LS mean ADHD-RS-IV total score reductions from baseline were significantly greater in the GXR group (n = 354) than in the placebo group (n = 100) at treatment weeks 1 through 5 and end point (p (less-than or equal to)

0.011). The dearth of predominantly hyperactive-impulsive type subjects (n = 12) precluded analysis of this subgroup. Each randomized GXR dose group in each trial demonstrated significantly greater reductions from baseline in ADHD-RS-IV Hyperactivity-Impulsivity and Inattentiveness subscale scores than did the respective placebo group at end point (p (less-than or equal to) 0.05 for all).
Conclusions: The results support the use of GXR in the treatment of core ADHD symptoms as defined in the American Psychiatric Association Diagnostic and Statistical Manual of Mental Disorders, 4th ed., Text Revision, including hyperactivity, impulsivity, and inattention.

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J Child Neurol. 2012;27:747-53.
COMBINED (OMEGA)3 AND (OMEGA)6 SUPPLEMENTATION IN CHILDREN WITH ATTENTION-DEFICIT HYPERACTIVITY DISORDER (ADHD) REFRACTORY TO METHYLPHENIDATE TREATMENT: A DOUBLE-BLIND, PLACEBO-CONTROLLED STUDY.
Perera H, Jeewandara KC, Seneviratne S, et al.
Children (6-12 years) with attention-deficit hyperactivity disorder (ADHD) being treated with methylphenidate and standard behavior therapy for more than 6 months, whose parents reported no improvement in behavior and academic learning, were randomly assigned to receive supplementation with a combined (omega)3 and (omega)6 preparation or a placebo. Outcome was measured at 3 and 6 months after treatment using a self-assessment checklist completed by the parents. Statistically significant improvement was found in the treatment group compared with the placebo group (P <.01) in the following measures: restlessness, aggressiveness, completing work, and academic performance. Statistically significant improvement was not found at 3 months of treatment between groups but was evident at 6 months of treatment (P <.05) with inattention, impulsiveness, and cooperation with parents and teachers. Distractibility failed to show improvement. Effect sizes ranged from 0.3 to 1.1 at 3 months and 0.2 to 1.4 at 6 months for individual symptom variables.

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J Child Neurol. 2012 Jun;27:703-07.
IS THE TEST OF VARIABLES OF ATTENTION RELIABLE FOR THE DIAGNOSIS OF ATTENTION-DEFICIT HYPERACTIVITY DISORDER (ADHD)?
Zelnik N, Bennett-Back O, Miari W, et al.
The diagnosis of attention-deficit hyperactivity disorder (ADHD) is occasionally biased by the subjectivity of symptoms and reports of parents and teachers. The advent of continuous performance tests raised expectations that the diagnosis of ADHD will be more standardized and accurate. In this study, the authors looked for the validity of the ADHD scores obtained by the Test of Variables of Attention in 230 children who were referred to their ADHD clinic between 2005 and 2007. Based on clinical evaluations, 179 children were diagnosed with affirmed or suspected ADHD. Among the 179 children with ADHD, the Test of Variables of Attention was suggestive of ADHD in 163 participants (91.1% sensitivity), but it was also suggestive for ADHD in 78.4% of the children without ADHD. With a low specificity of 21.6%, the authors feel that the Test of Variables of Attention is not reliable enough to serve as a screening diagnostic tool for ADHD.

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J Child Neurol. 2012 Jun;27:747-53.
COMBINED ω3 AND ω6 SUPPLEMENTATION IN CHILDREN WITH ATTENTION-DEFICIT HYPERACTIVITY DISORDER (ADHD) REFRACTORY TO METHYLPHENIDATE TREATMENT: A DOUBLE-BLIND, PLACEBO-CONTROLLED STUDY.
Perera H, Jeewandara KC, Seneviratne S, et al.
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The diagnosis of attention-deficit hyperactivity disorder (ADHD) is occasionally biased by the subjectivity of symptoms and reports of parents and teachers. The advent of continuous performance tests raised expectations that the diagnosis of ADHD will be more standardized and accurate. In this study, the authors looked for the validity of the ADHD scores obtained by the Test of Variables of Attention in 230 children who were referred to their ADHD clinic between 2005 and 2007. Based on clinical evaluations, 179 children were diagnosed with affirmed or suspected ADHD. Among the 179 children with ADHD, the Test of Variables of Attention was suggestive of ADHD in 163 participants (91.1% sensitivity), but it was also suggestive for ADHD in 78.4% of the children without ADHD. With a low specificity of 21.6%, the authors feel that the Test of Variables of Attention is not reliable enough to serve as a screening diagnostic tool for ADHD.

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Journal of Child Psychology and Psychiatry. 2012 Jun;53:706-15.

SHARED GENETIC INFLUENCES ON ADHD SYMPTOMS AND VERY LOW-FREQUENCY EEG ACTIVITY: A TWIN STUDY.

Tye C, Rijsdijk F, Greven CU, et al.

Background: Attention deficit hyperactivity disorder (ADHD) is a common and highly heritable neurodevelopmental disorder with a complex aetiology. The identification of candidate intermediate phenotypes that are both heritable and genetically linked to ADHD may facilitate the detection of susceptibility genes and elucidate aetiological pathways. Very low-frequency (VLF; <0.5 Hz) electroencephalographic (EEG) activity represents a promising indicator of risk for ADHD, but it currently remains unclear as to whether it is heritable or genetically linked to the disorder.

Methods: Direct-current (DC)-EEG was recorded during a cognitive activation condition in 30 monozygotic and dizygotic adolescent twin pairs concordant or discordant for high ADHD symptom scores, and 37 monozygotic and dizygotic matched- control twin pairs with low ADHD symptom scores. Structural equation modelling was used to quantify the genetic and environmental contributions to the phenotypic covariance between ADHD and VLF activity.

Results: Attention deficit hyperactivity disorder was significantly associated with reduced VLF power during cognitive activation, which suggests reduced synchronization of widespread neuronal activity. Very low-frequency power demonstrated modest heritability (0.31), and the genetic correlation (-0.80) indicated a substantial degree of overlap in genetic influences on ADHD and VLF activity.

Conclusions: Altered VLF activity is a potential candidate intermediate phenotype of ADHD, which warrants further investigation of underlying neurobiological and genetic mechanisms.

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Journal of Clinical Child and Adolescent Psychology. 2012 May;41:337-45.

A WAITLIST-CONTROLLED TRIAL OF BEHAVIORAL PARENT TRAINING FOR FATHERS OF CHILDREN WITH ADHD.

Fabiano GA, Pelham WE, Cunningham C, et al.

Fathers, in general, have been underrepresented in studies of parent training outcome for children with attention deficit hyperactivity disorder (ADHD), and the present study aimed to investigate the efficacy of a behavioral parent training program developed expressly for fathers. The present investigation randomly assigned 55 fathers of children ages 6 to 12 with ADHD to the Coaching Our Acting-out Children: Heightening Essential Skills (COACHES) program or a waitlist control group. Outcomes for the study included objective observations of parent behaviors and parent ratings of child behavior. Results indicated that fathers in the COACHES group reduced their rates of negative talk and increased rates of praise as measured in parent–child observations, and father ratings of the intensity of problem behaviors were reduced, relative to the waitlist condition. Groups did not differ on observations of use of commands or father ratings of child behavior problems. Untreated mothers did not significantly improve on observational measures or behavioral ratings. This study provides preliminary evidence for the efficacy of the COACHES parenting program for fathers of children with ADHD. Results are cast in light of the larger literature on behavioral parent training for ADHD as well as how to best work with fathers of children with ADHD in treatment contexts.

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Journal of Clinical Child and Adolescent Psychology. 2012 May;41:261-74.

UNDERSTANDING THE PHENOTYPIC STRUCTURE OF ADULT RETROSPECTIVE ADHD SYMPTOMS DURING CHILDHOOD IN THE UNITED STATES.

Ranby KW, Boynton MH, Kollins SH, et al.

Attention-deficit/hyperactivity disorder (ADHD) is a highly heterogeneous disorder, and the phenotypic structure comprising inattentive and hyperactive-impulsive type symptoms has been the focus of a growing body of recent research. Methodological studies are needed to better characterize phenotypes to advance research as well as clinical practice. A large U.S. population-based sample of young adults (N = 14,307, aged 17–28 years, 52.8% female) retrospectively reported their experiences of childhood ADHD symptoms. Factor analysis, latent class analysis, and factor mixture modeling of ADHD symptoms were compared to determine which underlying structure best fit the data. Fit statistics as well as substantive criteria compared models within and across model subtypes. Analyses supported a two-factor two-class structure for both male and female subjects. The two latent factors represented inattentive and hyperactive-impulsive symptom dimensions. The two latent classes divided people into a smaller affected class and a larger unaffected class. Individuals who reported having been diagnosed with ADHD were more likely to be in the affected class (OR male subjects = 4.03, 95% CI [2.65, 6.13]; OR female subjects = 5.65, 95% CI [3.15, 10.10]). This work aids in the understanding of ADHD symptomatology within the population; a majority of people experience very low symptom severity, whereas a minority of people experience high symptom severity. Within this high symptom group, however, variability in symptom experiences exists. Empirical models can be helpful in clarifying ADHD phenotypic structure that has the potential to advance research on the etiology and consequences ofADHD symptoms.

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Journal of Clinical Child and Adolescent Psychology. 2012 May;41:346-52.

NEUROANATOMICAL CORRELATES OF HETEROTYPIC COMORBIDITY IN EXTERNALIZING MALE ADOLESCENTS.

Sauder CL, Beauchaine TP, Gatzke-Kopp LM, et al.

Children and adolescents with externalizing behavior disorders including attention-deficit/hyperactivity disorder (ADHD) and conduct disorder (CD) often present with symptoms of comorbid internalizing psychopathology. However, few studies have examined central nervous system correlates of such comorbidity. We evaluated interactions between externalizing and internalizing symptoms in predicting mesolimbic, septo-hippocampal, and anterior cingulate volumes among 12- to 16-year-old boys with either ADHD, ADHD and CD, or no psychiatric condition (n = 35). These regions were chosen given established links to trait impulsivity, trait anxiety, and behavior regulation, respectively. Collapsed across groups,

Externalizing × Internalizing symptom interactions accounted for individual differences in gray matter densities in each region. Externalizing youth with comorbid internalizing symptoms showed smaller reductions in gray matter than individuals with externalizing psychopathology alone. These results suggest that internalizing symptoms are associated with less severe structural compromises in brain regions subserving motivation and behavior regulation among externalizing boys.

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Journal of Clinical Child and Adolescent Psychology. 2012 May;41:370-77.

ASSOCIATION OF ANXIETY AND ODD/CD IN CHILDREN WITH AND WITHOUT ADHD.

Humphreys KL, Aguirre VP, Lee SS.

The goal of this study is to examine levels of oppositional defiant disorder (ODD) and conduct disorder (CD) in four groups of children: attention-deficit/hyperactivity disorder (ADHD) only, anxiety only, ADHD and anxiety, and controls (i.e., non-ADHD youth). Although children with ADHD exhibit more ODD and CD than non-ADHD youth, it is unknown if anxiety is associated with increased or decreased ODD and CD in children with ADHD. We examined parent and teacher ratings of ODD and CD from the Disruptive Behavior Disorder Rating Scale in 203 school age children (ages 6–9); 70% were male, and 47% were Caucasian. Children were divided into four diagnostic groups based on ADHD and anxiety status from the Diagnostic Interview Scale for Children. According to parents, children with ADHD and anxiety had the highest levels of ODD/CD, followed by children with ADHD only (i.e., without anxiety). Children with anxiety only and controls had lowest ODD and CD scores, and these groups did not differ from each other. The same patterns were found according to teacher report, except that the anxiety only group had significantly lower levels of ODD than non-ADHD controls. Further, combined type ADHD youth with anxiety exhibited the highest levels of ODD and CD compared to all other groups. Comorbid anxiety may strengthen the association of ADHD and ODD/CD, particularly in the combined subtype. We discuss the importance of comorbid anxiety to the development of externalizing problems as well as potential explanatory factors underlying elevated ODD and CD among children with ADHD and anxiety.

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J Clin Psychiatry. 2012;73:711-17.

COMORBID SYMPTOM SEVERITY IN ATTENTION-DEFICIT/HYPERACTIVITY DISORDER: A CLINICAL STUDY.

Connor DF, Ford JD.

Objective: Although current attention-deficit/hyperactivity disorder (ADHD) diagnostic criteria do not include emotional symptoms, externalizing behavior problems, or aggression, the practicing clinician is often faced with the evaluation and management of these symptoms when assessing and treating patients with ADHD. While much research has focused on comorbid disorders in ADHD, less attention has been directed to comorbid symptoms that may or may not meet syndrome criteria but that influence ADHD treatment planning and outcome. The aim of this study is to describe emotional and behavioral symptoms in children and adolescents with ADHD and compare them with non-ADHD control groups.

Method: From 1995 to 2005, clinically referred children and adolescents with the combined subtype of ADHD (n = 175) or the inattentive subtype of ADHD (n = 70) as diagnosed by the primary physician (using DSM-IV criteria) were compared with a non-ADHD psychiatric control group (n = 65) and a non-ADHD community control group (n = 72) on measures that assessed emotional symptoms, externalizing behavior problems, and aggression; comparisons were controlled for age, sex, and family income.

Results: Both ADHD groups had depressive symptom severity equal to a non-ADHD psychiatric control group and greater than community control groups. Externalizing behavior problems and aggression were more severe in the ADHD combined subtype group compared with other groups. As ADHD symptom severity increased, externalizing behavior problems and aggression, but not internalizing symptoms, also increased in severity. Family income had an independent relationship with externalizing disorders.

Conclusions: High rates of internalizing emotional symptoms, externalizing problem behaviors, and aggression were found in a clinical ADHD sample. Externalizing behavior problems and aggression appeared to be related to the hyperactive-impulsive ADHD symptom domain and to overall ADHD symptom severity. It remains an empirical question as to whether effective treatment of the core symptoms of ADHD

will also reduce the presence of associated emotional and behavioral symptoms and improve daily functioning in children and adolescents with ADHD.

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Journal of Clinical Psychology in Medical Settings. 2012;1-9.

CLASSROOM CHANGES IN ADHD SYMPTOMS FOLLOWING CLINIC-BASED BEHAVIOR THERAPY.

Curtis DF, Chapman S, Dempsey J, et al.

This study examined classroom behavioral outcomes for children with Attention-Deficit/Hyperactivity Disorder (ADHD) following their participation in a manualized, 10-week intervention called Family Skills Training for ADHD-Related Symptoms (Family STARS). Family STARS combined behavioral parent training (BPT) and child-focused behavioral activation therapy (CBAT). Participants were children ages 7-10 diagnosed with ADHD-Combined Type. Pre- and post-treatment teacher ratings of ADHD symptoms were compared using a single group, within-subjects research design. Intervention effectiveness was analyzed using paired-samples t-tests. Results indicated statistically significant classroom improvements for externalizing behaviors and attention problems with medium and large main effects (respectively) for the intervention. Possible implications for combining CBAT with BPT for the treatment of ADHD are discussed as well as the relevance of these results for improving the effectiveness and portability of empirically supported interventions.

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J ECT. 2012;28:98-103.

TRANSCRANIAL MAGNETIC STIMULATION (TMS) IN THE TREATMENT OF ATTENTION-DEFICIT/HYPERACTIVITY DISORDER IN ADOLESCENTS AND YOUNG ADULTS: A PILOT STUDY.

Weaver L, Rostain AL, MacE W, et al.

OBJECTIVE: Transcranial magnetic stimulation (TMS) uses a medical device that applies magnetic pulses noninvasively to the cortex of the brain to depolarize neurons. We tested its safety and efficacy in young persons with a diagnosis of attention-deficit/hyperactivity disorder (ADHD).

METHODS: Transcranial magnetic stimulation was applied to the right prefrontal cortex at 10 Hz, at 100% of the observed motor threshold, for 2000 pulses per session, in a 10-session course over 2 weeks in a sham-controlled crossover design (n = 9). There was 1 week of no TMS between the active and sham phases. Safety of TMS was assessed by means of serial audiometry, neuropsychological testing, and electroencephalogram (EEG) at baseline, midpoint, and end point of the study. Efficacy was assessed as a primary outcome by changes in the Clinical Global Impression-Improvement (CGI-I) scale and secondarily by change in the ADHD-IV scale.

RESULTS: Transcranial magnetic stimulation was found to be safe, with no serious adverse events and no discontinuations due to adverse effects. All randomized subjects completed the full course of sessions. There were no significant changes in auditory thresholds or in electroencephalographic assessments. Neuropsychological testing showed no significant differences between active and sham groups. There was an overall significant improvement in the clinical global impression of improvement and the ADHD-IV scales across the study phases (active and sham TMS combined; $P < 0.01$), but the change between active and sham TMS phases did not differ.

CONCLUSION: Transcranial magnetic stimulation was found to be safe, with no serious adverse events observed in this pilot study. Improvement in symptoms was observed across the combined phases of the study, although there was no difference between the active and sham forms of TMS. Effects of clinical importance should be further assessed in larger controlled studies.

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J Neural Transm. 2012;1-14.

EARLY PATHOGENIC CARE AND THE DEVELOPMENT OF ADHD-LIKE SYMPTOMS.

Dahmen B, Putz V, Herpertz-Dahlmann B, et al.

Early pathogenic care that is characterised by disregard for the child's basic emotional needs can lead to severe global psychosocial and cognitive dysfunction and deviant developmental trajectories of brain maturation. Reactive attachment disorder (RAD) is a developmental disorder associated with early pathogenic care that is characterised by markedly disturbed ways of relating socially in most contexts. In addition to other severe emotional dysfunctions, children suffering from RAD often display a high number of comorbid attention deficit/hyperactivity disorder (ADHD) symptoms such as inattention, impulsivity and hyperactivity. It is not yet clear whether ADHD-like symptoms in children exposed to pathogenic care represent a true comorbidity of ADHD or similarities in behavioural dysfunction with a different neurodevelopmental pathway in terms of a phenocopy. In this review, we summarise the findings on the neurobiological consequences of early pathogenic care. Pathogenic care is considered a form of care by a primary caretaker involving a lack or a loss of expectable care, e.g., by early separation, frequent change in caregivers, institutionalisation or neglect. The reviewed studies suggest that a primary dysfunction of limbic brain circuits after early pathogenic care might lead to an interference by motivational or emotional cues impinging on prefrontal executive functions resulting in behavioural similarities with ADHD. Thus, the complex phenotype observed after early pathogenic care might be best described by a dimensional approach with behavioural and neurobiological similarities to ADHD coinciding to a certain degree as a function of early experience. Based on this evidence, suggestions for the treatment of ADHD-like symptoms in children after adverse early life experiences are provided.

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J Neural Transm. 2012 May;119:613-19.

COMPENSATORY BRAIN ACTIVATION IN CHILDREN WITH ATTENTION DEFICIT/HYPERACTIVITY DISORDER DURING A SIMPLIFIED GO/NO-GO TASK.

Ma J, Lei D, Jin X, et al.

Given that a number of recent studies have shown attenuated brain activation in prefrontal regions in children with ADHD, it has been recognized as a disorder in executive function. However, fewer studies have focused exclusively on the compensatory brain activation in ADHD. The present study objective was to investigate the compensatory brain activation patterns during response inhibition (RI) processing in ADHD children. In this study, 15 ADHD children and 15 sex-, age-, and IQ-matched control children were scanned with a 3-T MRI equipment while performing a simplified letter Go/No-go task. The results showed more brain activation in the ADHD group compared with the control group, whereas the accuracy and reaction time of behavioral performance were the same. Children with ADHD did not activate the normal RI brain circuits, which are thought to be predominantly located in the right middle/inferior frontal gyrus (BA46/44), right inferior parietal regions (BA40), and pre-SMA(BA6), but instead, activated brain regions, such as the left inferior frontal cortex, the right inferior temporal cortex, the right precentral gyrus, the left postcentral gyrus, the inferior occipital cortex, the middle occipital cortex, the right calcarine, the right hippocampus, the right midbrain, and the cerebellum. Our conclusion is that children with ADHD tend to compensatorily use more posterior and diffusive brain regions to sustain normal RI function.

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J Neurother. 2012;16:78-91.

INDUCED EEG GAMMA OSCILLATION ALIGNMENT IMPROVES DIFFERENTIATION BETWEEN AUTISM AND ADHD GROUP RESPONSES IN A FACIAL CATEGORIZATION TASK.

Gross E, El-Baz AS, Sokhadze GE, et al.

Children diagnosed with an autism spectrum disorder (ASD) often lack the ability to recognize and properly respond to emotional stimuli. Emotional deficits also characterize children with attention deficit/hyperactivity disorder (ADHD), in addition to exhibiting limited attention span. These abnormalities may effect a difference in the induced EEG gamma wave burst (35-45 Hz) peaked approximately 300-400 ms following an emotional stimulus. Because induced gamma oscillations are not fixed at a definite point in time

poststimulus, analysis of averaged EEG data with traditional methods may result in an attenuated gamma burst power. We used a data alignment technique to improve the averaged data, making it a better representation of the individual induced EEG gamma oscillations. A study was designed to test the response of a subject to emotional stimuli, presented in the form of emotional facial expression images. In a four-part experiment, the subjects were instructed to identify gender in the first two blocks of the test, followed by differentiating between basic emotions in the final two blocks (i.e., anger vs. disgust). EEG data were collected from ASD (n = 10), ADHD (n = 9), and control (n = 11) subjects via a 128-channel EGI system, and processed through a continuous wavelet transform and bandpass filter to isolate the gamma frequencies. A custom MATLAB code was used to align the data from individual trials between 200 and 600 ms poststimulus, EEG site, and condition by maximizing the Pearson product-moment correlation coefficient between trials. The gamma power for the 400-ms window of maximum induced gamma burst was then calculated and compared between subject groups. Condition (anger/disgust recognition, gender recognition) null Alignment null Group (ADHD, ASD, Controls) interaction was significant at most of parietal topographies (e.g., P3-P4, P7-P8). These interactions were better manifested in the aligned data set. Our results show that alignment of the induced gamma oscillations improves sensitivity of this measure in differentiation of EEG responses to emotional facial stimuli in ADHD and ASD.

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J Paediatr Child Health. 2012;48:10.

INJURY AND POISONING IN VERY YOUNG CHILDREN SUBSEQUENTLY DIAGNOSED WITH ADHD: POPULATION DATA LINKAGE STUDY IN WESTERN AUSTRALIA.

Silva D, Colvin L, Bower C.

Background: ADHD is the commonest mental health disorder in childhood and contributes a significant burden to society. Early childhood injuries in children subsequently treated with stimulant medication have not been adequately studied.

Aim: To determine if children diagnosed and treated for ADHD have a higher risk of hospital admission for injury and poisons when compared with other children and understand the different types of admission in relation to age and gender.

Method: This is a population-based, record-linkage case-control study of non-Indigenous cases (n = 12 218) of ADHD children on stimulant medication (SM) identified from the Monitoring of Drugs Dependency System (MODDS) and non-Indigenous age-, gender- and postcode-matched controls (n = 28 079) without a record on MODDS. Case and comparison records were linked to the Hospital Morbidity Data Base and de-identified linked data files were provided for analysis of accident and poisoning admissions under 18 years old.

Findings: Children under 4 years of age who were subsequently diagnosed with ADHD were significantly more likely to be admitted with an injury or poisoning, especially young boys. Cases less than 1 year of age were twice as likely to be admitted with a burn (OR 2.04 CI 1.18-3.55) poisoning (OR 2.59 CI 1.49-4.49) or intracranial injury (OR 2.63 CI 1.59-4.37). Cases of near drowning in 1-2 years were over two and half times that of our reference population (OR 2.52 CI 1.11-5.71) and cases 2-4 years were significantly more likely to be admitted with intracranial injury, poisoning, motor vehicle accident and falls.

Conclusion: Children under the age of 4 who were subsequently diagnosed and treated with SM for ADHD are at significantly higher risk of accidents and poisons. This research highlights the importance of having a high index of suspicion and appropriate early referral for multidisciplinary management of children suspected of ADHD.

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J Paediatr Child Health. 2012;48:10.

EARLY ENVIRONMENTAL RISK FACTORS FOR CHILDREN DIAGNOSED AND TREATED FOR ADHD: WESTERN AUSTRALIAN POPULATION LINKAGE STUDY.

Silva D, Colvin L, Bower C.

Background: Attention Deficit Disorder (ADHD) is the commonest developmental disorder in childhood with high heritability, although early environmental factors may be an important causal pathway in

understanding the aetiology of ADHD. Mandatory notification of all children with ADHD commenced on stimulant medication (SM) in Western Australia (WA) was introduced in August 2003.
Aim: To provide an overview of the data linkage opportunities in WA relating to ADHD and to investigate the maternal, pregnancy and newborn risk factors for children prescribed SM for ADHD.
Methods: This is a population-based, record-linkage case-control study where between August 2003 and December 2007, 16 883 children and adolescents (cases) aged 4-25 years had been prescribed stimulant medication in WA for ADHD and were recorded on the Monitoring of Drugs Dependency System (MODDS) database. A stratified random sample of birth records with no linkage to MODDS formed a comparison group (32 728). Case and comparison records were linked to the Midwives, Hospital Morbidity, Mortality, Mental Health, Emergency, Corrective Services and Education databases, and de-identified linked data files were provided for analysis.
Findings: Mothers of case children were significantly more likely to be young (OR 1.63 CI; 1.48-1.78), single (OR 1.51; CI 1.41-1.62), smoke in pregnancy (OR 2.00; CI 1.72-2.33), have complications in pregnancy with threatened preterm labour (OR 2.40; CI 1.73-3.33) and have smaller babies of lower gestational age compared to the comparison group. There was a small non-significant difference associated with acute emergency events around delivery (emergency caesarean sections, prolapsed cord, foetal distress) and no significant difference for maternal gestational diabetes and premature rupture of membranes.
Conclusion: Data linkage at the population level can be a valuable source of information on perinatal risk factors associated with ADHD. This data linkage study will improve our understanding of early environmental risk factors which may enhance our understanding of complex gene-environment interactions.

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J Paediatr Child Health. 2012;48:4.

CURRENT AUSTRALIAN PAEDIATRIC PRACTICE IN THE ASSESSMENT AND TREATMENT OF ADHD: A SURVEY AND PRACTICE AUDIT.

Efron D, Davies S, Sciberras E.

Background: ADHD is now the most frequent diagnosis among children consulting Australian general paediatricians, seen in 18.3% of presenting children. However we know little about the characteristics of children with ADHD presenting to paediatricians, or how these children are assessed and managed.
Objective: To study the characteristics of children diagnosed with ADHD in Australia, and the assessment and management practices of their paediatricians.
Method: (i) A 2-week prospective paediatric practice audit; and (ii) A survey of practice in relation to the assessment and management of ADHD, were conducted in a representative sample of Australian general/community paediatricians.
Results: 199 paediatricians completed the practice audit, and 128 completed the survey. There were 139 new patients and 828 continuing patients with ADHD. 80% were male. Mean age at diagnosis was 9.1 years, with a range of 3-19 years. The age range of continuing patients extended to over 24 years. 60% of patients had one or more co-morbidities identified. Patients with ADHD were more likely than patients with other diagnoses to be seen in private practice settings, One third of newly diagnosed patients were referred for psychology services. 40% were prescribed stimulant medication or atomoxetine at initial diagnosis, and 80% at continuing consultation. Methylphenidate was the most common medication prescribed (63%), with a minority of patients prescribed dexamphetamine, atomoxetine or clonidine. 18% were prescribed two or more medications. Medication prescription was predicted by age, but not by gender or socioeconomic status. The majority of paediatricians reported using parent and teacher questionnaires as part of their assessment, and routinely monitoring growth parameters and blood pressure.
Conclusion: Paediatricians are seeing some patients into their twenties, indicating difficulty accessing services for adults with ADHD. Australian paediatric practice in relation to the assessment and treatment of ADHD appears to be generally consistent with international best practice guidelines.

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J Paediatr Child Health. 2012;48:5.

WHAT FACTORS PREDICT SEVERITY OF SOCIAL IMPAIRMENT AND QUALITY OF LIFE IN CHILDREN WITH ADHD?

Gadassi H, Sciberras ES, Bryson H, et al.

Background: Attention Deficit Hyperactivity Disorder (ADHD) is associated with reduced social functioning and poorer quality of life. The importance of functional impairment in directing intervention is becoming increasingly apparent.

Aims: This study aims to define which factors predict social impairment and poor quality of life in a clinical sample of children with ADHD, aged 4 to 8 years.

Methods: Retrospective analysis was conducted of children diagnosed with ADHD by a multi-disciplinary ADHD assessment clinic between 2004 and 2011. Predictor variables include socio-demographic characteristics, parentand teacher-reported ADHD severity (ADHD Index, Conners' Rating Scales - Revised), cognitive abilities (Wechsler scales), and presence of co-morbidities (Anxiety Disorders Interview Schedule for DSM IV - parent report). Outcome variables were parent- and teacher-reported social impairment (Peer Problems Scale, Strengths and Difficulties Questionnaire; SDQ) and parent-reported psychosocial quality of life (Pediatric Quality of Life Inventory 4.0; PedsQL). Multivariable linear regression models were used.

Results: Of the 90 ADHD cases with available data, Of these, 71 (79%) and 85 (94%) parents had completed the PedsQL and SDQ questionnaires, respectively. Teacher-reported SDQ data was available for 75 (83%) children. Older age ($P < 0.001$), parent-reported ADHD severity ($p < 0.001$) and presence of internalising co-morbidities ($P = 0.007$) were associated with poorer psychosocial quality of life. Older age ($P = 0.006$) and social disadvantage ($P = 0.004$) were associated with parent-reported peer problem severity. None of our variables were found to affect teacher-reported peer problem severity.

Conclusion: This study found that older age was the main predictor of social impairment experienced by children with ADHD, emphasising the importance of early diagnosis and management. In addition to reducing ADHD symptom severity, routine screening and management of common comorbidities, has the potential to improve the psychosocial quality of life in children with ADHD.

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J Pharmacokinet Pharmacodyn. 2012;39:161-76.

POPULATION PHARMACODYNAMIC MODELING OF VARIOUS EXTENDED-RELEASE FORMULATIONS OF METHYLPHENIDATE IN CHILDREN WITH ATTENTION DEFICIT HYPERACTIVITY DISORDER VIA META-ANALYSIS.

Kimko H, Gibiansky E, Gibiansky L, et al.

Placebo and pharmacodynamic (PD) models were developed which link temporal measures of efficacy in children with attention deficit hyperactivity disorder (ADHD) and methylphenidate (MPH) plasma concentrations from adults. These models can be used to predict daily pediatric clinical measure profiles following administration of different MPH formulations in children without conducting pediatric pharmacokinetic (PK) or PD studies by using more easily obtained adult PKdata.MeanPK data fromvarious extendedreleaseMPHformulations studied in adults and mean PDdata from nine pediatric efficacy studies were obtained from the literature. The individual time-course of the clinical measures from three pediatric trials were also analyzed after being combined with the meta-analysis data. The clinical measure profiles following placebo administration were described by indirect response models with time-varying elimination rates. MPH pharmacodynamic effect was described by Emaxmodels, which included time-dependent tolerance. Internal and external evaluations using a visual predictive check technique confirmed the prediction capability of the models. This modeling exercise demonstrated that time courses of MPH concentrations in adults with different drug release patterns can be used to predict timecourses of clinical efficacy parameters in pediatrics by employing the models developed by meta-analysis.

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J Pharm Pract. 2012;25:287.

PATIENT CENTERED CARE APPROACH TO MEDICATION THERAPY MANAGEMENT FOR CAREGIVERS OF CHILDREN WITH ATTENTION DEFICIT HYPERACTIVITY DISORDER (ADHD).

Maslow N, Lynch S, Wagner L, et al.

None Background: Evidence suggests that medication management of Attention Deficit Hyperactivity Disorder (ADHD) is highly efficacious. However, both uptake of treatment and long-term adherence have presented a formidable task in clinical practice. Caregivers and practitioners may have different interpretations of the benefits and improvements of ADHD medication. Furthermore, it is likely that caregivers' views impact adherence to treatment. Therefore, understanding caregivers' assessments of treatment options and perceptions of improvement have tremendous implications for enhancing the uptake and ongoing use of mental health services.

Objective: The overarching goal of this research is to explore caregivers' perspectives of medication for the treatment of their child's ADHD. The specific objective of the present analysis is to assess caregiver-reported measures of psychopharmacologic medication outcomes.

Methods: Qualitative semi-structured telephone interviews were conducted with 48 caregivers of children who were newly diagnosed with ADHD. The interviews were performed at baseline, 6 months and 12 months following initial diagnosis. The interviews were audiotaped, transcribed verbatim, and analyzed using grounded theory methods to identify themes that emerged from the data.

Outcome: Caregiver-reported outcomes of psychopharmacologic medication for their child relate to their adaptability to treatment and perceptions of improvement. Adaptability describes caregivers' perceptions of the acceptability of psychopharmacologic medication and other treatments for their child's ADHD. Perceptions of improvement is defined by the extent to which caregivers believe their child's symptoms have been resolved and whether they are continuing to seek additional interventions to achieve further gains in their child's progress. We will discuss how caregivers of children with ADHD adapt to using medication treatment for their child. In addition, we will present a continuum of different degrees of improvement in ADHD as perceived by caregivers. Finally, we will address the clinical implications of these findings and how these results can be used to guide medication therapy management based on caregiver-reported measures of treatment outcomes.

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J Psychopathol Behav Assess. 2012 Jun;34:172-81.

PARENTING BEHAVIOR AND CONDUCT PROBLEMS IN CHILDREN WITH AND WITHOUT ATTENTION-DEFICIT/HYPERACTIVITY DISORDER (ADHD): MODERATION BY CALLOUS-UNEMOTIONAL TRAITS.

Falk AE, Lee SS.

There is evidence that negative parenting positively predicts oppositional defiant disorder (ODD) and conduct disorder (CD) and that children's callous-unemotional (CU) traits may moderate this association. However, it is largely unknown if CU traits show similar interactive effects with positive parenting for ODD/CD. 208 ethnically diverse (56% Caucasian) 6–9 year-old children with and without attention-deficit/hyperactivity disorder (ADHD) were ascertained using multiple methods and informants for ODD, CD, and CU traits. CU traits, corporal punishment, positive parenting, and each of their interactions with CU traits were unrelated to parent- and teacher-rated ODD. Corporal punishment and CU traits were similarly unrelated to parent- and teacher-rated CD. However, positive parenting inversely predicted parent-reported CD symptoms and it was significantly moderated by CU traits. Positive parenting was negatively associated with CD at low to moderate levels of CU traits, but it was unrelated to CD at high levels of CU traits. Children with elevated levels of CU traits exhibited significantly higher levels of CD symptoms that were largely independent of positive parenting behavior. We discuss these findings within a developmental psychopathology framework to provide further perspectives on reciprocal influences between parenting behavior and CU traits in the development of ODD and CD.

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J Psychopharmacol. 2012;26:766-70.

ADHD MATURES: TIME FOR PRACTITIONERS TO DO THE SAME?

Bolea B, Adamou M, Arif M, et al.

Attention deficit and hyperactivity disorder (ADHD) is not restricted to children. Abundant evidence from follow-up studies accumulated since the 1970s supports the concept of ADHD in adulthood. Genetic research points to a heritability of 76%, and neuroimaging studies have reported structural and functional brain abnormalities in patients with ADHD. Contrary to popular belief, ADHD is not a culturally bound disorder and has been described worldwide. ADHD has a cost for society, as adults with this disorder suffer from increased rates of unemployment and psychiatric comorbidity, including substance use disorders. Studies undertaken in forensic populations describe high rates of ADHD in these groups, particularly amongst young offenders. One of the main issues in the diagnosis of ADHD in the adult is the fact that most clinicians have not been educated to diagnose and treat ADHD. Effective pharmacological treatments for ADHD are available and should be prescribed for these patients. The National Institute for Health and Clinical Excellence (NICE) and the British Association for Psychopharmacology (BAP) guidelines established a benchmark for service development required to treat ADHD adequately in the adult population. However, the implementation of new services has been slow. More resources are needed to effectively assess and treat ADHD in the adult.

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J Psychopharmacol. 2012;26:771-77.

GAMMA-FREQUENCY NEURONAL ACTIVITY IS DIMINISHED IN ADULTS WITH ATTENTION-DEFICIT/HYPERACTIVITY DISORDER: A PHARMACO-MEG STUDY.

Wilson TW, Wetzel MW, White ML, et al.

Attention-deficit/hyperactivity disorder (ADHD) is a neurobehavioral disorder affecting approximately 4-7% of children and persisting in 2-5% of adults. The core symptoms include pervasive inattention and inappropriate levels of hyperactivity-impulsivity. High-frequency gamma activity has been implicated in the temporal binding of stimulus properties across cortical areas, and is known to be crucial for complex information processing and attentional processes in particular. Thus, we evaluated the amplitude of gamma-frequency neural responses in adults with and those without ADHD, and tested whether stimulant medications, the most common treatment for ADHD, modulate gamma activity in affected adults. Participants underwent two sessions (~75 min apart) of auditory stimulation using stimuli known to elicit 40 Hz gamma-band responses as magnetoencephalography data were acquired. Between sessions, the ADHD group (who were in maintenance therapy) were administered their daily stimulant medication and both groups were told to relax. The primary results indicated that gamma activity was weaker in the ADHD group during session one (pre-drug), but not session two (post-drug), and that gamma activity significantly increased following stimulant administration in adults with ADHD. These results suggest that ADHD is associated with reduced cortical gamma activity and that stimulants may ameliorate this abnormality.

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J Res Med Sci. 2012;17:368-72.

CO-MORBIDITY AND FACTOR ANALYSIS ON ATTENTION DEFICIT HYPERACTIVITY DISORDER AND AUTISM SPECTRUM DISORDER DSM-IV-DERIVED ITEMS.

Ghanizadeh A.

Background: There is a gap in the literature regarding the extent of possible co-occurrence of attention deficit hyperactivity disorder (ADHD) and pervasive developmental disorders (PDD). This study aimed to investigate co-occurring of ADHD in children with PDD.

Methods: A clinical sample of 68 children with PDD was assessed according to DSM-IV criteria to make ADHD and/ or PDD diagnoses. All the different types of PDD were included. DSM-IV derived criteria for ADHD and PDD were analyzed. An exploratory factor analysis was conducted.

Results: the rate of autism, Asperger syndrome, Rett's disorder, childhood disintegrative disorder and PDD-NOS (not otherwise specified) was 55.4%, 16.9%, 3.1%, 3.1%, 21.5%, respectively. 53.8% of the

sample was with ADHD co-morbidity. The rate of ADHD subtypes was 37.1%, 22.9%, and 40.0% for inattentive type, hyperactivity/impulsivity type and combined type, respectively.
Conclusion: ADHD and its symptoms highly co-occur with PDD. Meanwhile, the result of factor analysis supports the independence of ADHD and PDD diagnostic criteria.

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J Am Acad Child Adolesc Psychiatry. 2012;51:632-41.

INATTENTION AND HYPERACTIVITY PREDICT ALTERATIONS IN SPECIFIC NEURAL CIRCUITS AMONG 6-YEAR-OLD BOYS.

Qiu A, Rifkin-Graboi A, Tuan TA, et al.

Objective: Assessment of inattention and hyperactivity in preschoolers is highly dependent upon parental reports. Such reports are compromised by parental attitudes and mental health. Our study aimed to examine associations of inattention and hyperactivity/impulsivity from maternal reports on the Conners' Parent Rating Scale (CPRS) with brain morphology assessed using structural magnetic resonance imaging (MRI) and diffusion tensor imaging (DTI) in 6-year-old boys.
Method: Large deformation diffeomorphic metric brain mapping was used to assess brain morphology on MRI and DTI in 96 six-year-old boys, including cortical thickness, subcortical shapes, and fractional anisotropy (FA) of deep white matter tracts (DWMTs). Linear regression examined associations between these measures of brain structures and mothers' CPRS ratings of their child's inattention and hyperactivity/impulsivity.
Results: Our results revealed that temporal and parietal cortices, as well as posterior white matter and callosal tracts are associated with inattention and hyperactivity/impulsivity symptoms among six-year-old boys. Inattention and hyperactivity/impulsivity symptoms share common neural circuits, but hyperactivity/impulsivity ratings associate with more extensive cortical areas, such as frontal regions, and with white matter tracts emphasizing executive control. There were no associations detected between inattention (or hyperactivity/impulsivity) and the shape of subcortical structures.
Conclusions: Our results suggested specific rather than widespread neural circuits involved in inattention and hyperactivity/impulsivity in young children, which is congruent with existing findings in older children and adolescents, and in adults with attention-deficit/hyperactivity disorder (ADHD). Hence, our study supported the dimensional view of ADHD, that is, that symptoms of inattention and hyperactivity/impulsivity lie on a continuum.

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J Am Acad Child Adolesc Psychiatry. 2012;51:722-32.

STRIATAL SENSITIVITY DURING REWARD PROCESSING IN ATTENTION-DEFICIT/ HYPERACTIVITY DISORDER.

Paloyelis Y, Mehta MA, Faraone SV, et al.

Attention-deficit/hyperactivity disorder (ADHD) has been linked to deficits in the dopaminergic reward-processing circuitry; yet, existing evidence is limited, and the influence of genetic variation affecting dopamine signaling remains unknown. We investigated striatal responsivity to rewards in ADHD combined type (ADHD-CT) using functional magnetic resonance imaging (fMRI), and whether it is modulated by variation in the dopamine transporter gene (DAT1). We tested 29 male adolescents with ADHD-CT and 30 age-, handedness-, and gender-matched healthy controls who were selected for DAT110/6 haplotype dosage. Based on previous research, we focused our analysis on the ventral striatum and the caudate nucleus. Three main findings emerged. First, male adolescents with ADHD-CT did not differ from controls in terms of blood oxygen-level dependent (BOLD) fMRI response to reward-predicting cues (gain or loss-avoidance) in the ventral striatum. Second, male adolescents with ADHD-CT showed a relative increase, compared with controls, in the striatal BOLD response to successful outcomes. Third, DAT110/6 dosage differentially modulated neural activation to reward-predicting cues in the caudate nucleus in the ADHD-CT and control groups. The findings challenge the idea of a deficit in anticipation-related activation in the ventral striatum in male adolescents with ADHD-CT, while suggesting that the processing of reward outcomes is dysfunctional, consistent with a recent neurobiological model of the disorder. Preliminary

evidence suggests that polymorphic variations in genes affecting dopamine signaling need to be taken into consideration when investigating reward-related deficits in ADHD-CT.

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J Int Neuropsychol Soc. 2012 May;18:612-17.

DEFICIENT POST-ERROR SLOWING IN CHILDREN WITH ADHD IS LIMITED TO THE INATTENTIVE SUBTYPE.

Shiels K, Tamm L, Epstein JN.

Post-error slowing (i.e., slowing of a response on correct trials following an error) is thought to reflect adaptive behavior that may be impaired in Attention-Deficit/Hyperactivity Disorder (ADHD). The current study examined post-error slowing in children with ADHD and typically developing controls on two cognitive tasks. Fifty-one ADHD-Combined type, 53 ADHD-Inattentive type, and 47 controls completed a Choice Discrimination and Stop Signal Task with incentive and event rate manipulations. Linear mixed models were used to examine reaction times surrounding errors (trial-by-trial). Pre-error speeding and pre- to post-error slowing occurred on both tasks. Impaired post-error slowing was only present on the Choice Discrimination Task for the ADHD-Inattentive type. Post-error slowing is impaired in children with ADHD-Inattentive type, but not ADHD-Combined type, on a simple attention task. These findings highlight the importance of considering task demands and ADHD subtype when examining post-error slowing and also provide a novel approach to quantifying post-error slowing.

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J Trauma Dissociation. 2012;13:421-34.

LIFE HISTORY INTERVIEWS WITH 11 BOYS DIAGNOSED WITH ATTENTION-DEFICIT/HYPERACTIVITY DISORDER WHO HAD SEXUALLY OFFENDED: A SAD STORYLINE.

Tidefors I, Strand J.

Little is known of the possible relationship between a diagnosis of attention-deficit/hyperactivity disorder (ADHD) and sexually offensive behavior in adolescents. Our aim was to understand how adolescents with ADHD who had sexually offended described their childhood experiences and spoke about their diagnostic symptoms. The boys' early lives and relations were unpredictable, and emotional, physical, and sexual limits had been crossed. However, many boys saw themselves or their diagnosis, rather than their parents, school, or "society," as the underlying cause of their behavior. They used different strategies, for example repressing memories or regarding traumatic experiences as normal, to manage their lives. Most boys had difficulty with emotions and expressed sadness or frustration through anger. They spoke of being inattentive and restless in school and impulsive before and during their sexual offenses. The psychiatric assessment was described as a "messy" experience that strengthened their belief that something was wrong with them. Some had incorporated neuropsychiatric language into otherwise limited vocabularies and tended to use their diagnostic symptoms to excuse their offenses. The focus in the assessment on the boys themselves and their behaviors may darken their understandings of themselves, their experiences of abuse, and the offenses they have committed. Further research is needed into the possible consequences of a diagnosis of ADHD on adolescents' self-image and sense of self-control.

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Learning and Individual Differences. 2012 Jun;22:375-79.

LANGUAGE SKILLS, MATHEMATICAL THINKING, AND ACHIEVEMENT MOTIVATION IN CHILDREN WITH ADHD, DISRUPTIVE BEHAVIOR DISORDERS, AND NORMAL CONTROLS.

Gut J, Heckmann C, Meyer CS, et al.

Recent models of attention deficit/hyperactivity disorder (ADHD) suggest that the association between achievement motivation and school performance may be stronger in children with ADHD than in typically developing children. Therefore, the present study investigated associations between achievement motivation and performance on language skills and mathematical thinking in children with ADHD (n = 23; M = 9.4 years, SD = 1.1 years; 78% boys) and two matched control groups, i.e., a clinical control group

(children with related disruptive behavior disorders; DBD), and a non-clinical control group (NC). Results confirmed stronger associations between achievement motivation and performance on receptive language and mathematical thinking in children with ADHD than in NC. Specifically, performance of children with ADHD was equal to NC for highly motivated ADHD children. These results underscore the importance of achievement motivation as a more essential key factor in the performance of children with ADHD as compared to typically developing children.

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Ment Health Fam Med. 2011;8:249-54.

ATTENTION-DEFICIT HYPERACTIVE DISORDER PRESENTING WITH SCHOOL TRUANCY IN AN ADOLESCENT: A CASE REPORT.

Muhammad NA, Ismail WSW, Tan CE, et al.

Attention-deficit hyperactive disorder (ADHD) is a psychiatric illness commonly diagnosed during the early years of childhood. In many adolescents with undiagnosed ADHD, presentation may not be entirely similar to that in younger children. These adolescents pose significant challenges to parents and teachers coping with their disability. Often adolescents with behavioural problems are brought to medical attention as a last resort. This case describes an adolescent who presented to a primary care clinic with school truancy. He was initially treated for depression with oppositional defiant disorder and sibling rivalry. Only following a careful detailed history and further investigations was the diagnosis of ADHD made. He showed a positive improvement with the use of methylphenidate for his ADHD and escitalopram for his depression. The success of his management was further supported by the use of behavioural therapy and parenting interventions. There is a need to increase public awareness of ADHD, especially among parents and teachers so that early intervention can be instituted in these children.

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Mindfulness. 2012 Jun;3:151-64.

EVALUATION OF A MINDFULNESS-BASED INTERVENTION FOR ADOLESCENTS WITH LEARNING DISABILITIES AND CO-OCCURRING ADHD AND ANXIETY.

Haydicky J, Wiener J, Badali P, et al.

The current study evaluated the impact of a 20-week mindfulness training program on executive function (EF), internalizing and externalizing behavior and social skills in a clinical sample of adolescent boys with learning disabilities (LD). Integra Mindfulness Martial Arts (MMA) is a manualized group treatment program incorporating elements of mindfulness meditation, cognitive behavioral therapy (CBT), behavior modification and mixed martial arts. Adolescents (ages 12–18; n = 60) with LD were assigned to the MMA or wait list control group (WL). Adolescents and their parents completed standardized questionnaires before and after training. Subgroup analyses were conducted to investigate the impact of the intervention on youth with co-occurring attention deficit/hyperactivity disorder (ADHD) or anxiety. Compared to the WL group, MMA participants with co-occurring ADHD (14 MMA, 14 WL) improved on parent-rated externalizing behavior, oppositional defiant problems and conduct problems. Boys with elevated hyperactive/impulsive symptoms (12 MMA, 17 WL) improved on parent-rated social problems and monitoring skills. Boys with elevated inattentive symptoms (15 MMA, 18 WL) improved on parent-rated social problems. Boys with elevated anxiety (12 MMA, 17 WL) reported decreased anxiety. MMA shows promise as an alternative treatment option for youth with LD and co-occurring difficulties.

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Mol Psychiatry. 2012 May;17:520-26.

IS THERE A ROLE FOR RARE VARIANTS IN DRD4 GENE IN THE SUSCEPTIBILITY FOR ADHD? SEARCHING FOR AN EFFECT OF ALLELIC HETEROGENEITY.

Tovo-Rodrigues L, Rohde LA, Roman T, et al.

Although several studies have demonstrated an association between the 7-repeat (7R) allele in the 48-bp variable number of tandem repeats (VNTRs) in the exon 3 at dopamine receptor D4 (DRD4) gene and attention-deficit/hyperactivity disorder (ADHD), others failed to replicate this finding. In this study, a total of 786 individuals with ADHD were genotyped for DRD4 exon 3 VNTR. All 7R homozygous subjects were selected for VNTR re-sequencing. Subjects homozygous for the 4R allele were selected paired by age, ancestry and disorder subtypes in order to have a sample as homogeneous as possible with 7R/7R individuals. Using these criteria, 103 individuals (66 with ADHD and 37 control individuals) were further investigated. An excess of rare variants were observed in the 7R alleles of ADHD patient when compared with controls (P = 0.031). This difference was not observed in 4R allele. Furthermore, nucleotide changes that predict synonymous and non-synonymous substitutions were more common in the 7R sample (P = 0.008 for total substitutions and P = 0.043 for non-synonymous substitutions). In silico prediction of structural/functional alterations caused by these variants have also been observed. Our findings suggest that not only repeat length but also DNA sequence should be assessed to better understand the role of DRD4 exon 3 VNTR in ADHD genetic susceptibility.

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Neuroendocrinol Lett. 2012;33:201-06.

IS THERE A CORRELATION BETWEEN ADHD SYMPTOM EXPRESSION BETWEEN PARENTS AND CHILDREN?

Macek J, Gosar D, Tomori M.

BACKGROUND: Attention-deficit hyperactivity disorder (ADHD) is one of the most common mental health disorders in childhood; symptoms persist into adulthood in a majority of patients. It is among the most heritable of psychiatric disorders with a high risk for familial aggregation and has been linked in adulthood with impairment across a variety of domains, including parenting. Parental gender, ADHD status and symptom expression could be related to the severity of ADHD symptoms in the child.

METHODS: We used prospective, observational study of clinical group of 30 children with diagnosed ADHD and control group of 37 healthy subjects. Only children with both biological parents available were included. Data on ADHD symptomatology for all subjects was gathered by a set of clinical tools (CBCL1991, TRF1991, WURS, self-report scale modified from DSM IV). Under the assumption that ADHD is a dimensional disorder, raw scores from questionnaires were used as they display the complete range of values.

RESULTS: Clinical group showed higher values in all areas of children symptomatology, the same was observed for parental ADHD symptomatology. Significant correlation was found between children and paternal current ADHD symptomatology in the clinical group. This was not confirmed for mothers.

CONCLUSION: Our study stresses an importance of screening for ADHD symptoms in parents of clinically referred children with ADHD as the correlation between severity of paternal and child's ADHD symptoms was confirmed. Our results stress the importance of including the father into the clinical assessment.

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Neurol Argent. 2012;4:59-66.

ASSOCIATED FACTORS WITH SECONDARY ALTERATIONS OF THE SYSTEM OF ATTENTIONAL CONTROL IN APHASIC PATIENTS.

Omar Martinez E.

Introduction: In the brain injury, regardless of the location of damage or the nerve circuits affected, generally are presented with neuropsychological primary symptoms plus secondary disturbances of attention control. This implies that the aphasia, as it is the more common primary neuropsychological disorder, it is the syndrome neurocognitive, who is the most frequently associated with secondary alterations of the Attentional Control System. Such attention disorders, as well as exacerbate the deficit

language processing in aphasia may be associated with multiple factors, related to the injury or the injured patient.
Objective: Describe the secondary neuropsychological alterations of Attentional Control System in aphasic patients, and to determine general factors of injury and of the injured patient (etiology, location, time of recovery of the damage, age, grade level), which are associated to such secondary alterations of the Attentional Control System.
Patients and methods: The study population was made up by 68 aphasic patients of both sexes, and aged between 15 and 60 years. These were applied the Trail Making Test, Porteus Test labyrinths and the series of loops, to explore changes in the Attentional Control System. Statistical processing carried out by means of a frequency distribution and a multiple Ordinal regression.
Results and conclusions: Statistical analysis showed that the secondary neuropsychological alterations of Attentional Control System in aphasic patients, are associated with the location and at the time of recovery of the damage, and are independent of age, grade level and the etiology of the injury.

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Neurosci Lett. 2012;514:159-63.

REGIONAL BRAIN PERFUSION BEFORE AND AFTER TREATMENT WITH METHYLPHENIDATE MAY BE ASSOCIATED WITH THE G1287A POLYMORPHISM OF THE NOREPINEPHRINE TRANSPORTER GENE IN CHILDREN WITH ATTENTION-DEFICIT/HYPERACTIVITY DISORDER.

Park MH, Kim JW, Yang YH, et al.

The noradrenergic system modulates attention and arousal. Dysregulation of the noradrenergic system may be involved in the pathophysiology of attention-deficit/hyperactivity disorder (ADHD). This study intended to examine the differences in methylphenidate (MPH) treatment response and pre- and post-treatment cerebral perfusion associated with the G1287A and -3081(A/T) polymorphisms of the norepinephrine transporter (NET) gene in ADHD children. Thirty-seven drug-naive ADHD children (8.9 (plus or minus) 1.8 years old, M = 32, F = 5) were genotyped. Next, baseline single-photon emission computed tomography (SPECT) and clinical assessments were carried out for ADHD subjects. After 8 weeks of MPH treatment, SPECT and clinical assessment were repeated. There were no differences in baseline clinical assessments or cerebral perfusion based on genotype. However, after treatment, ADHD children with the G/G genotype at the G1287A polymorphism showed more improvement in symptoms than children without the G/G genotype as evaluated by the Clinical Global Impressions-Improvement scale (p= 0.022). Furthermore, ADHD children with the G/G genotype at the G1287A polymorphism showed hyperperfusion in the right inferior temporal gyrus (p< 0.001, uncorrected) and middle temporal gyrus (p= 0.001, uncorrected) compared to children without the G/G genotype. Although the results of this study should be interpreted cautiously, they suggest that polymorphisms of the NET gene may contribute to an intermediate phenotype. Further studies should clearly elucidate the relationship between treatment response and functional connectivity in the brain according to this genetic polymorphism.

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Obes Facts. 2012;5:208.

OVERWEIGHT AND OBESE CHILDREN WITH DIAGNOSED ATTENTION DEFICIT HYPERACTIVITY DISORDER HAVE A FAVOURABLE WEIGHT LOSS WITH METHYLPHENIDATE - ONE YEAR DATA.

Dahlgren J, Wentz E.

Introduction: Attention deficit hyperactivity disorder (ADHD) is often treated with psychostimulants. Weight loss and a subsequent impaired growth are known side effects of psychostimulant treatment. On the other hand, this effect on BMI may have a positive impact on weight loss in obese children with a co-morbid, recently diagnosed, ADHD.
Methods: Records from all children age <18 years meeting DSM-IV criteria for ADHD and treated with methylphenidate in two outpatient clinics of Gothenburg, Sweden, were retrospectively investigated and their growth was evaluated. Children with a BMI at start of treatment >1.5 SDS were selected for further investigation.

Results: Twenty-four children (14 females/10 males, age range 5.9-16.8 years) out of 100 children with ADHD were found to meet the criteria of BMI>1.5 SDS. the children were daily treated with methylphenidate (dose range 10-54 mg). After 6 months mean BMI decreased 0.7 SDS, range 0.0-2.9 ($p<0.001$ with paired sample test) and after 12 months mean BMI decreased 1.0 SDS ($p<0.001$). During the same treatment year height SDS was unchanged for all but the youngest child, who decelerated in longitudinal growth. No gender differences were found.
Conclusion: Overweight and obese children with diagnosed ADHD exhibit a substantial weight loss during the first year of methylphenidate treatment. Whether there may be an age- and gender difference on response needs to be further investigated in a larger cohort

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Pediatr Ann. 2012;41:157-63.
MONITORING PSYCHIATRIC MEDICATIONS IN CHILDREN.
Hilt RJ.

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PLoS ONE. 2012;7.
INFLUENCE OF STIMULANT MEDICATION AND RESPONSE SPEED ON LATERALIZATION OF MOVEMENT-RELATED POTENTIALS IN ATTENTION-DEFICIT/HYPERACTIVITY DISORDER.
Bender S, Resch F, Klein C, et al.
Background: Hyperactivity is one of the core symptoms in attention deficit hyperactivity disorder (ADHD). However, it remains unclear in which way the motor system itself and its development are affected by the disorder. Movement-related potentials (MRP) can separate different stages of movement execution, from the programming of a movement to motor post-processing and memory traces. Pre-movement MRP are absent or positive during early childhood and display a developmental increase of negativity.
Methods: We examined the influences of response-speed, an indicator of the level of attention, and stimulant medication on lateralized MRP in 16 children with combined type ADHD compared to 20 matched healthy controls.
Results: We detected a significantly diminished lateralisation of MRP over the pre-motor and primary motor cortex during movement execution (initial motor potential peak, iMP) in patients with ADHD. Fast reactions (indicating increased visuo-motor attention) led to increased lateralized negativity during movement execution only in healthy controls, while in children with ADHD faster reaction times were associated with more positive amplitudes. Even though stimulant medication had some effect on attenuating group differences in lateralized MRP, this effect was insufficient to normalize lateralized iMP amplitudes.
Conclusions: A reduced focal (lateralized) motor cortex activation during the command to muscle contraction points towards an immature motor system and a maturation delay of the (pre-) motor cortex in children with ADHD. A delayed maturation of the neuronal circuitry, which involves primary motor cortex, may contribute to ADHD pathophysiology.

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Psychiatry Clin Neurosci. 2012;66:285-91.
TIME COURSE OF THE DEVELOPMENT OF DEPRESSIVE MOOD AND OPPOSITIONAL DEFIANT BEHAVIOR AMONG BOYS WITH ATTENTION DEFICIT HYPERACTIVITY DISORDER: DIFFERENCES BETWEEN SUBTYPES.
Ushijima H, Usami M, Saito K, et al.
Aim: The aim of this research was to clarify the development of depression among boys with attention deficit hyperactivity disorder (ADHD) by examining the correlation between depressive mood, oppositional defiant behavior, and age for each ADHD subtype.
Methods: The Birleson Depression Self-Rating Scale (DSRS) was used to evaluate depressive mood while the Oppositional Defiant Behavior Inventory (ODBI) was used to evaluate oppositional defiant behavior.

The 90 subjects were divided into three groups: 22 boys (mean age, 12.4 (plus or minus) 1.9 years) were placed in the ADHD predominantly inattentive type (ADHD-I) group; 45 boys (mean age, 10.4 (plus or minus) 2.0 years) were placed in the ADHD combined type (ADHD-C) group; and 23 boys (mean age, 12.7 (plus or minus) 2.4 years) were placed in the depressive disorder (DD) group. The DD group was included to highlight characteristics of depressive mood among boys with ADHD.
Results: The DSRS score was significantly higher in the DD group compared to the ADHD-I and ADHD-C groups. The ODBI score was significantly higher in the ADHD-C group compared to the ADHD-I (P = 0.043) and DD (P = 0.013) groups. In the DD group, ODBI was seen to decrease with increasing age. A certain degree of oppositional defiant behavior was seen in each ADHD subtype. The DSRS score correlated with the ODBI score in the ADHD-C group, while the DSRS score correlated with age in the ADHD-I group.
Conclusion: The characteristics of developing depressive mood in childhood ADHD appeared to differ between subtypes and also differed from depression without ADHD.

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Psychiatry Res. 2012;197:90-96.

ASSOCIATION OF COMORBID ANXIETY WITH SOCIAL FUNCTIONING IN SCHOOL-AGE CHILDREN WITH AND WITHOUT ATTENTION-DEFICIT/HYPERACTIVITY DISORDER (ADHD).

Lee SS, Falk AE, Aguirre VP.

Although attention-deficit/hyperactivity disorder (ADHD) is frequently comorbid with disruptive behavior disorders, less is known about ADHD and comorbid anxiety. To improve understanding about the association of anxiety and social functioning, we studied 223 6 to 9. year-old ethnically diverse boys and girls (. M=. 7.4. years) with and without ADHD. According to parents, children with ADHD and anxiety (. n=. 46) and ADHD only (. n=. 71) were consistently less socially competent than comparison children (i.e., no anxiety and ADHD: n=. 80) and children with anxiety only (. n=. 26), who did not differ from one another. A similar pattern emerged for teacher ratings where youth with ADHD only and ADHD with anxiety exhibited the most social problems, but they did not differ from each other. These data suggest that comorbid anxiety does not exacerbate social dysfunction among 6 to 9. year-old children with ADHD. We consider findings within a developmental psychopathology framework to further understand social development in children with ADHD and anxiety.

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Res Dev Disabil. 2012;33:1677-89.

THE LATENT CLASSES OF SUBCLINICAL ADHD SYMPTOMS: CONVERGENCES OF MULTIPLE INFORMANT REPORTS.

Kobor A, Takacs A, Urban R, et al.

The purpose of the present study was to conduct latent class analysis on the Hyperactivity scale of the Strengths and Difficulties Questionnaire in order to identify distinct subgroups of subclinical ADHD in a multi-informant framework. We hypothesized a similar structure between teachers and parents, and differences in symptom severity across latent classes. Data was collected from a non-referred sample of children aged 8-13 years. We performed latent class analyses on parent (n= 383) and teacher (n= 391) ratings of the Hyperactivity scale items from both versions of the questionnaire. Those children who had ratings from both informants (n= 272) were included in the cross-informant analyses, in which the similar or equivalent classes across raters were determined. A three-class solution for parent report and a five-class solution for teacher report emerged in the subsample of boys. For girls, a three-class structure for parents and a four-class structure for teachers were optimal. Besides non-symptomatic groups, mild and severe combined classes, mild inattentive-impulsive classes, and among boys, a mild hyperactive-impulsive class was obtained. The cross-informant analyses demonstrated that quite similar subgroups were detached regardless of informant; however, the teacher classes were somewhat more elaborated. The results are in line with the previous latent class analytic studies, and support the combination of dimensional and categorical approaches. The importance of milder symptoms and sub-threshold ADHD categories are emphasized for the fields of neuropsychology, neuroscience, and education, as well as for diagnosis and personalized treatment.

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Res Dev Disabil. 2012;33:1395-407.

NARRATIVE COMPETENCE AND INTERNAL STATE LANGUAGE OF CHILDREN WITH ASPERGER SYNDROME AND ADHD.

Rumpf AL, Kamp-Becker I, Becker K, et al.

The central question of the present study was whether there are differences between children with Asperger Syndrome (AS), children with attention deficit hyperactivity disorder (ADHD) and healthy controls (HC) with respect to the organization of narratives and their verbalization of internal states. Oral narrations of a wordless picture book produced by 31 children (11 with AS, 9 with ADHD, 11 HC, aged 8-12) were analyzed regarding the following linguistic variables: story length, sentence structure and sentence complexity, coherence and cohesion of the stories, verbalization of the narrator's perspective, as well as internal state language (verbal reference to mental states). Considerable similarities were noted between the two clinical groups, which deviate from HC children. Narratives of the children with AS and ADHD were shorter than the narratives produced by the HC children. The children of both clinical groups failed to point out the main aspects of the story. In particular, children with AS did not refer to cognitive states as often as the other groups. With respect to narrative coherence, they produced fewer pronominal references than HC children and children with ADHD. In conclusion, the two clinical groups differed from the HC group on a number of features, and a less frequent reference to cognitive states was identified for the children with AS.

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Res Dev Disabil. 2012;33:1957-63.

CHILDREN WITH ADHD SHOW NO DEFICITS IN PLANTAR FOOT SENSITIVITY AND STATIC BALANCE COMPARED TO HEALTHY CONTROLS.

Schlee G, Neubert T, Worenz A, et al.

The goal of this study was to investigate plantar foot sensitivity and balance control of ADHD (n= 21) impaired children compared to age-matched healthy controls (n= 25). Thresholds were measured at 200. Hz at three anatomical locations of the plantar foot area of both feet (hallux, first metatarsal head (METI) and heel). Body balance was quantified using the length, area and velocity described by the center of pressure (COP) during two-legged as well as one-legged stand (right and left legs). The comparison of vibration thresholds showed no differences between ADHD and healthy children at all anatomical locations of both feet. Whereas COP excursion and area were significantly lower in ADHD subjects compared to the healthy controls during two-legged stand, no differences were found in those variables when balancing on one leg. No differences in COP velocity between ADHD and healthy children were found in any analyzed conditions. The results indicate that the unusual and simple test situation may have increased the perception of vibration stimuli by the ADHD children. Furthermore, ADHD subjects seem to be less variable when performing simple tasks than healthy controls.

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Stroke Res Treat. 2012.

PERINATAL RISK FACTORS AND LATER SOCIAL, THOUGHT, AND ATTENTION PROBLEMS AFTER PERINATAL STROKE.

Harbert MJ, Jett M, Appelbaum M, et al.

Objective. Survivors of perinatal stroke may be at risk for behavioral problems. Perinatal risk factors that might increase the likelihood of later behavior problems have not been identified. The goal of this study was to explore whether perinatal factors might contribute to behavior problems after perinatal stroke.

Methods. 79 children with unilateral perinatal stroke were studied. Perinatal factors included gender, gestational age, neonatal seizures, instrumented delivery, fetal distress, acute birth problems, birth weight, and time of diagnosis. Subjects with evidence of hypoxic ischemic encephalopathy were excluded. Parents completed the Achenbach Child Behavior Checklist (CBCL) (Achenbach 1985). The CBCL yields T-scores in several symptom scales. We focused on Social, Thought, and Attention Problems scates.

Results. Gestational age and the presence of uteroplacental insufficiency were associated with significant differences on the Thought Problems scale; Attention Problems scores approached significance for these variables. Fetal distress, neonatal seizures, or neonatal diagnosis was associated with 25-30 incidence of clinically significant T-scores on Social, Thought, and Attention Problems scales.

Conclusions. Several perinatal factors were associated with a high incidence of social, thought, and behavior problems in children with perinatal stroke. These findings may be useful in anticipatory guidance to parents and physicians caring for these children.

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The World Journal of Biological Psychiatry. 2012 Apr;13:281-92.

CANDIDATE SYSTEM ANALYSIS IN ADHD: EVALUATION OF NINE GENES INVOLVED IN DOPAMINERGIC NEUROTRANSMISSION IDENTIFIES ASSOCIATION WITH DRD1.

Ribasés M, Ramos-Quiroga JA, Hervás A, et al.

Objectives: Several pharmacological and genetic studies support the involvement of the dopamine neurotransmitter system in the aetiology of attention-deficit hyperactivity disorder (ADHD). Based on this information we evaluated the contribution to ADHD of nine genes involved in dopaminergic neurotransmission (DRD1, DRD2, DRD3, DRD4, DRD5, DAT1, TH, DBH and COMT).

Methods: We genotyped a total of 61 tagging single nucleotide polymorphisms (SNPs) in a sample of 533 ADHD patients (322 children and 211 adults), 533 sex-matched unrelated controls and additional 196 nuclear ADHD families from Spain.

Results: The single- and multiple-marker analysis in both population and family-based approaches provided preliminary evidence for the contribution of DRD1 to combined-type ADHD in children (P = 8.8e-04; OR = 1.50 (1.18-1.90) and P = 0.0061; OR = 1.73 (1.23-2.45)) but not in adults. Subsequently, we tested positive results for replication in an independent sample of 353 German families with combined-type ADHD children and replicated the initial association between DRD1 and childhood ADHD (P = 8.4e-05; OR = 3.67 (2.04-6.63)).

Conclusions: The replication of the association between DRD1 and ADHD in two European cohorts highlights the validity of our finding and supports the involvement of DRD1 in childhood ADHD.

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The World Journal of Biological Psychiatry. 2012 Apr;13:293-305.

THE DOPAMINE RECEPTOR D4 7-REPEAT ALLELE INFLUENCES NEUROCOGNITIVE FUNCTIONING, BUT THIS EFFECT IS MODERATED BY AGE AND ADHD STATUS: AN EXPLORATORY STUDY.

Altink ME, Rommelse NNJ, Slaats-Willemse DIE, et al.

Objectives: Evidence suggests the involvement of the dopamine D4 receptor gene (DRD4) in the pathogenesis of ADHD, but the exact mechanism is not well understood. Earlier reports on the effects of DRD4 polymorphisms on neurocognitive and neuroimaging measures are inconsistent. This study investigated the functional consequences of the 7-repeat allele of DRD4 on neurocognitive endophenotypes of ADHD in the Dutch subsample of the International Multicenter ADHD Genetics study.

Methods: Participants were 350 children (5-11.5 years) and adolescents (11.6-19 years) with ADHD and their 195 non-affected siblings. An overall measure of neuropsychological functioning was derived by principal component analysis from five neurocognitive and five motor tasks. The effects of DRD4 and age were examined using Linear Mixed Model analyses.

Results: The analyses were stratified for affected and non-affected participants after finding a significant three-way interaction between ADHD status, age and the 7-repeat allele. Apart from a main effect of age, a significant interaction effect of age and DRD4 was found in non-affected but not in affected participants, with non-affected adolescent carriers of the 7-repeat allele showing worse neuropsychological performance. In addition, carrying the 7-repeat allele of DRD4 was related to a significantly worse performance on verbal working memory in non-affected siblings, independent of age.

Conclusions: These results might indicate that the effect of the DRD4 7-repeat allele on neuropsychological functioning is dependent on age and ADHD status.

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Tijdschr Psychiatr. 2012;54:481-82.
TIME-SPECIFIC EFFECTS IN AROUSAL: DISRUPTED DIURNAL CORTISOL PATTERNS IN CHILDREN WITH ADHD.
Imeraj L.

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Value Health. 2012;15:A84.
TRENDS IN PREVALENCE OF ADHD DRUG TREATMENT IN THE NETHERLANDS FROM 2000 UNTIL 2010.
Mehlkopf L, Houweling LMA, Heerdink ER, et al.
OBJECTIVES: ADHD is a major concern since it is one of the most common mental disorders affecting children and adolescents. The prevalence of ADHD has been reported to be increasing in the past decade. We assessed the trends in prevalence of ADHD drug use in the Netherlands from 2000 until 2010.
METHODS: From the PHARMO database, including amongst others, drug dispensing records of approximately 3.2 million inhabitants in The Netherlands, we selected patients with at least one dispensing of ADHD medication including methylphenidate, dexamphetamine and atomoxetine, between 2000 and 2010. For each calendar year, patients were counted as prevalent ADHD drug users if they received a dispensing for ADHD treatment in the respective calendar year. The number of ADHD drug users in PHARMO was divided by the number of residents in PHARMO and multiplied by the number of inhabitants in the Netherlands, standardized for age and gender. Results were stratified by age groups and gender.
RESULTS: The prevalence of ADHD drug treatment among males was higher than among femals. From 2000 to 2010, the prevalence among children (0-12 years) has increased 2.6-fold in males (from 158 to 410 per 10,000) and 4.5-fold in females (from 27 - 119 per 10,000). The prevalence among adolescents (13-18 years) has increased 4.0-fold in males (170 - 675 per 10,000) and 7.4-fold in females (27 - 200 per 10,000). The prevalence among adults (19(less-than or equal to) years) has increased 8.2-fold in males (from 8 - 63 per 10,000) and 10.1-fold in females (from 4 - 43 per 10,000).
CONCLUSIONS: This study provides a comprehensive overview of trends in prevalence of ADHD drug treatment in The Netherlands. Both in males and females, a continuous increase in prevalence was observed.

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Value Health. 2012;15:A84.
MALE/FEMALE INCIDENCE RATIO OF ADHD DRUG TREATMENT IN THE NETHERLANDS FROM 2000 UNTIL 2010.
Mehlkopf L, Houweling LMA, Heerdink ER, et al.
OBJECTIVES: ADHD has become a much debated topic in the last few years. More attention and awareness for ADHD has led to an increase in incidence. Especially awareness for the subtype of ADHD where patients, mostly females, demonstrate predominantly inattentive symptoms, has increased. We determined the male/ female incidence ratio of ADHD drug treatment in the Netherlands from 2000 until 2010.
METHODS: From the PHARMO database, including amongst others, drug dispensing records of approximately 3.2 million inhabitants in the Netherlands, we selected patients with a first dispensing of ADHD medication including methylphenidate, atomoxetine and dexamphetamine in the period 2000-2010. For each calendar year, the male/female incidence ratio of ADHD drug use was determined by dividing the incidence among males by the incidence among females. Results were stratified by age groups.
RESULTS: Overall, the male/female incidence ratio of ADHD drug treatment decreased from 3.4:1 in 2000 to 1.6:1 in 2010, meaning a growing proportion of female patients. The largest decrease in the male/female ratio was observed among adolescents (13-18 years: from 4.5:1 in 2000 to 1.6:1 in 2010), followed by 9-12 year-olds (from 5.5:1 in 2000 - 2.7:1 in 2010) and 0-8 year-olds (from 6.2:1 in 2000 - 3.5:1 in 2010). Among adults and seniors this ratio fluctuated from 0.9:1 to 2.1:1. Although the incidence among females has increased more over the years, the incidence among males remained higher throughout the study period.
CONCLUSIONS: This study shows that the proportion of female patients starting ADHD drug treatment is increasing. This in line with the increased awareness of ADHD among females.

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Value Health. 2012;15:A91-A92.

RACIAL AND ETHNIC DIFFERENCES IN ADHD IN YOUNG AND ADOLESCENT CHILDREN: PARENTAL REPORTS IN THE MEDICAL EXPENDITURE PANEL SURVEY 2008.

Yeola DC, Franzini L.

OBJECTIVES: Attention-deficit/hyperactivity disorder (ADHD) is the most common neurobehavioral disorder characterized by developmentally inappropriate levels of inattention and hyperactivity. Previous literature suggests that, racial and ethnic disparities continue to exist for several medical conditions. Some studies have shown that such differences reduce when difference in family income, health insurance and such sociodemographic factors are taken into account. But, it has been also documented that such differences may accentuate for specific type of disorder. Aim of this study was to determine any racial and ethnic differences and weather such differences can be explained by child's other health condition and sociodemographic characteristics.

METHODS: A nationally representative sample of children aged 5-17 years old was obtained from the Medical Expenditure Panel Survey (MEPS) for the year 2008. MEPS obtained information from parents about the health and sociodemographic characteristics of children. Logistic regression along with descriptive statistics was performed to explain racial and ethnic disparities among parent reported ADHD. Also, test for normality of residuals, homoscedasticity, goodness of fit and model specification were performed. All analysis was performed using STATA 11.

RESULTS: Out of 6858 children between ages 5-17 years; parents reported ADHD for 633 (9.23%) children. Out of 6858 children 51% were female, 34% were whites and 43% had any public insurance. Hispanic (OR= 0.45 p=0.000) and Black (OR=0.77 p=0.025) parents were less likely to report ADHD than whites. Parents were more likely to report ADHD for Boys (OR=0.65 p=0.000), children with age more than 10 yrs (OR=1.85 p=0.000), with private (OR=1.37 p=0.013) and public insurance (OR=1.80 p=0.012) and from metropolitan statistical area (OR= 1.20 p=0.116).

CONCLUSIONS: There are racial disparities among parent reported ADHD, whites are more likely to report ADHD than Hispanics and blacks. These differences continue to exist even after controlling for child's sociodemographic characteristics and other health related variables.

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http://www.casateonline.it/articolo-stampa.php?idd=70916&origine=1

Casateonline > Sanità > Lecco

Scritto Giovedì 08 marzo 2012 alle 16:39

Grande apporto, quello dell'A.O. , al Registro regionale dell'ADHD

Lecco

Circa il 2% della popolazione lombarda, tra i 6 e i 18 anni (con maggiore incidenza nei maschi), è colpita da una delle più frequenti sindromi neuropsichiatriche: il disturbo da Deficit di Attenzione e Iperattività, che tra i clinici è conosciuto con l'acronimo ADHD.

"I bambini affetti da questo disturbo - spiega Davide Villani, Neuropsichiatra dell'Ospedale Manzoni di Lecco - sono fonte di problemi e preoccupazioni per le loro famiglie e la scuola, oltre che per sé stessi. L'inattenzione, l'impulsività e la distraibilità condizionano negativamente il loro inserimento sociale, lo sviluppo emotivo-affettivo e il profilo scolastico. Inoltre, secondo alcuni studi, presentano seri rischi sul piano dello sviluppo evolutivo, se non riconosciuto e curato adeguatamente".

La struttura neuropsichiatrica del Manzoni aderisce al progetto "Condivisione di percorsi diagnostico-terapeurici per l'ADHD in Lombardia" , nato per migliorare l'appropriatezza dei percorsi clinici degli utenti con questa sindrome.

Il progetto coinvolge diciotto centri sanitari: l'obiettivo finale è organizzare un Registro regionale relativo ai casi clinici dei pazienti affetti dal disturbo, a cui la Neuropsichiatria dell'Azienda Ospedaliera sta già apportando notevoli e rilevanti contributi (45 i casi registrati), tanto da acquisire più di un apprezzamento e riconoscimento.

"Siamo giunti a questi risultati - spiega Ottaviano Martinelli, Direttore della Neuropsichiatria Infantile del presidio lecchese - anche grazie alla collaborazione di due giovani borsiste impegnate nel progetto con il contributo di Regione Lombardia".

"La nostra partecipazione - continua Davide Villani - è volta a migliorare la qualità dei dati inseriti nel Registro, ma soprattutto ad attivare un confronto e una condivisione sui casi e sulle modalità di presa in carico dei pazienti affetti da ADHD".

"Attraverso la messa in rete dei casi, la condivisione delle pratiche cliniche tra i Centri e la valorizzazione delle competenze che si sono sviluppate in questi anni - aggiungono Martinelli e Villani - saremo in grado di predisporre quelle Linee Guida che ci aiuteranno a sviluppare percorsi riabilitativi specifici per i giovani pazienti".

Vale la pena ricordare che nel 2009 è stato attivato al Manzoni un Ambulatorio dedicato specificamente a questo disturbo.Il servizio coinvolge diverse figure professionali (il neuropsichiatra infantile, lo psicologo, l'educatore e l'infermiere) e oggi segue una sessantina di bambini, per lo più lecchesi.

http://www.huffingtonpost.com/larry-diller/adderall-homework_b_1549595.html?

July 4, 2012
HUFFPOST HEALTHY LIVING
THE INTERNET NEWSPAPER: NEWS BLOGS VIDEO COMMUNITY

Lawrence Diller, M.D.
Behavioral and Developmental Pediatrician, Author, UCSF Clincal Faculty

The Homework Pill

Posted: 06/05/2012 4:00 pm

"Can you give me some Adderall that will help me get my homework done?" Joey, a 16-year-old high school sophomore asked me near the end of a meeting with his father and me. I was surprised by his request, but I shouldn't have been -- I've been prescribing drugs like Ritalin, Adderall and Concerta to children for more than 30 years. Yet Joey's request did catch me off guard because I had known Joey and his family for a dozen years for problems other than attention deficit disorder (ADD). He had always been an intense, persistent and socially-awkward boy, but now he wanted a medicine that could assist him in homework completion.

Joey's father had called me after an intense argument between them at home. Joey had pushed his father during the fight. His dad wanted to talk about Joey's one-day suspension from school. Joey had been verbally disrespectful to a teacher. Joey's grades had been borderline for all of his sophomore year. Now near the end of the term he was in danger of failing a class. Most of the session had been focused on his inconsistent school performance and increasing irritability. No one had mentioned medicine until Joey's question seemingly came out of the blue.

Many people remain unaware that the drugs called stimulants (various iterations of amphetamine) affect everyone the same. Low doses get people to stick with tasks they find boring or difficult. Impulsive hyperactive children often become more methodical and deliberate, which appears as "calming" them down. As the dose of amphetamine increases, hyperactive or distractible children will ultimately become more active, distractible and "tweaked," just like a methamphetamine abuser.

A "classic" study was published in 1980. Judith Rappoport, a child psychiatrist, now emeritus with the National Institute of Mental Health, wanted to prove once and for all that amphetamine "worked" on normal children too. Collecting a group of hyperactive children was relatively easy. Selecting a group of "normal" children was ethically dicey.

She and her colleagues decided to give 10 milligrams of Dexedrine to their own children and compared their performance to that of the hyperactive group in a series of simple but boring and repetitive math problems. What she found was that the stimulant improved the under-average performance of the hyperactive children to an average level, while the performance of the normal children increased to "supranormal" or above-average levels.

I knew Joey really didn't have ADD. But I was fairly certain that he was a bright enough child and would find getting his homework (boring and repetitive) done more efficiently and easier to complete on Adderall -- the stimulant of choice for college students who have discovered on their own prescription stimulants' effects on studying or cramming for a paper or exam. Why then, was I so uneasy about prescribing it to Joey?

As I said, I knew Joey didn't have ADD. Prior to high school he had always been a solid B student. But by his sophomore year his grades had declined to Cs and Ds. This decline in school performance (especially in boys) is common in early adolescence and is attributable to a concomitant decline in their motivation for doing schoolwork. Even without outright refusal, interest and persistence in school and homework become very inconsistent. Very bright children or those with particularly good study habits can survive this typical decline in motivation without a significant change at school, but for many teens performance and grades decline.

The good news is this trough is temporary for most children (girls are affected too). By mid to late adolescence most children begin to appreciate that grades now "count" for college and start to try harder.

Yet the behavior and symptoms of an inconsistently-motivated teenager are identical to the criteria of ADD. There are no brain scans or blood tests for any of the psychiatric disorders. All of them, like ADD, are lists of problem behaviors. Doctors routinely diagnose ADD in unmotivated teenagers with the implications that the problem is a biological, neurological, lifelong condition. Some of these children may actually have ADD, but in most cases the M.D.s are simply justifying to the child, parents, school and insurance company the use of these universal performance-enhancing medications.

Typically with a new family I would attempt to have the parents and school organize an academic "contract" with the teen that made rewards and consequences for school performance more immediate and meaningful in order to increase the teen's motivation. However, for many families (and I knew that Joey's family had already tried) this scheme doesn't work sufficiently. Then, I would prescribe a long-acting stimulant like Concerta or Adderall XR, making clear to the teen and his parents that I didn't believe I was treating ADD but, more honestly, a phasic decline in motivation.

That's what I did with Joey. He protested that he didn't need help with school during the day. His father felt he did. But I also felt uncomfortable with prescribing a drug for such a specific and limited problem as homework completion. The ethics and fairness of using performance-enhancing drugs is routinely challenged in sports but hardly discussed in academics. Somehow it's okay to use a drug to improve your school performance if there's a disorder, but it's "cheating" if you don't have a real problem and are just using it because you want to get ahead or you're a slacker.

I've drawn a line in the past when parents claimed ADD in their teen but said their child only "needed" the medicine when taking major exams. However, students report that this use, either officially supported or not by doctors, is widespread these days on college campuses.

No matter, doctors (and families) need to come clean about the ADD diagnosis. It is hypocritical and ultimately does true sufferers a disservice when we combine them with under-motivated normal children. The country is already quite cynical and suspicious of psychiatric diagnoses -- to wit the continuing controversies over the upcoming psychiatric bible of diagnosis, DSM-V.

Doctors routinely "upgrade" diagnoses to fit either a treatment or garner a reimbursement. But even erectile dysfunction to justify the use of Viagra for essentially enhancement purposes doesn't have the same lifetime implications of an ADD diagnosis for a teen who is only temporarily struggling with motivation. I suppose we need yet a new category in the DSM-V. I propose TMP, or transient motivation problem. Or we could just admit these are normal kids struggling to adjust to one of life's universal challenges.

Per ricevere la newsletter iscriversi al seguente indirizzo:
http://crc.marionegri.it/bonati/adhdnews/subscribe.html

Iniziativa nell'ambito del Progetto di Neuropsichiatria dell'Infanzia e dell'Adolescenza
Il Progetto è realizzato con il contributo, parziale, della Regione Lombardia
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Capofila Progetto: UONPIA Azienda Ospedaliera "Spedali Civili di Brescia"
"*Condivisione dei percorsi diagnostico-terapeutici per l'ADHD in Lombardia*".

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