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Hyperactivity Disorder: Exploring Factors Influencing the
Underdiagnosis of ADHD and its Effects on Women**

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**Gender Differences in the Presentation of
Adult Attention-Deficit/Hyperactivity Disorder:
Exploring Factors Influencing the Underdiagnosis of
ADHD and its Effects on Women**

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Table of Contents

Abstract	3
Introduction	4
Review of Literature	5
Female Presentation of ADHD	5
Comorbidities associated with ADHD in Women	9
Discussion	12
Proposal for Further Study	14
Conclusion.....	17
References	18
Appendix	20

Abstract

Adult Attention-Deficit/Hyperactivity Disorder (ADHD) is a neurodevelopmental disorder that causes difficulties in maintaining focus, working memory, and executive function. The current literature reveals extensive research on males diagnosed with ADHD whereas fewer studies on females have been performed due, at least in part, to inadequate assessment and/or identification of women who present with subtle gender differences in symptom profile and comorbidity.

This thesis reviewed six peer-reviewed primary research articles published between the years 2002 to 2020 that explore the variations in gender differences and the associated comorbidities of adult ADHD. While current literature has identified the differences in gender presentation and how that may affect diagnosis and person wellbeing, much of the research has been conducted on children. There is very little research on interventions that enhance outcomes for adult ADHD women. In this thesis, I introduce a new method of treatment therapies for women with ADHD that focuses on their emotional and functional needs as adults which increases in complexity with age and level of independence. This promising new approach has the potential to dramatically improve identification, treatment, and outcomes for women with ADHD and to further advance the care of psychiatric mental health professionals.

Introduction

As the push for mental health awareness becomes more and more prevalent in today's society, nurses need to be aware of the clinical presentation of adult ADHD in women and how it can interfere with their activities of daily living and quality of life. I believe it is important as a future health care provider to be aware of the differences in ADHD presentation between men and women to reduce the chances of missing subtle signs and symptoms on assessment.

Attention-Deficit/Hyperactivity Disorder (ADHD) in our society has typically been deemed a young boy's disorder with an emphasis on their hyperactive/impulsive characteristics. This has caused many of the inattentive characteristics that are commonly associated with girls to be masked, internalized, or simply overlooked. This greatly differs from their male counterparts. As male symptoms tend to manifest in a more disruptive externalized manner resulting in a faster diagnosis (and in turn treatment) for their ADHD. Because of this disparity in recognition, females with ADHD are more likely to develop emotional distress such as "depression and anxiety-like symptoms and are therefore often misdiagnosed as a child" (Stibbe, 2020). Furthermore, when ADHD is left untreated into adulthood this puts individuals at risk for behavioral, emotional, social, academic, and vocational problems that tend to increase in number, scope, and severity with increasing age (Ginsberg, 2014). This also puts many undiagnosed adult women in vulnerable positions where they may develop conditions such as major depressive disorder, anxiety, personality disorder, and bipolar disorder and often end up seeking help for their comorbid condition instead of ADHD (Ginsberg, 2014).

Review of Literature

To better understand gender differences in ADHD, the articles below have been selected to evaluate the variations in male and female presentation while also exploring related comorbidities. Information used for developing this study was selected from peer-reviewed articles found on PubMed. Search terms used for this review include ADHD, adult ADHD, comorbidities, and gender differences. To meet the criteria for this study each article had to be conducted between the years 2002 to 2020.

Female Presentation of ADHD

In the study titled *Gender differences in adult ADHD: Cognitive function assessed by the test of attentional performance* (Stibbe et al., 2020) a cross-sectional study was conducted to assess participants working memory, alertness, attentiveness, behavior control, and inhibition. The study followed 69 patients from the age range 19 to 56, with 28 being women and 41 being men. The inclusion criteria for this study required a confirmed diagnosis of ADHD per DSM-IV and participants could not present with acute suicidality or psychotic symptoms. Researchers were able to collect both subjective and objective data by asking participants to complete four self-report symptomology assessment surveys and conducting a computer-based test of attentional performance called the TAP.

The findings from the first half of this study which used self-reporting scales to assess current symptomatology suggested that there is no significant difference in perception of symptom severity between women and men. Although results from the Wender Utah Rating Scale scale (WURS-k), which measured childhood symptoms, had men scoring almost significantly higher than women ($p = 0.056$). This finding supports the general belief that the male ADHD childhood experience may be more amplified due to the externalized nature of their symptoms, with males primarily being characterized by hyperactivity and impulsivity

(Stibbe et al., 2020). While females, who generally experience inattentive-like symptoms (i.e., further explained in the next paragraph), are more likely to internalize their stressors or overlook them as something unrelated to ADHD.

The second half of this study assessed participants' inattention, impulsivity, and hyperactivity by evaluating their performance in working memory, alertness, and inhibition control by various computerized subtests. There was a significant difference in working memory and impulse control with females having slower reaction times, more errors, and a less stable reaction compared to men (Stibbe et al., 2020). These findings continue to support the current literature that ADHD women may have issues with maintaining concentration over long periods, "which may be supported by the fact that the inattentive presentation is more common among women" (Stibbe et al., 2020).

In the study titled *Influence of Gender on Attention Deficit Hyperactivity Disorder in Children Referred to a Psychiatric Clinic* (Biederman et al., 2002) a case-control study was conducted to examine the impact of gender on the clinical presentation of ADHD in children. The study used 140 males with ADHD, 140 females with ADHD, 120 healthy control (HC) males, and 122 HC females. The inclusion criteria for this study required participants to be between the age of 6 and 17 years old, had undergone a comprehensive ADHD assessment (i.e., with positive cases having met all three stages of the ADHD criteria and HC not meeting any of them), no major sensorimotor handicaps, written informed consent by participant and parent. Psychiatric assessments of the children were measured by the Schedule for Affective Disorders and Schizophrenia for School-Age Children--Epidemiologic Version. Diagnoses were based on the Structured Clinical Interview for DSM-III-R conducted with the child's guardian including another interview with the participants themselves if they were older than 12 years old. Social functioning data were also collected by several tests and scales (e.g.,

full-scale IQ and Global Assessment of Functioning Scale).

A significant finding from this study revealed that although the combined type was the most prevalent subtype of ADHD for both genders, girls were twice as likely to be diagnosed as primarily inattentive compared to boys. To add, there was also a statistically significant gender-by-ADHD interaction linked to ADHD and substance use disorder, suggesting girls are particularly at risk in adolescence (Biederman et al., 2002). Another modest significant finding revealed how girls were less likely to receive pharmacotherapy and psychotherapy treatment despite “the mean number of years from the onset of ADHD to the first encounter with treatment for the disorder was no different in girls and boys with ADHD” (Biederman et al., 2002). The study also found that girls with ADHD had fewer school problems and participated in more extracurriculars than their male counterparts.

The next article to be reviewed is a case-control study titled *Predictors of Persistence in Girls with Attention-Deficit/Hyperactivity Disorder Results from an 11-year Controlled Follow-up Study* (Biederman et al., 2012). This follow-up study’s goal was to better understand/identify patterns and predictors of persistence and remission in girls with ADHD over the long term, it should also be noted that the main author of this study is the same researcher from the previous article. In this study, various assessment surveys were conducted on the participant and their guardian to determine their baseline cognitive, social, school, and family functioning levels. They were then followed up prospectively for 11 years into young adulthood where they were reassessed. Persistent ADHD is defined as meeting full or more than half but less than full diagnostic criteria for DSM-IV ADHD in the month before the 11-year assessment (Biederman et al., 2012). The study used female participants from the ages of 6 to 17 years, with 140 of them diagnosed with DSM-III ADHD and 122 without DSM-III ADHD. From the original sample, 96 participants with ADHD and 91 control participants completed the

full follow-up assessment. The inclusion and exclusion criteria are the same as the article above as well.

Researchers for this study used the Structured Clinical Interview for DSM-IV and the Kiddie Schedule for Affective Disorders and Schizophrenia-Epidemiological version to assess childhood diagnoses by interviewing participants and their guardians (Biederman et al., 2012). The Global Assessment of Functioning (GAF) was also used to assess overall functioning. Results from this study revealed that after the 11-year follow-up 77% of the girls showed some evidence of persistence while only 23% of them attained full remission in young adulthood (Biederman et al., 2012). Persistence was also associated with higher baseline levels of disruptive behavior, mood and anxiety disorders, school dysfunction, family conflict, and family history of ADHD (Biederman et al., 2012). These findings suggest that ADHD in women is a persistent disorder and that predictors of remission can be determined by patterns of comorbidity, family, and adversity.

The articles selected for this category explore the gender differences in ADHD presentation, with all three studies emphasizing a significant correlation between females and the inattentive ADHD type. The studies also explore the nature and duration of inattentive symptoms and suggest that patients with this subtype are more likely to have symptoms that persist into adulthood which can be seen in Biederman's longitudinal study. Findings from these studies may also explain the difference in disease prevalence between genders, as hyperactive and impulsive symptoms mainly associated with men tend to decrease over time versus inattentive symptoms which persist longer and are less likely to be addressed or managed (Stibbe et al., 2020).

Comorbidities associated with ADHD in Women

To be able to better understand the plights of ADHD in women the following studies will explore how comorbidities associated with this disorder result in considerable societal, personal, and vocational burdens.

The study titled *Childhood and persistent ADHD symptoms associated with educational failure and long-term occupational disability in adult ADHD* (Fredriksen et al., 2014) investigates the correlation between childhood ADHD symptom severity and their association with lower education levels and long-term work disability in treatment-naïve ADHD adults. This study's inclusion criteria required participants to be referred patients from ages 18 to 60 years old, fulfill DSM-IV criteria for ADHD (i.e., requirement involves ADHD symptoms in both childhood and adulthood), and stimulant naïve. Out of the 620 initial patients that were assessed for eligibility, 250 participants met all three requirements for this study (i.e., 129 ADHD females and 121 ADHD males). Researchers measured two primary outcomes, the first being low education levels which are described as the incompleteness of high school or a program of the same equivalence. The second primary outcome followed is long-term work disability defined as unemployment without pay within the past year related to disability before joining this study.

Results from this study sample further confirmed the current literature by showing a significantly higher amount of females assessed for inattentive ADHD symptoms in adulthood by the Diagnostic Interview for ADHD (DIVA). This study also revealed that more males (53%) than females (36%) were paid and employed while females (58%) reported having more disability or rehabilitation pension than males (41%) (Fredriksen et al., 2014). These findings may suggest that “women may be more susceptible than men in a vocational context to the disabling consequences of ADHD, or that women are more prone to [be in] work environments

particularly less compatible with ADHD” (Fredriksen et al., 2014).

The next article titled, *Comorbid psychiatric disorders in a clinical sample of adults with ADHD, and associations with education, work, and social characteristics: a cross-sectional study* (Anker et al., 2018) explores the prevalence and association between education level, work participation, and rates of psychiatric comorbidity in adult ADHD. The study follows 548 adult participants, with 277 being women and 271 being men, diagnosed per DSM-IV. Comorbidities were evaluated and diagnosed using a brief structured diagnostic interview for major psychiatric disorders called the Mini-International Neuropsychiatric Interview.

One major finding from this study revealed that ADHD in adults is associated with higher rates of psychiatric comorbidities, regardless of gender and age. Results from this clinical sample revealed that 53.5% of participants had at least one current comorbid psychiatric disorder with major depression, substance use disorder, and social phobia being the three most prevalent (Anker et al., 2018). Gender-specific findings from this study also reported a greater prevalence of substance use disorder in men whereas women had more eating disorders. Another significant finding from this study exhibited a positive association with higher education levels (i.e., the continuation of school past grade 12) and work participation with lower rates of comorbid disorders (Anker et al., 2018).

The final article that will be explored for this review is titled, *Psychiatric Comorbidities in Adult Attention-deficit/Hyperactivity Disorder: Prevalence and Patterns in the Routine Clinical Setting* (Ohnisini et al., 2019). This article used survey post-market survey data of adult ADHD medication to explore the prevalence of psychiatric comorbidities and investigate the relationship between demographic factors. The study followed 575 adult patients (i.e., 298 men, 277 women; mean age of 33 years) who recently started osmotic-release oral system (OROS)

with methylphenidate therapy and a confirmed adult ADHD diagnosis according to the Adult ADHD Diagnostic Interview for DSM-IV. The sample consisted of 336 patients with inattentive type ADHD, 40 patients with hyperactive-impulsive type, and 199 patients with the combined type (Ohnisini et al., 2019). The following data was collected for each patient: age, sex, age at the time of initial diagnosis, number of psychiatric comorbidities, and ADHD severity estimated through Conners' Adult ADHD Rating Scales (CAARS).

Similar to the previously reviewed articles, findings in this study suggest that there was a high prevalence of psychiatric comorbidities in adults with ADHD, with more than half of the participants reporting at least one comorbid condition. Development disability, depressive disorder, and anxiety disorders were the most frequently reported psychiatric comorbidities within this study, sharing similar findings to the previously reviewed article above (Ohnisini et al., 2019). Another modest finding worth noting is certain internalized disorders such as anxiety disorder and externalized disorders such as OCD and impulse control tended to occur together (Ohnisini et al., 2019) suggesting that symptoms of ADHD and comorbid psychiatric disorder often overlap.

All three articles reviewed in this category suggested different comorbidities related to adult ADHD and their consequences. The first article revealed that women with ADHD were at a greater disadvantage in the workplace being more likely to be unemployed. Whether this finding correlates with inattentive symptoms being associated with greater occupational impairment or women working jobs that are less compatible with this disorder is still unclear. The remaining studies explored different prevalences of comorbidities associated with ADHD, with depression and anxiety disorders being the most common amongst both sexes.

Discussion

Summary of Main Findings

In the first study, female patients had significantly lower measures for reaction time in working memory, made more errors, and had less stable reactions (Stibbe et al., 2020). The second study suggests that many ADHD girls experience persistent symptoms and functional impairment. This study also determined that remission can be predicted based on patterns of comorbidity, familiarity, and adversity (Biederman et al., 2002). The third study revealed that girls with ADHD are less likely than boys to have comorbid disruptive behavior problems, learning disabilities, and social dysfunction despite having higher rates of inattention symptoms (Biederman et al., 2012). The fourth study found that persistence of inattentive symptoms in adulthood was associated with greater occupational impairment. Furthermore, additional adult comorbidities were a major predictor of long-term work disability (Fredriksen et al., 2014). The fifth study revealed the most prevalent comorbid disorders were major depression, substance use disorder, and social phobia, with women more likely to develop eating disorders and men more likely to have substance use disorder (Anker et al., 2018). The final study supported the prevalence of psychiatric comorbidities in adults with ADHD, with the most common types being anxiety and depression.

Strengths of Articles

The first study chosen relied on both objective and subjective findings to evaluate gender differences in ADHD. The length of the second study lasted 11 years further strengthening its findings by being able to track symptomology over time. The third study used both male and female samples to evaluate ADHD presentation. The fourth study used a sample population of treatment-naive ADHD adults while also including a wide age range, both genders, and comorbid conditions. The fifth study had no exclusion criteria, with large

recruitment of ADHD participants creating a diverse sample population. And the sixth study uses a large sample size that focused only on adults.

Limitations of Articles

The first study lacked control of participant use of pharmacotherapy which may have influenced cognitive performance. This study also had an imbalance in the number of males to female participants and relied partially on subject self-assessment. The second study only used participants who were clinically referred and were mainly caucasian. The third study relied on indirect parenteral reports for almost half of their sample. Direct interviews could not be conducted on participants unless they were older than 12. The fourth study used investigators who were not blind to participants' diagnostic status which may have influenced assessment. The fifth study was managed by private clinics that may have recruited patients with higher social status resulting in potential selection bias. The sixth study only included participants that had recently commenced treatment with OROS resulting in potential selection bias as well. It should also be noted that all of the studies selected for this research used the DSM IV or DSM III as their gold standard for assessing adult ADHD (i.e., not the DSM V, which is the current model).

Many of the major findings from these articles support the prevalence of the inattentive type in women compared to men. Some of the articles also suggest flaws in the current assessment tools used to diagnose ADHD, as they are less likely to detect the inattentive type putting women at a disadvantage. Findings from the study *Influence of Gender on Attention Deficit Hyperactivity Disorder in Children Referred to a Psychiatric Clinic* (Biederman et al., 2002) begin the discussion for a less gender-biased assessment tool for diagnosis, specifically with a greater sensitivity to the inattentive type. This study also addresses a potentially huge reason why women are underdiagnosed, prompting the need for further investigation.

Proposal for Further Study

While the literature identified the extent of the problem as well as differences in symptoms between men and women, interventional research to improve outcomes was lacking. In addition, further investigation of the concerns that were identified for ADHD adult women needs further exploration. Therefore, a new study is proposed with the objective to examine the effect of a combination of pharmaceutical and integrative therapies for treatment.

Theoretical Framework: Phil Barker's Tidal Model

For this proposed research, Phil Barker's theory of nursing practice will be used to explore the benefits of prioritizing the development of individually-tailored care plans. This theory acknowledges that an individual's mental well-being is dependent on his or her individual life experiences and all goals must belong to the patient individually. Nurses following this model understand that individuals are dynamic and multidimensional, and a "one-size-fits-all" treatment is insufficient when addressing mental health. For this proposed study, treatment will focus on providing psychoeducation programs that are curated to the challenges of the individual. With this theory in mind, clinicians will engage with ADHD patients with the primary focus on exploring and recognizing the power of individual resourcefulness instead of focusing on weaknesses and deficits. This study will take a lifespan approach and monitor the efficacy of individualized assessments and interventions that have been recommended by expert mental health practitioners.

Research Design

The sample population will be adult women over the age of 18 who have been recently diagnosed with ADHD (per DSM V criteria) and are still experiencing unaddressed symptoms. A sample size of one hundred participants will be recruited for this study. Inclusion criteria will

require participants to be residing in one of the nine counties in the San Francisco Bay Area. Participants will acknowledge all associated risk and their right to withdraw from the study at any time when providing their required informed consent. Recruitment will take place by collaborating with local mental health professionals and enlisting them to place flyers about the research in their clinics. I, as the researcher, will also create a FaceBook page providing background about the research study and giving people a link to more information. Before reaching out to any potential participants, an IRB approval will first be obtained.

A longitudinal experimental study will follow two groups of women diagnosed with adult ADHD. The control group will remain untreated while the experimental group participates in tailored psychoeducation and pharmacological treatments. This proposed study will measure the Quality of life and prevalence of comorbidities by using the Global Assessment of Functioning (GAF) scale. This scale measures how much an individual's symptoms impact their everyday life on a scale of 0 to 100 and will be conducted by licensed clinicians.

The study's duration will last for 6 months with a 3-month post-study follow-up to assess adherence and presence of comorbidities. The GAF scale will be used before the study to determine participant baseline, a second time at 3 months intra-study, and a third time at 6 months to conclude the study. Emphasis will be placed on the consent and willingness of the participants in the non-treatment intervention group, as some concerns may arise.

The one hundred participants will be randomly split into two groups, with the experimental group participating in individualized psychoeducation programs and medication regimens while the control group remains untreated. The psychoeducation treatment will begin with a clinician interviewing a patient and assessing for risk and potential challenges in the individual's personal, clinical, educational, social-relational, and occupational domains. The clinicians will also assess for emotional lability, the presence of compensatory strategies, and

attitudes towards diagnosis. After these challenges are identified, the health care team will create an individualized-dynamic plan of care that addresses these issues and ways the patient can effectively cope. While this is happening, the experimental group will also start a physician-prescribed stimulants program. Patients will attend an hour-long session twice a week facilitated by a clinical professional to conduct weekly check-ins and discuss strategies, coping mechanisms, and resources to effectively manage their symptoms. Experimental participants will also be provided with educational resources that they can take home to look over.

Data Analysis

The data collected in this study will be analyzed by calculating the mean, range, slope, and standard deviation of the GAF scores to understand the trends, severity, and level of dysfunction overtime at the 0 months, 3 months, and 6-month intervals. At the 3-month follow-up comorbidity rates will also be calculated for both groups. The Repeated Measures Analysis of Co-Variance (ANCOVA) test will be implemented to determine if the mean GAF scores from each group are statistically significant.

Implications and Potential Benefits of Proposed Research

The proposed study will provide more knowledge on the efficacies of different treatment modalities that future psychiatric mental health nurses can implement in their care. Additionally, this study will provide more data on gender-specific interventions and emphasize the significance of individualized care as the gold standard for all mental health concerns. Lastly, this study will also provide insight on how to better manage the demands of adulthood that the current literature is scarce in.

Conclusion

Gender differences between adult women and men with ADHD were further confirmed in this study, with males frequently presenting with the hyperactive type and women typically presenting with the inattentive type. The literature suggests that boys are more likely to receive an ADHD diagnosis due to the gender bias assessment tools currently being used today, putting girls at risk for not getting the help they need. Studies also revealed that women are more likely to internalize their symptoms, and in turn, develop comorbidities that severely impair their quality of living that persist into adulthood. Findings from the literature prompt the need for the development of a more sensitive assessment tool that will adequately recognize the subtle symptoms of the inattentive-type to prevent further underdiagnosis in women. To add, interventions need to be in place to better address and support the environmental demands faced in adulthood for women that can appropriately address their emotional, psychosocial, occupational, and educational health. These implications will set the groundwork for future psychiatric mental health practitioners so they can properly diagnose, provide the appropriate treatments, and develop individualized plans of care. The proposed study will better equip psychiatric mental health nurses and advanced licensed practitioners with ways they can sharpen their assessment skills to address those subtle but distinct symptoms in adult ADHD women. Moving forward, more research needs to be conducted on women with ADHD and what interventions/treatment modalities are most effective for the unique challenges faced in adulthood.

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APPENDIX

Authors/Citation	Purpose/Objective of Study	Sample - Population of interest, sample size	Study Design	Study Methods	Major Finding(s)	Strengths	Limitations
<p>Stibbe, T., Huang, J., Paucke, M., Ulke, C., & Strauss, M. (2020). Gender differences in adult ADHD: Cognitive function assessed by the test of attentional performance. PloS one, 15(10), e0240810. https://doi.org/10.1371/journal.pone.0240810</p>	<ul style="list-style-type: none"> Assess cognitive differences between male and female adults with Attention Deficit Hyperactivity Disorder (ADHD) 	<p>N=69 Sample: adults with an ADHD diagnosis from 19-56 years old (28 female; 41 men)</p>	<p>Cross-Sectional Study</p>	<ul style="list-style-type: none"> Self-report questionnaires computer-based test of attentional performance (TAP) Assessing cognitive function including working memory, alertness, attention, behavioral control and response inhibition 	<ul style="list-style-type: none"> Women and men with ADHD may differ in cognitive capacities Women are more impaired than men in working memory and impulse control 	<ul style="list-style-type: none"> Use of both subjective (self-reporting scale) and objective (computer-based performance test) measurements 	<ul style="list-style-type: none"> Lack of control of pharmacotherapy and psychotherapy, which may have influenced results Uneven numbers of men vs. women and overall small sample size, making it impossible to generalize findings Measures used were also reliant on a subject's

							self-assessment
Ohnishi, T., Kobayashi, H., Yajima, T., Koyama, T., & Noguchi, K. (2019). Psychiatric Comorbidities in Adult Attention-deficit/Hyperactivity Disorder: Prevalence and Patterns in the Routine Clinical Setting. <i>Innovations in clinical neuroscience</i> , 16(9-10), 11–16.	<ul style="list-style-type: none"> • Assess the prevalence of comorbid psychiatric disorders, evaluate relationships between comorbid psychiatric disorders and demographic characteristics • Explore the patterns of these comorbid disorders and their relationships with ADHD subtypes. 	<p>Population: Adult women with DSM-IV adult ADHD diagnosis (sample: 277)</p> <p>Adult men with DSM-IV adult ADHD diagnosis (sample: 298)</p>	Clinical Surveillance Study	<ul style="list-style-type: none"> • Data obtained from postmarketing surveillance of methylphenidate XR tablets for adult ADHD and were evaluated for the prevalence of psychiatric disorders • Nonmetric multidimensional scaling (NMDS) performed to explore correlations among comorbidities and ADHD subtypes and 	<ul style="list-style-type: none"> • High prevalence of psychiatric comorbidities in adult ADHD (more than 50% of adult patients with ADHD had at least one comorbid psychiatric condition, and of those, nearly 40% had multiple comorbidities) 	<ul style="list-style-type: none"> • Large sample size 	<ul style="list-style-type: none"> • Only enrolled adult patients with ADHD who had recently started OROS-MPH treatment, risking sampling bias • Comorbid psychiatric disorders were diagnosed by attending physicians (mainly psychiatrists) rather than by structured interviews. Concerns of diagnostic accuracy
Anker, E., Bendiksen, B.,	<ul style="list-style-type: none"> • Explore association 	Sample: adults diagnosed with	Cross-Sectional Study	<ul style="list-style-type: none"> • Use of psychiatric 	<ul style="list-style-type: none"> • 53.5% of sample had at 	<ul style="list-style-type: none"> • Study had a naturalistic 	<ul style="list-style-type: none"> • Private clinics were used to

<p>& Heir, T. (2018). Comorbid psychiatric disorders in a clinical sample of adults with ADHD, and associations with education, work and social characteristics: a cross-sectional study. <i>BMJ open</i>, 8(3), e019700.</p>	<p>between education level, work participation, social characteristics and rates of psychiatric comorbidity in adults with ADHD</p>	<p>DSM-IV adult ADHD (277 women; 271 men)</p>		<p>examination tools (i.e., DSM-IV and Mini-International Neuropsychiatric Interview) to assess relationship between ADHD diagnosis and the prevalence of comorbidities.</p>	<p>least one current comorbid psychiatric disorder</p> <ul style="list-style-type: none"> • Most prevalent disorders were major depression, substance use disorders, and social phobia. • Women had more eating disorders than men • Men had more alcohol and substance use disorders 	<p>design, recruiting adult patients with ADHD from a large area</p> <ul style="list-style-type: none"> • No exclusion criteria • Rate of consent and the number of participants were high 	<p>recruit patients and participants had higher social status resulting in potential selection bias</p>
<p>Fredriksen, M., Dahl, A. A., Martinsen, E. W., Klungsoyr, O., Faraone, S.</p>	<ul style="list-style-type: none"> • Investigate correlation between ADHD symptoms and 	<p>Population: 18-60-year-old females with ADHD (sample: 129)</p>	<p>Cross-Sectional Study</p>	<ul style="list-style-type: none"> • About 250 adults diagnosed systematically with ADHD 	<ul style="list-style-type: none"> • More women than men were long-term work disabled 	<ul style="list-style-type: none"> • Sample was treatment naïve, adult ADHD patients and represented 	<ul style="list-style-type: none"> • Some selection bias that may have occurred due to inclusion

<p>V., & Peleikis, D. E. (2014). Childhood and persistent ADHD symptoms associated with educational failure and long-term occupational disability in adult ADHD. Attention deficit and hyperactivity disorders, 6(2), 87–99. https://doi.org/10.1007/s12402-014-0126-1</p>	<p>severity and their association with lower education level and long-term work disability</p>	<p>18-60-year-old males with ADHD (sample: 121)</p>		<p>according to DSM-IV were prospectively recruited.</p> <ul style="list-style-type: none"> • Primary outcomes measured were high school dropout rates and length of unemployment 	<ul style="list-style-type: none"> • High levels of ADHD inattention symptoms in adulthood and number of comorbid disorders were significantly related to long term work disability • Childhood hyperactive-impulsive symptoms and overall severity of childhood ADHD symptoms were associated with high school dropout rates • Persisting ADHD inattention symptoms and comorbid mental 	<p>a wide age span, both genders and comorbid conditions</p> <ul style="list-style-type: none"> • All patients in the present study were examined with structured diagnostic interviews by trained clinicians, • Evaluations were not based on self-reported questionnaires or retrospective data only 	<p>criteria being previously unmedicated, and more than half of patients were 30 years or older</p> <ul style="list-style-type: none"> • Investigators were not blind to the participants' diagnostic status, which may have influenced their assessments
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					disorders in adulthood were correlated to occupational impairment.		
<p>Biederman, J., Petty, C. R., O'Connor, K. B., Hyder, L. L., & Faraone, S. V. (2012). Predictors of persistence in girls with attention deficit hyperactivity disorder: results from an 11-year controlled follow-up study. <i>Acta psychiatrica Scandinavica</i>, 125(2), 147–156. https://doi.org/10.1111/j.1600-0447.2011.01797.x</p>	<ul style="list-style-type: none"> • Examine the age-dependent persistence of ADHD and its predictors in a large sample of girls with and without ADHD followed prospectively for 11 years into young adulthood 	<p>Population: 6-17 year old girls with ADHD (sample: 96) 6-17 year old girls Without ADHD (sample: 91)</p>	<p>Longitudinal Study</p>	<ul style="list-style-type: none"> • Participants were comprehensively and blindly assessed with structured diagnostic interviews and assessments of cognitive, social, school, and family functioning. 	<ul style="list-style-type: none"> • More than $\frac{3}{4}$ of the ADHD participants showed some evidence of persistence while the remainder of females obtained remission • Persistence was associated with higher baseline levels of mood and anxiety disorders, school dysfunction, and family conflict 	<ul style="list-style-type: none"> • A longitudinal study of 11 years, strengthening validity of findings 	<ul style="list-style-type: none"> • Participants used were only clinically referred and mainly caucasian

<p>Biederman, J., Mick, E., Faraone, S. V., Braaten, E., Doyle, A., Spencer, T., Wilens, T. E., Frazier, E., & Johnson, M. A. (2002). Influence of gender on attention deficit hyperactivity disorder in children referred to a psychiatric clinic. The American journal of psychiatry, 159(1), 36–42. https://doi.org/10.1176/appi.ajp.159.1.36</p>	<ul style="list-style-type: none"> • Researchers systematically examined the impact of gender on the clinical features of ADHD in a group of children referred to a clinic 	<p>Population: 6-17 year old boys with ADHD (sample: 140) 6-17 year old boys without ADHD (sample: 120) 6-17 year old girls with ADHD (sample: 140) 6-17 year old girls Without ADHD (sample: 122)</p>	<p>Case-Control Study</p>	<ul style="list-style-type: none"> • Subjects were systematically assessed with structured diagnostic interviews for subtypes of ADHD • Subjects and guardians were also interviewed to assess emotional, school, intellectual, interpersonal, and family functioning 	<ul style="list-style-type: none"> • Girls with ADHD were more likely than boys to have the predominantly inattentive type of ADHD, less likely to have a learning disability, and less likely to manifest problems in school • Girls with ADHD were at less risk for comorbid major depression, conduct disorder, and oppositional defiant disorder than boys with ADHD 	<ul style="list-style-type: none"> • Sample included both genders • Study also included control groups for both genders • Use of structured diagnostic interviews on evaluation 	<ul style="list-style-type: none"> • Assessments relied on indirect parental reports and direct interviews with those children older than 12 but did not include information collected from teachers or younger children • Only Caucasian subjects were included • Only children who met DSM-III criteria for ADHD were included

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