

**Research Spotlight** highlights scientific research focused on girls and women with ADHD and informs non-scientists about the research process

**Article Title:** Sex differences in predicting ADHD clinical diagnosis and pharmacological treatment

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## Research terms to know when reading this article

- **Clinical samples:** Study participants are recruited from clinical settings such as doctors' offices and psychology clinics and/or have received certain diagnoses, such as ADHD.
  - Can be helpful when studying specific conditions
  - Often limited to people with more severe symptoms who are more likely to be referred for an evaluation
- **Population-based samples:** Study participants are recruited from the community or general population.
  - Can be helpful for understanding how symptoms might show up in the broader population
  - May not include as many people with a particular condition

## What were the goals of this study?

- To determine – using a large population-based sample and a clinical sample – whether there were differences between boys and girls in the type and severity of ADHD symptoms.
- To understand whether the likelihood of children being diagnosed and treated for ADHD differed between males and females.

## What is already known about this topic?

- ADHD is diagnosed more often in males than in females during childhood. This is because:
  - ADHD diagnosis rates reported in research studies vary, due in part to the types of study sample used (clinical samples vs. population-based samples).
  - Girls with ADHD tend to be inattentive rather than hyperactive or impulsive.
    - Because inattentive behaviors are less disruptive, they may be considered “less severe,” resulting in girls being less likely to be referred for ADHD evaluations and to receive ADHD diagnoses.
  - Females with ADHD are less likely than boys to have learning difficulties and school problems, which can result in fewer concerns that may prompt referrals.
- Some research indicates that males are more likely than females to be prescribed ADHD medication.

## How was this study done?

- The study used a very large (19,804) population-based sample of nine-year-old twins. Half were boys and half were girls.
- Parents reported on their children’s ADHD symptoms, conduct problems and learning difficulties during telephone interviews.
- The study was done in Sweden, where there are national registries of clinical diagnoses and medication prescriptions.
  - This allowed researchers to link the information from the population-based sample to data about ADHD diagnoses and prescriptions.

## What were the study findings?

- Whether a child is a girl or a boy seems to play a role in which children are diagnosed and treated for ADHD.
- Girls with more hyperactive/impulsive and externalizing behavior – which is different from “typical” female behavior – may be more likely to be diagnosed with ADHD than boys with these behaviors.
- Simply having an ADHD diagnosis may result in boys being prescribed medication, regardless of the types of symptoms they display, while girls with ADHD diagnoses and less severe disruptive behavior may be less likely to be medicated for the condition.
- In the population-based sample, boys were rated as having more ADHD symptoms, conduct difficulties and learning problems than girls.
- In the clinical sample, ADHD symptom severity didn’t differ between boys and girls.

## Why are these findings important?

- **Parents of girls with ADHD symptoms:**
  - May need to advocate more for their daughters who don’t exhibit hyperactive/impulsive or externalizing and disruptive behaviors.
  - May want to use guides such as [Take N.O.T.E.](#)™ to gather more subtle information about their daughter’s behavior, which can help with preparing for an evaluation or discussing medication options.
- **Clinicians conducting ADHD evaluations or prescribing medication:**
  - Will want to be aware of this potential sex bias as they assess patients and consider treatment.
  - May need to gather additional information about the less obvious impairment associated with inattentive, non-externalizing behaviors that present more often in girls.
- **Educators of school-age girls:**
  - Shouldn’t discount their observations about inattentive behavior in female students.
  - Should share their concerns with appropriate school personnel and students’ families if they notice a pattern of careless mistakes, distractibility, “spaciness,” disorganization, avoidance of tasks or others signs of inattention. These behaviors – with or without hyperactive, impulsive or externalizing behaviors—can indicate ADHD.