

# Literature Review in Psychology, APA Style (Charat)

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Running head: ADHD IN BOYS VS. GIRLS

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The header consists of a shortened title in all capital letters at the left margin and the page number at the right margin; on the title page only, the shortened title is preceded by the words "Running head" and a colon.

Always out of Their Seats (and Fighting):  
Why Are Boys Diagnosed With ADHD More Often Than Girls?  
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Full title, writer's name, and school halfway down the page.

## Author Note

This paper was prepared for Psychology 1806, taught by Professor Korfine.

An author's note lists specific information about the course or department and can provide acknowledgments and contact information.

Marginal annotations indicate **APA-style formatting** and **effective writing**.

Source: Hacker Handbooks (Boston: Bedford/St. Martin's, 2011, 2007).

This paper follows the style guidelines in the *Publication Manual of the American Psychological Association*, 6th ed. (2010).

Abstract, a 100-  
to-150-word  
overview of the  
paper, appears on  
a separate page.

### Abstract

Until the early 1990s, most research on attention deficit hyperactivity disorder (ADHD) focused on boys and did not explore possible gender differences. Recent studies have suggested that gender differences do exist and are caused by personality differences between boys and girls, by gender bias in referring teachers and clinicians, or by the diagnostic procedures themselves. But the most likely reason is that ADHD is often comorbid—that is, it coexists with other behavior disorders that are not diagnosed properly and that do exhibit gender differences. This paper first considers studies of gender differences only in ADHD and then looks at studies of gender differences when ADHD occurs with comorbid disorders. Future research must focus more specifically on how gender differences are influenced by factors such as referrals, family history, and comorbid conditions.

Always out of Their Seats (and Fighting):

Why Are Boys Diagnosed With ADHD More Often Than Girls?

Attention deficit hyperactivity disorder (ADHD) is a commonly diagnosed disorder in children that affects social, academic, or occupational functioning. As the name suggests, its hallmark characteristics are hyperactivity and lack of attention as well as impulsive behavior. For decades, studies have focused on the causes, expression, prevalence, and outcome of the disorder, but until recently very little research investigated gender differences. In fact, until the early 1990s most research focused exclusively on boys (Brown, Madan-Swain, & Baldwin, 1991), perhaps because many more boys than girls are diagnosed with ADHD. Researchers have speculated on the possible explanations for the disparity, citing reasons such as true sex differences in the manifestation of the disorder's symptoms, gender biases in those who refer children to clinicians, and possibly even the diagnostic procedures themselves (Gaub & Carlson, 1997). But the most persuasive reason is that ADHD is often a comorbid condition—that is, it coexists with other behavior disorders that are not diagnosed properly and that do exhibit gender differences.

It has been suggested that in the United States children are often misdiagnosed as having ADHD when they actually suffer from a behavior disorder such as conduct disorder (CD) or a combination of ADHD and another behavior disorder (Disney, Elkins, McGue, & Iancono, 1999; Lilienfeld & Waldman, 1990). Conduct disorder is characterized by negative and criminal behavior in children and is highly correlated with adult diagnoses

Full title, repeated.

Charat gives abbreviations in parentheses the first time she uses common psychology terms.

Introduction provides background to the topic and establishes why a literature review on ADHD is necessary.

Thesis states what Charat will argue by describing and analyzing the sources she has reviewed.

Charat uses APA style to cite her sources. Two sources in one parenthetical citation are separated by a semicolon.

of antisocial personality disorder (ASPD). This paper first considers research that has dealt only with gender difference in the occurrence of ADHD and then looks at research that has studied the condition along with other behavior disorders.

### **Gender Differences in Studies of ADHD**

Most of the research on ADHD has lacked a comparative component. Throughout the 1970s and 1980s, most research focused only on boys. If girls were included, it was often in such low numbers that gender-based comparisons were unwarranted (Gaub & Carlson, 1997). One of the least debated differences is the dissimilarity in male and female prevalence rates. Some studies have claimed a 3:1 ratio of boys with ADHD to girls with ADHD (American Psychiatric Association, 1987), while others have cited ratios as high as 9:1 (Brown et al., 1991). The differences in prevalence have been attributed to a variety of causes, one of which is that girls may have more internalized symptoms and may be overlooked in ADHD diagnoses (Brown et al., 1991).

A study conducted by Breen (1989) sought to test the differences in cognition, behavior, and academic functioning for boys and girls. Past research had indicated that boys with ADHD showed more aggressive behavior while girls showed more learning problems, but the results were often conflicting. To clarify the existing information, Breen conducted a study on 39 children aged 6 to 11, from a group of children referred to a pediatric psychology clinic. All subjects were white, with varying socioeconomic status. He broke the subjects into three groups: boys with ADHD, girls with ADHD, and a control group of

Headings divide the paper into two sections. Main headings are centered and boldface. Second-level headings, if any, are flush left and boldface.

Charat summarizes key research findings about the paper's central question.

A signal phrase names the author and gives the date of the source in parentheses.

Charat examines an important study in detail. She summarizes experimental methods used by researchers.

girls without any psychiatric or family history of behavioral or emotional problems. Each group was given a battery of tests to assess cognitive functioning. All children were also observed in a playroom while they worked math problems, and all were coded for a variety of behaviors including fidgeting, vocalizing, being out of their seats, and so on.

The results showed that while both groups with ADHD performed nearly equally across most measures, ADHD boys were generally viewed as more deviant than normal girls. Girls with ADHD were closer behaviorally to girls in the control group than to ADHD boys. This finding indicates that it may be difficult to distinguish girls with ADHD from girls without the disorder based solely on behavior. This conclusion was corroborated by the later finding (Brown et al., 1991) that girls with ADHD are often not clinically referred unless they demonstrate a more severe form of the disorder than boys do. A contradictory finding (Breen, 1989) was that ADHD boys and girls displayed rates of disruptive behavior that were not significantly different from each other, although Breen did not indicate what forms the disruptive behavior took and whether the girls were less aggressive than the boys. But as Brown et al. (1991) later pointed out, it was easier to differentiate ADHD in externalized behaviors—aggression, inattention, and overactivity—than in internalized behaviors—depression, anxiety, and withdrawal. It is striking, however, that the distinction in Breen’s study was clearer not between boys and girls but between girls with and girls without ADHD. Breen concluded that differences between boys and girls with the disorder do not seem significant.

Charat uses the specialized language of the field.

Source first mentioned on page 3. In subsequent citations for a source with three to five authors, “et al.” is used after the first author’s name in the text and in parentheses.

Charat analyzes the study's shortcomings.

A few drawbacks to Breen's study include a lack of screening for comorbid conduct disorders, which were no doubt present in some of the subjects. The small sample size could have hindered the results, with only 13 subjects in each group. Another limitation is the small cross section: All subjects were white and clinically referred. Therefore, the findings cannot be generalized to a nonclinical, racially diverse population. Finally, the lack of male controls is surprising, given the usual trend to overrepresent boys when studying ADHD. A reasonable comparison would have been between girls with ADHD and boys in a control group to see if the girls' range of antisocial behavior was beyond that of control boys.

Topic sentence states paragraph's main point.

Another study (Maughan, Pickles, Hagell, Rutter, & Yule, 1996) investigated the association between reading problems and antisocial behavior. The researchers cited a connection that had previously been made (Hinshaw, 1992, as cited in Maughan et al., 1996) between antisocial behavior and underachievement in early childhood, while aggression and antisocial behavior became salient in later years. Maughan et al. looked specifically at reading because research has shown that children who develop reading problems have higher rates of behavioral problems even before they learn to read (Jorm, Share, Matthews, & Maclean, 1986). It had also been shown that reading problems can affect behavioral development (Pianta & Caldwell, 1992, as cited in Maughan et al., 1996). However, since most studies had been done with boys, the researchers also compared gender differences.

An indirect source (work quoted in another source) is indicated with the words "as cited in."

An ampersand separates the authors' names in parentheses.

Charat describes the study's methods in detail.

Subjects were selected from a previously conducted study in a population of children who were 10 years old in 1970. The

majority were British-born Caucasians of low socioeconomic status. The analysis used two subsamples, one with poor reading scores, the other a randomly sampled control group with average IQ and no reading difficulties. Poor readers were rated as either “backward” or “retarded.” The subjects in the backward group were 28 months below average in reading level for their age and IQ. At age 10, children had received psychometric testing, and the study accounted for parental occupation, the child’s government benefits status, and the ranking of the child’s state school in terms of economic adversity. There were follow-ups at ages 14, 17, and early 20s.

Poor readers demonstrated high rates of behavior problems by age 10. About 40% of the girls and almost 50% of the boys in the retarded reading group exhibited antisocial behavior at age 10. Interestingly, reading-retarded girls showed high rates of conduct problems, while the boys did not. Also, among girls there were much higher rates of antisocial behavior in the lowest socioeconomic category than in slightly higher socioeconomic categories. In boys, the differences were not as pronounced. For boys, poor performance in school was the only predictor of antisocial behavior, while for girls poor school performance and reading level were predictors. This finding suggests that for boys, learning difficulties do not increase the risk of behavior problems, while for girls they do. Inattentiveness and overactivity were also related to reading problems and were highly related to antisocial behavior. When inattentiveness and overactivity were factored in, there were no direct links between reading difficulties and

In APA style, the numbers 10 and above are expressed in numerals; percentages are expressed in numerals with a percent symbol.

antisocial behavior. This absent connection means that reading problems do not cause antisocial behavior. It is when they cannot pay attention or sit long enough to read that both boys and girls exhibit elevated rates of antisocial behavior.

By age 14, girls still showed a significant correlation between reading problems and antisocial behavior, while boys showed no association. In early adulthood (ages 17 and early 20s), criminality, alcohol problems, aggression, and personality disorders were found in low rates in girls. In the sample of girls interviewed in their 20s, 1.9% had juvenile offense records and 5.4% had records of adult crime. In boys, poor readers did not show any significant rates of antisocial personality disorders.

The study had several drawbacks. Subject responses at follow-up periods were not uniformly gathered, and the lack of analysis of female juvenile offenders made it harder to understand the results in terms of gender differences and antisocial behavior. The sample consisted only of inner-city children of low socioeconomic status because they had higher rates of reading difficulty than other children. But because economic adversity was found to be a predictor for poor conduct in girls, this group of subjects may have contained a disproportionate number of female subjects with more severe antisocial behavior.

Of particular interest was that for girls but not for boys, reading level and low socioeconomic status predicted antisocial behavior. However, when the children were followed into adulthood, the females who had originally displayed antisocial behavior did not show elevated rates of juvenile offenses or adult

After presenting the study's findings, Charat analyzes the study's weaknesses.



crime. Perhaps the results indicate that girls with antisocial and hyperactive behavior in childhood are different from boys in that they are responding to passing learning impairments rather than permanent personality problems. Or girls may have continued to have ADHD, but with internalized rather than externalized symptoms. Another possibility is that the girls had more severe forms of ADHD because of sampling bias for socioeconomic status but that they eventually grew out of the disorder in adolescence while the boys did not.

Charat speculates on possible explanations for the results of the study.

Another study (Brown et al., 1991) looked specifically at the cognitive and academic performance of children with ADHD and compared internalizing versus externalizing features of the disorder across genders. As in Breen (1989), Brown et al. (1991) found there were few gender differences on measures of attention, concentration, and distractibility. However, some significant differences were found. Parent and teacher ratings of internalizing and externalizing characteristics described boys as more aggressive and girls as more unpopular. Girls were also more commonly held back one or two grades, a finding the researchers interpreted as evidence of female academic difficulties and possible neurological disorders or impairments. This would correlate with the findings of Maughan et al. (1996) of an association between reading impairment and antisocial behaviors in ADHD girls. However, the data must also be regarded cautiously. Brown et al. did not use a control group and thus did not have a standard by which to measure the differences. Any implication of a neurological impairment in females with ADHD

should be viewed skeptically. The historical perception of women as the weaker or more defective sex should make any researcher reluctant to postulate that ADHD for girls could be the result of brain damage, while for boys it is a matter of personality. The cognitive impairments found in girls with ADHD could possibly be the result, not the cause, of their disorder.

Charat explains one more possible cause of gender bias in diagnosing ADHD.

One hypothesis regarding gender biases has held that they may influence those who are responsible for the primary identification and referral of children to clinicians (Disney et al., 1999; Gaub & Carlson, 1997). Gaub and Carlson reported that against the backdrop of both normal and severe behavior by boys, teachers tended to identify and refer only those girls whose behavior seemed “most severely affected.” Studies of gender bias have reported that in fact even clinicians will diagnose disorders based not on the symptoms present but on gender stereotypes (Breen & Altepeter, 1990; Warner, 1978, as cited in Sprock, Blashfield, & Smith, 1990). The conclusion of these studies is that clinic-referred girls represent a more severely afflicted group of girls with ADHD and that clinical data therefore are not a reliable source of information about true female prevalence rates. Girls with ADHD but with less severe forms who do not demonstrate aggressive behavior may be overlooked by their teachers and parents.

Second main section addresses a key idea in the thesis, comorbidity.

#### **Studies of ADHD with Comorbid Disorders**

One issue that sheds light on the differences in male and female manifestations of ADHD is that of comorbidity, or the existence of two distinct disorders in one person. The

*Diagnostic and Statistical Manual of Mental Disorders (DSM-IV)* (American Psychiatric Association, 1994) groups ADHD in the category of disorders usually first diagnosed in infancy, childhood, or adolescence, under the heading "Attention-Deficit and Disruptive Behavior Disorders." Other disorders in the group include oppositional defiant disorder and conduct disorder. What differentiates the other two conditions from ADHD is the manner in which the child behaves externally. In ADHD, symptoms are of impulsivity, hyperactivity, and attention deficit. Oppositional defiant and conduct disorders present symptoms such as rule violation, negativity, anger, and aggression (Oltmanns & Emery, 1998). Some researchers have suggested that the three disorders are distinct while others have argued that they overlap (Oltmanns & Emery, 1998). It is commonly accepted that over half the children diagnosed with one disorder will receive a comorbid diagnosis of another, although some children will be mistakenly diagnosed with only ADHD (Disney et al., 1999; S. Fieselman, Psychology 18 lecture, November 23, 2005).

Researchers (Rutter, 1982, as cited in Lilienfeld & Waldman, 1990) have found that in the United States the diagnosis of ADHD is made approximately 50 times more often than in Great Britain. Lilienfeld and Waldman also speculated that 49 of those 50 children diagnosed with ADHD in the United States would have received diagnoses of conduct disorder in Great Britain. Their meta-analysis of longitudinal, family and adoption, neuropsychological, and psychological studies resulted in a framework wherein children with ADHD

Charat refers to a standard source in psychology, giving its complete title and its common abbreviation in parentheses on her first mention of the source. Later, she uses only the abbreviation.

Introduction to section defines and explains the technical terms involved in the research.

A class lecture is treated as personal communication and is cited only in the text, not in the list of references.

plus conduct disorder are most likely as adults to develop antisocial personality disorder and other adult behavioral disorders. This comorbid group had a higher risk of developing adult disorders than did those with conduct disorder alone. There seemed to be no direct correlation between ADHD alone and antisocial personality disorder in adulthood. More research was suggested since many of the findings were contradictory.

Charat describes a study that supports her thesis.

When researchers take into account comorbid disorders in subjects with ADHD, gender differences seem to exist. Disney et al. (1999) found that conduct disorder increased the risk of substance abuse in adolescents regardless of gender, while ADHD did not appear to increase risk. It has been shown that men suffer from alcohol use and abuse more than women and that they have higher rates of ADHD. Conduct disorder and oppositional defiant disorder are up to 10 times more common in boys than in girls (Oltmanns & Emery, 1998). It would seem logical, therefore, that increased use of alcohol is a characteristic consistent with behavior disorders that are more prevalent in males. However, this idea needs more research to explore different possible relationships between alcohol abuse and ADHD.

Past research on differences in adult psychopathology demonstrated that ADHD in children corresponded with elevated rates of antisocial personality disorder, alcoholism, and hysteria in the parents (Morrison & Stewart, 1971, as cited in Lahey et al., 1988). Even stronger evidence showed the same types of relationships with conduct disorder and parental disorders (Stewart & Leone, 1978, as cited in Lahey et al., 1988). However,

because of inconsistent definitions and screening methods, the presence of conduct disorder in ADHD subjects was often overlooked.

A study by Lahey et al. (1988) addressed the issue of comorbidity. The researchers used subjects between ages 6 and 13 who had been referred to a psychological assessment outpatient program. The child and at least one parent and a teacher were interviewed. The parent served as an informant for him- or herself, the other parent, and the child. Questions were asked to assess the presence of affective disorders and schizophrenia. Questions about antisocial behavior were also asked. The children were diagnosed based on a subjective weighing of the information provided by the combination child, parent, and teacher interviews and rating scales. Results indicated that both mothers and fathers of children with ADHD plus conduct disorder were markedly more aggressive, abused substances more, and engaged in more criminal activity than parents of children with conduct disorder alone. ADHD was not linked at all to parental psychology but only to increased parent arrests and physical fights. This finding implies that unless paired with conduct disorder, ADHD is not as closely tied to the adult conduct disorders. It also suggests that ADHD itself is not more characteristically male, since it does not provoke the same long-term aggressive and destructive symptoms that childhood conduct disorder does.

A study by Faraone et al. (1995) also examined the relationship between ADHD and comorbid disorders in families. The researchers hypothesized that the gender effect for ADHD

would be limited to families with antisocial disorders and that rates of ADHD and comorbid disorders would be higher in families with a prevalence of antisocial disorders. Taking a biopsychosocial approach to studying disorders like ADHD, the researchers posited that there may be multiple factors, both genetic and nongenetic, that may cause ADHD.

Charat defines a technical term.

ADHD boy probands (the first persons in a family to exhibit a disorder), controls, and their biological first-degree relatives were interviewed. Relatives were tested for major depressive disorders, anxiety disorders, and ADHD. Academic achievement, intellectual functioning, psychosocial factors, and full IQ and freedom-from-distractibility IQ scores were all assessed using a battery of tests. Families were categorized as antisocial if the proband had conduct disorder or a parent had antisocial personality disorder. Thirty-one percent of the families of the ADHD probands were diagnosed as antisocial. Families with maternal ADHD had odds of children with ADHD 10 times greater than those without it. In antisocial families, brothers of probands were 3.6 times more likely to have ADHD than sisters. The results showed partial support for the hypothesis that comorbid disorders are higher in families with antisocial behavior than in families with ADHD.

Faraone et al. (1995) posed the “family dose” model of gender effects to explain the higher prevalence rates in boys than in girls. The model suggested that “females require a greater ‘dose’ of familial etiologic factors to express the disorder.” The model also suggested that mothers with ADHD would have children with a higher risk for the disorder than would fathers

with ADHD. This is supported by data from family and twin studies that suggest that relatives of women with antisocial disorders are at higher risk for the disorder than relatives of men with antisocial disorders (Lilienfeld & Waldman, 1990). Faraone et al. further speculated that in fact female hormones might moderate the pathogenic effects of ADHD in many females with the disorder. However, this speculation contradicts the data that show very few differences between boys and girls in the severity of symptoms.

### Conclusion

Although the studies presented here are filled with flaws and contradictory findings, they have a unifying thread. Through direct findings or indirect lack of information, all suggest that the higher rate of male diagnoses of ADHD is not necessarily because the disorder actually occurs in boys more often than in girls. Although boys are more commonly diagnosed, this phenomenon could reflect a long-standing history of misperceptions. Since hyperactive and inattentive boys are also often aggressive and disruptive, girls who do not demonstrate similar behaviors may be overlooked.

It is important to reevaluate the way boys and girls are observed and understood when attention and hyperactivity are being assessed. Males and females may display different behaviors, and parents and teachers may interpret their behaviors differently. But when rated by trained researchers, boys and girls identified as having ADHD are rated similarly. However, it is easier to identify externalizing, aggressive behavior than it is to

Conclusion presents a synthesis of the paper's points.

Charat raises questions about the research she reviews but adopts a balanced tone in summarizing the sources.

Charat suggests areas for future research.

identify internalizing behavior, and this difference may be one of the main factors at the root of the perceived gender differences in the prevalence of ADHD. There is not enough concrete evidence to rule out the possibility that a gender difference does exist, regardless of the fact that boys and girls seem to show equal rates and degrees of symptoms. Until more studies look at population samples, exclude conduct disorders, and take into account possible differences in the ways the symptoms are manifested, it is impossible to conclude that gender differences are the result of social and clinical biases and stereotypes. Further research on genetics and familial rates of the disorder are also necessary to help clarify the relationship between adult antisocial personality disorder and ADHD. <sup>4</sup> Also, until a clear distinction is made between conduct disorder and ADHD, not only in the text of the *DSM-IV* but also in the minds of laypeople and clinicians, it will be difficult to separate children with comorbid disorder and those without it and to assess gender differences as well.

Conclusion affirms the necessity of continuing investigation.



References <sup>A</sup>

- American Psychiatric Association. (1987). *Diagnostic and statistical manual of mental disorders* (3rd ed., rev.). Washington, DC: Author.
- American Psychiatric Association. (1994). *Diagnostic and statistical manual of mental disorders* (4th ed.). Washington, DC: Author.
- Breen, M. J. (1989). Cognitive and behavioral differences in ADHD boys and girls. *Journal of Child Psychology and Psychiatry*, *30*, 711-716. doi:10.1111/j.1469-7610.1989.tb00783.x <sup>A</sup>
- Breen, M. J., & Altepeter, T. S. (1990). Situational variability in boys and girls identified as ADHD. *Journal of Clinical Psychology*, *46*, 486-490.
- Brown, R. T., Madan-Swain, A., & Baldwin, K. (1991). Gender differences in a clinic-referred sample of attention-deficit-disordered children. *Child Psychiatry and Human Development*, *22*, 111-127.
- Disney, E. R., Elkins, J. J., McGue, M., & Iancono, W. G. (1999). Effects of ADHD, conduct disorder, and gender on substance use and abuse in adolescence. *American Journal of Psychiatry*, *156*, 1515-1521.
- <sup>A</sup> Faraone, S. V., Biederman, J., Chen, W. J., Milberger, S., Warburton, R., & Tsuang, M. T. (1995). Genetic heterogeneity in attention-deficit hyperactivity disorder (ADHD): Gender, psychiatric comorbidity, and maternal ADHD. *Journal of Abnormal Psychology*, *104*, 334-345.

List of references begins on a new page. The first line of an entry is at the left margin; subsequent lines indent ½".

If an online source has a DOI (digital object identifier), no URL is given.

List is alphabetized by authors' last names. All authors' names are inverted; an ampersand separates the last two authors.

A work with up to seven authors lists all authors' names. A work with more than seven authors lists the first six followed by three ellipsis dots and the last author's name.

Double-spacing is used throughout.

- Gaub, M., & Carlson, C. L. (1997). Gender differences in ADHD: A meta-analysis and critical review. *Journal of the American Academy of Child and Adolescent Psychiatry, 36*, 1036-1045.
- Jorm, A. F., Share, D. L., Matthews, R., & Maclean, R. (1986). Behaviour problems in specific reading retarded and general reading backward children: A longitudinal study. *Journal of Child Psychology and Psychiatry, 27*, 33-43. doi:10.1111/j.1469-7610.1986.tb00619.x
- Lahey, B. B., Piacentini, J. C., McBurnett, K., Stone, P., Hartdagen, S., & Hynd, G. (1988). Psychopathology in the parents of children with conduct disorder and hyperactivity. *Journal of the American Academy of Child and Adolescent Psychiatry, 27*, 163-170.
- Lilienfeld, S. O., & Waldman, I. D. (1990). The relation between childhood attention-deficit hyperactivity disorder and adult antisocial behavior reexamined: The problem of heterogeneity. *Clinical Psychology Review, 10*, 699-725.
- Maughan, B., Pickles, A., Hagell, A., Rutter, M., & Yule, W. (1996). Reading problems and antisocial behavior: Developmental trends in comorbidity. *Journal of Child Psychology and Psychiatry, 37*, 405-418. doi:10.1111/j.1469-7610.1996.tb01421.x
- Oltmanns, T. F., & Emery, R. E. (1998). Psychological disorders of childhood. In *Abnormal Psychology* (2nd ed., pp. 572-607). Upper Saddle River, NJ: Prentice Hall.
- Sprock, J., Blashfield, R. K., & Smith, B. (1990). Gender weighting of DSM-III-R personality disorder criteria. *American Journal of Psychiatry, 147*, 586-590.