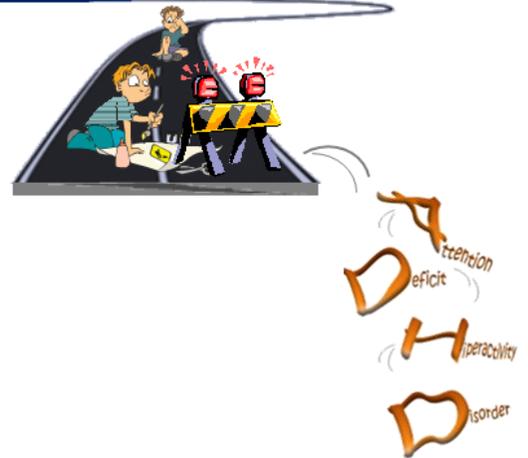




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BIBLIOGRAFIA ADHD SETTEMBRE 2017

ADHD Atten Deficit Hyperact Disord. 2017;1-9.

THE ZAPPEL-PHILIPP A HISTORICAL EXAMPLE OF ADHD CLINICS.

Bader M, Tannock R, Hadjikhani N.

In his book "Die Geschichte von dem Zappel-Philipp," the German psychiatrist Heinrich Hoffmann (1809-1894) offers a clinical vignette which raises the question of the description of a disobedient child or presenting hyperactivity symptoms. This article describes the historical context and the biographical aspects related to this interesting approach to describing a psychiatric syndrome to children and adults. It also underlines the importance of a global approach of ADHD that considers the familial environment and situational context of symptoms

Am J Epidemiol. 2017 Sep;186:593-602.

PARENTAL BODY MASS INDEX AND BEHAVIORAL PROBLEMS IN THEIR OFFSPRING: A DANISH NATIONAL BIRTH COHORT STUDY.

Mikkelsen SH, Hohwu L, Olsen J, et al.

Maternal obesity has been associated with increased risk of offspring behavioral problems. We examined whether this association could be explained by familial factors by comparing associations for maternal body mass index (BMI) with associations for paternal BMI. We studied 38,314 children born to mothers enrolled in the Danish National Birth Cohort during 1996-2002. Data on maternal BMI was collected at 15 weeks of gestation, and paternal BMI was assessed when the child was 18 months old. When the child was 7 years old, the Strengths and Difficulties Questionnaire was completed by the parents. We estimated odds ratios for behavioral problems in offspring born to overweight/obese parents, and we found that maternal BMI was associated with offspring behavioral problems. Maternal BMI of 25.0-29.9 was associated with a 33% (odds ratio = 1.33, 95% confidence interval: 1.13, 1.57) higher risk of total difficulties in offspring, and maternal BMI of ≥ 30.0 was associated with an 83% (odds ratio = 1.83, 95% confidence interval: 1.49, 2.25) higher risk. Paternal obesity was also associated with higher risk of offspring behavioral problems, but stronger associations were observed with maternal prepregnancy obesity. Our results suggest that part of the association between maternal BMI and behavioral problems can be accounted for by genetic and social factors, but environmental risk factors may also contribute to the etiology of behavioral problems

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.

Am J Psychiatry. 2017 Sep;174:867-76.

DEFINING THE NEURAL SUBSTRATE OF THE ADULT OUTCOME OF CHILDHOOD ADHD: A MULTIMODAL NEUROIMAGING STUDY OF RESPONSE INHIBITION.

Szekely E, Sudre GP, Sharp W, et al.

OBJECTIVE: Understanding the neural processes tied to the adult outcome of childhood attention deficit hyperactivity disorder (ADHD) could guide novel interventions to improve its clinical course. It has been argued that normalization of prefrontal cortical activity drives remission from ADHD, while anomalies in subcortical processes are "fixed," present even in remission. Using multimodal neuroimaging of inhibitory processes, the authors tested these hypotheses in adults followed since childhood, contrasting remitted against persistent ADHD.

METHOD: Adult participants (persistent ADHD, N=35; remit-ting ADHD, N=47; never affected, N=99) were scanned with functional MRI (fMRI) (N=85), magnetoencephalography (N=33), or both (N=63) during a response inhibition task.

RESULTS: In fMRI analyses, during inhibition, right caudate anomalies reflected a childhood ADHD history and were present even among those who remitted. By contrast, differences related to adult outcome emerged in cortical (right inferior frontal and inferior parietal/precuneus) and cerebellar regions. The persistent ADHD group showed under-activation, whereas the remitted ADHD group did not differ significantly from the never-affected group. Magnetoencephalography showed that the association between adult symptom severity and prefrontal neuronal activity was confined to the time window covering the act of inhibition (300 ms-350 ms). Group differences in cerebellar and parietal neuronal activity occurred during the time window of performance monitoring processes (500 ms-600 ms).

CONCLUSIONS: By combining fMRI and magnetoencephalography, the location and time window of neuronal activity that underpins the adult outcome of ADHD was pinpointed. Thus, the cortico-cerebellar processes tied to the clinical course of ADHD are separated from the subcortical processes that are not

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Am J Psychiatry. 2017;174:877-85.

ADHD MEDICATION AND SUBSTANCE-RELATED PROBLEMS.

Quinn PD, Chang Z, Hur K, et al.

Objective: Substance use disorders are major contributors to excess mortality among individuals with attention deficit hyperactivity disorder (ADHD), yet associations between pharmacological ADHD treatment and substance-related problems remain unclear. This study investigated concurrent and long-term associations between ADHD medication treatment and substance-related events.

Method: The authors analyzed 2005-2014 commercial health care claims from 2, 993, 887 (47.2% female) adolescent and adult ADHD patients. Within-individual analyses compared the risk of substance-related events (i.e., emergency department visits related to substance use disorders) during months in which patients received prescribed stimulant medication or atomoxetine relative to the risk during months in which they did not.

Results: In adjusted within-individual comparisons, relative to periods in which patients did not receive ADHD medication, male patients had 35% lower odds of concurrent substance-related events when receiving medication (odds ratio=0.65, 95% CI=0.64-0.67), and female patients had 31% lower odds of concurrent substance-related events (odds ratio=0.69, 95% CI=0.67-0.71). Moreover, male patients had 19% lower odds of substance-related events 2 years after medication periods (odds ratio=0.81, 95% CI=0.78-0.85), and female patients had 14% lower odds of substance-related events 2 years after medication periods (odds ratio=0.86, 95% CI= 0.82-0.91). Sensitivity analyses supported most findings but were less consistent for long-term associations among women.

Conclusions: These results provide evidence that receiving ADHD medication is unlikely to be associated with greater risk of substance-related problems in adolescence or adulthood. Rather, medication was associated with lower concurrent risk of substance-related events and, at least among men, lower long-term risk of future substance-related events

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Biol Psychiatry. 2017.

STRUCTURAL BRAIN ABNORMALITIES OF ATTENTION-DEFICIT/HYPERACTIVITY DISORDER WITH OPPOSITIONAL DEFIANT DISORDER.

Noordermeer SDS, Luman M, Greven CU, et al.

Background: Attention-deficit/hyperactivity disorder (ADHD) is associated with structural abnormalities in total gray matter, basal ganglia, and cerebellum. Findings of structural abnormalities in frontal and temporal lobes, amygdala, and insula are less consistent. Remarkably, the impact of comorbid oppositional defiant disorder (ODD) (comorbidity rates up to 60%) on these neuroanatomical differences is scarcely studied, while ODD (in combination with conduct disorder) has been associated with structural abnormalities of the frontal lobe, amygdala, and insula. The aim of this study was to investigate the effect of comorbid ODD on cerebral volume and cortical thickness in ADHD.

Methods: Three groups, 16 ± 3.5 years of age (mean \pm SD; range 7-29 years), were studied on volumetric and cortical thickness characteristics using structural magnetic resonance imaging (surface-based morphometry): ADHD+ODD (n = 67), ADHD-only (n = 243), and control subjects (n = 233). Analyses included the moderators age, gender, IQ, and scan site.

Results: ADHD+ODD and ADHD-only showed volumetric reductions in total gray matter and (mainly) frontal brain areas. Stepwise volumetric reductions (ADHD+ODD < ADHD-only < control subjects) were found for mainly frontal regions, and ADHD+ODD was uniquely associated with reductions in several structures (e.g., the precuneus). In general, findings remained significant after accounting for ADHD symptom severity. There were no group differences in cortical thickness. Exploratory voxelwise analyses showed no group differences.

Conclusions: ADHD+ODD and ADHD-only were associated with volumetric reductions in brain areas crucial for attention, (working) memory, and decision-making. Volumetric reductions of frontal lobes were largest in the ADHD+ODD group, possibly underlying observed larger impairments in neurocognitive functions. Previously reported striatal abnormalities in ADHD may be caused by comorbid conduct disorder rather than ODD

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Biol Psychiatry. 2017.

FAMILIAL LIABILITY TO EPILEPSY AND ATTENTION-DEFICIT/HYPERACTIVITY DISORDER: A NATIONWIDE COHORT STUDY.

Brikell I, Ghirardi L, D'Onofrio BM, et al.

Background: Epilepsy and attention-deficit/hyperactivity disorder (ADHD) are strongly associated; however, the underlying factors contributing to their co-occurrence remain unclear. A shared genetic liability has been proposed as one possible mechanism. Therefore, our goal in this study was to investigate the familial coaggregation of epilepsy and ADHD and to estimate the contribution of genetic and environmental risk factors to their co-occurrence.

Methods: We identified 1,899,654 individuals born between 1987 and 2006 via national Swedish registers and linked each individual to his or her biological relatives. We used logistic regression to estimate the association between epilepsy and ADHD within individual and across relatives. Quantitative genetic modeling was used to decompose the cross-disorder covariance into genetic and environmental factors.

Results: Individuals with epilepsy had a statistically significant increased risk of ADHD (odds ratio [OR] = 3.47, 95% confidence interval [CI] = 3.33-3.62). This risk increase extended to children whose mothers had epilepsy (OR = 1.85, 95% CI = 1.75-1.96), children whose fathers had epilepsy (OR = 1.64, 95% CI = 1.54-1.74), full siblings (OR = 1.56, 95% CI = 1.46-1.67), maternal half siblings (OR = 1.28, 95% CI = 1.14-1.43), paternal half siblings (OR = 1.10, 95% CI = 0.96-1.25), and cousins (OR = 1.15, 95% CI = 1.10-1.20). The genetic correlation was 0.21 (95% CI = 0.02-0.40) and explained 40% of the phenotypic correlation between epilepsy and ADHD, with the remaining variance largely explained by nonshared environmental factors (49%, nonshared environmental correlation = 0.36, 95% CI = 0.23-0.49). The contribution of shared environmental factors to the cross-disorder overlap was not statistically significant (11%, shared environmental correlation = 0.32, 95% CI = -0.16-0.79).

Conclusions: This study demonstrates a strong and etiologically complex association between epilepsy and ADHD, with shared familial factors and risk factors unique to the individual contributing to co-occurrence of

the disorders. Our findings suggest that epilepsy and ADHD may share less genetic risk as compared with other neurodevelopmental disorders

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Biol Psychiatry. 2017.

THE ASSOCIATION BETWEEN PRENATAL STRESS AND EXTERNALIZING SYMPTOMS IN CHILDHOOD: EVIDENCE FROM THE AVON LONGITUDINAL STUDY OF PARENTS AND CHILDREN.

MacKinnon N, Kingsbury M, Mahedy L, et al.

Background: It has been suggested that prenatal maternal stress may increase the risk of childhood externalizing disorders, yet no large cohort study has investigated this association across a large range of acute stressors. Our objective was to estimate the association between prenatal stressful events and risk of offspring conduct disorder and hyperactivity.

Methods: We used data from 10,184 mother-offspring pairs from the United Kingdom-based Avon Longitudinal Study of Parents and Children. Mothers self-reported 42 prenatal stressful life events at 18 weeks' gestation. Symptoms of conduct disorder and hyperactivity in their offspring were measured at 6, 9, 11, 13, and 16 years of age using the Strengths and Difficulties Questionnaire. The primary outcome was membership in high-symptom trajectories of 1) conduct disorder and 2) hyperactivity throughout childhood, identified using latent class growth modeling. Multinomial logistic regression models estimated the association between prenatal stress and both conduct disorder and hyperactivity, after adjusting for sex, parental education, low birth weight, preterm birth, parental social class, maternal smoking and drinking, maternal mental health, offspring stressful life events, and offspring depressive and anxious symptoms.

Results: Those exposed to the highest quartile of prenatal stress were more likely to belong to the high symptom trajectory for hyperactivity ($B = 0.46$, $p < .05$) and conduct disorder ($B = 0.88$, $p < .01$), respectively. Prenatal stress further demonstrated a positive, dose-response relationship with symptoms of externalizing disorders at independent time points.

Conclusions: The findings suggest that prenatal stressful events may be an independent risk factor for offspring externalizing symptoms, regardless of maternal mental health and offspring internalizing

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BMC Infect Dis. 2017 Jun;17:398.

DESIGN OF A SYNDemic BASED INTERVENTION TO FACILITATE CARE FOR MEN WHO HAVE SEX WITH MEN WITH HIGH RISK BEHAVIOUR: THE SYN.BAS.IN RANDOMIZED CONTROLLED TRIAL.

Achterbergh RCA, van der Helm JJ, van den Brink W, et al.

BACKGROUND: Men who have sex with men (MSM) constitute a risk group for sexual transmitted infections (STIs), including HIV. Despite counselling interventions, risk behaviour remains high. Syndemic theory holds that psychosocial problems often co-occur, interact and mutually reinforce each other, thereby increasing high risk behaviours and co-occurring diseases. Therefore, if co-occurring psychosocial problems were assessed and treated simultaneously, this might decrease high risk behaviour and disease.

METHOD: An open label randomized controlled trial will be conducted among 150 MSM with high risk behaviour recruited from the STI clinic of Amsterdam. Inclusion criteria are: HIV negative MSM with two STI and/or PEP treatment in the last 24 months, or HIV positive MSM with one STI in the last 24 months. All participants get questionnaires on the following syndemic domains: ADHD, depression, anxiety disorder, alexithymia and sex- and drug addiction. Participants in the control group receive standard care: STI screenings every three months and motivational interviewing based counselling. Participants in the experimental group receive standard care plus feedback based on the results of the questionnaires. All participants can be referred to co-located mental health or addiction services. The primary outcome is help seeking behaviour for mental health problems and/or drug use problems. The secondary outcomes are STI incidence and changes in sexual risk behaviour (i.e. condom use, number of anal sex partners, drug use during sex).

DISCUSSION: This study will provide information on syndemic domains among MSM who show high risk behaviour and on the effect of screening and referral on help seeking behaviour and health (behaviour) outcomes.

TRIAL REGISTRATION: Trial Registration at clinicaltrials.gov, identifier NCT02859935

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BMC Psychiatry. 2017 Sep;17.

A CASE OF A FOUR-YEAR-OLD CHILD ADOPTED AT EIGHT MONTHS WITH UNUSUAL MOOD PATTERNS AND SIGNIFICANT POLYPHARMACY.

Romanowicz M, McKean AJ, Vande Voort J.

Background: Long-term effects of neglect in early life are still widely unknown. Diversity of outcomes can be explained by differences in genetic risk, epigenetics, prenatal factors, exposure to stress and/or substances, and parent-child interactions. Very common sub-threshold presentations of children with history of early trauma are challenging not only to diagnose but also in treatment.

Case presentation: A Caucasian 4-year-old, adopted at 8 months, male patient with early history of neglect presented to pediatrician with symptoms of behavioral dyscontrol, emotional dysregulation, anxiety, hyperactivity and inattention, obsessions with food, and attachment issues. He was subsequently seen by two different child psychiatrists. Pharmacotherapy treatment attempted included guanfacine, fluoxetine and amphetamine salts as well as quetiapine, aripiprazole and thioridazine without much improvement. Risperidone initiated by primary care seemed to help with his symptoms of dyscontrol initially but later the dose had to be escalated to 6 mg total for the same result. After an episode of significant aggression, the patient was admitted to inpatient child psychiatric unit for stabilization and taper of the medicine.

Conclusions: The case illustrates difficulties in management of children with early history of neglect. A particular danger in this patient population is polypharmacy, which is often used to manage transdiagnostic symptoms that significantly impacts functioning with long term consequences

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Brain Topogr. 2017 Sep;30:656-72.

TRANSCRANIAL DIRECT CURRENT STIMULATION MODULATES NEURONAL NETWORKS IN ATTENTION DEFICIT HYPERACTIVITY DISORDER.

Sotnikova A, Soff C, Tagliazucchi E, et al.

Anodal transcranial direct current stimulation (tDCS) of the prefrontal cortex has been repeatedly shown to improve working memory (WM). Since patients with attention deficit hyperactivity disorder (ADHD) are characterized by both underactivation of the prefrontal cortex and deficits in WM, the modulation of prefrontal activity with tDCS in ADHD patients may increase their WM performance as well as improve the activation and connectivity of the WM network. In the present study, this hypothesis was tested using a double-blind sham-controlled experimental design. After randomization, sixteen adolescents with ADHD underwent either anodal tDCS over the left dorsolateral prefrontal cortex (DLPFC, 1 mA, 20 min) or sham stimulation with simultaneous fMRI during n-back WM task. Both in one-back and two-back conditions, tDCS led to a greater activation (compared with sham stimulation) of the left DLPFC (under the electrode), left premotor cortex, left supplementary motor cortex, and precuneus. The effects of tDCS were long-lasting and influenced resting state functional connectivity even 20 min after the stimulation, with patterns of strengthened DLPFC connectivity after tDCS outlining the WM network. In summary, anodal tDCS caused increased neuronal activation and connectivity, not only in the brain area under the stimulating electrode (i.e. left DLPFC) but also in other, more remote brain regions. Because of moderate behavioral effects of tDCS, the significance of this technique for ADHD treatment has to be investigated in further studies

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Child Care Health Dev. 2017 Sep;43:670-78.

DISCREPANCIES BETWEEN SELF- AND ADULT-PERCEPTIONS OF SOCIAL COMPETENCE IN CHILDREN WITH NEUROPSYCHIATRIC DISORDERS.

Vuori M, Autti-Rämö I, Junttila N, et al.

Background: The present study examines discrepancies between self- and adult-perceptions of social competence in children with attention deficit-hyperactivity disorder (ADHD), autism spectrum disorders (ASD) and possible co-morbid disruptive behaviour disorders (DBD).

Method: Self-reported questionnaires were collected from multiple informants at the baseline of a multi-systemic family intervention programme for children (aged 5–12) with ADHD, ASD and possible co-morbid DBD. In total, out of the 154 families eligible for the study, information was received concerning children from 124 families (children n = 121; mothers n = 117; fathers n = 86; teachers n = 97). In addition to this, a comparison community sample of 318 school-aged children (approximately 10 years old) was utilized to examine the perceptions of children's social competence across intervention and population groups in more detail.

Results: Children's self-perceptions in the prosocial dimension of social competence (i.e. cooperating skills, empathy) did not differ between the intervention and comparison groups. Interestingly, the children in the intervention sample expressed more impulsivity and disruptiveness – the antisocial dimension of social competence—when compared with the children in the comparison sample. Adult ratings demonstrated that mothers, fathers and teachers reported decreased prosocial behaviour and increased antisocial behaviour across overall dimensions and sub-dimensions when compared with adults' ratings of elementary school children. Informant discrepancies between self-ratings and adult ratings across intervention groups yielded significant effect sizes (eta-squared) across all domains of social competence ranging from .09 to .25.

Conclusion: Children's positive self-ratings of social competence relative to adult ratings increased within intervention sample when compared with population sample. The intervention sample children appeared to acknowledge their social competence deficits, yet self-perceptions were inflated relative to adult ratings when focusing on peer relationship difficulties, particularly, aggression to peers.

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Clinical Imaging. 2018;47:47-51.

ALTERED PATTERNS OF RESTING-STATE FUNCTIONAL CONNECTIVITY BETWEEN THE CAUDATE AND OTHER BRAIN REGIONS IN MEDICATION-NAIVE CHILDREN WITH ATTENTION DEFICIT HYPERACTIVITY DISORDER.

Yang Z, Li H, Tu W, et al.

Background Structural and functional alterations occur in the caudate of patients with attention-deficit/hyperactivity disorder (ADHD). Here we aimed to investigate the functional connectivity between the dorsal caudate and other brain regions in ADHD children.

Methods Resting-state functional connectivity from 30 ADHD and 33 age- and gender-matched normal children were measured by functional Magnetic Resonance Imaging.

Results Positive connectivity with dorsal caudate was observed in the prefrontal areas, cingulate cortex and temporal lobe. Negative functional connectivity was observed in the precuneus, occipital cortices and cerebellum. The connectivity of left dorsal caudate to left inferior frontal gyrus was correlated with severity of ADHD.

Conclusions Connectivity of dorsal caudate with several brain regions was identified in ADHD children

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Clin Pract Pediatr Psychol. 2017 Sep;5:221-31.

BEHAVIORAL PARENT TRAINING GROUPS FOR ADHD IN CLINICAL SETTINGS: DOES OFFERING A CONCURRENT CHILD GROUP ADD VALUE?

Loren REA, Ciesielski HA, Tamm L.

There is strong evidence for the efficacy of behavioral parent training (BPT) for attention deficit/hyperactivity disorder (ADHD). However, BPT can be difficult to access in many communities, which may be due to practical considerations including whether to offer concurrent child groups. Few studies have specifically

examined whether concurrent child treatment is beneficial for ADHD—particularly in real-world clinical settings (i.e., not in a formal research context). Concurrent child groups may improve adherence as they address a practical barrier to attendance, and may boost treatment outcomes given the additional treatment provided directly to children. However, this should be empirically verified given that offering concurrent child treatment poses a number of practical and costly challenges (e.g., extra staff, extra space) that are not recouped by insurance reimbursement. This preliminary study explores whether offering concurrent child treatment groups provides added treatment benefits in a sample of convenience obtained from an outpatient clinic. Data was collected from 241 parents of 6- to 12-year-old children with ADHD who attended 1 of 37 8-session BPT groups, of which 15 offered a concurrent child group. Parents completed ratings of child impairment and parenting confidence at the first and last BPT session. Results showed that clinical improvement was equitable regardless of whether a concurrent child group was attended, and there were no demographic or clinical differences between those who opted to attend the parent+child groups and those who did not. Suggestions are provided for clinicians who may decide to discontinue offering concurrent child groups

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Complement Ther Med. 2017;34:123-28.

MANAGING CHILDHOOD AND ADOLESCENT ATTENTION-DEFICIT/HYPERACTIVITY DISORDER (ADHD) WITH EXERCISE: A SYSTEMATIC REVIEW.

Ng QX, Ho CYX, Chan HW, et al.

Background Attention deficit hyperactivity disorder (ADHD) is one of the most common neuropsychiatric disorders affecting some 8-10% of children worldwide. Increasing research has shed light on the life course of the disorder, suggesting that majority of children with ADHD will continue to have persistent symptoms into adulthood. The mainstay of ADHD management has been pharmacologic and behavioural/psychological interventions, with little attention paid to exercise as a potential management strategy. A systematic review, examining both the short-term and long-term effects of exercise on children with ADHD, is timely and necessary to guide further research in this area.

Methods Using the keywords [exercise OR physical OR activity OR sport] AND [attention deficit hyperactivity disorder OR ADHD OR ADDH], a preliminary search on the PubMed and Ovid database yielded 613 papers published in English between 1-Jan-1980 and 1-July-2016. Full articles were also reviewed for references of interest.

Results A total of 30 studies were included in this systematic review. Both short-term and long-term studies support the clinical benefits of physical activity for individuals with ADHD. Cognitive, behavioural and physical symptoms of ADHD were alleviated in most instances, and the largest intervention effects were reported for mixed exercise programs. No adverse effects arising from physical exercise were reported in any of the studies, suggesting that exercise is a well-tolerated intervention.

Conclusion Physical activity, in particular moderate-to-intense aerobic exercise, is a beneficial and well-tolerated intervention for children and adolescents with ADHD. Future research should include more adequately-powered trials and investigate the ideal exercise prescription

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Conf Proc IEEE Eng Med Biol Soc. 2016 Aug;2016:363-66.

CLASSIFICATION OF ADHD AND NON-ADHD USING AR MODELS.

Lopez Marcano JL, Bell MA, Beex AA.

Accurate and confident diagnosis of ADHD is highly dependent on subjective observations. Several quantitative methods have been proposed, posing it as a two-class classification problem (ADHD and non-ADHD). However, the results have not made it past the research stage yet, as misclassification rates must be close to 0%. This study aims to discriminate ADHD and non-ADHD subjects using autoregressive models,

with a high level of accuracy (85-95%). In addition, a confidence metric is proposed, expressing with how much confidence the classification of ADHD and non-ADHD subjects is made

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Confl Health. 2016;10:14.

DANGEROUS CROSSING: DEMOGRAPHIC AND CLINICAL FEATURES OF RESCUED SEA MIGRANTS SEEN IN 2014 AT AN OUTPATIENT CLINIC AT AUGUSTA HARBOR, ITALY.

Trovato A, Reid A, Takarinda KC, et al.

BACKGROUND: In recent years Europe has received an increasing influx of migrants, many of whom risked their lives crossing the Mediterranean Sea. In October 2013, Italy launched a search and rescue operation at sea in response to migrant deaths during the sea crossing. In August 2014, Medecins sans Frontieres and the local Ministry of Health established an outpatient clinic at Augusta harbor, in Sicily, which received 26 % of total sea migrants arrived in Italy in 2014, to provide immediate medical assessment and care.

METHODS: This is a descriptive study of demographic and clinical data of sea migrants seen at the port clinic in Augusta from August to December 2014. We compared migrants from Near Eastern, war-torn regions (Group 1) and the others, mostly African (Group 2), as there were significant differences in terms of demographic and morbidity profiles.

RESULTS: There were 2593 migrants consulting the clinic (17 % of all rescued migrants) with 5 % being referred to hospital. Most were young males. The overall burden of vulnerability (pregnant women, children </=5 years, unaccompanied minors, single parents with children of minor age, disabled and elderly persons) was 24 %. There were more small children, pregnant women, elderly, disabled, and persons with chronic diseases in Group 1, as compared to Group 2. Group 2 had more unaccompanied minors. Morbidities in common were respiratory, dermatological, trauma-related and gastrointestinal conditions. However, acute and chronic cardiovascular disease, as well as diabetes, were more frequent in Group 1; chronic diseases affected 19 % of this group. Group 2 had more patients with skin diseases. Most migrants attributed their presenting symptoms to the perils of their journey. No risks for public health were detected.

CONCLUSION: Among sea migrants, we identified two groups with different demographic and clinical characteristics, as well as vulnerability patterns. Overall morbidity suggested that the dangerous journey affected migrants' health. Medical activities at reception sites should include screening for vulnerability and chronic disease management. Ensuring medical care to migrants on arrival can address European humanitarian obligations and provide support to local medical facilities

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Contemp Educ Psychol. 2017 Jul;50:4-12.

ACADEMIC RED-SHIRTING AND ACADEMIC ACHIEVEMENT AMONG STUDENTS WITH ADHD.

Barnard-Brak L, Stevens T, Albright E.

Academic red-shirting via voluntary delayed school entry is a debatable practice for students but has been argued a potentially viable practice for children with a range of disabilities by providing students 'the gift of time.' The current study (n = 21,409) indicated that children with ADHD (n = 1057) were more likely to be red-shirted as compared to children without ADHD (n = 20,352). We examined the academic trajectories of those children with ADHD who were red-shirted versus children with ADHD who were not red-shirted. Results revealed no meaningful association of red-shirting with academic achievement across time. We subsequently examined the relationship of red-shirting and academic achievement among children with ADHD who received medication (n = 426) versus children with ADHD who did not receive medication (n = 631). Among children with medicated ADHD, the negative association of red-shirting with achievement across time was stronger but medication received was also associated with more severe symptoms of inattention across time, which may account for this relationship. Academic red-shirting does not appear to be especially beneficial for students with ADHD (medicated or not) in terms of academic achievement across time

East Mediterr Health J. 2017;23:492-99.

PREVALENCE AND PREVENTABILITY OF SENTINEL EVENTS IN SAUDI ARABIA: ANALYSIS OF REPORTS FROM 2012 TO 2015.

Al WS, Farahat F, Bahloul AY.

This study aimed to assess the pattern of sentinel events reported to Ministry of Health of Saudi Arabia from January 2012 to June 2015. Sentinel event reports were examined for patient characteristics, type of event, outcome, cause and preventability. There were 433 sentinel events: 58.2% were deaths, 14.8% were unexpected loss of a limb or a function, 7.4% major medication errors and 7.4% retained instruments or sponges. Among the reported events, 44% were associated with surgical interventions and most were classified as preventable (91.6%). Age 19-64 years was significantly associated with death as an outcome ($P = 0.02$). Non-preventable sentinel events were significantly more likely among women than men ($P = 0.01$). Unavailability of policy and procedures and/ or failure to implement them (55%), and lack of proper communication (35%) and training (33%) were the main causes for the adverse events. Efforts should focus on enhancing the National Sentinel Events Reporting System, adopting criteria for effective reporting and ensuring availability and implementation of policies and procedures

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East Mediterr Health J. 2017;23:486-91.

PREVALENCE OF ATTENTION DEFICIT HYPERACTIVITY DISORDER AMONG SCHOOL-AGED CHILDREN IN JORDAN.

Al AM, Al BM, Tubaishat A, et al.

The purpose of this study was to determine the prevalence of attention deficit hyperactivity disorder (ADHD) symptoms among school children in Jordan and the probable associated risk factors. This was a cross-sectional descriptive study and simple random sampling was used to select 480 students, aged 6-12 years, from government primary schools in Mafraq City, Jordan. Data were collected using the modified Arabic version of the Attention Deficit Disorder Evaluation Scale (ADDES) school version and parental questionnaire. Prevalence rates within the inattentive, hyperactive-impulsive and combined subtypes were 10.83, 9.58 and 20.21%, respectively. Increased family size and being male were both associated with increased prevalence of ADHD symptoms. The study revealed that ADHD is common among Jordanian school children. The government should establish education programmes to increase awareness of ADHD

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Encephale. 2017.

WHAT DO VIRTUAL REALITY TOOLS BRING TO CHILD AND ADOLESCENT PSYCHIATRY?

Bioulac S, de SE, Sagaspe P, et al.

Virtual reality is a relatively new technology that enables individuals to immerse themselves in a virtual world. It offers several advantages including a more realistic, lifelike environment that may allow subjects to "forget" they are being assessed, allow a better participation and an increased generalization of learning. Moreover, the virtual reality system can provide multimodal stimuli, such as visual and auditory stimuli, and can also be used to evaluate the patient's multimodal integration and to aid rehabilitation of cognitive abilities. The use of virtual reality to treat various psychiatric disorders in adults (phobic anxiety disorders, post-traumatic stress disorder, eating disorders, addictions...) and its efficacy is supported by numerous studies. Similar research for children and adolescents is lagging behind. This may be particularly beneficial to children who often show great interest and considerable success on computer, console or videogame tasks. This article will expose the main studies that have used virtual reality with children and adolescents suffering from psychiatric disorders. The use of virtual reality to treat anxiety disorders in adults is gaining popularity and its efficacy is supported by various studies. Most of the studies attest to the significant efficacy of the virtual reality exposure therapy (or in virtual exposure). In children, studies have covered arachnophobia social anxiety and school refusal phobia. Despite the limited number of studies, results are very encouraging for treatment in anxiety disorders. Several studies have reported the clinical use of virtual reality technology for children and adolescents with autistic spectrum disorders (ASD). Extensive research has proven the efficiency of technologies as support tools for therapy. Researches are found to be focused on communication and on

learning and social imitation skills. Virtual reality is also well accepted by subjects with ASD. The virtual environment offers the opportunity to administer controlled tasks such as the typical neuropsychological tools, but in an environment much more like a standard classroom. The virtual reality classroom offers several advantages compared to classical tools such as more realistic and lifelike environment but also records various measures in standardized conditions. Most of the studies using a virtual classroom have found that children with Attention Deficit/Hyperactivity Disorder make significantly fewer correct hits and more commission errors compared with controls. The virtual classroom has proven to be a good clinical tool for evaluation of attention in ADHD. For eating disorders, cognitive behavioural therapy (CBT) program enhanced by a body image specific component using virtual reality techniques was shown to be more efficient than cognitive behavioural therapy alone. The body image-specific component using virtual reality techniques boosts efficiency and accelerates the CBT change process for eating disorders. Virtual reality is a relatively new technology and its application in child and adolescent psychiatry is recent. However, this technique is still in its infancy and much work is needed including controlled trials before it can be introduced in routine clinical use. Virtual reality interventions should also investigate how newly acquired skills are transferred to the real world. At present virtual reality can be considered a useful tool in evaluation and treatment for child and adolescent disorders

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Eur Arch Psychiatry Clin Neurosci. 2017 Sep;267:541-49.

DIFFERENCES IN THE ASSOCIATION BETWEEN CHILDHOOD TRAUMA HISTORY AND BORDERLINE PERSONALITY DISORDER OR ATTENTION DEFICIT/HYPERACTIVITY DISORDER DIAGNOSES IN ADULTHOOD.

Ferrer M, Andi n  , Calvo N, et al.

Common environmental etiological factors between borderline personality disorder (BPD) and attention deficit/hyperactivity disorder (ADHD) have not been fully studied. The main aim of this study was to investigate the relationship between childhood trauma histories, assessed by the Childhood Trauma Questionnaire-Short Form (CTQ-SF), with adult BPD, ADHD or BPD-ADHD diagnoses. Comorbid BPD-ADHD patients exhibited significantly higher clinical severity and higher scores in the Total Neglect Scale, compared to BPD and ADHD patients, and only a marginal difference was observed for Sexual Abuse when BPD and ADHD patients were compared. Physical Trauma Scales were associated with ADHD diagnosis, whereas Emotional Abuse and Sexual Abuse Scales were associated with BPD or BPD-ADHD diagnoses. The study findings support the association between experiencing traumatic events in childhood and a higher clinical severity of BPD in adulthood. Furthermore, physical trauma history in childhood could be associated with the persistence of ADHD in adulthood and emotional or sexual abuse with later development of BPD or comorbid BPD-ADHD. Whereas experiencing childhood traumas is associated with later development of more general psychopathology, our study supports that a specific type of traumatic event could increase the risk for the consolidation of a concrete psychiatric disorder in the trajectory from childhood to adulthood of vulnerable subjects

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Eur Child Adolesc Psychiatry. 2017;1-10.

DOSAGE OF METHYLPHENIDATE AND TRAUMATIC BRAIN INJURY IN ADHD: A POPULATION-BASED STUDY IN TAIWAN.

Liao Y-T, Yang Y-H, Kuo T-Y, et al.

Preventive effect of stimulants on the risk of brain injuries had been reported. The aim of this study is to determine the extent to which methylphenidate (MPH) prescription moderates the risk of traumatic brain injuries (TBI) in individuals with attention-deficit/hyperactivity disorder (ADHD). Individuals with a recent diagnosis of ADHD between January 1997 and December 2013 (n = 163,618) were identified from Taiwan's National Health Insurance Research Database. A total of 124,438 adolescents and children with ADHD and without prior TBI diagnoses were included and evaluated for subsequent TBI. Methylphenidate prescription duration was subgrouped by the annual average cumulative defined daily dose (DDD): 0, >0 to 28, > 28 to 84, and >84. We identified 11,463 diagnoses of TBI among 124,438 adolescents and children with ADHD. A Cox regression model was used to investigate whether MPH prescription

influenced the risk for TBI after adjusting for sex, age, level of urbanization, seizure, autism and sedative–anxiolytics use. A reduced TBI incidence was observed with MPH prescription DDDs > 84. The protective effect of MPH against TBI persisted after adjusting for confounding factors [hazard ratio (HR) = 0.49; 95% confidence interval (CI): 0.47–0.51]. There was also statistically significant difference in risk for TBI in subjects receiving > 0 to 28 or >28 to 84 DDDs of MPH treatment (HR = 0.88, 95% CI = 0.83–0.92; HR = 0.76, 95% CI = 0.72–0.80, respectively) when compared with subjects not receiving treatment with MPH. Treatment with MPH for greater than 84 DDDs reduced the risk for TBI among children with ADHD

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Eur Child Adolesc Psychiatry. 2017;26:1067-79.

ELIMINATION DIETS AND EFFICACY AND MECHANISMS IN ATTENTION DEFICIT HYPERACTIVITY DISORDER AND AUTISM SPECTRUM DISORDER.

Ly V, Bottelier M, Hoekstra PJ, et al.

Nutrition plays an important role in neurodevelopment. This insight has led to increasing research into the efficacy of nutrition-related interventions for treating neurodevelopmental disorders. This review discusses an elimination diet as a treatment for attention deficit hyperactivity disorder and autism spectrum disorder, with a focus on the efficacy of the food additives exclusion diet, gluten-free/casein-free diet and oligoantigenic diet. Furthermore, we discuss the potential mechanisms of elimination diets effects in these neurodevelopmental disorders. The main candidate mechanism is the microbiome gut brain axis possibly involving complex interactions between multiple systems, including the metabolic, immune, endocrine, and neural system. We conclude with practical implications and future directions into the investigation of an elimination diet's efficacy in the treatment of attention deficit hyperactivity disorder and autism spectrum disorder

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Front Psychiatry. 2017;8.

ATTENTION CONTRIBUTES TO ARITHMETIC DEFICITS IN NEW-ONSET CHILDHOOD ABSENCE EPILEPSY.

Cheng D, Yan X, Gao Z, et al.

Neuropsychological studies indicate that new-onset childhood absence epilepsy (CAE) is associated with deficits in attention and executive functioning. However, the contribution of these deficits to impaired academic performance remains unclear. We aimed to examine whether attention and executive functioning deficits account for the academic difficulties prevalent in patients with new-onset CAE. We analyzed cognitive performance in several domains, including language, mathematics, psychomotor speed, spatial ability, memory, general intelligence, attention, and executive functioning, in 35 children with new-onset CAE and 33 control participants. Patients with new-onset CAE exhibited deficits in mathematics, general intelligence, attention, and executive functioning. Furthermore, attention deficits, as measured by a visual tracing task, accounted for impaired arithmetic performance in the new-onset CAE group. Therefore, attention deficits, rather than impaired general intelligence or executive functioning, may be responsible for arithmetic performance deficits in patients with new-onset CAE

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Group Dyn. 2017 Sep;21:135-47.

PSYCHODYNAMIC GROUP INTERVENTION WITH PARENTS OF CHILDREN WITH ATTENTION-DEFICIT/HYPERACTIVITY DISORDER: OUTCOMES FOR PARENTS AND THEIR CHILDREN.

Ziperfal M, Shechtman Z.

The study measured the impact of a psychodynamic group intervention on parents of children with attention-deficit/hyperactivity disorder. Outcomes of treatment for the 78 parents (perceived social support, parenting style, and self-efficacy) and their nontreated children (n = 78; self-efficacy and emotional/behavioral state) were compared with nontreatment parents at pre–post measurement. For treatment parents, a follow-up measurement was conducted. Treatment parents showed better outcomes than nontreatment parents on all

measures. Children of treatment parents showed more favorable outcomes than children of nontreatment parents, further validating the impact of the intervention. The conclusion is that psychodynamic interventions that target broad characteristics of parenting are effective in bringing change to parents and children alike

International Archives of Otorhinolaryngology. 2017.

THE EFFECT OF METHYLPHENIDATE ON THE HEARING OF CHILDREN WITH ATTENTION DEFICIT HYPERACTIVITY DISORDER.

İsmi O, Yildirim V, Vayisoglu Y, et al.

Introduction There has been a sudden idiopathic hearing loss case presented after methylphenidate treatment in a child with attention deficit hyperactivity disorder (ADHD).

Objective This study was performed to reveal the probable ototoxic side effects of methylphenidate use in patients with ADHD.

Methods Thirty pediatric patients with ADHD were included in the study. Pure tone audiometry, speech discrimination scores, waves I, III, V absolute latencies and waves I-III, I-V, III-V interpeak latencies at the 80 dB nHL intensity after click stimulus auditory brainstem response (ABR) results were compared before and 3 months after methylphenidate treatment.

Results There were no statistically significant difference between pretreatment and posttreatment pure tone and speech audiometry findings and ABR results ($p > 0.05$ for all parameters).

Conclusion Methylphenidate can be regarded as a safe drug regarding ototoxic side effects. Additional studies with a larger sample size and longer follow-up may be needed

Iranian Journal of Psychiatry and Clinical Psychology. 2017;22:200-11.

COMPARING EXECUTIVE COGNITIVE FUNCTIONS OF BRAIN IN TWO GROUPS OF ADHD CHILDREN WITH AND WITHOUT ANXIETY.

Falatooni S, Pirkhaefi A, Dodangi N.

Objectives: This study was conducted to compare the executive cognitive functions of the brain in two groups of Attention Deficit Hyperactivity Disorder (ADHD) children with and without anxiety.

Methods: In this cross-sectional comparative study, 15 children with ADHD and 15 children with ADHD and anxiety were compared in terms of executive functions. The study population was chosen from patients in three region of Tehran city (one, three and nine regions) through clinical interviews and questionnaires (Kiddie-Schedule for Affective Disorders and Schizophrenia (K-SADS), ADHD Rating Scale, Kaners, Revised Children's Manifest Anxiety Scale (RCMAS). The executive functions were evaluated using the Tower of London Test (TOL) and Wisconsin Card Sorting Test (WSCT).

Results: The results showed a significant difference between ADHD children with and without comorbid anxiety ($P = 0.05$) in terms of executive cognitive functions of the brain (problem-solving and decision making, impulsivity, and abstract thinking).

Conclusion: In this study, it was found that children with ADHD and anxiety are better in abstract thinking and flexibility and impulse control (they had fewer errors in WSCT) because anxiety can control risk-taking behaviors and impulsivity, but they have more deficits in decision making

J Autism Dev Disord. 2017 Mar;47:744-67.

COMMUNICATION INTERVENTION FOR YOUNG CHILDREN WITH SEVERE NEURODEVELOPMENTAL DISABILITIES VIA TELEHEALTH.

Simacek J, Dimian AF, McComas JJ.

Young children with neurodevelopmental disorders such as autism spectrum disorders (ASD) and Rett syndrome often experience severe communication impairments. This study examined the efficacy of parent-implemented communication assessment and intervention with remote coaching via telehealth on the

acquisition of early communication skills of three young children with ASD (2) and Rett syndrome (1). Efficacy of the intervention was evaluated using single-case experimental designs. First, functional assessment was used to identify idiosyncratic/potentially communicative responses and contexts for each child. Next, parents implemented functional communication training (FCT). All of the children acquired the targeted communication responses. The findings support the efficacy of telehealth as a service delivery model to coach parents on intervention strategies for their children's early communication skills

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J Child Psychol Psychiatry. 2017 Jul.

EVALUATING SOCIAL (PRAGMATIC) COMMUNICATION DISORDER.

Mandy W, Wang A, Lee I, et al.

BACKGROUND: Social (pragmatic) communication disorder (SPCD) is a new diagnosis introduced by DSM-5, characterised by problems with verbal and nonverbal social communication. It is currently unclear whether SPCD is a valid diagnostic category, because little is known about the characteristics of those who meet its criteria. We sought to identify and describe cases of SPCD, to contribute to debates about its validity. We investigated whether the symptoms of SPCD cluster together to form a coherent syndrome that is distinct from autism spectrum disorder (ASD) in terms of its core and associated features.

METHODS: Participants were young people (N = 1,081, age range = 4-18 years) who had attended a specialist social communication disorders clinic for children with fluent language and normal-range intelligence. Standardised parent-report data were collected using the Developmental, Dimensional and Diagnostic Interview (3Di), Child Communication Checklist (CCC) and Strengths and Difficulties Questionnaire (SDQ). An algorithm was designed using 3Di and CCC items to implement DSM-5 SPCD criteria.

RESULTS: Eighty-eight young people met our criteria for SPCD, with 801 meeting DSM-5 ASD criteria and the remaining 192 having neither SPCD nor ASD ('clinical comparison group'). The core symptoms of SPCD co-occurred to a moderate degree (average interitem correlation = .22). SPCD cases had autistic social difficulties that were intermediate between ASD and the clinical comparison group. SPCD was associated with high rates of nonautistic psychopathology, with 63.5% scoring in the abnormal range of the SDQ's Total Problems scale.

CONCLUSIONS: We did not find evidence that SPCD is qualitatively distinct from ASD. Rather, it appears to lie on the borderlands of the autism spectrum, describing those with autistic traits that fall just below the threshold for an ASD diagnosis. SPCD may have clinical utility for identifying people with autistic traits that are insufficiently severe for ASD diagnosis, but who nevertheless require support

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J Speech Lang Hear Res. 2017 Jul;60:1946-58.

DYNAMIC ASSESSMENT FOR 3- AND 4-YEAR-OLD CHILDREN WHO USE AUGMENTATIVE AND ALTERNATIVE COMMUNICATION: EVALUATING EXPRESSIVE SYNTAX.

Binger C, Kent-Walsh J, King M.

Purpose: The developmental readiness to produce early sentences with an iPad communication application was assessed with ten 3- and 4-year-old children with severe speech disorders using graduated prompting dynamic assessment (DA) techniques. The participants' changes in performance within the DA sessions were evaluated, and DA performance was compared with performance during a subsequent intervention.

Method: Descriptive statistics were used to examine patterns of performance at various cueing levels and mean levels of cueing support. The Wilcoxon signed-ranks test was used to measure changes within the DA sessions. Correlational data were calculated to determine how well performance in DA predicted performance during a subsequent intervention.

Results: Participants produced targets successfully in DA at various cueing levels, with some targets requiring less cueing than others. Performance improved significantly within the DA sessions—that is, the level of cueing required for accurate productions of the targets decreased during DA sessions. Last, moderate

correlations existed between DA scores and performance during the intervention for 3 out of 4 targets, with statistically significant findings for 2 of 4 targets.

Conclusion: DA offers promise for examining the developmental readiness of young children who use augmentative and alternative communication to produce early expressive language structures

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J Adolesc Health. 2017.

ATTENTION-DEFICIT/HYPERACTIVITY DISORDER MEDICATION USE IN ADOLESCENTS: THE PATIENT'S PERSPECTIVE.
Kosse RC, Bouvy ML, Philbert D, et al.

Purpose: The purpose of the study was to gain more insight into the attitudes of adolescents using medication for attention-deficit/hyperactivity disorder (ADHD).

Methods: A cross-sectional study among adolescents (aged 12-18 years) who filled at least two prescriptions for ADHD medication in the preceding year was conducted. Adolescents were invited to fill in an online questionnaire containing questions on sociodemographics, health status, illness perceptions, medication adherence, and medication beliefs.

Results: We invited 1,200 adolescents of whom 181 adolescents (122 males, mean age 14.2 ± 1.7 years) completed the online questionnaire. They mostly used methylphenidate (n = 167; 92%) as a pharmacological treatment for ADHD. Half of the study population (n = 93; 51%) experienced side effects, such as decreased appetite and sleep problems. Most participants (n = 150; 83%) had an indifferent attitude (perceived low necessity and low concerns) toward their ADHD medication. More than half of the study population (n = 111; 61%) reported to be nonadherent based on the Medication Adherence Report Scale. The highest score of the Brief Illness Perception Questionnaire was on "treatment control," suggesting that adolescents do think their medication is effective, despite their indifferent drug attitude.

Conclusions: Most adolescents using ADHD medication had an indifferent attitude toward their medication and reported low adherence rates. These findings should be taken into account when treating adolescents with ADHD; regular counseling and monitoring of the pharmacological treatment might be useful to optimize treatment

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J Affective Disord. 2017 Aug;217:60-65.

ATTENTION DEFICIT HYPERACTIVITY DISORDER AND SUBSTANCE ABUSE: AN INVESTIGATION IN YOUNG AUSTRIAN MALES.

Riegler A, Völkl-Kernstock S, Lesch O, et al.

Background: Many studies have found an association between Substance Use Disorders (SUDs) and Attention Deficit Hyperactivity Disorder (ADHD) in children, adolescents and adults. We intended to determine whether substance abuse and SUDs are associated with former and current ADHD symptomatology in a non-clinical sample of 17 and 18 year old males.

Method: A representative sample of 3280 young men (6.8% of all males born in Austria in the respective year) was investigated during the examination for military service. We collected data on past (WURS) and current (ADHD symptom checklist) ADHD symptomatology, substance abuse, parental substance use and abuse and motives for substance use.

Results: Measured by WURS, 10.1% had scored positive for past ADHD symptoms. 2.7% of all subjects stated that they have been treated for ADHD and 1.5% reported that they had at one point received pharmacological treatment for the condition. Abuse of alcohol, nicotine and illicit substances was significantly ($p < .01$) more frequent in subjects with ADHD syndrome. Perceived parental alcohol abuse increased the risk for ADHD in the offspring. Motives for substance use differed greatly between groups.

Limitations: The sample consists of men only. Subjects had to be fit enough to be enlisted military service, generating a possible bias towards healthier subjects. The cross-sectional design does not allow conclusions about the temporal relationships between ADHD symptoms and substance abuse.

Conclusion: Identification of vulnerability factors for comorbid ADHD and SUD in adolescence should be intensified. Preventive strategies ought to be established

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J Atten Disord. 2017 Aug;21:856-64.

AUDITORY AND VISUAL ATTENTION PERFORMANCE IN CHILDREN WITH ADHD: THE ATTENTIONAL DEFICIENCY OF ADHD IS MODALITY SPECIFIC.

Lin HY, Hsieh HC, Lee P, et al.

Objective: This study explored auditory and visual attention in children with ADHD.

Method: In a randomized, two-period crossover design, 50 children with ADHD and 50 age- and sex-matched typically developing peers were measured with the Test of Various Attention (TOVA).

Results: The deficiency of visual attention is more serious than that of auditory attention in children with ADHD. On the auditory modality, only the deficit of attentional inconsistency is sufficient to explain most cases of ADHD; however, most of the children with ADHD suffered from deficits of sustained attention, response inhibition, and attentional inconsistency on the visual modality. Our results also showed that the deficit of attentional inconsistency is the most important indicator in diagnosing and intervening in ADHD when both auditory and visual modalities are considered.

Conclusion: The findings provide strong evidence that the deficits of auditory attention are different from those of visual attention in children with ADHD

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J Atten Disord. 2017 Jul;21:776-82.

ADHD, CONDUCT DISORDER, SUBSTANCE USE DISORDER, AND NONPRESCRIPTION STIMULANT USE.

Brook JS, Balka EB, Zhang C, et al.

Objective: To assess whether the relationship of an ADHD diagnosis by adolescence to nonprescription stimulant use in adulthood is direct or indirect, via Conduct Disorder (CD) and/or Substance Use Disorder (SUD).

Method: Data were obtained from multiple waves of interviews and questionnaires completed by 551 community-based participants when they were between the mean ages of 14.1 and 36.6 years.

Results: The results of the structural equation model (SEM) supported both a direct association between early ADHD and later nonprescription stimulant use ($B = .18, z = 2.74$) and the relationship from ADHD to later nonprescription stimulant use ($B = .01, z = 1.72$) via CD and SUD.

Conclusion: The longitudinal data supporting these paths suggest that efforts to prevent and treat the misuse of nonprescription stimulants may be more effective if attention is paid to those with a history of ADHD, as well as to those who also had CD and SUD

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J Atten Disord. 2017 Aug;21:799-810.

A PROSPECTIVE 30-YEAR FOLLOW-UP OF ADHD ASSOCIATED WITH PERINATAL RISKS.

Tervo T, Michelsson K, Launes J, et al.

Objective: Longitudinal follow-up of ADHD suggests a poorer outcome in those affected. Studies extending to 30 years however are rare. We investigated the adult outcome of ADHD associated with perinatal risks (PRs), treated non-pharmacologically.

Method: A study group of 122 participants (86 men, 36 women) with PR-associated ADHD was followed-up from birth and compared with a control group also prospectively studied.

Results: The study group showed more cognitive, motor perception, and learning impairments as well as psychiatric problems at ages 5, 9, and 16. At age 30, the study group reported less education, more involuntary job dismissals and more alcohol abuse. Self-reported ADHD symptoms were still prevalent in adulthood.

Conclusion: ADHD symptoms persist and impair the long-term educational, occupational, and psychiatric outcome. ADHD in participants with PR appears to follow a course seen in studies of unselected ADHD

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J Atten Disord. 2017 Aug;21:835-45.

EARLY AND CONCURRENT FEATURES OF ADHD AND SENSORY OVER-RESPONSIVITY SYMPTOM CLUSTERS.

Ben-Sasson A, Soto TW, Heberle AE, et al.

Objective: This study aimed to characterize clusters of children based on ADHD and sensory over-responsivity (SOR) symptoms, and to compare their markers.

Method: Parents of 922 infants completed the Infant–Toddler Social and Emotional Assessment (ITSEA) Sensory Sensitivity, Attention, and Activity/Impulsivity scales at three time points during early childhood and the Child Behavior Checklist (CBCL) and SensOR inventory during elementary school age.

Results: Four school-age clusters emerged from the CBCL ADHD and SensOR scores: (a) elevated SOR symptoms only (n = 35); (b) elevated ADHD symptoms only (n = 38); (c) elevated ADHD and SOR symptoms (ADHD + S, n = 35); and (d) low ADHD and SOR symptoms (n = 814). The SOR and ADHD + S clusters had higher early Sensitivity scores than the ADHD and Low clusters. The ADHD and ADHD + S clusters differed from the SOR and Low clusters in their early Attention and Activity/Impulsivity scores.

Conclusion: SOR and ADHD symptoms occur independently and consistently over time

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J Atten Disord. 2017 Aug;21:811-23.

DISTINCT PATTERNS OF EVERYDAY EXECUTIVE FUNCTION PROBLEMS DISTINGUISH CHILDREN WITH TOURETTE SYNDROME FROM CHILDREN WITH ADHD OR AUTISM SPECTRUM DISORDERS.

Hovik KT, Egeland J, Isquith PK, et al.

Objective: The aim is to investigate the everyday executive function (EF) in children with Tourette syndrome (TS), Inattentive or Combined presentations of ADHD (ADHD-I/ADHD-C), autism spectrum disorders (ASD), and typically developing children (TDC).

Method: Nineteen TS, 33 ADHD-C, 43 ADHD-I, 34 ASD, and 50 TDC participated (8-17 years). Parents completed the Behavior Rating Inventory of Executive Function (BRIEF).

Results: TS, ADHD-C, ADHD-I, or ASD were rated with significantly more regulation problems on all scales compared with TDC. Considerable overlap of symptoms between clinical groups made differentiation difficult on individual scales. Scale configurations showed children with TS to have more problems with emotional control (EC) than cognitive flexibility in relation to children with ASD, more problems with EC than inhibitory control in relation to ADHD-C, and more problems with EC than planning/ organizing in relation to ADHD-I.

Conclusion: Paired BRIEF scales dissociated EF problems in children with TS from children with ADHD-C, ADHD-I, or ASD. Clinical relevance is discussed

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J Atten Disord. 2017 Jul;21:753-63.

HOMOGENEOUS COMBINATIONS OF ASD–ADHD TRAITS AND THEIR COGNITIVE AND BEHAVIORAL CORRELATES IN A POPULATION-BASED SAMPLE.

van der Meer JMJ, Lappenschaar MGA, Hartman CA, et al.

Objective: Autism Spectrum Disorders (ASD) and ADHD are assumed to be the extreme manifestations of continuous heterogeneous traits that frequently co-occur. This study aims to identify subgroups of children with distinct ASD–ADHD trait profiles in the general population, using measures sensitive across both trait continua, and show how these subgroups differ in cognitive functioning.

Method: We examined 378 children (6-13 years) from a population-based sample.

Results: Latent class analyses (LCA) detected three concordant classes with low (10.1%), medium (54.2%), or high (13.2%) scores on both traits, and two discordant classes with more ADHD than ASD characteristics (ADHD > ASD, 18.3%) and vice versa (ASD > ADHD, 4.2%). Findings suggest that ASD and ADHD traits

usually are strongly related in the unaffected population, and that a minority of children displays atypical discordant trait profiles characterized by differential visual-spatial functioning.

Conclusion: This dissociation suggests that heterogeneity in ASD and ADHD is rooted in heterogeneity in the lower unaffected end of the distribution

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J Autism Dev Disord. 2017;1-13.

RESTING-STATE NEUROPHYSIOLOGICAL ACTIVITY PATTERNS IN YOUNG PEOPLE WITH ASD, ADHD, AND ASD + ADHD.

Shephard E, Tye C, Ashwood KL, et al .

Altered power of resting-state neurophysiological activity has been associated with autism spectrum disorder (ASD) and attention-deficit/hyperactivity disorder (ADHD), which commonly co-occur. We compared resting-state neurophysiological power in children with ASD, ADHD, co-occurring ASD + ADHD, and typically developing controls. Children with ASD (ASD/ASD + ADHD) showed reduced theta and alpha power compared to children without ASD (controls/ADHD). Children with ADHD (ADHD/ASD + ADHD) displayed decreased delta power compared to children without ADHD (ASD/controls). Children with ASD + ADHD largely presented as an additive co-occurrence with deficits of both disorders, although reduced theta compared to ADHD-only and reduced delta compared to controls suggested some unique markers. Identifying specific neurophysiological profiles in ASD and ADHD may assist in characterising more homogeneous subgroups to inform treatment approaches and aetiological investigations

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Journal of Cellular Neuroscience and Oxidative Stress. 2017;9:608-16.

TRYPTOPHAN-ENRICHED ANTIOXIDANT CEREALS IMPROVE SLEEP IN CHILDREN WITH AUTISTIC SPECTRUM AND ATTENTION DEFICIT HYPERACTIVITY DISORDERS.

Galáin C, Sáinchez S, Franco L, et al.

The intake of foods rich in tryptophan produces beneficial effects on sleep. The majority of children with neurological disorders like autistic spectrum disorder (ASD), cerebral palsy or attention deficit hyperactivity disorder (ADHD) have sleep problems. To evaluate the effect of tryptophan-enriched cereal intake on sleep of children with neurological disorders. Involving 7 children with ASD, 9 children with cerebral palsy and 6 children with ADHD. They carried a wrist actimeter to record activity. The second and fourth week children ingested control cereals at breakfast and dinner. The first, third and fifth week test cereals were administered at breakfast and dinner double-blinded, i.e., participants didn't know if they ingested tryptophan-enriched cereals or control cereals. Sleep efficiency improved in children with ASD after tryptophan-enriched cereals consumption at dinner. Sleep efficiency and wake bouts improved in children with cerebral palsy after consumption of tryptophan-enriched cereals at dinner. Assumed sleep improved in volunteers with ADHD after consumption of tryptophan-enriched cereals at dinner. Actual sleep time, sleep efficiency and immobile time improved in these children with ADHD after consumption of tryptophan-enriched cereals at dinner and when they ingested tryptophan-enriched cereals at breakfast and dinner too. In conclusion, intake of tryptophan-enriched cereals improves sleep of children with ASD and ADHD

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J Clin Child Adolesc Psychol. 2017 Sep;46:646-52.

AEROBIC FITNESS AND INHIBITION IN YOUNG CHILDREN: MODERATING ROLES OF ADHD STATUS AND AGE.

Brassell AA, Shoulberg EK, Pontifex MB, et al.

We examined the relation between aerobic fitness and inhibition in young children with and without attention deficit hyperactivity disorder (ADHD)-risk status. Participants (91 ADHD risk, 107 typically developing, Mage = 6.83, 53.5% male, 68.2% Caucasian) completed an assessment of aerobic fitness and a flanker task requiring variable amounts of inhibitory control. Aerobic fitness was positively associated with inhibition. When inhibitory control demands were largest, the relation varied as a function of ADHD-risk status such that

the link between aerobic fitness and inhibition was significant only for children with ADHD risk. The relation between aerobic fitness, status, and inhibition was further moderated by age for interference control. Specifically, the positive relation between aerobic fitness and interference control was only significant for younger children with ADHD risk. A fitness–cognition link appears in young childhood that seems particularly salient for those in the earliest school years with ADHD risk. The findings extend work on typically developing children and suggest that exploring aerobic fitness interventions to address executive function impairments in children at risk for ADHD is warranted

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J Clin Child Adolesc Psychol. 2017 Sep;46:653-60.

DIFFERENTIAL ASSOCIATION OF YOUTH ATTENTION-DEFICIT/HYPERACTIVITY DISORDER AND ANXIETY WITH DELINQUENCY AND AGGRESSION.

Falk AE, Lee SS, Chorpita BF.

Although attention-deficit/hyperactivity disorder (ADHD) is independently associated with both anxiety and conduct problems, it is unclear how co-occurring ADHD + anxiety are associated with different forms of conduct problems. That is, there is relatively little evidence how ADHD and co-occurring anxiety, relative to ADHD only and anxiety only, are associated with aggression and delinquency. Controlling for age, sex, oppositional defiant disorder diagnostic status and total psychopathology, we compared children with anxiety only, ADHD only, ADHD + anxiety, and a clinic-referred comparison group on measures of conduct problems. Three hundred eighty ethnically diverse boys and girls ages 5 to 17 ($M = 11.62$) were evaluated using a semistructured diagnostic interview for ADHD and anxiety; aggressive and delinquent behavior were evaluated using the Child Behavior Checklist. Children with anxiety only ($n = 119$) did not differ from clinic-referred comparisons (i.e., no DSM-IV diagnosis; $n = 95$) on aggression or delinquency; children with ADHD only ($n = 130$) were significantly more aggressive and delinquent than children with anxiety only. Children with ADHD + anxiety ($n = 36$) were significantly less aggressive than children with ADHD only, but they did not differ with respect to delinquency. These preliminary data suggest that ADHD, in the presence of anxiety, may be associated with significantly less aggression but not less delinquency. We discuss these findings from a developmental psychopathology framework and stress the need for further study to support possible implications for intervention and prevention

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J Clin Child Adolesc Psychol. 2017 Sep;46:661-74.

MULTI-INFORMANT ASSESSMENT OF ADHD SYMPTOM-RELATED IMPAIRMENTS AMONG CHILDREN AND ADOLESCENTS.

Power TJ, Watkins MW, Anastopoulos AD, et al.

Existing methods of assessing attention-deficit/hyperactivity disorder (ADHD) are limited because they do not examine impairments in relation to symptoms of ADHD. This study investigated parent and teacher ratings of multiple domains of impairment, assessed in relation to the symptom dimensions of ADHD using the ADHD Rating Scale–5. Nationally representative samples of children rated by parents and teachers were recruited through commercial research firms. One sample included 2,079 parents who rated one of their children of age 5 to 17 years. The second sample included 1,070 teachers in grades K to 12 who rated 2 randomly selected students on their class rosters. Informants rated the extent to which each child displayed the 18 behaviors symptomatic of ADHD over the previous 6 months, as well as symptom-related impairments in the areas of family/teacher relationships, peer relationships, academics, behavior problems, homework, and self-esteem. Respondents were asked to complete the 6 impairment items after rating each of the Inattention and Hyperactivity/Impulsivity symptom items. For both informants a 6-factor model that combined impairment items across source of impairment was adequate and superior to a 2-factor structure based on source of impairment (i.e., impairment due to Inattention vs. Hyperactivity-Impulsivity). Impairment ratings were impacted by child demographic factors, but effect sizes were low. In contrast, impairment ratings were strongly related to ratings on the ADHD symptom dimensions. The study provides support for assessing 6

symptom-related domains of impairment but does not support differentiating whether Inattention or Hyperactivity-Impulsivity is the source of impairment

J Clin Psychiatry. 2017;78:e774-e781.

DIFFERENTIAL RISK OF INCREASING PSYCHOTROPIC POLYPHARMACY USE IN CHILDREN DIAGNOSED WITH ADHD AS PRESCHOOLERS.

Winterstein AG, Soria-Saucedo R, Gerhard T, et al.

Objective: To characterize treatment trajectories in children newly diagnosed with attention-deficit/hyperactivity disorder (ADHD).

Methods: We utilized billing records of children aged 3 to 18 years in 28 US states' Medicaid programs between 1999 and 2006. Children entered the cohort at the first ADHD diagnosis (ICD-9-CM: 314.00) preceded by 6 months with no psychotropic medication use and no psychiatric diagnoses. We followed children for 5 years to assess use of (1) psychotropic polypharmacy (the use of 3 psychotropic medication classes), (2) antipsychotics, and (3) anticonvulsants. We used mixed-effects logistic regression to model the probability of each utilization outcome as a function of age at ADHD diagnosis and follow-up year, adjusted for sociodemographic factors.

Results: Our cohort included 16,626 children of whom 79.2% received stimulants, 33.2% antidepressants, and 23.1% α -agonists, and 25.3% received psychotropic polypharmacy treatment at least once in a subsequent year. Antipsychotics (7.1%.14.7%), anticonvulsants (4.0%.7.9%), and psychotropic polypharmacy (8.5%.13.4%) use increased from year 1 to 5, but this increase was confined to children between ages 3 and 9 at ADHD diagnosis. Children diagnosed at age 3 had the most substantial increase in each outcome (OR = 1.80 [95% CI, 1.36.2.38]; 1.85 [1.38.2.47]; 2.14 [1.45.3.16]), respectively. Also, 39.1% of 9,680 children-years with psychotropic polypharmacy therapy had no psychiatric diagnoses other than ADHD.

Conclusions: Psychotropic polypharmacy, antipsychotic, and anticonvulsant use increased with each year of follow-up. This effect was strongly mediated by the age of ADHD diagnosis with substantial increases in preschoolers but no corresponding effect in older children. It was only partially explained by physician diagnoses of concomitant mental disorders

J Clin Psychiatry. 2017;78:e790-e796.

STIMULANT TREATMENT TRAJECTORIES ARE ASSOCIATED WITH NEURAL REWARD PROCESSING IN ATTENTION-DEFICIT/HYPERACTIVITY DISORDER.

Schweren LJS, Groenman A, von RD, et al.

Objective: The past decades have seen a surge in stimulant prescriptions for the treatment of attention-deficit/hyperactivity disorder (ADHD). Stimulants acutely alleviate symptoms and cognitive deficits associated with ADHD by modulating striatal dopamine neurotransmission and induce therapeutic changes in brain activation patterns. Long-term functional changes after treatment are unknown, as long-term studies are scarce and have focused on brain structure. In this observational study (2009-2012), we investigated associations between lifetime stimulant treatment history and neural activity during reward processing.

Methods: Participants fulfilling DSM-5 criteria for ADHD (N = 269) were classified according to stimulant treatment trajectory. Of those, 124 performed a monetary incentive delay task during magnetic resonance imaging, all in their nonmedicated state (nEARLY&INTENSE = 51; nLATE&MODERATE = 49; nEARLY&MODERATE = 9; nNAIVE = 15; mean age = 17.4 years; range, 10-26 years). Whole-brain analyses were performed with additional focus on the striatum, concentrating on the 2 largest treatment groups.

Results: Compared to the late-and-moderate treatment group, the early-and-intense treatment group showed more activation in the supplementary motor area and dorsal anterior cingulate cortex (SMA/dACC) during reward outcome (cluster size = 8,696 mm³; PCLUSTER <.001). SMA/dACC activation of the control group fell in between the 2 treatment groups. Treatment history was not associated with striatal activation during reward processing.

Conclusions: Our findings are compatible with previous reports of acute increases of SMA/dACC activity in individuals with ADHD after stimulant administration. Higher SMA/dACC activity may indicate that patients with a history of intensive stimulant treatment, but currently off medication, recruit brain regions for cognitive control and/or decisionmaking upon being rewarded. No striatal or structural changes were found

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J Clin Psychopharmacol. 2017 Aug;37:485-86.

LOSS OF EYEBROWS (MADAROSIS) AFTER USE OF LONG-ACTING METHYLPHENIDATE: CASE REPORT.

Yektas Ç, Samurcu ND, Tufan AE.

'Madarosis' from the Greek root of 'madao' (shedding) is a term in medical terminology used to define loss of eyebrows and/or eyelashes due to shedding. Madarosis can arise as a clinical sign of diverse local or systemic disorders with various etiologies. The medical causes of madarosis include infections of eye and related structures, dermatological disorders, systemic and endocrine disorders, nutritional deficiencies leading to protein and trace element deficits, trichotillomania, local radiotherapy, chemotherapy, and some of the pharmaceuticals. This paper presents a case of madarosis after use of long-acting methylphenidate

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J Consult Clin Psychol. 2017 Sep;85:882.

'META-ANALYSIS OF COGNITIVE-BEHAVIORAL TREATMENTS FOR ADULT ADHD': CORRECTION TO KNOUSE, TELLER, AND BROOKS (2017).

Annon

Reports an error in 'Meta-analysis of cognitive-behavioral treatments for adult ADHD' by Laura E. Knouse, Jonathan Teller and Milan A. Brooks (Journal of Consulting and Clinical Psychology, 2017[Jul], Vol 85[7], 737-750). There were errors in Tables 1 and 2, Figures 2 and 3, and in related values reported in the abstract, Results, and Discussion section. These errors occurred because effect sizes from two studies comparing CBT to active control had been coded to represent better outcomes for the CBT group when, in these instances, outcomes for the control group were slightly better. However, because these effect sizes were not significantly different from zero, impact on calculated overall effect sizes for CBT treatment versus control was minimal. Calculations of pre-to-post effect sizes were not affected and the overall interpretation of the results remains unchanged. The online version of this article has been corrected. (The following abstract of the original article appeared in record [rid]2017-21394-001[rid].)

Objective: We conducted a meta-analysis of cognitive-behavioral treatment (CBT) studies for adult attention-deficit/hyperactivity disorder (ADHD), examining effects versus control and effects pre-to-post treatment to maximize the clinical and research utility of findings from this growing literature.

Method: Eligible studies tested adults meeting criteria for Diagnostic and Statistical Manual of Mental Disorders ADHD as determined by interview or using a standardized rating scale and measured ADHD symptoms or related impairment at baseline and posttreatment. We analyzed data from 32 studies from published and unpublished sources available through December 2015. Effect size calculations included up to 896 participants.

Results: Using a random effects model, we found that CBTs had medium-to-large effects from pre- to posttreatment (self-reported ADHD symptoms: $g = 1.00$; 95% confidence interval [CI]: 0.84, 1.16]; self-reported functioning $g = .73$; 95% CI [0.46, 1.00]) and small-to-medium effects versus control ($g = .65$; 95% CI [0.44, 0.86] for symptoms, .51; 95% CI [0.23, 0.79] for functioning). Effect sizes were heterogeneous for most outcome measures. Studies with active control groups showed smaller effect sizes. Neither participant medication status nor treatment format moderated pre-to-post treatment effects, and longer treatments were not associated with better outcomes.

Conclusions: Current CBTs for adult ADHD show comparable effect sizes to behavioral treatments for children with ADHD, which are considered well-established treatments. Future treatment development could

focus on identifying empirically supported principles of treatment-related change for adults with ADHD. We encourage researchers to report future findings in a way that is amenable to meta-analytic review

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J Dev Behav Pediatr. 2017 Sep;38:455-64.

A NATIONAL PROFILE OF ATTENTION-DEFICIT HYPERACTIVITY DISORDER DIAGNOSIS AND TREATMENT AMONG US CHILDREN AGED 2 TO 5 YEARS.

Danielson ML, Visser SN, Gleason MM, et al.

Objective: Clinical guidelines provide recommendations for diagnosis and treatment of attention-deficit hyperactivity disorder (ADHD), with specific guidance on caring for children younger than 6 years. This exploratory study describes ADHD diagnosis and treatment patterns among young children in the United States using 2 nationally representative parent surveys.

Methods: The National Survey of Children's Health (2007–2008, 2011–2012) was used to produce weighted prevalence estimates of current ADHD and ADHD medication treatment among US children aged 2 to 5 years. The National Survey of Children with Special Health Care Needs (2009–2010) provided additional estimates on types of medication treatment and receipt of behavioral treatment among young children with special health care needs (CSHCN) with ADHD.

Results: In 2011 to 2012, 1.5% of young children (approximately 237,000) had current ADHD compared to 1.0% in 2007 to 2008. In 2011 to 2012, 43.7% of young children with current ADHD were taking medication for ADHD (approximately 104,000). In young CSHCN with ADHD, central nervous system stimulants were the most common medication type used to treat ADHD, and 52.8% of young CSHCN with current ADHD had received behavioral treatment for ADHD in the past year.

Conclusion: Nearly a quarter million In young CSHCN have current ADHD, with a prevalence that has increased by 57% from 2007 to 2008 to 2011 to 2012. The demographic patterns of diagnosis and treatment described in this study can serve as a benchmark to monitor service use patterns of young children diagnosed with ADHD over time

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J Dev Behav Pediatr. 2017 Sep;38:545-51.

FORMULA FEEDING AS A RISK FACTOR FOR ATTENTION-DEFICIT/HYPERACTIVITY DISORDER: IS BISPHENOL A EXPOSURE A SMOKING GUN?

Adesman A, Soled D, Rosen L.

Objective: Breastfeeding during infancy is associated with a lower risk of attention-deficit/ hyperactivity disorder (ADHD). Although this is presumably due to breast milk's nutritional advantages, formula-fed infants have, until recently, also been exposed to bisphenol A (BPA), a neurotoxic chemical previously used to manufacture baby bottles and formula cans. Our goal was to examine the association between formula feeding and preschool ADHD in 2 comparable, serial cohorts of preschool children who differ in BPA exposure during infancy.

Methods: Cross-sectional analysis of the 2007 and 2011/12 National Survey of Children's Health (NSCH). Logistic regression was used to model preschool ADHD diagnoses as a function of breastfeeding, adjusting for 12 possible confounding variables using a propensity score.

Results: In the 2007 data set (weighted n 5 9,644,405), formula-fed subjects had a 5-fold increased odds of ADHD compared with breastfed subjects (adjusted odds ratio [aOR]: 5.58, 95% confidence interval [CI], 2.16– 14.41). In the 2011/12 data set (n = 9,732,865), there was no significant association between formula feeding and later ADHD (aOR: 1.05, 95% CI, 0.42–2.64). This is despite an increase in the prevalence of preschool ADHD in 2011 (0.88%) compared with 2007 (0.40%) (Rao-Scott χ^2 , $p < .0075$).

Conclusion: Compared with breastfed infants, ADHD was more common among formula-fed infants in the 2007 but not the 2011/12 sample, where exposure to BPA was markedly reduced. These findings suggest

that the reduced prevalence of ADHD among breastfed infants may not be due to the nutritional benefits of breast milk, but rather early exposure to BPA, a neurotoxic chemical previously found in infant formula

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J Dev Behav Pediatr. 2017 Sep;38:465-75.

NEUROCOGNITIVE AND SYMPTOM TRAJECTORIES OF ADHD FROM CHILDHOOD TO EARLY ADOLESCENCE.

Murray AL, Robinson T, Tripp G.

Objective: This longitudinal study investigated changes in neurocognitive functioning from childhood to early adolescence in a sample of children diagnosed with DSM-IV attention-deficit hyperactivity disorder (ADHD). It also compared the neurocognitive trajectories of children who continued to meet the diagnostic criteria for ADHD at follow-up and those in partial remission.

Methods: Children diagnosed with ADHD (N = 55) were tested at baseline (M = 7.7 years, SD = 1.5) and 4 years later (M = 11.7 years, SD = 1.5) on measures of intellectual, academic, and executive functioning. Group and individual analyses were used to examine neurocognitive functioning over this period.

Results: Intellectual function was stable over the 4- year interval. Reliable change analyses highlighted variability in academic performance. Approximately half the sample showed a reliable decline in at least 1 academic subject with almost a third showing reliable improvement. Executive functions generally followed a stable or improving course, with significant improvements on measures of information processing, attentional control, cognitive flexibility, and goal setting. There was some evidence of better neurocognitive performance in those with partial symptom remission at follow-up.

Conclusion: Study findings emphasize the importance of monitoring academic performance in children with ADHD, including examination of change at the individual level. Declines in academic performance were observed, despite stable intellectual and improving executive function. Early cognitive functioning did not predict symptom remission; however, reduced symptoms at follow-up were associated with better executive function

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J Neurodevelopmental Disord. 2017;9.

ATTENTION AND MOTOR DEFICITS INDEX NON-SPECIFIC BACKGROUND LIABILITIES THAT PREDICT AUTISM RECURRENCE IN SIBLINGS.

Mous SE, Jiang A, Agrawal A, et al.

Background: Recent research has demonstrated that subclinical autistic traits of parents amplify the effects of deleterious mutations in the causation of autism spectrum disorder (ASD) in their offspring. Here, we examined the extent to which two neurodevelopmental traits that are non-specific to ASD - inattention/hyperactivity and motor coordination - might contribute to ASD recurrence in siblings of ASD probands.

Methods: Data from a quantitative trait study of 114 ASD probands and their brothers, 26% of whom also had ASD, were analyzed. Autistic trait severity was ascertained using the Social Responsiveness Scale-2, attention/hyperactivity problems using the Achenbach System of Empirically Based Assessment, and motor coordination (in a subset of participants) using the Developmental Coordination Disorder Questionnaire.

Results: Among siblings (affected and unaffected), both categorical recurrence of ASD (Nagelkerke R² = 0.53) and quantitative ASD trait burden (R² = 0.55) were predicted by sibling ADHD and motor coordination impairment scores, even though these traits, on average, were not elevated among the unaffected siblings.

Conclusions: These findings in a clinical family cohort confirm observations from general population studies that inattention/hyperactivity and motor impairment - axes of behavioral development that are non-specific to ASD, and often appreciable before ASD is typically diagnosed - jointly account for over 50% of the variation in autistic impairment of siblings, whether ascertained quantitatively or categorically. This finding within a sibling design suggests that background ASD susceptibilities that are inherited but non-specific ("BASINS")

may contribute to additive genetic liability in the same manner that ASD-specific susceptibilities (such as parental subclinical ASD traits and deleterious mutations) engender ASD risk

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J Pediatr Urol. 2017.

CHILDREN WITH NOCTURNAL ENURESIS AND ATTENTION DEFICIT HYPERACTIVITY DISORDER: A SEPARATE ENTITY?

Kovacevic L, Wolfe-Christensen C, Rizwan A, et al.

INTRODUCTION: There is ongoing debate about whether nocturnal enuresis (NE) is affected by the presence of attention deficit hyperactivity disorder (ADHD) in children. Clarifying this relationship could categorize them as a separate entity, potentially requiring a different management from enuretic children without ADHD.

AIMS: To study whether (1) children with ADHD exhibited greater severity of enuresis and associated voiding symptoms compared with children without ADHD, (2) whether there was a difference in enuretic response to treatment between children with/without ADHD, (3) whether previously prescribed medication for ADHD affected severity of enuresis or voiding symptoms, and response to treatment.

METHODS: Data on all consecutive children seen with primary NE and ADHD and age- and gender-matched children with NE without ADHD over the course of 2 years were extracted from our database. Controls were identified using a random number generator to choose patients within each age/gender group. Changes in Dysfunctional Voiding Scoring System (DVSS) and Bristol scores were assessed before and after treatment for NE using repeated measures ANOVAs. Number of weekly wet nights was compared between the groups before and after the treatment of enuresis. Children with more than a 50% decrease in number of wet nights per week were categorized as responding to treatment.

RESULTS: Compared with controls, ADHD children (N = 95) had significantly more severe voiding symptoms, NE and constipation (Table). No significant differences were found between children on ADHD medication (63.2%) and those who were not on ADHD medication (36.8%) on any of the demographic and pre-treatment clinical parameters. Similar enuretic response rates to behavioral modification alone were seen in both study (13.5%) and control (12.8%) groups ($p = 0.73$). Response to pharmacological treatment was seen in nine patients with ADHD (42.9%) and in six (20.7%) controls, with pharmacological intervention being significantly more effective than behavioral modification for patients with ADHD ($p = 0.012$). Additionally, no difference was found between ADHD patients on and off ADHD medication in terms of response to enuresis treatment.

CONCLUSION: In children with primary NE, the presence of ADHD was associated with more severe NE, voiding symptoms and constipation. The severity of voiding symptoms and/or NE was unrelated to the use of stimulant medication. The response to behavioral modification was comparable in both groups. However, patients with ADHD were significantly more responsive to medication for NE compared with behavioral modification, indicating a possible benefit for earlier pharmacological treatment for enuresis in this population subgroup

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J Psychopathol Behav Assess. 2017;1-9.

VERBAL WORKING MEMORY AS A LONGITUDINAL MECHANISM OF VOCABULARY PROBLEMS IN PRESCHOOLERS WITH ADHD.

Gremillion ML, Smith TE, Martel MM.

Elucidation of early potential risk factors of Attention-Deficit/Hyperactivity Disorder (ADHD) is important to allow for early identification of ADHD and targeted early intervention for children with ADHD. Delayed language skills, particularly poor vocabulary, is an early-developing potential risk factor that is thought to be involved in developmental pathways to ADHD; however, mechanisms explaining the relationship between poor vocabulary skills and ADHD symptoms are unclear and warrant investigation. The present study examines the relationship between poor vocabulary skills and ADHD symptoms by testing cognitive mechanisms, namely verbal working memory (WM), that might account for this link. Participants were 109 young children between the ages of three and six and their primary caregivers. Diagnostic information on

ADHD symptoms was available from parents and teachers/daycare providers via standardized rating forms. Vocabulary skills and WM were measured through child performance on laboratory tasks. Mediation analyses found poor verbal working memory significantly partially explained the vocabulary-ADHD association for both parent and teacher-rated ADHD symptoms. Further, effects of verbal WM on the association between poor vocabulary and increased ADHD symptoms largely held at one-year follow-up. Development of early interventions targeting verbal WM may be a promising new direction for early ADHD intervention work

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Neurologia. 2017;32:487-93.

PSYCHOMOTOR DEVELOPMENT AND LEARNING DIFFICULTIES IN PRESCHOOL CHILDREN WITH PROBABLE ATTENTION DEFICIT HYPERACTIVITY DISORDER: AN EPIDEMIOLOGICAL STUDY IN NAVARRE AND LA RIOJA.

Marín-Méndez JJ, Borra-Ruiz MC, Álvarez-Gómez MJ, Soutullo Esperón C.

Introduction ADHD symptoms begin to appear at preschool age. ADHD may have a significant negative impact on academic performance. In Spain, there are no standardized tools for detecting ADHD at preschool age, nor is there data about the incidence of this disorder. Objective To evaluate developmental factors and learning difficulties associated with probable ADHD and to assess the impact of ADHD in school performance.

Methods We conducted a population-based study with a stratified multistage proportional cluster sample design.

Results We found significant differences between probable ADHD and parents' perception of difficulties in expressive language, comprehension, and fine motor skills, as well as in emotions, concentration, behaviour, and relationships. Around 34% of preschool children with probable ADHD showed global learning difficulties, mainly in patients with the inattentive type. According to the multivariate analysis, learning difficulties were significantly associated with both delayed psychomotor development during the first 3 years of life (OR: 5.57) as assessed by parents, and probable ADHD (OR: 2.34)

Conclusions There is a connection between probable ADHD in preschool children and parents' perception of difficulties in several dimensions of development and learning. Early detection of ADHD at preschool ages is necessary to start prompt and effective clinical and educational interventions

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Neurologia. 2017;32:431-39.

ANALYSIS OF THE FACTORS LINKED TO A DIAGNOSIS OF ATTENTION DEFICIT HYPERACTIVITY DISORDER IN CHILDREN.

Rivas-Jueas C, de Dios JG, Benac-Prefaci M, et al.

Introduction Attention deficit hyperactivity disorder (ADHD) is a neuropsychiatric disorder originating from multiple factors. The aim of this study is to determine the percentage of patients with ADHD out of all patients referred to our clinic for assessment, and to explore the epidemiological and clinical factors linked to this diagnosis.

Patients and methods retrospective analytical study of a sample of patients under 15 years old sent to the paediatric neurology clinic for suspected ADHD. DSM-IV criteria were used for diagnosis. We completed a binary logistic regression analysis to determine which risk factors were associated with the diagnosis.

Results Of the 280 selected patients, 224 were male (male/female ratio 4:1); mean age (SD) was 8.4 (3.08) years. Almost half (49%) of the patients were referred by their schools and 64.9% were born in the second half of the year, but this tendency was more marked in girls than in boys. Assessment according to DSM-IV criteria resulted in diagnosis of 139 subjects (49.7%). The risk factors linked to diagnosis were male sex, parents with ADHD, associated sleep disorders, tics, and absence of neurodevelopmental delay.

Conclusion Only half of the children referred for suspected ADHD were diagnosed with that condition, and most were among the youngest in their classes, which suggests that suspected ADHD is overestimated. An exhaustive clinical interview investigating the family's psychological disorders and the patient's sleep disorders and tics is needed to improve the diagnostic process

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Neuropsychiatr Dis Treat. 2017;13:2341-50.

RELATIONSHIP BETWEEN SUBTYPES AND SYMPTOMS OF ADHD, INSOMNIA, AND NIGHTMARES IN CONNECTION WITH QUALITY OF LIFE IN CHILDREN.

Grünwald J, Schlarb AA.

Objectives: This study examined the links between sleep disorders and subtypes of attention deficit-hyperactivity disorder (ADHD-inattention, ADHD-combined, ADHD-hyperactive/impulsive) in childhood. We set up a hypothetical model linking different symptoms of both disorders to construct the underlying and shared pathways. By examining a sample of children with ADHD we firstly tested parts of the model.

Methods: A total of 72 children with symptoms of ADHD (aged 6-13 years; 79.2% boys) were diagnosed according to the Diagnostic and Statistical Manual of Mental Disorders, fifth edition and the International Classification of Sleep Disorders, third edition in regards to ADHD and sleep disorders via standardized parent-rated questionnaires. Additionally, quality of life (QoL) was assessed. Overall, 46 children fulfilled the criteria of ADHD and were medication-naive.

Results: On average, the whole sample had clinically elevated total scores of the Children's Sleep Habits Questionnaire in the validated German version (CSHQ-DE), indicating an increased prevalence of sleep disorders in children with ADHD. In accordance to our hypothetical model, children with primarily hyperactive-impulsive ADHD showed the highest CSHQ-DE scores. Moreover, we found a high impact for insomnia in this subgroup and a high comorbid load for the mutual occurrence of insomnia and nightmares. Furthermore, QoL was reduced in our whole sample, and again intensified in children with comorbid insomnia and nightmares.

Conclusion: We verified an elevated occurrence of sleep disorders in children with ADHD and were able to link them to specific subtypes of ADHD. These results were in line with our hypothetical model. Moreover, we found a clinically reduced QoL in mean for the whole sample, indicating the strong impact of ADHD in the lives of affected children, even intensified if children exhibited comorbid insomnia and nightmares. These results should be kept in mind regarding the treatment and therapy of this subgroup of children. Specific treatment strategies should be considered for these children

Neuropsychology. 2017 Sep;31:636-47.

ATTENUATED HEMISPHERIC ASYMMETRY IN METAPHOR PROCESSING AMONG ADULTS WITH ADHD.

Segal D, Shalev L, Mashal N.

Objective: To characterize the hemispheric processing of metaphors in adults with ADHD compared to controls.

Method: We investigated the hemispheric processing of metaphors in 24 adult participants diagnosed with ADHD and 24 control participants. The hemispheric processing was examined using a divided visual field paradigm, in which different kinds of metaphors as well as literal word pairs and unrelated word pairs were presented either to the right visual field/left hemisphere (RVF/LH) or to the left visual field/right hemisphere (LVF/RH).

Results: Control participants processed metaphors more efficiently when presented in the LVF/RH than when presented in the RVF/LH, whereas participants with ADHD demonstrated attenuated asymmetry of hemispheric processing. Furthermore, asymmetry of hemispheric processing, together with sustained attention, contributed significantly to the prediction of self-report of ADHD symptoms.

Conclusion: Our results suggest that the hemispheric processing of adults with ADHD is less lateralized than the hemispheric processing of control participants. Moreover, the diminished lateralization of metaphor processing along with deficient sustained attention may reflect distinct cognitive mechanisms underlying ADHD and as such our results support multiple pathway models of ADHD.

General Scientific Summary—Unlike neuro-typical adults who showed (as expected) right hemisphere preference when processing metaphors, adults with ADHD did not show any hemispheric preference. Interestingly, the difference between the right and the left hemisphere in metaphor processing and the ability to sustain attention over a long period of time were both linked to the magnitude of ADHD symptoms reported by the participants. These findings highlight the multidimensional nature of ADHD in adults

Neuroreport: For Rapid Communication of Neuroscience Research. 2017 Sep;28:917-21.

FACIAL EMOTION RECOGNITION DEFICITS IN CHILDREN WITH AND WITHOUT ATTENTION DEFICIT HYPERACTIVITY DISORDER: A BEHAVIORAL AND NEUROPHYSIOLOGICAL APPROACH.

Rinke L, Candrian G, Loher S, et al.

The current study examined the facial emotion recognition ability with a simultaneous assessment of behavioral and neurophysiological data in children with and without attention deficit hyperactivity disorder (ADHD) aged 7–17 years using a facial emotion matching task and event-related potential measurements (event-related potential components N170 and N250 at T5 and T6) in an emotional continuous performance task. Group differences and interaction effects of children's performance (both behavioral and neurophysiological) were evaluated between children with ADHD and children without ADHD as well as between younger and older children. No deficit in facial emotion recognition was found for children with ADHD compared with children without ADHD even with neurophysiological parameters. However, in terms of developmental differences, the younger children differentiated in their behavioral and neurophysiological performance from the older children. No interaction was detected between the experimental groups and the age groups, indicating that developmental progression in terms of emotional processes did not differ between children with and without ADHD. This study indicates that the facial emotion recognition is above all an age-dependent function with later processing of facial emotion expressions in younger compared with older children and suggests that a facial emotion recognition deficit is secondary in children with ADHD and might occur only with specific emotions or ADHD subtypes, but not in the whole ADHD population

Neuroscience. 2017;362:60-69.

PREDICTING CLINICAL SYMPTOMS OF ATTENTION DEFICIT HYPERACTIVITY DISORDER BASED ON TEMPORAL PATTERNS BETWEEN AND WITHIN INTRINSIC CONNECTIVITY NETWORKS.

Wang X-H, Jiao Y, Li L.

Attention deficit hyperactivity disorder (ADHD) is a common brain disorder with high prevalence in school-age children. Previously developed machine learning-based methods have discriminated patients with ADHD from normal controls by providing label information of the disease for individuals. Inattention and impulsivity are the two most significant clinical symptoms of ADHD. However, predicting clinical symptoms (i.e., inattention and impulsivity) is a challenging task based on neuroimaging data. The goal of this study is twofold: to build predictive models for clinical symptoms of ADHD based on resting-state fMRI and to mine brain networks for predictive patterns of inattention and impulsivity. To achieve this goal, a cohort of 74 boys with ADHD and a cohort of 69 age-matched normal controls were recruited from the ADHD-200 Consortium. Both structural and resting-state fMRI images were obtained for each participant. Temporal patterns between and within intrinsic connectivity networks (ICNs) were applied as raw features in the predictive models. Specifically, sample entropy was taken as an intra-ICN feature, and phase synchronization (PS) was used as an inter-ICN feature. The predictive models were based on the least absolute shrinkage and selection operator (LASSO) algorithm. The performance of the predictive model for inattention is $r = 0.79$ ($p < 10^{-8}$), and the performance of the predictive model for impulsivity is $r = 0.48$ ($p < 10^{-8}$). The ICN-related predictive patterns may provide valuable information for investigating the brain network mechanisms of ADHD. In summary, the predictive models for clinical symptoms could be beneficial for personalizing ADHD medications

Nord J Psychiatry. 2017;1-7.

ANXIETY AND DEPRESSION IN ADOLESCENTS WITH ADHD AND AUTISM SPECTRUM DISORDERS; CORRELATION BETWEEN PARENT- AND SELF-REPORTS AND WITH ATTENTION AND ADAPTIVE FUNCTIONING .

Davidsson M, Hult N, Gillberg C, et al.

Background: Adolescents with attention-deficit/hyperactive disorder (ADHD) or autism spectrum disorder (ASD) are at high risk of anxiety and depression. This is important to identify in the clinical assessment to understand its impact. **Aims:** The aim of this study is to investigate the correlation between parent- and self-

reports of anxiety and depression in adolescents with ADHD or ASD, as well as the correlation with adaptive functioning and performance on an attention test.

Method: A total of 65 adolescents with an ADHD diagnosis (n=24) or an ASD diagnosis (n=41) filled out Beck Youth Inventories of Emotional and Social Impairment (BYI) to assess depression and anxiety and completed a Continuous Performance Test (QbTest) measuring ADHD symptoms. Parents of the participants completed the internalizing domain in the Five to Fifteen questionnaire (FTF), measuring symptoms of anxiety and depression, and the Vineland Adaptive Behavior Scales (VABS) about the adolescent’s adaptive functioning.

Results: Approximately a third of the study group self-reported substantial internalizing mental symptoms not always recognized by parents, and not always obvious in adaptive function or performance at ADHD test. Correlations between BYI and FTF were low. The BYI depression inventory correlated negatively with VABS and positively with activity level in a subgroup medicated for ADHD. There was a stronger correlation between girls BYI and FTF results as compared with boys.

Conclusions: The results highlight the need for identification of anxiety and depression, using both self- and parent report. Present anxiety and depression symptoms do not seem to affect the clinical assessment of ASD and ADHD

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Pharmacoepidemiol Drug Saf. 2017;26:407-08.

ACETAMINOPHEN EXPOSURE IN PREGNANCY AND OFFSPRING ADHD: FAMILIAL RISK AND CONFOUNDING BY INDICATION.

Ystrom E, Gustavson K, Brandlistuen RE, et al.

Background: Prenatal exposure to acetaminophen has been associated with increased risk of neurodevelopmental disorders, including ADHD. It is unknown whether this association is due to confounding by factors that might be related to both acetaminophen use and offspring ADHD, e.g. infections during pregnancy or familial risk for ADHD.

Objectives: To estimate the association between maternal use of acetaminophen during pregnancy and of paternal use before pregnancy with ADHD in offspring, while adjusting for familial risk for ADHD, and indications of acetaminophen use.

Methods: The exposure was self-reported use of acetaminophen during pregnancy. Acetaminophen use was rated for each medical condition, allowing for stratification by indication. Diagnoses were obtained from the Norwegian Patient Registry for 112,973 offspring from the Norwegian Mother and Child Cohort Study, including 2,246 with ADHD. We estimated hazard ratios for an ADHD diagnosis by using Cox proportional hazard models.

Results: After adjusting for maternal use of acetaminophen before pregnancy, familial risk for ADHD, and indications of acetaminophen use, we observed a modest association between any prenatal maternal use of acetaminophen in one (hazard ratio (HR) = 1.07 (95%CI, 0.96-1.19)), two (1.22 (95%CI, 1.07-1.38)), and three trimesters (1.27 (95%CI, 0.99-1.63)). The HR for more than 29 days of maternal acetaminophen use was 2.20 (95% CI 1.50-3.24). Use for less than 8 days was negatively associated with ADHD HR = 0.90 (95%CI 0.81-1.00). Acetaminophen use for fever and infections for 22 to 28 days was associated with ADHD (HR = 6.15; 95%CI 1.71-22.05). Paternal use of acetaminophen was similarly associated with ADHD as maternal use.

Conclusions: Short-term maternal use of acetaminophen during pregnancy was negatively associated with offspring ADHD. Long-term maternal use of acetaminophen during pregnancy was associated with offspring ADHD even after adjusting for indications of use, familial risk of ADHD, and other potential confounders

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Pharmacoepidemiol Drug Saf. 2017;26:56.

PATIENT AND PROVIDER CHARACTERISTICS RELATED WITH PRESCRIBING OF ADHD MEDICATION: NATIONWIDE HEALTH INSURANCE CLAIMS DATABASE STUDY IN KOREA.

Shin J-Y, Song I.

Background: Little is known about the association between prescribing of ADHD medication and the patient's age, gender, and type of medical institution in Asia region.

Objectives: This study investigates the prevalence and factors of diagnosis and pharmacological treatment of attention deficit hyperactivity disorder (ADHD) in the pediatric population.

Methods: Using the Korea health insurance database, study subjects were identified as pediatric patients (17 years) with at least one diagnosis of ADHD (ICD-10, F90) from January 1, 2007, to December 31, 2011. The annual prevalence of ADHD diagnosis and medication was calculated. Annual differences in the prevalence between 2007 and 2011 with 95% confidence intervals (CIs) were estimated. We conducted multiple logistic regression analysis to estimate adjusted Odds Ratios (aORs) and their 95% CI to investigate predictors associated with prescribing of ADHD medication.

Results: The prevalence of ADHD medication prescribing increased by 26.57% (95% CI, 26.27-26.88) from 0.53% in 2007 to 0.72% in 2011. The prevalence increased by 41.56% (95% CI, 40.51-42.65) in females compared with 34.91% (95% CI, 34.47-35.36) in males. Whereas the prevalence decreased in patients younger than 6 years old, it increased by 74.30% (95% CI, 72.84-75.79) in the 13-17 years group. Males were more likely than females to be treated with ADHD medication (aOR, 1.12; 95% CI, 1.10-1.13). Physician specialty (psychiatry vs. non-psychiatry) (aOR, 1.37; 95% CI, 1.34-1.40) were associated with prescribing of ADHD medication.

Conclusions: Rapid increases in the diagnosis and pharmacological treatment of ADHD in the pediatric population have been observed. While demographic characteristics was similar to other countries, but provider characteristics was different with others reporting that the majority of patients were treated by physicians specializing in psychiatry

Pharmacoepidemiol Drug Saf. 2017;26:502-03.

ADHD MEDICATION USE IN PREGNANCY AND RISK OF PREECLAMPSIA AND SMALL FOR GESTATIONAL AGE BIRTH.

Cohen JM, Hernandez-Diaz S, Bateman BT, et al.

Background: Some drugs used to treat attention-deficit hyperactivity disorder (ADHD) cause vasoconstriction and/or hypertension, which could impair placental perfusion. Preeclampsia (PE) and growth restriction represent maternal and fetal manifestations of placental ischemia. Despite increasing use, limited safety data exist on ADHD medication use in pregnancy.

Objectives: To determine if ADHD medication use is associated with risk of PE or growth restriction, based on small for gestational age birth (SGA).

Methods: The cohort included pregnant women and linked infants enrolled in Medicaid from 2000 to 2010. Given uncertainty regarding the etiologically relevant exposure window, we assessed risk in association with both early and late pregnancy exposure. In the first analysis, women who filled a prescription for amphetamine/dextroamphetamine (AMP), methylphenidate (MPH), or atomoxetine (ATX) monotherapy in the first half of pregnancy were compared to women who did not fill a prescription for any ADHD drug during the 3 months prior or first half of pregnancy. In the second, to assess the risk associated with exposure later in pregnancy, we compared women who continued any monotherapy into the second half to those who discontinued, as most women discontinued and few initiated these medications during pregnancy. Exposures were combined due to small numbers. Similarly, we compared discontinuers (only exposed early) to unexposed to determine if risk of early exposure was explained by continuers. Risk ratios (RRs) and 95% confidence intervals (CIs) were estimated with propensity score stratification for confounding control.

Results: 3331 exposed to AMP, 1515 to MPH, and 453 to ATX monotherapy were compared to 1,461,493 unexposed pregnancies. AMP and MPH but not ATX use in the first half of pregnancy were associated with increased risk of PE, adjusted RRs (95% CI) 1.3 (1.1-1.6), 1.2 (1.0-1.5), and 1.0 (0.7-1.6). None were associated with SGA. Continuation of any monotherapy in late pregnancy (n = 1345) was associated with a greater risk of PE than discontinuation (n = 3954); 1.3 (1.0-1.7). However, discontinuers were still at

increased risk of PE compared to unexposed; 1.2 (1.0-1.4). Late pregnancy ADHD medication use was associated with an increased risk of SGA; 1.4 (1.0-2.0) for continuation compared to discontinuation.

Conclusions: Early pregnancy exposure to AMP and MPH are associated with modest increased risks of PE. Late pregnancy exposure to ADHD medication is associated with modest increased risks of PE and SGA

Pharmacoepidemiol Drug Saf. 2017;26:340.

COHORT STUDY EVALUATING SUICIDAL BEHAVIOR ASSOCIATED WITH ADHD STIMULANT THERAPIES.

Siffel C, Blumentals WA, Spalding WM, et al.

Background: The risk of deliberate self-harm is higher in patients with psychiatric disorders and may be affected by treatment. The suicide-related safety of psychoactive medications is difficult to assess in clinical trials and can only be estimated in real-world studies.

Objectives: To provide real-world evidence of suicidal behavior associated with the use of stimulant treatments for attention-deficit/hyperactivity disorder (ADHD).

Methods: This retrospective cohort study extracted data from the US MarketScan database (2008- 2014) related to suicidal behavior (defined as a medical claim for either suicidal ideation or suicide attempt) in patients aged 6 years diagnosed with ADHD. Patients were required to have continuous enrollment ≥ 12 months before and 3 months after first stimulant prescription (lisdexamfetamine dimesylate [LDX] only cohort; other stimulants cohort) or ADHD diagnosis (no drug reference cohort). Incidence rates (IR) of suicidal behavior were calculated for each cohort and compared between cohorts (incident rate ratio; IRR) using Poisson regression (adjusted for year, ADHD subtype, gender, age, region, psychiatric comorbidities, antidepressants use and family history).

Results: An event of suicidal behavior was reported in 1.27% (1588/124 733) of patients in the LDX cohort, 1.20% (1948/162 705) in the other stimulant cohort, and 1.31% (5245/401 579) in the no drug cohort. Adjusted incidence rates (95% confidence interval) of suicidal behavior per 1000 patients were 0.39 (0.34-0.45) in LDX users, 0.40 (0.35-0.45) in users of other stimulants, and 0.48 (0.43-0.55) in untreated patients. Compared with the no drug cohort, IRs of suicidal behavior were 19% lower with LDX (adjusted IRR=0.81 [0.76-0.86]), and 20% lower with other stimulants (adjusted IRR=0.80 [0.76-0.85]); there was no difference in IRs between LDX and other stimulants.

Conclusions: In this database analysis, patients receiving stimulant treatments for ADHD had lower rates of suicidal behavior than no drug users. The study demonstrates that real-world studies may add evidence on rare or long-term outcomes such as suicidality that are difficult to assess in clinical trials

Pharmacoepidemiol Drug Saf. 2017;26:468.

ATTENTION-DEFICIT HYPERACTIVITY DISORDER MEDICATION USE DURING PREGNANCY AND RISK FOR BIRTH DEFECTS-UNITED STATES, 1997-2011.

Reefhuis J, Anderson KN, Arth A, et al.

Background: Attention-deficit hyperactivity disorder (ADHD) is a neurodevelopmental disorder affecting individuals across the lifespan, including an estimated 10 million adults. Given increasing diagnosis and treatment of ADHD, rates may be increasing among pregnant women. Little is known about ADHD medication safety during pregnancy.

Objectives: To assess prevalence of overall ADHD medication use (i.e., psychostimulant and non-stimulant medications) at any time during pregnancy and estimate associations between early pregnancy use (1 month before through third month of pregnancy) and specific birth defects.

Methods: We analyzed data from the National Birth Defects Prevention Study (1997-2011), a US population-based multicenter case-control study. Birth defects surveillance systems were used to identify cases (n = 32,000); controls were randomly sampled live-born infants without major defects representing the same geographic regions (n = 11,892). Mothers completed a computer-assisted telephone interview. We calculated prevalence of ADHD medication use anytime during pregnancy and used logistic regression to estimate the

association between early pregnancy ADHD medication use and 14 birth defects. For gastroschisis, we adjusted for maternal age.

Results: Overall, 0.2% of women reported any ADHD medication use during pregnancy, and 20 control mothers and 65 case mothers reported early pregnancy use. Early pregnancy ADHD medication use was associated with gastroschisis (odds ratio [OR]: 3.24; 95% confidence interval [CI]: 1.32-7.92), omphalocele (OR: 3.99; 95% CI: 1.18-13.47), and transverse limb deficiency (OR: 3.23; 95% CI: 1.10-9.49) in infants.

Conclusions: ADHD medication use during pregnancy was rare, but early use was associated with 3 of 14 birth defects investigated. Additional research is needed to confirm observations and help clinicians provide appropriate counseling to women of reproductive age who use ADHD medications

Pharmacoepidemiol Drug Saf. 2017;26:331.

ASSESSING THE QUALITY OF TREATMENT WITH ATTENTION-DEFICIT/HYPERACTIVITY DISORDER MEDICATION IN DENMARK.

Rasmussen L, Wallach-Kildemoes H, Zo+½ga H, et al.

Background: Treatment guidelines for attentiondeficit/ hyperactivity disorder (ADHD) may help to ensure equal access to and quality of treatment across a country by standardizing the management of ADHD.

Objectives: We aimed to assess selected parameters regarding quality of ADHD treatment in Denmark, focusing on the initiation of ADHD medications in children and adolescents.

Methods: This was a descriptive registry-based study. We included all Danish children and adolescents with a first-ever prescription for ADHD medication from 2005 through to 2014. We described the study population according to age at index date, gender, and index medication. We assessed the proportion of children initiated with ADHD medication without a diagnosis or the consult of a primary mental health care specialist, and the timing between initiation of ADHD medication and establishment of the ADHD diagnosis.

Results: We identified 22,100 children and adolescents with a first-ever prescription for ADHD medication. The median age at index date was 11 years and 74% were boys. In total, 51% had an ADHD diagnosis before initiating treatment, 32% had only a consult with a primary mental health care specialist, while 17% initiated treatment without neither an ADHD diagnosis nor the consult with a primary mental health care specialist. For those with no diagnosis or contact prior to treatment initiation, the median time from first prescription and until diagnosis or contact was 560 days (IQR: 180; 1462). One year after first prescription, 13% had still no diagnosis or no consult with a primary mental health care specialist.

Conclusions: The majority of children had either a diagnosis or a consult with a primary mental health care specialist prior to initiating ADHD treatment, which is in agreement with treatment guidelines. Almost one-fifth of children had no diagnosis or contact before initiating treatment, and only one-fourth of these children received a diagnosis or had a contact in the year after treatment initiation

Pharmacoepidemiol Drug Saf. 2017;26:478.

USE OF ATTENTION DEFICIT HYPERACTIVITY DISORDER MEDICATION AMONGST ADULTS IN QUEBEC, CANADA.

Guertin JR, LeLorier J, Levine M.

Background: Attention deficit/hyperactivity disorder (ADHD) medications are used within children and adults. Although drug utilization has been previously examined in children, no such study has been conducted within adults in Quebec, Canada.

Objectives: We aimed to describe the use of ADHD medications in persons aged 18 years and over in Quebec, Canada.

Methods: We used data from Quebec's public drug insurance plan to identify incident adult users of ADHD medication (i.e., methylphenidate, amphetamines, and atomoxetine) between January 1, 2001 and October 31, 2010. Incident users were defined as individuals without any ADHD dispensation in the year prior to their first ADHD dispensation (hereby defined as the index date). Socio-demographic characteristics of adults at the time of the index date as well as descriptors of their initial prescriptions (i.e., specialty of the prescriber and starting ADHD medication) were examined through the use of descriptive statistics. In addition, use of

specific drugs in the year prior and concomitant to the first ADHD dispensation were also assessed through the use of descriptive statistics.

Results: A cohort of 16,821 incident users was identified. Over half of patients (54.1%) were female, and the median age was 44 years. Incident users were either initiated on methylphenidate (96.7%), atomoxetine (2.6%), or amphetamine (0.7%). Primary care physicians and psychiatrists were the most frequent prescribers of ADHD medication within this cohort (62.7% and 25.4%, respectively). Prior to their index date, 23.2% of incident users were dispensed antipsychotics, 30.7% of incident users were dispensed anxiolytics, and 52.0% of incident users were dispensed antidepressants. Concomitant use of opioid analgesics and ADHD medication was present within 32.5% of individuals.

Conclusions: The adult use of ADHD medication is similar between the sexes, which is unlike the use amongst children which is dominated by male use. There is also a substantial use of psychotropic medication prior to initiating the ADHD medications which may indicate that the ADHD medications are being used as adjunctive treatment for psychiatric symptomatology

PLoS ONE. 2017;12:e0177820.

DELUSION-PRONENESS DISPLAYS COMORBIDITY WITH TRAITS OF AUTISTIC-SPECTRUM DISORDERS AND ADHD.

Louzolo A, Gustavsson P, Tigerstrom L, et al .

There is an increasing body of evidence suggesting a significant comorbidity between psychotic disorders such as schizophrenia and attention-deficit/hyperactivity disorder (ADHD) or autism-spectrum disorders (ASD). Recently, research on psychosis-proneness in otherwise healthy individuals has been a promising way to better understand the mechanisms underlying psychosis. As both ADHD and ASD symptoms show a normal distribution in the general population, such trait comorbidity may confound studies on psychosis-proneness. Thus, understanding the extent to which psychosis-proneness relates to ADHD and ASD symptoms in healthy subjects is crucial for studies focusing on at-risk or psychosis-prone populations. In the present paper we tested the robustness of overlap between psychosis-proneness and ADHD/ASD symptoms, by studying correlations between the scores of three commonly-used questionnaires assessing delusion-proneness (Peters' Delusion Inventory), ADHD tendencies (Adult ADHD Self-Report Scale) and ASD tendencies (Autism Quotient), on a large sample of healthy individuals (n = 925) using raw scores, prototypical questions and a factor analysis. The results showed consistently positive correlations between psychosis-proneness and ADHD-, as well as ASD-symptoms. While the effect was weak for ASD, it was moderate for ADHD. The findings support the idea that when investigating psychosis-proneness it is crucial to also take

Psychiatry Res. 2017.

RECOGNITION OF PEER EMOTIONS IN CHILDREN WITH ADHD: EVIDENCE FROM AN ANIMATED FACIAL EXPRESSIONS TASK.

Jusyte A, Gulewitsch MD, Schöenberg M.

A growing body of literature suggests that ADHD is associated with emotion recognition impairments that may be linked to deficient interpersonal functioning. However, our understanding of the mechanisms underlying these recognition impairments is extremely limited. Here, we used dynamic stimuli to investigate whether impaired emotion recognition in children with ADHD may be associated with impairments in perceptual sensitivity. Participants (ADHD: N = 26; Controls: N = 26) viewed video sequences of neutral faces slowly developing into one of the six basic emotional expressions (angry, happy, fearful, sad, disgusted and surprised) and were instructed to indicate via a button press the precise moment at which they were able to correctly recognize the emotional expression. The results showed that compared to controls, children with ADHD exhibited lower accuracy rates across all emotional expressions while there was no evidence for impaired perceptual sensitivity. Thus, the study provides evidence for a generalized categorization impairment across all emotional categories and is consistent with developmental delay accounts of ADHD.

Future studies are needed in order to further investigate the developmental course of social cognition deficits in ADHD

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Psychoneuroendocrinology. 2017;86:25-33.

HAIR CORTISOL CONCENTRATION IN PRESCHOOLERS WITH ATTENTION-DEFICIT/HYPERACTIVITY SYMPTOMS ROLES OF GENDER AND FAMILY ADVERSITY.

Pauli-Pott U, et al.

Objective Previous studies on the association between hypothalamic-pituitary-adrenal axis (HPAA) activity and ADHD yielded inconsistent findings, particularly in younger children. This might be due to the heterogeneity of the disorder, making moderator effects of variables probable, which circumscribe more homogenous subgroups. There have been indications of moderator effects on this association by gender of child and exposure to family adversity. Moreover, difficulties in capturing long-term basal HPAA activity in younger children might have contributed to the inconsistencies. We therefore analyzed moderator effects of gender and family adversity while using the hair cortisol concentration (HCC) to assess integrated long-term HPAA.

Methods The community-based sample consisted of 122 41-65-year-old preschoolers (71 screened positive for elevated ADHD symptoms). ADHD symptoms were measured by a clinical parent interview and parent and teacher questionnaires. HCC in the most proximal 3-cm scalp hair segment was analyzed using luminescence immunoassay. An extended family adversity index was used.

Results Hierarchical linear regression analyses yielded an interaction effect ($p < .05$) between ADHD symptom groups and gender on HCC, indicating a low HCC in boys with elevated ADHD symptoms. Further exploratory analyses revealed that this interaction effect was most pronounced under the condition of family adversity. The results held after controlling for oppositional, anxiety, and depressive symptoms.

Conclusion Low HCC might indicate a specific pathogenic mechanism in boys with elevated ADHD symptoms. This mechanism might further involve an exposure to family adversity. However, the results need to be cross-validated before definitive conclusions can be drawn

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Res Dev Disabil. 2017;70:59-66.

RELATIONSHIPS OF BULLYING INVOLVEMENT WITH INTELLIGENCE, ATTENTION, AND EXECUTIVE FUNCTION IN CHILDREN AND ADOLESCENTS WITH ATTENTION-DEFICIT/HYPERACTIVITY DISORDER .

Liu T-L, Guo N-W, Hsiao RC, et al.

This study investigated the relationship of bullying victimization and perpetration with the levels of intelligence, attention, and executive function in children who had received a diagnosis of attention-deficit/hyperactivity disorder (ADHD). The experiences of bullying involvement in 105 children with ADHD were assessed using the Chinese version of the School Bullying Experience Questionnaire. Their scores for four intelligence indexes on the Wechsler Intelligence Scale for Children 4th Edition-Chinese version were determined. Their levels of attention and executive function were assessed using the Comprehensive Nonverbal Attention Test Battery. The results of logistic regression analyses indicated that a high Perceptual Reasoning Index was significantly associated with a decreased risk of being victims of bullying. A high level of executive function was significantly associated with a decreased risk of being victims and perpetrators of bullying. Bullying victimization and perpetration in children with ADHD having a low PRI and low executive function should be routinely surveyed

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RESEARCH

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Dangerous crossing: demographic and clinical features of rescued sea migrants seen in 2014 at an outpatient clinic at Augusta Harbor, Italy

Alessia Trovato^{1*}, Anthony Reid², Kudakwashe C. Takarinda³, Chiara Montaldo¹, Tom Decroo⁴, Philip Owiti⁵, Francesco Bongiorno⁶ and Stefano Di Carlo¹

Abstract

Background: In recent years Europe has received an increasing influx of migrants, many of whom risked their lives crossing the Mediterranean Sea. In October 2013, Italy launched a search and rescue operation at sea in response to migrant deaths during the sea crossing. In August 2014, Médecins sans Frontières and the local Ministry of Health established an outpatient clinic at Augusta harbor, in Sicily, which received 26 % of total sea migrants arrived in Italy in 2014, to provide immediate medical assessment and care.

Methods: This is a descriptive study of demographic and clinical data of sea migrants seen at the port clinic in Augusta from August to December 2014. We compared migrants from Near Eastern, war-torn regions (Group 1) and the others, mostly African (Group 2), as there were significant differences in terms of demographic and morbidity profiles.

Results: There were 2593 migrants consulting the clinic (17 % of all rescued migrants) with 5 % being referred to hospital. Most were young males. The overall burden of vulnerability (pregnant women, children ≤ 5 years, unaccompanied minors, single parents with children of minor age, disabled and elderly persons) was 24 %. There were more small children, pregnant women, elderly, disabled, and persons with chronic diseases in Group 1, as compared to Group 2. Group 2 had more unaccompanied minors. Morbidities in common were respiratory, dermatological, trauma-related and gastrointestinal conditions. However, acute and chronic cardiovascular disease, as well as diabetes, were more frequent in Group 1; chronic diseases affected 19 % of this group. Group 2 had more patients with skin diseases. Most migrants attributed their presenting symptoms to the perils of their journey. No risks for public health were detected.

Conclusion: Among sea migrants, we identified two groups with different demographic and clinical characteristics, as well as vulnerability patterns. Overall morbidity suggested that the dangerous journey affected migrants' health. Medical activities at reception sites should include screening for vulnerability and chronic disease management. Ensuring medical care to migrants on arrival can address European humanitarian obligations and provide support to local medical facilities.

Keywords: Sea Migrants, Health status, Hospital referrals, Vulnerability, SORT IT, Operational Research

* Correspondence: alessia.trovato@posteo.de

¹Medici Senza Frontiere Italia, Via Magenta 5, Roma 00185, Italy
Full list of author information is available at the end of the article

Background

Over the past 4 years, Europe has experienced an increasing influx of migrants crossing the Mediterranean Sea seeking humanitarian protection and/or improved living conditions [1, 2]. Most are fleeing war, persecution or extreme poverty [3].

In this study we define “migrants” as persons moving from one place to another, regardless of their legal status or reasons for travelling. All migrants in this study were rescued at sea, therefore we refer to them as sea migrants.

The number of sea migrants has escalated substantially since 2011 (62,500 in 2011, 43,000 in 2013, 170,000 in 2014) following the Syrian war, the rise of the *Islamic State*, as well as the political crisis in Libya. In 2015 about a million of them have reached Europe [1, 2].

Before 2011, the vast majority of sea migrants came from Africa (North and West Africa, and Horn of Africa), but recently, a significantly higher proportion of them has come from the Near East and Asia (Syria, Iraq, Afghanistan, Pakistan and Bangladesh) and includes migrants of minor age [1, 2, 4]. Furthermore, migration routes have been shifting, with Southern Italy being the major landing point up to 2014 and Greece representing the most crossed European border in 2015 [1, 2].

The sea journey, as well as the land crossing, are extremely dangerous and expose the migrants to risks that threaten their health [3, 5, 6]. Between October 2013 and November 2014 the Italian government implemented the search and rescue operation called *Mare Nostrum* (OMN) to address the increase in deaths of migrants during their sea crossing [3, 7]. The two main landing sites for rescued migrants were Augusta (Province of Siracusa) and Pozzallo (Ragusa), in Sicily [8, 9]. In 14 months, OMN rescued 160,000 sea migrants [10].

The extraordinary wave of sea migration in 2014 represented a challenge for Italian authorities in terms of reception capacity and providing adequate medical assistance. In addition, the Ebola epidemics in West Africa aroused fear of importation of communicable diseases that could represent a public health burden in Italy and the rest of Europe [11]. Therefore, following an official agreement with the local branch of the Ministry of Health (MoH), the medical humanitarian organization *Médecins Sans Frontières* (MSF) supported medical care for rescued migrants at both landing sites. The collaboration project in Augusta, the busiest port, started on August 1 and ended on December 31, 2014, when all activities were handed over to MoH.

There is some literature regarding sea migrants. Three previous studies analyzed medical activities in Malta in 2010–2011, in Lampedusa in 2010 as well as in 139 immigration centers operating in 13 Italian regions from May 2011 to June 2013. These studies showed that

migrants were usually young men from African countries [12–14]. Although most were healthy or presented with minor health conditions, the main diseases observed were dermatological, respiratory and gastrointestinal. Furthermore, a significant part of their morbidity was related to the migration experience and/or the adjustment to the new environment in Italy. No major risks to public health were observed. Three previous studies focused on reasons for referral of migrants to hospitals in Lampedusa and Palermo [15–17].

In addition, studies in countries receiving a significant influx of migrants, including Italy, Spain, Germany and Greece, sought to describe health needs of immigrants as well as factors impairing their utilization of health care services [17–20]. However, these studies focused on the health status of migrants already settled in European countries.

What is lacking is accurate and up-to-date information regarding the burden of illnesses of migrants on their arrival in order to provide accessible and adequate medical care. As well, the changing profile of migrants has not been documented. This information is especially relevant for countries receiving the majority of them such as Greece, Italy and Germany during 2015. It is also important to document the health status of recently arrived migrants to properly evaluate their potential impact on European public health and health care systems.

The aim of this study was to define the demographic and clinical features, as well as referral patterns of newly arrived sea migrants seen at a MSF-MoH outpatient clinic at Augusta harbor from August 1–December 31, 2014. In addition, we compared migrants from Near Eastern war-torn regions (Syrians, Iraqis and Palestinians) versus those of all other nationalities (mostly from Africa), as there appeared to be substantial differences in terms of demographic and clinical characteristics.

Methods

Design

This is a descriptive study of routinely-collected project data.

Setting

General setting

In 2014 an unprecedented number of sea migrants arrived in Italy, with Sicily being the final destination for over 70 % of them [8, 9]. The death toll related to sea migration became a humanitarian challenge for the European Union [3, 5, 6]. In response, OMN was established by the Italian Government and Navy in October 2013 to actively search for and rescue migrants at sea [3, 7]. Rescue operations could involve several migrant boats. The largest military vessels offered medical first aid for rescued migrants and physicians of the MoH

Prevention Department examined all migrants for communicable diseases on board before disembarkment (Fig. 1). Most rescued migrants were brought to Augusta (Province of Siracusa) and Pozzallo (Ragusa) as they are two large harbors on the eastern and southern coast of Sicily with easily accessible reception facilities for migrants [8, 9].

Specific Setting

Augusta, the busiest reception port, is located on the eastern Sicilian coast. Out of the 170,000 migrants who reached Italy by sea in 2014, 120,200 (71 %) landed in Sicily. Of these, 44,300 landed in Augusta (26 % of total migrants arriving in Italy) [8].

The MSF-MoH clinic was set up at Augusta harbor to provide medical care for migrants on arrival as well as to reduce overcrowding of local health facilities. It was located in the port camp and included tents for clinical evaluation and registration, observation and treatment (separated by gender), as well as a container used as a pharmacy.

Migrant flow

The migrant flow at Augusta port is shown in Fig. 1. They underwent one or two medical triages by MoH and Italian Red Cross (CRI): the first, on board the rescue vessel, aimed at identifying communicable diseases of public health significance; the second, on the dock, according to the CESIRA system, to briefly assess migrants' health and select cases requiring hospital referral or treatment at the MSF-MoH clinic [21].

After triage, migrants reached the port camp where they were identified by Immigration Police, and subsequently transferred to temporary accommodation facilities outside the port. MSF-MoH medical activities were confined to the time from disembarkment to transfer out.

During this time, migrants with health complaints visited the clinic after being informed about services through promotional activities by MSF staff, NGOs or through other migrants. At times of lower workload, MSF engaged in active case-finding for migrants with medical issues and/or vulnerabilities.

Clinical activities

MSF staff, supported by MoH personnel, included two physicians, two nurses, and two to three cultural mediators. They spoke English, French, Arabic, Tigrinya, and Amharic, the most frequently spoken languages among the migrants.

The main MSF-MoH activities included medical consultations, clinical observation and treatment, organization of hospital referrals, follow-up of referred patients, communication with local MoH actors and NGOs, and pharmacy management. For each patient, a maximum of two presenting conditions were recorded. They were categorized by body systems or organs. We listed separately: trauma, the request for medical check-up and fever without infection signs, as they represented a significant burden of consultations. All presenting conditions not meeting the above definitions were categorized as "others".

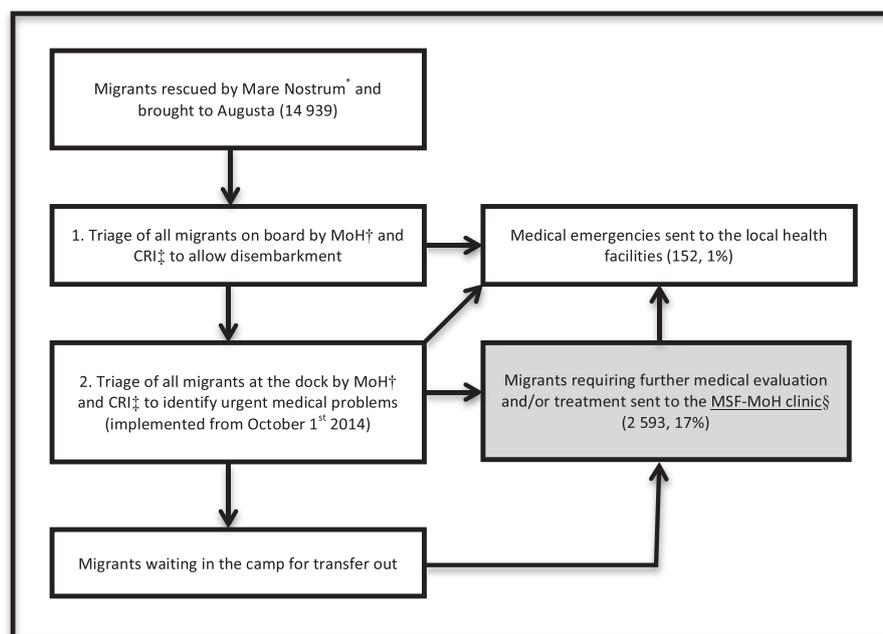


Fig. 1 Flow of rescued sea migrants upon arrival at Augusta harbor (Italy) from Aug 1–Dec 31, 2014. *Search and rescue operation at sea launched by Italian Authorities in October 2013. †MoH - Ministry of Health. ‡CRI - Italian Red Cross. §MSF - Médecins sans frontières

Diagnoses were made by physicians based on clinical assessment and simple tests (body temperature, blood pressure, blood sugar, urine dipstick, malaria rapid test, pregnancy test). Numbers and proportions for single diseases were not available since final diagnoses were not systematically recorded in the register. Due to time and context constraints we were unable to systematically screen for mental health conditions.

Screening for tuberculosis was based on patient interviews and physical examinations. Clinical suspects were sent to health facilities for testing. All treatments were provided according to national and MSF guidelines [22]. Due to potential contagiousness, patients with scabies were treated on site and recorded in a separate register.

A “health pass” containing demographic and clinical information was given to each patient with any clinical condition requiring medical follow-up, including chronic diseases, ongoing treatments, pregnant women, and children with incomplete or unknown vaccination status.

Criteria for referral to local health facilities were based on severity of illness, presence of vulnerability, and the need for advanced diagnostics and/or specific treatment.

Study population

This study included all patients seen at the MSF-MoH clinic from August 1–December 31, 2014. Patients were sent to the clinic upon triage at the dock or consulted the clinic spontaneously, or upon active case-finding. Whenever possible, MSF staff tried to identify and examine patients with vulnerabilities (defined as pregnant women, children ≤ 5 years, unaccompanied minors, single parents with children of minor age, disabled and elderly persons). Age groups and vulnerabilities were determined according to their clinical relevance in the specific setting and based on MSF conventions.

Data sources, data collection and variables

Information about each landing, including total number of migrants, number of adult males and females, number of accompanied and unaccompanied minors, and nationality was provided by Italian Authorities (Immigration Police). Information about the origin of the boat(s), the number of days spent at sea, possible adverse events during the sea crossing, such as shipwreck, was obtained directly from the migrants.

Patient data were collected by MSF staff during each consultation as well as through follow-up of hospital-referred cases, and entered manually onto paper registers, followed by single-entry into an Excel database (Microsoft Excel, 2011). All fields in the database were validated through crosschecking with paper data.

Analysis and statistics

Categorical variables were summarized using frequencies and proportions; medians and interquartile range were reported for skewed continuous variables. Comparisons of proportions were done using the Chi-square test where appropriate, or alternatively the Fisher’s Exact test, with levels of significance set at 5 %. Only significant p -values ($P < 0.05$) were recorded in the tables. Sample size calculation was not required as all patients were included.

Ethics approval and consent to participate

Consent for utilization of data for analysis and publication was obtained from local MoH and Italian MSF Coordination. Local ethics approval was obtained from the Italian Ministry of Health.

The study met the MSF Ethics review Board (Geneva, Switzerland) approved criteria for studies of routinely collected data and was also approved by the Ethics Advisory Group of the International Union Against Tuberculosis and Lung Disease, Paris, France. Informed consent was not sought from research subjects, as the study was conducted as a retrospective analysis of routine programme data. Anonymity and confidentiality were maintained, and the research subjects were assured the same complement of health services as mandated by the MoH.

Table 1 Characteristics of landings at Augusta harbor (Italy) from Aug 1–Dec 31, 2014

Variable	TOTAL	
	n	(%)
No. landings	51	(100)
No. of migrants per landing		
< 200	24	(47)
201–400	13	(25)
401–600	11	(22)
> 600	3	(6)
Median	225	
(IQR)	(152–414·5)	
Time to transfer out ^a (hours)		
< 24	31	(61)
24–48	18	(35)
49–96	0	(0)
> 96	2	(4)
Median	12	
(IQR)	(6–29·5)	
Reported no. days spent at sea ^b		
Total Range	18·5–1	
Median (IQR)	4 (2·5–9)	

^aTime between disembarkment and transfer out of the port

^bInformation obtained during patient interviews

Table 2 Demographic characteristics of rescued sea migrants landed at Augusta harbor (Italy) from Aug 1–Dec 31, 2014

Variable	n	(%)
No. migrants landed	14,939	(100)
Age category		
Total	14,939	(100)
Adults (≥18 years)	12,361	(83)
Minors (<18 years)	2578	(17)
Adults (≥18 years)		
Total	12,361	(100)
Male	10,824	(88)
Female	1537	(12)
Minors (<18 years) ^a		
Total	2578	(100)
Accompanied	1929	(75)
Unaccompanied	649	(25)

^aGender distribution for minors was not always recorded by Immigration Police

Results

During the study period, OMN performed 51 landings at the Augusta harbor, rescuing a total of 14,939 migrants. Most migrants' boats came from Libya (32 rescue events) and Turkey (15) but others came from Egypt and Syria. Boats from different origins could have been rescued in the same event. In six rescue events (12 %), migrants reported having risked their lives during the sea journey due to a shipwreck and/or incidents during rescue operations.

Table 1 shows details about the landings and time in the port. In 61 % of landings, migrants stayed at the

harbor less than 24 h. In only two landings was this period greater than 96 h.

Demographic characteristics of migrants at time of landing are shown in Table 2. The majority of adults were males and 17 % were minors, of whom 25 % were unaccompanied.

Of 14,939 migrants landed at Augusta during the study period, 2593 (17 %) consulted the MSF-MOH clinic and 152 (5 % of clinic patients and 1 % of all migrants landed) were referred to hospital; 19 migrants refused referral.

The largest number of migrants consulting at the clinic came from Syria. Other nationalities are shown in Fig. 2.

Demographic features and the vulnerability profile of sea migrants seen at the clinic overall and stratified by region of origin are reported in Table 3. Migrants were predominantly men between 18 and 30 years old and 24 % presented with vulnerabilities, which include pregnant women, children ≤5 years, elderly persons (≥60 years), unaccompanied minors, single parents with children of minor age and persons with disabilities. There were significantly more women, children ≤5 years and older adults (>30 years) in Group 1 (Syrian, Iraqi and Palestinian migrants) than in Group 2 (all other nationalities). Migrants from Group 2 were mainly 6–30 years old. Group 1 presented with significantly more vulnerabilities than Group 2 including being ≤5 years old, ≥60 years old, pregnant and disabled. Unaccompanied minors were the most frequent vulnerability in Group 2.

Thirty-three percent of children ≤5 years had an incomplete or unknown vaccination status.

Table 4 shows the clinical characteristics of the migrants. Of those screened for tuberculosis, 10 (<1 %)

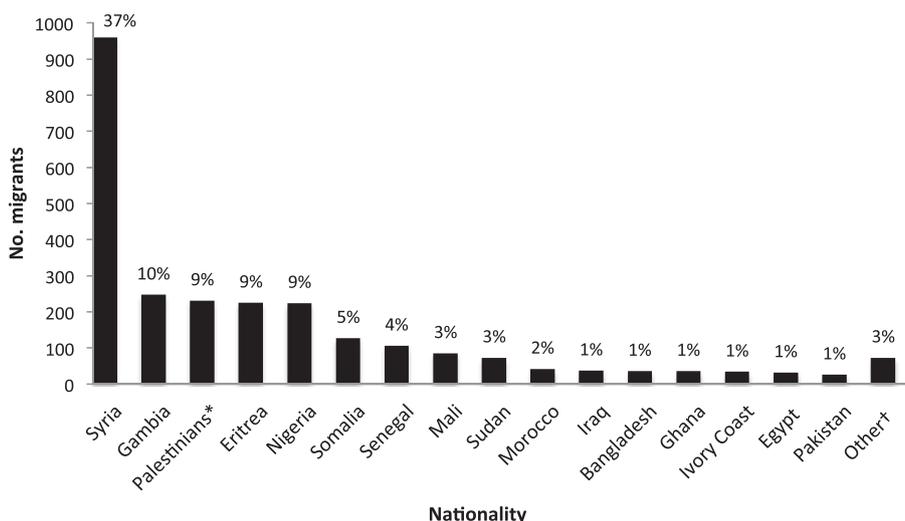


Fig. 2 Nationality of rescued sea migrants seen at the MSF-MoH clinic at Augusta harbor (Italy) from Aug 1–Dec 31, 2014. *Palestinians living in Gaza, Syria, Lebanon and Libya. †Nationalities with < 1 % frequency: Algeria, Benin, Burkina Faso, Cameroun, Central African Republic, Chad, Democratic Republic of Congo, Ethiopia, Guinea Bissau, Guinea Conakry, Libya, Niger, Sierra Leone, Togo, Tunisia, Yemen

Table 3 Demographic features and vulnerability profile of rescued sea migrants seen at the MSF-MoH clinic at Augusta harbor (Italy) from Aug 1–Dec 31, 2014, stratified by region of origin

Variable	TOTAL		Syria, Palestine, Iraq		Others ^a		P-value ^b
	n	(%)	n	(%)	n	(%)	
Sex							
Total	2593	(100)	1227	(100)	1366	(100)	
Males	2101	(81)	906	(74)	1195	(87)	<0.001
Females	492	(19)	321	(26)	171	(13)	
Age, years							
Total	2593	(100)	1227	(100)	1366	(100)	
≤ 5	218	(8)	195	(16)	23	(2)	<0.001
6–17	344	(13)	120	(10)	224	(16)	<0.001
18–30	1373	(53)	444	(36)	929	(68)	<0.001
31–59	589	(23)	415	(34)	174	(13)	<0.001
≥ 60	47	(2)	46	(4)	1	(<1)	<0.001
Not recorded	22	(1)	7	(<1)	15	(1)	
Presence of vulnerability (definitions below)							
Total	2593	(100)	1227	(100)	1366	(100)	
Yes	612	(24)	332	(27)	280	(20)	<0.001
No/Not recorded	1981	(76)	895	(73)	1086	(80)	
Burden of vulnerabilities							
Total	619 ^c	(100)	337 ^c	(100)	282 ^c	(100)	
≤ 5 years old	218	(35)	195	(58)	23	(8)	<0.001
Unaccompanied minor	201	(32)	0	(<1)	201	(71)	<0.001
Pregnant	69	(11)	42	(12)	27	(10)	<0.001
Disabled	69	(11)	48	(14)	21	(7)	<0.001
≥ 60 years old	47	(8)	46	(14)	1	(<1)	<0.001
SPCMA ^d	15	(2)	6	(2)	9	(3)	

^aAll other nationalities^bSignificant P-values only (<0.05) are shown in the table^c6 patients presented with two vulnerabilities^dSPCMA—Single parent with children of minor age

were non-confirmed clinical suspects and one suspect was subsequently confirmed at the hospital. Two migrants reported to have been previously diagnosed with tuberculosis and were already on treatment.

The most frequent presenting conditions involved the respiratory tract, followed by skin and trauma-related conditions.

A significantly higher number of Group 1 migrants consulted because of cardiovascular, endocrinological (diabetes), respiratory, gastrointestinal and gynecological problems, while skin and neurological conditions (almost exclusively headache) were more frequent in Group 2. We diagnosed 354 scabies cases, 95 % of which belonged to Group 2 (25 % prevalence in Group 2).

Additionally, Group 1 migrants consulted at the clinic for a medical check-up more often than Group 2 migrants.

Overall, most of the study population reported symptoms' onset *during migration*. However, more migrants from Group 1 reported symptoms' onset *before migration* as well as *since landing* as compared to Group 2.

The prevalence of chronic disease was significantly higher in Group 1, including cardiovascular disease and diabetes, which were the most common co-morbidities.

Table 5 shows presenting conditions in detail.

Table 6 shows the number of patients referred to the hospital, their vulnerabilities as well as reasons and outcomes of referral. Of those referred, 20 % were hospitalized. Nearly half of migrants referred to hospital presented with vulnerabilities, the most frequent being pregnancy. The three most common reasons for referral were related to trauma, gynecological and respiratory conditions. There were no significant differences

Table 4 Clinical features of rescued sea migrants seen at the MSF-MoH clinic at Augusta harbor (Italy) from Aug 1–Dec 31, 2014, stratified by region of origin

Variable	TOTAL		Syria, Palestine, Iraq		Others ^a		P-value ^b
	n	(%)	n	(%)	n	(%)	
Outcome of tuberculosis screening							
Total	2593	(100)	1227	(100)	1366	(100)	
No clinical suspicion	2573	(99)	1225	(99)	1348	(99)	<0.001
Clinical suspicion, not confirmed	10	(<1)	1	(<1)	9	(<1)	0.02
Clinical suspicion, confirmed	1	(<1)	0	(0)	1	(<1)	
Previously confirmed and already on therapy	2	(<1)	0	(0)	2	(<1)	
Not recorded	7	(<1)	1	(<1)	6	(<1)	
Presenting conditions							
Total	2987 ^c	(100)	1393 ^c	(100)	1594 ^c	(100)	
Respiratory	629	(21)	320	(23)	309	(19)	0.02
Dermatological	585	(20)	159	(11)	426	(27)	<0.001
Trauma	344	(12)	152	(11)	192	(12)	
Gastrointestinal	299	(10)	157	(11)	142	(9)	0.03
Neurological	233	(8)	94	(7)	139	(9)	0.05
Medical check-up ^d	125	(4)	107	(8)	18	(1)	<0.001
Dental	104	(3)	48	(3)	56	(4)	
Ophthalmological	98	(3)	40	(3)	58	(4)	
Urogenital	79	(3)	35	(3)	44	(3)	
Cardiovascular incl. hypertension	53	(2)	49	(4)	4	(<1)	<0.001
Fever	52	(2)	25	(2)	27	(2)	
Gyneco-obstetric	51	(2)	31	(2)	20	(1)	0.04
Endocrinological	25	(1)	20	(1)	5	(<1)	<0.001
Mental-health related	17	(1)	10	(1)	7	(<1)	
Other ^e	290	(10)	145	(10)	145	(9)	
Not recorded	3	(<1)	1	(<1)	2	(<1)	
Symptoms' onset							
Total	2593	(100)	1227	(100)	1366	(100)	
Before migration	373	(14)	216	(18)	157	(11)	<0.001
During migration	1873	(72)	761	(62)	1112	(81)	<0.001
Since arrival	218	(8)	140	(11)	78	(6)	<0.001
Does not apply ^f	127	(5)	108	(9)	19	(1)	<0.001
Not recorded	2	(<1)	2	(<1)	0	(0)	
Presence of chronic disease (definitions below)							
Total	2593	(100)	1227	(100)	1366	(100)	
Yes	291	(11)	232	(19)	59	(4)	<0.001
No/Not recorded	2302	(89)	995	(81)	1307	(96)	
Burden of chronic disease							
Total	313 ^g	(100)	254 ^g	(100)	59 ^g	(100)	
Cardiovascular	86	(27)	81	(32)	5	(8)	<0.001
Diabetes	53	(17)	48	(19)	5	(8)	0.05
Orthopedic	33	(11)	27	(11)	6	(10)	
Gastrointestinal	30	(10)	21	(8)	9	(15)	

Table 4 Clinical features of rescued sea migrants seen at the MSF-MoH clinic at Augusta harbor (Italy) from Aug 1–Dec 31, 2014, stratified by region of origin (*Continued*)

Chronic lung disease	18	(6)	14	(6)	4	(7)	
Neurological	15	(5)	12	(5)	3	(5)	
Urogenital	10	(3)	5	(2)	5	(8)	0.01
Dermatological	3	(1)	3	(1)	0	(0)	
Endocrinological ^h	3	(1)	3	(1)	0	(0)	
Other ⁱ	62	(20)	40	(16)	22	(37)	<0.001

^aAll other nationalities

^bSignificant *P*-values only (<0.05) are shown in the table

^cFor each patient we could record a maximum of two clinical conditions (16 % of patients seen)

^dPatients consulting mostly for blood pressure, blood sugar or temperature check

^eMost common: fatigue, discomfort, pain (myalgia, arthralgia, skeletal pain, etc.), otitis/otalgia, abscess, dizziness, dehydration, agitation and panic attack, anemia, rheumatic disease, need for chronic medications, loss of eyeglasses, malnutrition, palpitation, hearing loss

^fFor patients coming for check-up

^g22 patients (all from the group "Syria, Palestine, Iraq") presented with 2 chronic diseases, mainly cardiovascular disease and diabetes

^hHypothyroidism and hyperthyroidism

ⁱMost common: congenital diseases (e.g. anemia), autoimmune diseases, disabilities, mental illnesses, nephrolithiasis, renal failure, chronic ear or eye disease, prostatic hypertrophy

between the two groups in terms of frequency, outcomes and reasons of referral.

Discussion

This is the first study assessing the demographic and clinical features of sea migrants at the time of arrival to Europe. This information has never been more important, considering the challenge many European countries are currently facing of ensuring quality medical care to newly-arrived migrants.

A major finding was that there were two migrant groups that differed significantly in terms of demographic and clinical characteristics, as well as patterns of vulnerability. Migrants from the Near East (Syrians, Iraqis and Palestinians) included a large proportion of small children, pregnant women, elderly and disabled people. Among this group there was more acute and chronic vascular disease, diabetes, and health-seeking behavior. The other group included mostly African migrants of young age. Among them there were more unaccompanied minors and patients with skin diseases, including scabies.

Table 5 Most common presenting conditions at the MSF-MoH clinic at Augusta harbor (Italy) from Aug 1–Dec 31, 2014, by category

Category	Diagnoses
Respiratory	Asthma, chronic obstructive lung disease, upper and lower respiratory tract infection
Dermatological	Burn, head and pubic lice, psoriasis, skin infection (including scabies), skin rash (including allergy), wound
Trauma	Contusion, fracture, joint dislocation, pain and/or functional disability following physical trauma or due to presence of foreign body
Gastrointestinal	Abdominal and epigastric pain, gastroenteritis, hemorrhoids, nausea, perianal abscess and fissure
Neurological	Headache (almost exclusively), known brain tumor, seizure
Check-up	Blood pressure, blood sugar or temperature check
Dental	Dental abscess, tooth pain
Ophthalmological	Cataract, conjunctivitis, decreased sight
Urogenital	Nephrolithiasis, urinary tract and genital infections
Cardiovascular including hypertension	Chest pain, collapse, hypertensive crisis, hypotension
Fever	Fever with no infection signs
Gyneco-obstetrical	Abdominal pain in pregnant woman, absence of fetal movements, suspected pregnancy, vaginal bleeding in pregnant woman
Endocrinological	Diabetes (almost exclusively), hypoglycemia
Mental-health related	Depression, schizophrenia
Other	Abscess, agitation and panic attack, anemia, dehydration, discomfort (non-specific), dizziness, fatigue, hearing loss, loss of eyeglasses, malnutrition, need for drug supply, otitis/otalgia, pain (myalgia, arthralgia, rachialgia, etc.), palpitations, rheumatic disease

Table 6 Outcomes and reasons for hospital referrals from Augusta harbor (Italy) from Aug 1–Dec 31, 2014

Variable	n	(%)
No. patients referred	152 ^a	(100)
Presence of vulnerability (definitions below)		
Yes	70	(46)
No/Not recorded	82	(54)
Burden of vulnerabilities		
Total	70	(100)
Pregnant	37	(53)
≤ 5 years	10	(14)
Unaccompanied minor	9	(13)
Disabled	8	(11)
≥ 60 years	5	(7)
SPCMA ^b	1	(1)
Reasons for referral		
Total	152	(100)
Trauma	35	(23)
Gyneco-obstetrical	33	(22)
Respiratory	20	(13)
Cardiovascular incl. hypertension	11	(7)
Gastrointestinal	10	(7)
Neurological	7	(5)
Dermatological	6	(4)
Surgical	5	(3)
Fever	5	(3)
Urogenital	4	(3)
Medical check-up	3	(2)
Endocrinological	2	(1)
Dental	1	(<1)
Mental-health related	1	(<1)
Other ^c	9	(6)
Outcome of referral		
Total	152	(100)
Discharged from the Emergency Room	110	(72)
Hospitalized	31	(20)
Not recorded	9	(6)
Left before diagnosis/treatment completed	2	(2)

^a12 Patients were referred directly to hospital from triage and did not consult the MSF-MoH clinic, therefore hospitalization rate for clinic patients was 5 % (1 % overall)

^bSPCMA—Single parent with children of minor age

^cCollapse, dehydration, otitis, hypothermia, malnutrition

However, some diseases of the two groups were similar, with the most common being respiratory, dermatological and gastrointestinal conditions, as well as trauma. We suggest these are likely associated with the dangerous journey. Migrants travelled for days on unseaworthy and

overcrowded boats, where hygiene conditions were poor, the climate was cold and wet, water and food were scarce and often contaminated [3, 5, 23]. Injuries could be sustained while getting onto the migrant boat or during rescue operations. Some suffered immersion in the sea. Prior to the sea crossing, many had undertaken long journeys across the desert followed by difficult living conditions in Libya, with repeated violence and exploitation. This contributed to the burden of trauma-related conditions [24].

A positive feature of this project was that the MSF-MoH clinic appeared to relieve local hospital facilities of some of the burden of care. Only 5 % of clinic patients and 1 % of all landed migrants were sent to hospital. There was efficient cooperation between MSF and MoH clinical staff and good relations with the local hospitals. As a result of the collaboration, MoH took over medical activities at the Augusta harbor in January 2015.

Like ours, earlier studies showed that African migrants were young men and had respiratory and gastrointestinal morbidities as well as traumatic injuries [12–14, 17].

Among all studies, pregnancy-associated conditions were the most common reasons for hospital referral among women [12, 13, 15, 16].

Previous studies of sea migrants did not include the presence of large numbers of migrants from Near Eastern, war-torn regions, who often suffer from chronic diseases and who have a higher and different burden of vulnerabilities. However, our findings are supported by more recent studies conducted with Syrian refugees in Jordan and Lebanon, which focused on the burden of non-communicable diseases [25, 26].

A number of European studies have focused on communicable diseases in migrants with contradictory findings [14, 27–29]. Our study showed a low burden of infectious diseases of public health significance. There were no suspected cases of Ebola among migrants from Africa, as would be expected following a journey through the Sahara desert that was much longer than the incubation period of the virus.

We note that this study was a snap shot of migrants at a particular time and place. Since then, the migration routes have been changing and further assessments of migrants' health in different contexts will be required to provide adequate medical care.

There are a number of policy implications from this study: 1) It is important to have adequate and accessible medical services at landings to provide immediate care to newly-arrived migrants. They can relieve the burden on local health care facilities and coordinate referrals; 2) Medical care needs to be organized to manage both acute and chronic diseases, given the different profiles of migrants arriving; 3) Care for migrants should be sensitive to screen for and manage vulnerabilities. Vaccination status of children should be systematically assessed and

vaccines readily available; 4) Adequate training should be offered to health professionals dealing with migrants' health, since this requires not only medical and organizational skills, but also ethical and legal expertise, as well as cultural sensitivity; 5) Comprehensive and accurate data collection of migrants' health needs should be established to properly inform relevant authorities in Europe.

The strengths of this study include a large sample size that was representative of the sea migrants landed during this time period in Italy in terms of demographics and countries of origin. Data collection and entry were validated through cross-checks. The study adhered to the STROBE guidelines [30].

Limitations

There were some limitations in this study. Although it provides useful insights into migrants' health care, the relatively small study population and narrow time of the intervention could not capture the full picture of the migration issue in all its medical and public health implications. The clinic was temporary and diagnostic testing was very limited, hence the lack of disease specificity. The rapid turnover of migrants limited follow-up of referred patients and prevented assessment of mental health status, which would be important given the traumatic journey. Finally, the study population mostly represented migrants who were actively seeking medical attention, which may be source of selection bias.

Conclusions

This study shows that there were different profiles of migrants landing in Southern Italy during 2014, having diverse medical requirements. Providing adequate initial medical care to them can address humanitarian obligations and provide support to local medical facilities. These services should be part of the European Union's response to the migrant crisis. Systematic data collection in similar contexts is needed to improve knowledge and training of health care professionals, as well as the level of care for migrants.

Abbreviations

CESIRA: Coscienza, Emorragia, Shock, Insufficienza respiratoria, Rottura ossea, Altro; CRI: Croce Rossa Italiana (Italian Red Cross); MoH: Ministry of Health; MSF: Médecins sans frontières; NGO: Non-Governmental Organization; OMN: Operation *Mare Nostrum*; SPCMA: Single Parent with Children of Minor age; STROBE: STrengthening the Reporting of OBServational studies in Epidemiology.

Competing interests

The authors declare that they have no competing interests.

Authors' contributions

AT collected, cross-checked and elaborated the data, designed the study, interpreted the results and wrote the manuscript. TR gave a significant contribution in designing the study, interpreting the results and writing the manuscript. KT and PO contributed to the data management, the interpretation of the results and the writing up of the manuscript. TD helped create the

databases and critically reviewed the manuscript. CM and SD were responsible for the field project and data collection; they also contributed to data interpretation and critically revised the paper. FB gave consent for data utilization and critically revised the manuscript. All authors read and approved the final manuscript.

Authors' information

AT worked as a MSF clinician at the Augusta project from August to December 2014. CM was the project coordinator and SD the Head of MSF Italian Mission. All of them contributed to establish, run and finally hand over the project to MoH. TD, from the Operational Research Unit Luxembourg, helped create the database that was used for this study, and encouraged the publication of the data from the project. TR, KK and PO contributed to the creation of the study in the context of the SORT IT Program (explained below). FB was the MoH counterpart of the Augusta project and provided us with all necessary institutional approvals.

Acknowledgements

This research was conducted through the Structured Operational Research and Training Initiative (SORT IT), a global partnership led by the Special Programme for Research and Training in Tropical Diseases at the World Health Organization (WHO/TDR). The model is based on a course developed jointly by the International Union Against Tuberculosis and Lung Disease (The Union) and Médecins sans Frontières. The specific SORT IT programme which resulted in this publication was jointly developed and implemented by: the Operational Research Unit (LUXOR), Médecins Sans Frontières, Brussels Operational Center, Luxembourg; the Centre for Operational Research, The Union, Paris, France; the Centre for International Health, University of Bergen, Norway; the Institute of Tropical Medicine, Antwerp, Belgium; and Partners in Health, USA.

Funding

This study was part of a MSF project utilizing existing program data; no additional funding was required.

The program SORT IT was funded by The Union, MSF, and the Department for International Development (DFID), UK. The funders had no role in study design, data collection and analysis, decision to publish, or preparation of the manuscript. La Fondation Veuve Emile Metz-Tesch, Luxembourg also supported open access publication costs.

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Author details

¹Medici Senza Frontiere Italia, Via Magenta 5, Roma 00185, Italy. ²FCFP, Médecins Sans Frontières Bruxelles, Operational Research Unit Luxembourg, 68 rue de Gasperich L-1617, Luxembourg City, Luxembourg. ³International Union Against Tuberculosis and Lung Disease (IUATLD), Ministry of Health & Child Care, AIDS & TB Department, Cnr 5th Street & Livingstone Avenue, Harare, Zimbabwe. ⁴Médecins Sans Frontières Bruxelles, Operational Centre Brussels, Medical Department, Operational Research Unit Luxembourg, 68 rue de Gasperich L-1617, Luxembourg City, Luxembourg. ⁵Academic Model Providing Access to Healthcare, P.O. Box 4606, Eldoret 30100, Kenya. ⁶Assessorato Salute Regione Sicilia (Local Ministry of Health), Piazza Ottavio Ziino 24, Palermo 90145, Italy.

Received: 4 February 2016 Accepted: 19 April 2016

Published online: 15 June 2016

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Ore 11.00 - 12.30

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RIFLESSIONI SULLA SINDROME ADHD E DATI DELLO STUDIO MTA

Benedetto Vitiello

*Dipartimento di Scienze della Sanità Pubblica
e Pediatriche, Università degli Studi di Torino*

Moderatori

Maria Pia Canevini (Milano), Elisa Fazzi (Brescia)

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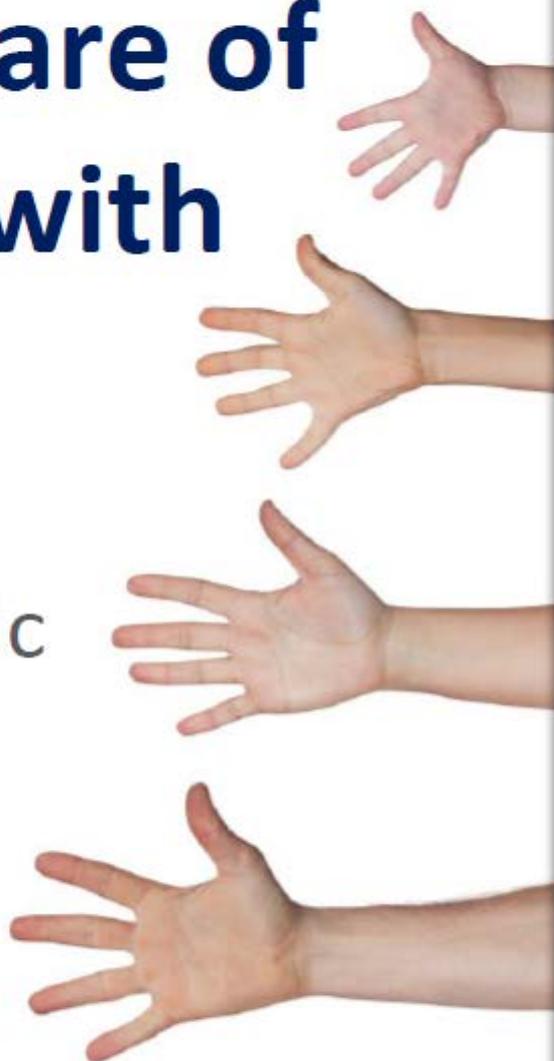
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