Duke Center for Girls & Women with ADHD

Research Spotlight

***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 ADHD trajectories across childhood and adolescence
Authors: Aja Louise Murray, Tom Booth, Manuel Eisner, Bonnie Auyeung, George Murray and Denis Ribeaud
Journal: *Developmental Science,* January 2019

Terms to know when reading this article

- *Longitudinal study:* This type of study follows groups of people (cohorts) over time and measures the same individuals on multiple occasions.
    - Longitudinal studies can help researchers understand how symptoms change over periods of time.
- *Growth-mixture modeling*: This type of data analysis can help researchers identify differences in the trajectories (paths) of symptoms over time.
    - Growth-mixture modeling groups similar trajectories together, allowing researchers to characterize different patterns of change.

What were the goals of this study?

- To determine whether seven- to 15-year-old boys and girls in a longitudinal study showed different trajectories of ADHD symptoms

What is already known about this topic?

- In childhood, ADHD is more commonly diagnosed in males than in females, but this difference disappears in adulthood.
- Because girls with ADHD typically show less disruptive behavior and are not referred as often for evaluation by teachers and parents, ADHD is often identified later in girls than it is in boys.
    - ADHD diagnoses in women may “catch up” to those in men during adulthood, as women can report on their own experiences of (less obvious) inattention and refer themselves for evaluation.
- The way symptoms present can change over time for anyone diagnosed with ADHD, but it’s not yet known if these changes differ between males and females or contribute to age-related differences in diagnoses.

How was this study done?

- 1,571 seven-year-old children were randomly selected from 56 schools in Switzerland to participate (with parental consent) in the study.
- From ages seven to 15, teachers annually rated the students’ attention levels and hyperactive/impulsive behaviors.
- Researchers used growth-mixture modeling to study the students’ symptom trajectories over eight years.

What were the study findings?

- Thirty-nine percent of boys and 41 percent of girls showed problems with inattention at some point during childhood and/or adolescence.
- For youth with inattentive symptoms:
    - Problems with attention were generally stable over time for both sexes.
        - Twenty-four percent of girls affected who were highly inattentive during childhood became more attentive as they got older.
- Thirty-seven percent of boys and 19 percent of girls showed elevated hyperactive/impulsive behaviors at some point during childhood and/or adolescence.
- For youth with hyperactive/impulsive symptoms:
    - Affected boys were 38 percent more likely than affected girls to show a high frequency of hyperactive/impulsive behaviors during childhood. For these children, symptoms remained high into adolescence.
    - Fifty-three percent of affected girls (10 percent of all girls in the sample) showed trajectories of "adolescence-triggered" hyperactive/impulsive behaviors. For these girls, hyperactive/impulsive behaviors were not present during childhood, but they emerged in early adolescence – specifically, from ages 11 to 13.

Why are these findings important?

- **Parents of girls with ADHD symptoms should:**
    - Be aware that when symptoms are present, particularly inattentive symptoms, they often continue to be present over time.
    - Recognize that for some girls, adolescence may bring more ADHD symptoms – particularly hyperactive/impulsive behaviors.
    - Consider tracking their daughters' symptoms at regular intervals, such as before medication-management visits or at the beginning of school quarters. This can help inform conversations with care providers about whether changes to interventions are needed.
        - Talking with the adults who see their daughters regularly – teachers and coaches, for example – can help with keeping track of ADHD symptoms over time and across settings.
- **Clinicians conducting ADHD evaluations or providing ADHD treatment should:**
    - Take time to investigate whether new hyperactive/impulsive behaviors in early-adolescent girls may reflect broad patterns of ADHD symptoms or could be due to other causes.
    - Conduct thorough developmental histories to help reveal whether symptoms – particularly less disruptive inattentive symptoms – may have been present earlier in childhood, even if more obvious hyperactive and impulsive behaviors do not first emerge until adolescence.
- **Educators of school-age girls should:**
    - Be aware that ADHD symptoms not only look different in their male and female students, but that the symptoms may appear differently over time.
    - Check out these Children and Adults with ADHD (CHADD) videos to help teachers identify youth with ADHD and support their success in the classroom.