



בית הספר לעבודה סוציאלית ולרווחה חברתית ע"ש פאול ברואלד  
The Paul Baerwald School of Social Work and Social Welfare



האוניברסיטה העברית בירושלים  
THE HEBREW UNIVERSITY OF JERUSALEM

# הפרעת קשב ומגדר – לאן נעלמו הבנות ?

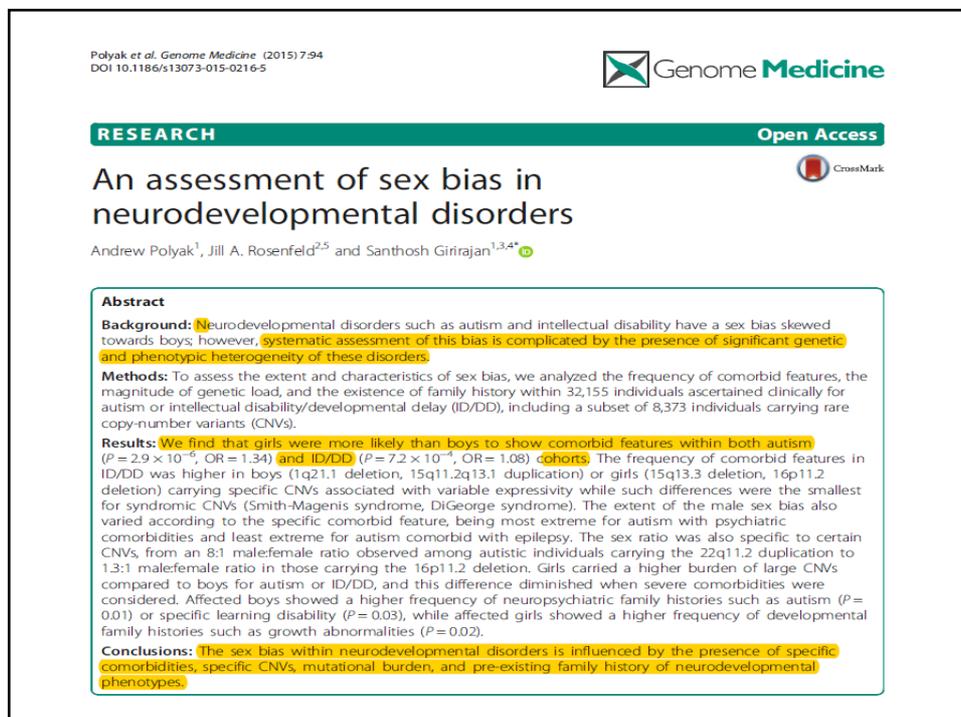
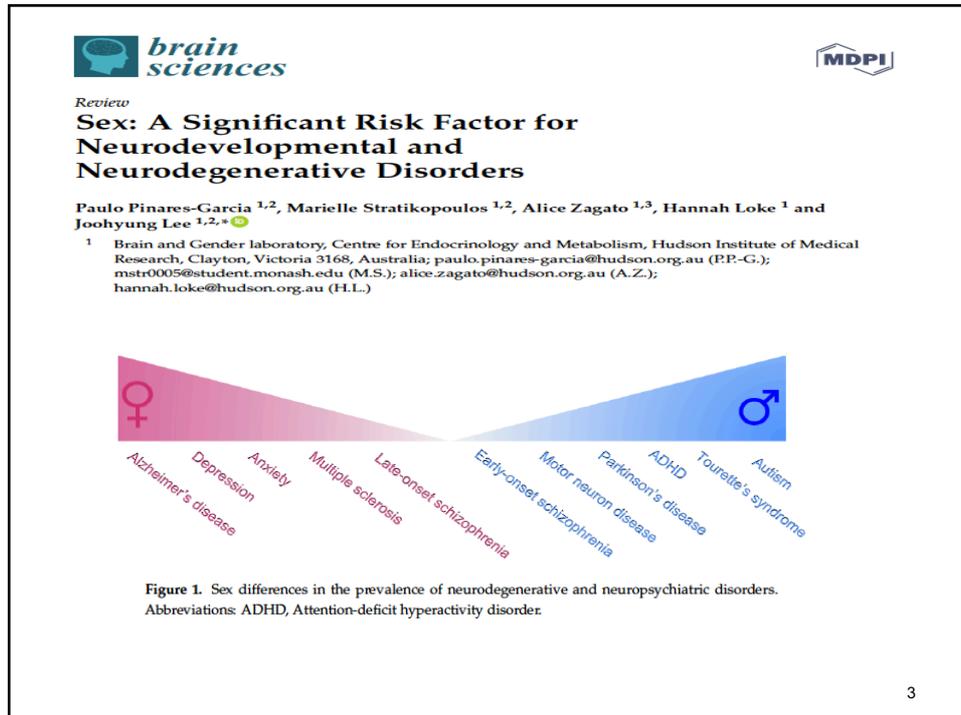
## פרופ' איתי ברגר MD



בית החולים האוניברסיטאי  
אונתאאידוד  
קהילה שיש לה בית חולים

## Neuro-Development and Gender

- The relationship between gender differences and neurodevelopment has attracted a variety of research - ranging from clinical and neurobiological to etiological, stimulated by the male bias in neurodevelopment prevalence
- Findings are complex and do not always relate to each other in a straightforward manner
- Distinct (but interlinked) questions on the relationship between gender differences and neurodevelopment remain under- addressed



## Original article

Early growth and neurodevelopmental outcome in **very preterm infants**: impact of genderA Frondas-Chauty,<sup>1,2</sup> L Simon,<sup>1</sup> B Branger,<sup>3</sup> G Gascoin,<sup>4</sup> C Flamant,<sup>1,2</sup> P Y Ancel,<sup>5</sup> D Darmaun,<sup>2,6</sup> J C Roze<sup>1,2,3</sup>

► Additional material is published online only. To view please visit the journal online (<http://dx.doi.org/10.1136/archdischild-2013-305464>).

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Received 19 November 2013  
Revised 14 May 2014  
Accepted 20 May 2014

**ABSTRACT**

**Background and objective** Nutrition in the neonatal unit may impact the neurological outcome of very preterm infants, and male preterms are more likely to suffer neonatal morbidity and adverse neurological outcomes. We hypothesised that growth during hospitalisation would impact neurological outcome differently, depending on infant gender.

**Methods** Surviving infants born between 1 January 2003 and 31 December 2009 with a gestational age <33 weeks, and enrolled in Loire Infant Follow-up Team, a regional cohort in western France, qualified for the study. Growth during neonatal hospitalisation was assessed by the change in weight z-score between birth and discharge, and infants were ranked into 5 classes, depending on their change in z-score (<-2, -2 to -1.01, -1 to -0.51, -0.50 to 0.01 and ≥0), the last class being the reference. The main outcome criterion was neurodevelopmental outcome at 2 years of corrected age. For each class of changes in weight z-score, crude or adjusted OR for non-optimal outcome was calculated for each gender, and compared between genders.

**Results** 1221 boys and 1056 girls were included. Gender and early growth interact, (p=0.02). Moreover when change in weight z-score varied from <-2 to (-0.50 to -0.01), adjusted OR for non-optimal outcome varied from 3.2 (1.5–6.8) to 2.2 (1.2–4.1) in boys versus 1.8 (0.7–4.2) to 0.95 (0.4–1.9) in girls. For each class, the OR was significantly higher in boys.

**Conclusions** In very preterm infants, male neurodevelopment appears to be much more sensitive than female to poor postnatal growth.

**What is already known on this topic**

Early growth in very preterm babies influences neurodevelopmental outcome.

**What this study adds**

- **Male neurodevelopment appears to be much more sensitive than female to poor postnatal growth.**
- This effect appears as soon as change of weight Z-score is under than -0.01 during hospitalisation.

Moreover, recent studies documented a lower fat-free mass in boys, compared with girls, at the time of hospital discharge.<sup>8–9</sup> The question thus arises, whether the relation between extrauterine growth restriction on neurodevelopment may differ, depending on gender.

The aim of the current study was to determine in a relatively large regional cohort of very preterm babies less than 33 weeks of gestation, whether the rate of initial growth in the neonatal unit affected neurodevelopmental outcome at 2 years of age differently depending on infant gender.

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DNAS

**Sex-specific gene–environment interactions underlying ASD-like behaviors**Sara M. Schaafsma<sup>1,2</sup>, Khatuna Gagnidze<sup>1</sup>, Anny Reyes<sup>1</sup>, Natalie Norstedt<sup>1</sup>, Karl Månsson<sup>1</sup>, Kerel Francis<sup>1</sup>, and Donald W. Pfaff<sup>1,2</sup><sup>1</sup>Laboratory of Neurobiology and Behavior, The Rockefeller University, New York, NY 10065

Contributed by Donald W. Pfaff, December 2, 2016 (sent for review August 20, 2016; reviewed by S. Marc Breedlove, Elena Choleris, Curt A. Sandman, and Larry J. Young)



- **ADHD/ASD comprise a heterogeneous set of neurodevelopmental disorders**
- **In the face of gene–environment complexity, one aspect of ADHD/ASD has stood out constantly as a causative biological factor: the sex difference**
- **Most of the children diagnosed are boys**
- **This current set of experiments tests, in an animal model, the “three-hit theory,” which states that interactions among**
  - (i) being male**
  - (ii) suffering early (especially, prenatal/immunological) stress**
  - (iii) having certain genetic mutations will predispose to an ADHD/ASD diagnosis**

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## **Historical Impact on Gender Issues**

**What we looked at**

**and**

**What we looked for**

**pre-determined what we found**

## **Rates of ADHD: Gender Differences**

- **Clinical samples 10:1 ratio boys vs. girls**
- **Community & adult samples 2 or 3:1 ratio**
- **More girls than boys diagnosed with Inattentive Type ADHD**
  - **Academic difficulties**
- **Boys with more disruptive behavior**
  - **Diagnosed and treated at younger age**

Wilens, Biederman, & Spencer, 2002; Kato et al., 2001

## Under-diagnosis in Girls

- **Estimated that 75% of girls with ADHD do not receive diagnosis** (popular media)
- **National survey results**
  - **85% teachers assume girls more likely to be undiagnosed**
    - **92% attribute this ADHD girls not “acting out”**
  - **Girls with ADHD 3x more likely than boys with ADHD to be treated for depression**
    - **Girls may be misdiagnosed with depression**

### MedGenMed Medscape General Medicine

MedGenMed, 2004; 6(2): 2.  
Published online 2004 May 5.

PMCID: PMC1395774  
PMID: 15269229

#### Perceptions of Girls and ADHD: Results From a National Survey

Patricia Quinn, MD and Sharon Wigal, PhD

Patricia Quinn, Director, National Center for Gender Issues and ADHD, Silver Spring, Maryland. Email: pquinn@ncgiadd.org.

#### Conclusions

The general public and adults who are familiar with ADHD agree that the condition is often difficult to recognize in girls and therefore more likely to be undertreated. Overcoming these problems will require education to increase general awareness of the disorder in females and to equip teachers, parents, and healthcare professionals with the tools to recognize specific symptoms. Fortunately, as the diagnostic criteria for ADHD have evolved over the years, more girls' symptoms are now being recognized and more girls are being appropriately treated.<sup>[14,15]</sup>

More research is needed to characterize the gender differences in ADHD presentation, course, and comorbidities, particularly mood disorders. To date, there have been no prospective studies solely in female patients with ADHD, although one such trial is currently under way. This survey offers several clues that ADHD may be linked with depression in girls: the general public and teachers observed signs of depression more often in girls than in boys; several of the girls taking ADHD medication report that they had been treated previously with an antidepressant; and the majority of parents recognized signs of depression in their daughters with ADHD. However, much remains to be learned about the apparent association between ADHD and depression: ADHD may indeed coexist with depression or it may simply be misdiagnosed as depression due to overlapping symptom profiles.

The fact that most adults are aware of the underdiagnosis of ADHD in girls is encouraging because it suggests that they will be receptive to learning more about the disorder. With broader awareness of ADHD and better understanding of gender differences in its presentation, girls should no longer have to “suffer silently” with the many social and educational burdens of the disorder.

## Inattentive Type

- More passive academically
- Shy, timid, easily overwhelmed
- Tendency to withdraw, and not act out
- Expressive language difficulties
- Hypoactive, lethargic, easily discouraged
- Daydreamers



## Hyperactive/Impulsive Subtype

- Seen as “difficult” by age 3 or 4
- Tantrums, willfulness, emotional intensity
- Higher percentage of learning problems
- AD/HD traits of high activity level, competition, dominance, risk-taking are seen as more negative in girls



## Combined Type

- **Hyper-talkative, hyper-social, hyper-reactive**
- **Restless and fidgety**
- **Charismatic, bossy, stubborn, “spoiled”**
- **Can’t manage daily demands, blames others**



## ADHD IN Girls Separating Fact from Fiction

- **Many similarities between the genders**
- **“Phenotypic core of ADHD symptoms similar to what has been observed in boys.”**
- **Recent findings stress the severity of disorder in females**
- **More mood and anxiety disorders, less conduct disorder**
- **Preponderance of inattentive symptoms**



## How are differences manifested?

- Self-blame, self-attribution
- Low self-esteem,
- Demoralization,
- Which moves into anxiety and depression



## The impact of sex and subtypes on cognitive and psychosocial aspects of ADHD

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 Yael E Landau MA;  
 Itai Berger MD;  
 Dorit Shmueli MD;  
 Ruth S Shalev MD, Neuropaediatric Unit, Shaare Zedek Medical Centre, Jerusalem, Israel.

We compared the effect of sex and attention-deficit-hyperactivity disorder (ADHD) subtyping in groups of females and males. One hundred and one females with ADHD (mean age 10y 4mo [SD 2y 8mo]; range 5y-18y) were classified according to subtype by *Diagnostic and Statistical Manual of Mental Disorders* (4th edn) criteria (inattentive [ADHD-I]; combined [ADHD-C]) and balanced by subtype to 101 males (mean age 10y 5mo [SD 2y 9mo]; range 5y 4mo-17y 6mo). All children underwent IQ and reading assessment, and 109 underwent the continuous performance task (Test Of Variables of Attention [TOVA]). Parents completed the Conners' Abbreviated Rating Scale (ABRS), the Child Behavior Checklist (CBCL), learning disability\* questionnaires, and reported use and efficacy of methylphenidate. Teachers completed the Swanson, Kotkin, Agler, M-Flynn, and Pelham (SKAMP) rating scale. Sex differences were found only on the CBCL; females were more impaired on the attention ( $p < 0.001$ ) and somatization ( $p = 0.028$ ) subscales but not for IQ, other questionnaires, TOVA scores, methylphenidate treatment, or demographics. Females with ADHD-C, but not males, had significantly higher *T*-scores than females with ADHD-I on social, attention, delinquent, and aggressive behaviours. Regardless of sex, children with ADHD-C had higher scores on all CBCL subscales ( $p = 0.047$ ), ABRS ( $p < 0.001$ ), and SKAMP ( $p = 0.03$ ) than children with ADHD-I. The results support the supposition that ADHD in females is the same disorder as in males. ADHD subtyping was the important determinant of ADHD core symptoms; females with ADHD were found to have significant risk of psychopathology.

## In the Clinic

- It's not uncommon for women to be repeatedly misdiagnosed
- Scientists routinely include almost only boys in their research
- We know shockingly little about whether and how ADHD might be different in girls and boys
- What we do know is that on average, girls who have mild symptoms are diagnosed later than boys
- Scientists and service providers rarely acknowledge the additional challenges being female may bring, whether physical, psychological or societal

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## Need to Rethink ADHD in Females

- Not as a “behavior disorder”
- More as a “life management” disorder
- In males, much of focus is on how they affect OTHERS

In females, we need to focus on how SHE is affected



## **Need to investigate internalizing patterns**

- **Internalizing patterns require much closer observation**
- **Require self-report – most questionnaires are “other’s report”**

## **Mitigating Circumstances** (especially important in understanding why girls go undiagnosed)

- **Fewer “classic” ADHD symptoms**
- **Structured environment**
- **Less ODD or CD**
- **High IQ**
- **Social pressure/need for approval**

# Why Learn about ADHD in Women?

## Undiagnosed ADHD is a Significant Health Concern

- 2<sup>nd</sup> most common psychological problem in adults
- Affects millions of women - most undiagnosed
- Accidents/injuries
- Abuse
- Marital difficulties/sexual issues
- Unplanned pregnancies
- Parenting problems – child with ADHD
- Poor self-esteem/depression/anxiety
- Chronic stress disorders
- Sleep disorders
- Eating disorders



## Mortality in children, adolescents, and adults with attention deficit hyperactivity disorder: a nationwide cohort study

Søren Dalsgaard, Søren Dinesen Østergaard, James F Leckman, Preben Bo Mortensen, Marianne Giørtz Pedersen

### Summary

Lancet 2015; 385: 2190-96  
Published Online  
February 26, 2015  
[http://dx.doi.org/10.1016/S0140-6736\(14\)61684-6](http://dx.doi.org/10.1016/S0140-6736(14)61684-6)

See Comment page 2132

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**Background** Attention deficit hyperactivity disorder (ADHD) is a common mental disorder associated with factors that are likely to increase mortality, such as oppositional defiant disorder or conduct disorder, criminality, accidents, and substance misuse. However, whether ADHD itself is associated with increased mortality remains unknown. We aimed to assess ADHD-related mortality in a large cohort of Danish individuals.

**Methods** By use of the Danish national registers, we followed up 1.92 million individuals, including 32 061 with ADHD, from their first birthday through to 2013. We estimated mortality rate ratios (MRRs), adjusted for calendar year, age, sex, family history of psychiatric disorders, maternal and paternal age, and parental educational and employment status, by Poisson regression, to compare individuals with and without ADHD.

**Findings** During follow-up (24.9 million person-years), 5580 cohort members died. The mortality rate per 10 000 person-years was 5.85 among individuals with ADHD compared with 2.21 in those without (corresponding to a fully adjusted MRR of 2.07, 95% CI 1.70–2.50;  $p < 0.0001$ ). Accidents were the most common cause of death. Compared with individuals without ADHD, the fully adjusted MRR for individuals diagnosed with ADHD at ages younger than 6 years was 1.86 (95% CI 0.93–3.27), and it was 1.58 (1.21–2.03) for those aged 6–17 years, and 4.25 (3.05–5.78) for those aged 18 years or older. After exclusion of individuals with oppositional defiant disorder, conduct disorder, and substance use disorder, ADHD remained associated with increased mortality (fully adjusted MRR 1.50, 1.11–1.98), and was higher in girls and women (2.85, 1.56–4.71) than in boys and men (1.27, 0.89–1.76).

**Interpretation** ADHD was associated with significantly increased mortality rates. People diagnosed with ADHD in adulthood had a higher MRR than did those diagnosed in childhood and adolescence. Comorbid oppositional defiant disorder, conduct disorder, and substance use disorder increased the MRR even further. However, when adjusted for these comorbidities, ADHD remained associated with excess mortality, with higher MRRs in girls and women with ADHD than in boys and men with ADHD. The excess mortality in ADHD was mainly driven by deaths from unnatural causes, especially accidents.

Research

**JAMA Psychiatry | Original Investigation**

**Association of Mental Disorder in Childhood and Adolescence With Subsequent Educational Achievement**

Søren Dalsgaard, MD, PhD; John McGrath, MD, PhD; Søren Dinesen Østergaard, MD, PhD; Naomi R. Wray, PhD; Carsten Becker Pedersen, MSc, DMSc; Preben Bo Mortensen, MD, DMSc; Liselotte Petersen, MSc, PhD

**IMPORTANCE** Onset of mental disorders during childhood or adolescence has been associated with underperformance in school and impairment in social and occupational life in adulthood, which has important implications for the affected individuals and society.

**OBJECTIVE** To compare the educational achievements at the final examination of compulsory schooling in Denmark between individuals with and those without a mental disorder.

**DESIGN, SETTING, AND PARTICIPANTS** This population-based cohort study was conducted in Denmark and obtained data from the Danish Civil Registration System and other nationwide registers. The 2 cohorts studied were (1) all children who were born in Denmark between January 1, 1988, and July 1, 1999, and were alive at age 17 years (n = 629 622) and (2) all children who took the final examination at the end of ninth grade in both Danish and mathematics subjects between January 1, 2002, and December 31, 2016 (n = 542 500). Data analysis was conducted from March 1, 2018, to March 1, 2019.

**EXPOSURES** Clinical diagnosis by a psychiatrist of any mental disorder or 1 of 29 specific mental disorders before age 16 years.

**MAIN RESULTS AND MEASURES** Taking the final examination at the end of ninth grade and mean examination grades standardized as z scores with differences measured in SDs (standardized mean grade difference).

**CONCLUSIONS AND RELEVANCE** Results of this study suggest that, in Denmark, almost all mental disorders in childhood or adolescence may be associated with a lower likelihood of taking the final examination at the end of ninth grade; those with specific disorders tended to achieve lower mean grades on the examination; and female, compared with male, individuals with certain mental disorders appeared to have relatively more impairment. These findings appear to emphasize the need to provide educational support to young people with mental disorders.

JAMA Psychiatry. doi:10.1001/jamapsychiatry.2020.0217  
Published online March 25, 2020.

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## Outcomes of Chronic Stress

**Chronic stress takes its toll physically and psychologically**

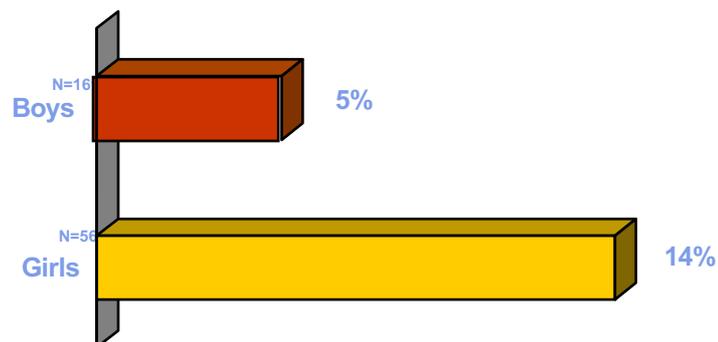
- Chronic anxiety or depression
- ADHD causes stress for the entire family
- Spouses less tolerant of wife's ADHD
- Fibromyalgia
- Eating disorders
- Chronic sleep deprivation

## Consequences of Late Diagnosis In Women

- Depressive symptoms
- More stressed and anxious
- More external locus of control
- Lower self-esteem
- Emotion-oriented vs. task-oriented coping
- More psychological distress

Rucklidge & Kaplan, 1997; Katz et al, 1998

## Girls Are More Likely To Say They Took Medication For Depression Before Taking Medication For ADHD



Q1515 (Children): Did you take medicine for any of the following conditions before you started taking AD/HD/AD/HD medicine?  
BASE: Takes medicine to treat AD/HD

# The Hypotheses

- Researchers suggest several reasons for the existing “gender gap” in ADHD diagnoses:
  - Diagnostic criteria, concepts and practices have historically been biased towards the ‘conventional’ (male) presentation (Dworzynski et al., 2012)
  - Current screening instruments may not be reliable for identifying ADHD in females (Andersson, et al., 2013)
  - Females may be better able to adapt to, or compensate for, aspects of ADHD symptomatology than are males, sometimes referred to as the “camouflage hypothesis” (Dworzynski et al., 2012)
  - The brains of females with ADHD may be anatomically different to the brains of males (Lai et al, 2013)

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## Sex Differences in Psychiatric Disease: A Focus on the Glutamate System

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Alterations in glutamate, the primary excitatory neurotransmitter in the brain, are implicated in several psychiatric diseases. Many of these psychiatric diseases display epidemiological sex differences, with either males or females exhibiting different symptoms or disease prevalence. However, little work has considered the interaction of disrupted glutamatergic transmission and sex on disease states. This review describes the clinical and preclinical evidence for these sex differences with a focus on two conditions that are more prevalent in women: Alzheimer’s disease and major depressive disorder, and three conditions that are more prevalent in men: schizophrenia, autism spectrum disorder, and attention deficit hyperactivity disorder. **These studies reveal sex differences at multiple levels in the glutamate system including metabolic markers, receptor levels, genetic interactions, and therapeutic responses to glutamatergic drugs.** Our survey of the current literature revealed a considerable need for more evaluations of sex differences in future studies examining the role of the glutamate system in psychiatric disease. Gaining a more thorough understanding of how sex differences in the glutamate system contribute to psychiatric disease could provide novel avenues for the development of sex-specific pharmacotherapies.

### OPEN ACCESS

**Edited by:**  
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Rochester University, United States

**Reviewed by:**  
Christina Della,  
Independent and [Christina Della](#) 1 [Christina Della](#)

**Keywords:** sex differences, glutamate, ADHD, Alzheimer’s disease, schizophrenia, autism spectrum disorders (ASD), depression

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## Estrogen and the Brain

- The brain is a target organ for estrogen
- Estrogen has a profound effect on mood, mental states, and memory by acting on both monoamine and neurotransmitter mechanisms
- Whenever estrogen falls below the “minimum brain estrogen requirement” brain dysfunction may result

## Hormones ?

frontiers in  
HUMAN NEUROSCIENCE

MINI REVIEW ARTICLE  
published: 01 April 2014  
doi: 10.3389/fnhum.2014.00191



Cognitive functions of regularly cycling women may differ throughout the month, depending on sex hormone status; a possible explanation to conflicting results of studies of ADHD in females

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Attention Deficit/Hyperactivity Disorder (ADHD) is considered as a model of neurodevelopmental cognitive function. ADHD research previously studied mainly males. A major biological distinction between the genders is the presence of a menstrual cycle, which is associated with variations in sex steroid hormone levels. There is a growing body of literature showing that sex hormones have the ability to regulate intracellular signaling systems that are thought to be abnormal in ADHD. Thus, it is conceivable to believe that this functional interaction between sex hormones and molecules involved with synaptic plasticity and neurotransmitter systems may be associated with some of the clinical characteristics of women with ADHD. In spite of the impact of sex hormones on major neurotransmitter systems of the brain in a variety of clinical settings, the menstrual cycle is usually entered to statistical analyses as a nuisance or controlled for by only testing male samples. Evaluation of brain structure, function and chemistry over the course of the menstrual cycle as well as across the lifespan of women (premenarche, puberty, cycling period, premenopause, postmenopause) is critical to understanding sex differences in both normal and aberrant mental function and behavior. The studies of ADHD in females suggest confusing and non-consistent conclusions. None of these studies examined the possible relationship between phase of the menstrual cycle, sex hormones levels and ADHD symptoms. The menstrual cycle should therefore be taken into consideration in future studies in the neurocognitive field since it offers a unique opportunity to understand whether and how subtle fluctuations of sex hormones and specific combinations of sex hormones influence neuronal circuits implicated in the cognitive regulation of emotional processing. The investigation of biological models involving the role of estrogen, progesterone, and other sex steroids has the potential to generate new and improved diagnostic and treatment strategies that could change the course of cognitive-behavioral disorders such as ADHD.

**Keywords:** menstrual cycle, sex hormones, cognitive functions, attention deficit/hyperactivity disorder, gender

## New onset executive function difficulties at menopause: a possible role for lisdexamfetamine

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Received: 6 February 2015 / Accepted: 27 April 2015 / Published online: 11 June 2015  
 © Springer-Verlag Berlin Heidelberg 2015

### Abstract

**Rationale** Reports of cognitive decline, particularly in the domains of executive functions (EFs), are common among menopausal women.

**Objective** This study aims to determine the impact of the psychostimulant lisdexamfetamine (LDX) on subjective and objective cognitive function among menopausal women who report new-onset EF complaints.

**Methods** Thirty-two healthy perimenopausal and early postmenopausal women experiencing mid-life-onset executive function difficulties as measured using the Brown Attention Deficit Disorder Scale (BADDs) were administered LDX 40–60 mg/day for 4 weeks in this double-blind, placebo-controlled, cross-over study. Diagnosis of lifetime ADHD was exclusionary. BADDs total and subscale scores and

performance on verbal memory and working memory tasks were outcomes of interest.

**Results** Analyses revealed a significant effect of LDX treatment over placebo for total BADDs scores ( $p=0.0001$ ) and for four out of the five BADDs subscales (all  $p<0.004$ ). LDX treatment also resulted in significant improvement in delayed paragraph recall ( $p=0.018$ ), but there was no significant effect of treatment on other cognitive measures. Systolic blood pressure ( $p=0.017$ ) and heart rate increased significantly ( $p=0.006$ ) when women were on LDX but remained, on average, within the normal range.

**Conclusions** LDX 40–60 mg/day was well tolerated and improved the subjective measures of executive function as well as objective measures of delayed verbal recall in this sample of healthy menopausal women.

**Keywords** Menopause · Cognition · Executive function · ADHD · Psychostimulant · Lisdexamfetamine · Brown Attention Deficit Disorder Scale · Verbal memory · Paragraph recall

**Electronic supplementary material** The online version of this article (doi:10.1007/s00213-015-3953-7) contains supplementary material, which is available to authorized users.

# CONCLUSIONS

- ADHD clinical samples may have a high prevalence of Binge Eating Disorder comorbidity
- Patients with ADHD and eating disorders may have a different comorbid profile

## **Presenting Complaints for Women**

- **Feel overwhelmed**
- **Chronically disorganized**
- **Chronically late, poor time management**
- **Sense of shame, inadequacy - can't live up to typical societal expectations**
- **Meal-planning/preparation and other daily living activities a challenge**
- **Problems with friendships**

## **Overt Chaos vs. Silent Suffering**

- **Some women seek treatment for ADHD because their lives are out of control**
- **Other women are more successful at hiding their ADHD – struggle valiantly**
- **Develop OCD Personality/Perfectionism to cope**
- **Anxiety and depression ensue**
- **Learned helplessness**

## **Diagnostic Issues for Women and Older Girls**



## **Diagnostic Issues for ADHD in Women and Older Girls**

- **Often no report of early childhood issues**
- **Inattentive type often overlooked by professionals, parents and teachers**
- **Often more teacher compliant**
- **Good academic record in early years**
- **Hyperactivity/impulsivity less common**

## Diagnostic Issues

- Symptoms often present at puberty
- High IQ girls may function well, but at a great cost
- Often a history of treatment for anxiety and/or depression
- Often misdiagnosed as bi-polar if hyperactive component is present

## Take home message



**Good grades and satisfactory teacher reports in school cannot rule out ADHD in girls and women**

## **Puberty in Girls with ADHD**

- **Boys' hyperactivity decreases**
- **Girls' symptoms typically increase**
- **Mood swings, emotional reactivity**
- **ADHDictive behaviors a greater risk in girls**
- **Promiscuous behavior, STDs, unwanted pregnancies**
- **Increase in anxiety and depression**

## **Adolescent Girls with ADHD at Greater Risk for Psychiatric Problems than Boys**

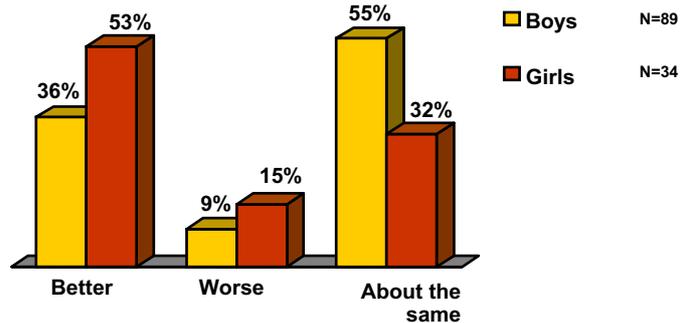
**When compared to male counterparts, girls:**

- **self-report more anxiety**
- **more distress**
- **more depression**
- **more external locus of control**
- **are at risk more more psychological impairments**

Rucklidge & Tannock, JAACAP 2002 40(5)

## More than half of girls who felt something was “Wrong” felt better after learning they had ADHD

After learning name for what they were feeling, felt:



BASE: Felt like there was something wrong  
Q1425 (Children); When you finally learned the name for what you were feeling – AD/HD/AD/HD – did you feel...?

## Risks of Going Undiagnosed

- Females at greater risk for cigarette smoking than males
- Alcohol/drug abuse risk greater
- Sexual promiscuity/pregnancy/STD's
- Low self-esteem - greater in females than males
- Chronic underachievement

## **Program for Achieving Success**

- **Education (Self-knowledge)**
- **Self-advocacy**
- **Support Groups**
- **Counseling/Psychotherapy/Family Therapy**
- **Creating an ADHD-Friendly Lifestyle**
- **Medication**
- **Improving organization skills/Professional Organizer**
- **Coaching**
- **Pursuing a Healthy Lifestyle**

## **Treatment Issues for Girls**

- **Don't need as much "behavior management" work**
- **Mother/daughter issues**
- **Peer issues more intense**
- **Stronger need to work on social skills**
- **Self-esteem and shame need to be ADHDressed (CBT)**

## **Medications**

- **Girls of all ages treated with ADHD medications had greater improvement in ADHD symptoms than girls who did not receive active treatment**
- **Despite the often marked differences in ADHD subtype between boys and girls, girls treated with medications for ADHD show improvements in ADHD symptoms similar to the treatment-induced improvements seen in boys**
- **Inattentive subtype is more common among ADHD girls in childhood and adolescence than in boys**
- **Girls with this subtype showed marked symptom improvement when treated with ADHD medications**

## **“Take Home Message”**

**Girls with ADHD stand to benefit from therapeutic management of ADHD as much as boys**

## **Checklist for ADHD in Girls**

- I have trouble finishing my assignments in class
- I daydream in class
- Even when I try to listen my mind wanders
- I forget to bring papers & permission slips from home
- I have trouble following the teacher's directions
- My mind wanders when I read
- Projects & papers are hard for me to finish
- I often do my work at the last minute & turn things in late
- I forget to bring the right books home from school

## **Checklist for ADHD in Girls**

- I get upset more easily than my friends
- Sometimes it feels like I'm not good at anything
- I am frequently late
- It's hard for me to concentrate when there are people around me
- My parents & teachers tell me I don't try hard enough
- Other kids tease me about being spacey
- I feel different from other girls
- I loose track of time
- I have a messy book bag
- My room at home is a disaster

## Clinical Implications

- Due to the complex and ‘unconventional’ presentation of ADHD in girls and women, there is a greater chance of them being misdiagnosed with conditions such as language delay, anxiety and eating disorders (Hambrook et al., 2008; Coombs et al., 2011; Head et al., 2012)



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## Outcome for women and girls with ADHD

- A higher proportion of women (83%) than men (67%) reported having a mental health condition
- Women appeared to be more socially isolated, with only around half (52%) stating that they were happy with their current level of friendships and social activities. In contrast 67% of men reported they were happy with their social life (ASPECT = Autism Spectrum Australia, 2013)

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