2020

Bias and the Subsequent Implications on ADHD Diagnosis in School Aged Children

Ruth L. Hein
Bethel University

BIAS AND THE SUBSEQUENT IMPLICATIONS ON ADHD DIAGNOSIS IN SCHOOL AGED CHILDREN

A MASTER'S THESIS

SUBMITTED TO THE FACULTY

OF BETHEL UNIVERSITY

BY

RUTH HEIN

IN PARTIAL FULFILLMENT OF THE REQUIREMENTS

FOR THE DEGREE OF

MASTER OF ARTS IN EDUCATION

DECEMBER 2020

BETHEL UNIVERSITY

BIAS AND THE SUBSEQUENT IMPLICATIONS ON ADHD DIAGNOSIS IN SCHOOL AGED CHILDREN

RUTH HEIN

DECEMBER 2020

APPROVED

Thesis Advisor: Lisa Silmser, Ed.D.

Program Director: Katie Bonawitz, Ed.D.

Acknowledgements

Thank you to countless family and friends for their input, support, collaboration, commiseration, and cheerleading. The following people deserve special recognition; Comfort Belbas, Sarah Decker, Cheri Harder-Keepers, Val Miller, Peter Wieczorek, Karen Vivian, Terra McQuillen, Sara Frater and the Cufaude family. Thank you to Mike Racette, Renee Skinner and Gene Gibson for recognizing and expecting the best in my writing. Thank you to my parents, Zoe and Gregg Rochester for teaching me the importance of pushing myself and George Hick for his support and encouragement. To my children, Leah and Will and my husband James, without your support and understanding I would not be where I am. I am endlessly thankful for you every day.

Abstract

Attention Deficit Hyperactivity Disorder (ADHD) often goes undiagnosed in girls and women. This phenomenon is due most prominently to the finding that girls and women tend to present primarily internalized symptoms of ADHD. Greater awareness of the internalized symptoms of ADHD in the public eye, and especially in teacher training and certification programs is necessary. Underdiagnosis affects several areas of daily life and healthy development, setting the scene for an adult life dealing with anxiety, depression, maladjustment, and a negative self-perception. Further research into diagnosis, specific subsets of symptoms such as Executive Function deficits and Social-Emotional growth and development will benefit girls and women.

Table of Contents

CHAPTER I: INTRODUCTION

Psychiatrist Michael Jellinek, who specializes in Attention Deficit Hyperactivity Disorder (ADHD), estimated that " In school alone, a child with ADHD could receive 20,000 corrective or negative comments by the time he or she is age 10" (Jellinek, 2010, p.12). As someone who was finally diagnosed with ADHD at the age of 37, the researcher can confirm Jellinek's statement. Growing up, many of the struggles that are hallmarks of ADHD were present. The ability to hyper focus in some areas while showing a complete inability to focus in others, an atypical sense of rejection and empathy with both people close to me and complete strangers and a keen awareness of the feelings of others were all hallmarks of the author's youth. Even after years of working with a psychologist, one struggles to combat those feelings of rejection, constant imposter syndrome, and maintain good mental health for oneself and by extension, one's family.

Although the author shared many symptoms that are now recognized as being hallmarks of Inattentive-type ADHD, those behaviors were never talked about while there was always discussion about boys in the family having it. He was tested for various things including ADHD (then called Attention Deficit Disorder) when at several points in his upbringing. The author was never tested and in hindsight it may have been because as a girl, those struggles were internalized and therefore less obvious to others.

The author would witness her brother's struggles and think "I have a hard time with those things too," but was left to figure it out on her own. The message that was repeated was "You are so smart, your IQ is too high to be having such a hard time, why can't you just focus more." Additionally, the author has always struggled with feelings of rejection that are now recognizable as atypical for the average adult. Even the most minor reprimand from a complete stranger often causes a feeling of discomfort and shame for the rest of the day. Criticism from someone closer would take weeks to move past. As the author has moved into adulthood and become a parent,

those same struggles have led to a few bouts of significant depression and constant anxiety, which were thought of as "just part of who I am and what I have to deal with", until diagnosis and subsequent treatment.

When the author began teaching in a traditional classroom, it was shocking that when there is so much more current information available, teachers still had the idea that ADHD was "only the kid who can't sit still." Conversely, they also thought that any student who struggled with completing quiet seatwork for hours at a time, regardless of whether the task was developmentally appropriate, was likely to have ADHD.

The aspects of ADHD relating to emotional regulation and self-perception are some of the highest need areas for those presenting with inattentive-type ADHD. They also seem to be some of the least understood ADHD characteristics among educators at large. As teachers deal with greater mental health needs every year and the behaviors surrounding them, there is a clear need for increased understanding of the mental health needs connected with ADHD.

Historical and Theoretical Framework for ADHD

Attention Deficit Hyperactivity Disorder, more commonly known as ADHD, is a complex brain disorder that has been studied with varied intensity and awareness over the past century. Medical texts from early in the twentieth century refer to children with symptoms that are thought of today as symptoms of ADHD. These included having an unstable nervous system, being "hyperexcitable" and having mental instability. There was some research early in the 1900s that linked the symptoms of ADHD to inflammation of the brain caused by a virus, however research in later years determined that those subjects did not have ADHD, but rather had a different condition with similar symptoms (Lange et al., 2010).

The disorder, or symptoms of it, have been known as Attention Deficit Disorder (ADD), "hyperkinetic reaction of childhood" in the DSM-II, Attention Deficit Disorder (ADD) in the

DSM-III and was refined in the DSM-IV and DSM-V to its current name of ADHD with the subtypes or presentations of inattentive type, hyperactive/impulsive type, and combined type. The DSM-V emphasized that it is more which presentation of symptoms someone experiences than an overall ADHD diagnosis that will have the greatest impact on a person's life. ADHD was initially thought to be predominantly a disorder of physical and verbal hyperactivity and inability to focus. It is now known that there are far greater nuances among the various presentations and that hyperactivity is only one of many symptoms that can have a negative effect on someone's daily life.

Definition of Terms

While many terms within this text are defined at their first mention, there are some that bear separate definition. These items are important pieces in full comprehension of the works that are analyzed herein and may either have an alternate meaning in or be absent from common vernacular.

In discussions of atypical processing disorders, the term "masking" refers to the act of portraying oneself to appear neurotypical in a social setting or situation. Masking is a learned, automatic response to a behavior or situation, not one that comes from deeper authentic emotion or understanding. It is very common in both girls those with above average IQs who are neurologically atypical.

"Co-rumination" refers to the practice of repetitive discussion and thought of a particular scenario or emotion between two or more people. In this review it is mostly used in relation to adolescent females and their social and emotional needs.

"Rejection Sensitive Dysphoria" refers to a specific subset of dysphoria, or a general unease or dissatisfaction. Rejection Sensitive Dysphoria is a state of unease or dissatisfaction that is in relation to a rejection of some sort. The rejection can be an actual rejection, minor or major,

from a close friend to a stranger. The rejection can also be a perceived rejection, which has little to no basis in reality and is instead triggered by the subject's own anxiety, depression, or atypical interpretation of a situation.

Research Questions

ADHD has long been thought of as a disorder that presents itself in boys with far greater frequency than it does in girls. In addition to being be thought of as predominantly a disorder of physical and verbal hyperactivity and inability to focus, it is only within the past 10-20 years that there has been significant research (Barkley, 2013; Becker et al., 2016; Gardner & Gerdes, 2013) on the different presentations of ADHD. With that research has come increased understanding that ADHD affects girls and women in different ways and at far greater frequency than was previously understood. Though there has been research in recent years regarding the various subtypes of ADHD and the presentation common in girls and women, that knowledge has not made it to the general consciousness. Many teachers, the people who are arguably in the best positions to recognize and make positive change for girls with ADHD, are still unaware of ADHD presentations that are anything but a physically hyperactive, loud student disrupting a quiet classroom (Mowlem et al., 2019).

The research questions this literature review attempted to answer are “Why are there so many misconceptions about the varied aspects of ADHD, particularly in girls and women, that are still held today? What might the long-term ramifications of a missed intervention or diagnosis be, and what can be done to remedy this? This literature review examines the most current research on ADHD in girls and women, the differences in presentation along gender lines, and how those presentations affect the everyday life of girls and women, as well as their emotional and mental growth and development. The goal of this examination is to determine

ways in which these girls and women can navigate a world with a greater awareness of their unique needs, challenges, and strengths.

CHAPTER II: LITERATURE REVIEW

Literature Search Procedures

To locate the literature for this thesis, searches of ERIC, Academic Search Premier, and EBSCO MegaFILE were conducted for publications regarding Attention Deficit Hyperactivity Disorder (ADHD) and gender. These resources were narrowed by primarily reviewing published research studies from peer-reviewed journals that focused on a clear relationship between quantitative data related to gender. The key words that were used in these searches included "attention deficit hyperactivity disorder", "executive function deficit", "gender," "inattentive subtype", and "emotional regulation". The structure of this chapter is to review the literature on the relationship between gender and ADHD in five sections in this order: ADHD Traits, Subtypes and Gender, ADHD and Behavior, Executive Function, ADHD Referrals and Diagnosis, and Adult Ramifications of ADHD.

ADHD and its Fluid Definitions

Several studies (Sciutto et al., 2004; Graetz et al., 2005) factor gender into ADHD, whether in connection to a particular subtype, when examining comorbidities or seeking to define the way in which symptoms, especially those that are more internal, differentiate along gender lines. However, studies that dig deeper into the relationships connecting gender and ADHD are relatively recent (Gardner & Gerdes, 2013; Arnett et al., 2015; Øie et al., 2018). Additionally, until ADHD diagnosis was redefined in the DSM-IV to include the subtypes of Hyperactive/Impulsive, Inattentive, and Combined type, ADHD was seen predominantly as a disorder that made children, mostly male children, hyper and challenging to have in class. The broader and significant ramifications on emotional regulation, attentiveness, and comorbidities of depression and anxiety have only begun to be examined recently.

Blanco-Vieira et al. (2019) aimed to examine the connection between ADHD and Obsessive-Compulsive Disorder, or OCD. The study took data from 955 adult patients with a diagnosis of OCD from the Brazilian Research Consortium of Obsessive-Compulsive Spectrum Disorders. They compared the clinical characteristics of those with and without ADHD. The study found that of participants with OCD, 13.7% also had ADHD, that the OCD symptoms in those patients were more severe, and that the onset of OCD symptoms was earlier for them (Blanco-Vieira et al., 2019). Although this study was thorough and well-designed, the focus was on the impacts having a comorbid ADHD diagnosis had on a more centrally disruptive OCD diagnosis.

Goh, Martel, and Barkley (2020) researched the way in which sluggish cognitive tempo (SCT) overlaps with ADHD but is also distinct from it. SCT has been proposed to overlap with the inattentive presentation of ADHD and related functional impairments in major life activities. Though there is a high level of overlap, SCT can be differentiated from ADHD in looking at slow processing speed and higher rates of depression (Becker et al., 2016). Additionally, SCT shows impairment above and beyond the symptoms of ADHD (Barkley, 2013). Further study of SCT as a subset of ADHD is important because prior research has indicated a low correlation in improvement of general symptoms and improvement across specific domains of impairment (Goh et al., 2020).

Goh et al. (2020) found that there were eight items of impairment that indicate the level of impairment in the Overall, Home-School, and Community-Leisure domains with similar results to examining all 36 items of impairment in their measure. The eight items were difficulties following through on instructions, an inability to stay seated, acting without thinking, impatience, disinhibition, apathy/withdrawal, slowness, and lacking initiative (Goh et al., 2020). One of the major flaws in Goh et al.'s research regarding connections between ADHD and SCT,

is that most of the children in the study failed to meet the criteria for an ADHD diagnosis (Goh et al., 2020).

ADHD Traits, Subtypes and Gender

One significant factor in the discrepancies surrounding ADHD and gender is diagnosis. Diagnostic criteria, incidence of referral and external presentation of symptoms all play a role. A study from Mowlem et al. (2019) attempted to answer question of how varied factors affect meeting the diagnostic criteria for ADHD. This study posited that girls are referred and subsequently diagnosed less frequently due to the fact that girls with an ADHD diagnosis are more likely to experience predominantly inattentive symptoms as opposed to hyperactive/impulsive symptoms, which are more potentially disruptive in a group setting. Girls often also experience greater levels of internalizing symptoms (i.e., anxiety and depression), which can lead to an alternative diagnosis.

The Mowlem et al. (2019) study consisted of 283 children. They were broken into two groups. The first group of 153 (21% female) were found to meet DSM-V research diagnostic criteria for ADHD based on the Parental Account of Childhood Symptoms (PACS). Based on parental reports, an additional 139 children (38% female) were found to demonstrate a high level of ADHD symptoms according to criteria in the DSM-V. However, these participants failed to meet full diagnostic criteria (Mowlem et al., 2019).

Participants completed the following measures: an ADHD symptom measure, an ADHD diagnostic measure, and a questionnaire to assess co-occurring behavioral and emotional problems as well as overall impairment. Statistical analysis of the results indicated that

> examining the factors that distinguished girls and boys who met full diagnostic criteria from their high-symptom peers, we found diagnosed girls had more additional problems than high-symptom girls, while this effect was

> less strong for boys. This could suggest girls with ADHD require a higher burden of other behavioral/emotional problems before they meet criteria for the disorder. (Mowlem et al., 2019 p. 770).

Mowlem et al. (2019) also stated that there is some evidence to support the idea that girls are diagnosed later than boys. Mowlem et al. (2019) also noted the potential problems and long-term ramifications of under-diagnosis. The researchers also showed that the strain of compensating for their symptoms had a significant part in the long-ranging disruption of a person's life. Also noted was the importance of the presence of emotional problems not ruling out an ADHD diagnoses. ADHD and a host of other emotional deficits can co-exist and contribute to each other's symptoms (Mowlem et al., 2019). Researchers also found that the parental perceptions of ADHD behaviors and impairment had a distinct difference in looking at the perceptions of boys vs. girls (Mowlem et al., 2019). If there is discrepancy in how parents view boys versus girls with regard to symptoms of ADHD and disparity in interventions and their need as noted by teachers, girls with ADHD who do not present as extremely disruptive or notably hyperactive have the odds stacked against them.

A 2018 study by Øie et al. focused on the relationship between depression and other symptoms of ADHD within the realms of hyperactivity/impulsivity and inattention as well as the disparity between parent reports of depressive symptoms and self-reported symptoms. The participants were taken from a pool of adolescents referred for possible treatment of ADHD or other neurological differences. The study also recruited typically developing children from schools in the same area. The participants were given a battery of assessments related to ADHD and psychological functioning, IQ, Affective disorders, and Schizophrenia. Interestingly, exclusionary factors for the study included a history of stimulant use, so any students who were diagnosed with ADHD and had used stimulant medication were not part of the study. On

questionnaires given to the participants and their parents, which were the main measure after establishing their baseline, the disparity between parent reports of symptoms and self-reported symptoms. Results showed that, according to parent ratings, when internalizing behavior symptoms diminished so did the participants' depression symptoms. However, according to self-reports, girls with ADHD displayed significantly higher symptoms on a self-rating measure than the male participants (Øie et al., 2018). This difference in gender results was only apparent in follow-up research at the end of the study and was limited to the self-report measures. The study also noted that there did not appear to be significant agreement between results of the self-report and results of the parent-reports when looking at depression.

According to Øie et al. (2018), when symptoms of hyperactivity/impulsivity are reduced, a subsequent decrease in self-rated depression symptoms occurs in boys with ADHD, while a reduction in symptoms of hyperactivity/impulsivity was associated with an increase in depression symptoms (based on self-rating) in girls with ADHD. This supports the idea that ADHD in women and girls can lead to internalizing of symptoms and create self-worth issues attached to them that have lifelong ramification. On the contrary, boys with easily visible symptoms are then treated and show improvement to the external observer, therefore having their self-worth buffered and mended (Øie et al., 2018).

Becker et al. (2018) examined the correlation between ADHD and sleep problems. The study looked at differences in gender among participants with ADHD as well as comorbid mental health conditions, such as anxiety and depression. There were 181 children, ages 7-13, who were part of the study. Of the participants, 69% were male, which may account for some lack of clarity in results relating to gender. In order to get clearer information, a more evenly distributed sample would be needed. The study does confirm preliminary findings that girls with ADHD tend to experience more sleep problems than boys with ADHD (Becker et al., 2018).

An analysis of sleep difficulties in children with ADHD is important because it is not only one of the symptoms of ADHD but also a cause of greater impairment related to the disorder (Becker et al., 2018). This study found that sleep impairment in participants with ADHD was associated with greater difficulties with attention, had negative effects on family functioning, and was marked with neurocognitive dysfunction (i.e., working memory deficits). It also bears noting that there has a been a generalized finding across several studies that internalizing symptoms are related to sleep problems in children with ADHD (Becker et al., 2018).

Becker et al. (2018) noted that there is a gap in research-based information relating to girls with ADHD and a need for further study, especially in the area of sleep function. There were statistically more instances of girls exhibiting trouble with sleep functions, such as struggling to wake in the morning. The researchers did note the potential correlation between comorbid symptoms (such as anxiety) that are more prevalent in girls than boys with ADHD, and that those could have more causation in disordered sleep functions. Interestingly, since boys have a greater instance of comorbid ODD, there may be an increase in resistance to bedtime and delaying tactics (Becker et al., 2018).

ADHD and Behavior

On the surface, ADHD is all about behavior. The commonly held picture of ADHD is a child who has little control over the disruption they create in a physical space with others. Behavior is a main factor in the symptomology of ADHD, but it goes far beyond what is apparent externally. ADHD behaviors do manifest in the stereotypical disruption of a space, but they also manifest internally in the domains of executive function, emotional regulation, perseveration, and one's own self-perception.

Twice-Exceptional Learners

Although ADHD is often known for its negative connotations, there are also many positives. People with ADHD may be twice exceptional (or 2E). This term refers to individuals who demonstrate potential for high achievement (such as a high IQ or significant strength in a certain domain or several domains on norm referenced assessments) AND qualify for one or more disabilities, as defined by the eligibility criteria of the state or federal criteria (Reis, Baum, & Burke, 2014). The experiences of 2E students can be shaped by their teachers', peers', and families' perceptions. In a study of the effects bullying has on twice-exceptional students, Ronksley-Pavia, Grootenboer, and Pendergast (2019) found that young people who are 2E are at risk of underachievement at school because their gifts are often not recognized. It is imperative that teacher preparation programs highlight the presence of these learners. Teachers in the field must see students' performance beyond "average" or "struggling," and instead see a broader picture of the whole student. It is imperative that teachers form relationships and get to know students to identify areas of strength and need for support rather than rushing to categorize them based on only specific criteria can facilitate this. The information on the pervasiveness of bullying for twice-exceptional children is concerning in and of itself. However, when compared

with previous research on bullying of some gifted children, and of children with disabilities, this study's findings suggest that bullying of twice-exceptional children may be part of a broader and more widely entrenched culture of bullying across social groupings. This may be due to "differentness" of the individuals as well as lack of acceptance from dominant groups. (Ronksley-Pavia et al., 2019). The goal of Bianco and Leech's (2010) study was to examine the effect that teacher training (whether for general education, gifted education, or special education) has on the teachers' perceptions of students with disabilities and their willingness to refer them for participation in a gifted and talented program. The study also investigated whether gifted programs differ among general education teachers, special education teachers, and teachers of the gifted, and whether referral ratings for gifted programs differ among teachers who believe that the student has an LD, an EBD, or no exceptional condition. Bianco and Leech's (2010) participant group consisted of 52 special education teachers, 195 general education teachers, and 30 teachers of the gifted, totaling 277 participants. The participants had an average of 10.67 years of teaching experience. One hundred ninety-five general education teachers participated in this study. Both groups had a mean age of between 40 and 50 years old and had 10-12 years of teaching experience. Thirty teachers with an endorsement in gifted education were also included in the study. These participants had completed at least a bachelor's degree in education with certification in elementary education and an added endorsement in gifted education. They tended to be slightly older and more experienced, with a mean age of between 40 and 50 years old and an average of 13.5 years of teaching experience (Bianco & Leech, 2010).

Because the variable of differences in socioeconomic status in Bianco and Leech (2010) could taint the study results, the researchers included only teachers working at elementary schools that had 30% or less of the student population receiving free and reduced-price lunch in their sample selection. All of the participants were employed within one school district in

southern Florida. All were working at the elementary school level and had completed at least a bachelor's degree in education (Bianco & Leech, 2010 p. 323).

This study relied on a mixture of qualitative and quantitative approaches. These were mixed at the stages of data collection, analysis, and interpretation. The researchers gave a vignette description of a student to teachers and gave the student the qualifier having no specialized labels, the label of LD, or the label of EBD. The teachers were then asked to respond as to if they would refer this student for gifted services and describe why they would or why they would not do so. When given a description of a fictional student without information regarding an LD, EBD, or gifted label, the gifted teachers were more likely to refer students for gifted programming than either the general education teachers or the special education teachers. Closer examination revealed that of all three types of teacher, special education teachers were least likely to refer the hypothetical student for gifted services (Bianco & Leech, 2010).

When examining referral ratings among teachers who believe the student has an LD label, the student was less likely to be referred than the control group who thought the student had no label. Teachers were more likely to agree strongly or agree to refer non-labeled students for gifted programs than if the same student, with either of the two exceptionality labels, were described. It did not appear there was any significant interaction between the effects of teacher type and label type on gifted referral (Bianco & Leech, 2010).

Generally, special education teacher training programs contain minimal discussion of the characteristics of gifted children or training in meeting the unique needs they have within most special education teacher preparation programs. Understandably, these programs often focus on training for detecting and addressing deficits, but this may inhibit special educators from recognizing areas of noticeable strength (Miller & Terry-Godt, 1996). Although there is more information in special education teacher preparation programs now, there is a vast gap in

strategies to recognize atypical learners on the high ability or low ability ends. There is little to no discussion among general education teachers about how giftedness may mask learning disabilities or Autism Spectrum Disorders, nor does it show how those same disabilities may undermine a truly high IQ and ability. Knowing how to provide opportunities for students to demonstrate their gifts and talents is of utmost importance to all learners. Although special education teachers may provide services for students with disabilities through a variety of approaches or in any number of settings, their role does not preclude noting and nurturing potential giftedness among the students whom they serve. Teachers must be able to make the appropriate referrals for evaluation and possible placement in gifted programs, and general education teachers should be a part of this identification as well (Bianco & Leech, 2010).

The findings of Bianco and Leech's (2010) study clearly indicate that referral recommendations for gifted services are influenced by teacher preparation as significant differences were observed among teacher groups in the study. When compared to both general education teachers and those trained in gifted education, special education teachers were found to be the least likely to refer students to a gifted program, regardless of disability or lack thereof (Bianco & Leech, 2010). Since 2E students are often first referred for special services due to their disability, there is a significant risk in them going unidentified for services that could impact them positively overall and mitigate some of the same behaviors and challenges that first led to them being referred for special education services. The study did consider different types of teacher training. It also ensured there was just one control instead of not recognizing the added variable that socioeconomic status would have had on the participants. Also, it used several non-biased sources to create and check the vignette of the fictional student used for the experiment (Bianco & Leech, 2010).

Bianco and Leech (2010) found there is evidence that special education teachers seem the least likely to refer a student for gifted programs in all cases. What is it about our training that might lead them to miss these needs in our students? Of particular interest is that some of the gifted students' markers are similar to markers of students needing special education services. This study made valuable conclusions about the disparity with which students with special needs are subject to co-existing gifted needs. There are many ways in which gifted students' needs are like those of students with special education needs. Further, it seems important to note that special education teachers, those with the most training about the nuances of a student's disabilities, are the least likely to refer them for gifted programming. This is something that bears a need for further investigation and address.

ADHD and Time Perception

Barkley and Fischer (2019) examined the relationship between time-reproduction deficits throughout a 20-year span from childhood to young adulthood and their potential ramifications in major life activities. This study analyzed the relationship between timing errors and working memory and design fluency. Participants in Barkley and Fischer's study (2019) were part of a grouping who were originally identified between 1979 and 1980, being between the ages of 4 and 12 at that time. They were evaluated again as teens in 1987-88 and as young adults between 1992 and 1996. The final evaluation, and the basis for the findings contained herein were taken between 1998 and 2004. Of the final participants, 83% of the original ADHD Combined type participants and 88% of the control participants were present throughout the study. ADHD-C was referred to as "hyperactive children syndrome" at the time the study began (Barkley & Fischer, 2019).

Participants were screened using DSM-III (at the time of initial participation) criteria initially, given follow up symptom checks between 5 and 12 years of age, and again at adulthood

using structured interview, based on the DSM-IV criteria for ADHD. The researchers noted the validity and ample reasons to challenge that approach for diagnosing adults with ADHD, especially in follow-up studies of children with ADHD (Barkley et al., 2008; McGough & Barkley, 2004). The items in the DSM and thresholds for diagnosis were designed for use with children, not adults. With age, ADHD symptoms decline in both ADHD populations and neurotypical populations (Owens et al., 2015). A fixed symptom threshold may not be equally applicable for identifying ADHD in children and adults with ADHD (Barkley & Fischer, 2019).

Tasks for time production and reproduction evaluated not just the perception of the time interval (in this case time a light bulb was illuminated) but also participants' capacity and ability to use the sample duration for reference in reproduction by holding it in their mind (Agoston & Rudolph, 2016). The findings were that there is a reliably inaccurate and highly variable perception of time, and especially its reproduction (Coghill et al., 2018; Norieka et al., 2013). Even as such, Barkley and Fischer noted that this could affirm that the time keeping function central to this area of executive function may be related to disturbed dopamine levels or distribution associated with ADHD (Barkley & Fischer, 2019).

While anxiety and depression were not shown to have a relationship to timing errors, Barkley and Fischer (2019) did find that there is a relationship between time perception as well as the time of motor abilities and executive function deficits, as they are likely to involve the same or overlapping parts of the brain. Rhythmic patterns of light or sound are related to motor timing and perception in the brain. In a broader sense, an inaccurate perception of time relates to controlling impulses, sustaining attention, working memory, distractibility, and delay aversion, all common in people with ADHD (Barkley & Fischer, 2019).

Co-Rumination, Social Behavior and Internalization

Co-rumination was shown to correlate both with self-reported friendship quality and closeness and with internalizing symptoms. There were gender differences regarding the effects of co-rumination, but they appear to be more based on the differences in typical friendship based on moving from childhood to adolescence.

Rose (2002) examined the concept of co-rumination and the subsequent effects in friendships. Rose's study defined co-rumination as "extensively discussing and re-visiting problems, speculating about problems, and focusing on negative feelings" (Rose, 2002 p. 1830). Participants in this study were obtained from a pool of third, fifth, seventh and ninth grade students across two midwestern school districts. Families were mailed a questionnaire regarding participation, those who responded indicating participation were grouped based on similarities in the social structure applicable to their school day experiences (Rose, 2002). The Rose study described the construct of co-rumination is related to positive adjustments of friendship, as well as emotional adjustment that can be problematic. In fact, the study found strong correlations between close, high quality friendships and co-rumination, but also related co-rumination positively with markers of depression and anxiety (Rose, 2002).

Co-rumination was shown to correlate both with self-reported friendship quality and closeness as well as with internalizing symptoms. There were gender differences regarding the effects of co-rumination, but they appear to be based mostly on the differences in typical friendship development inherent to each gender as they transition from childhood to adolescence (Rose, 2002). Higher levels of a self-disclosure process were seen in the female subjects, which led to higher-quality and closer friendships but also an increase in internalizing problems through a process of rumination. In the male subjects, the levels of co-rumination were lower, but they also had lower levels of relationship closeness (Rose, 2002. One of the strengths of this study by Rose (2002) is that it paid particular attention to the social patterns and norms of the distinct

groups in the study, grouping third through fifth grade students in one group and older students in another.

Rose and Rudolph (2006) examined the differences in the process of developing relationships as well as potential trade-offs that differ between genders and categorize the relationship process into three areas: "style—including both behavioral and social–cognitive components, (b) stress and coping processes, and (c) emotional provisions in relationships. Several factors determined our selection of these relationship" (Rose & Rudolph, 2006, p. 98). This study focused on the broader constructs of relationship development. Rose and Rudolph (2006) examined behavioral style first, focusing on behavioral content of peer interactions as well as the structures (large group interactions and one on one interactions). There were several different types of behavior that were examined including "prosocial behaviors and cooperation, social conversation and self-disclosure, rough-and-tumble-play, competitive play and organized play "(Rose & Rudolph, 2006 p. 99). When examining the frequency with which young children interact in a dyad (or pair), this study found that boys interact in dyads at least as frequently, and sometimes more frequently, than girls (Rose & Rudolph, 2006). A second aspect was the social cognitive piece of the participant's relationship style. These included self-construals, attitudes, beliefs, and goals (Rose & Rudolph, 2006).

Rose and Rudolph (2006) noted that an additional aspect of social-cognitive style in relationships involved the individual's sensitivity to others' distress, often referred to as empathy. Perhaps the most interesting finding from this study is that there is evidence that female participants were found to respond in a more pro-social manner to even hypothetical conflict situations than male participants (Rose & Rudolph, 2006). If girls respond in this way to even hypothetical conflict, it draws interesting connections to the findings of Agoston and Rudolph (2016), which drew on peer stress experiences. The combination of responding to peer

stress in real or hypothetical situations, it can by surmised, could place significantly higher emotional loads on all girls. Girls with inattentive ADHD are struggling to maintain focus on regulating all those emotions as well as focusing on things like schoolwork, household chores, and daily living tasks. For these girls, the executive function demands could far exceed their capabilities, while at the same time be completely invisible to those around them.

The pro-social behavior styles of girls can also help them. Rose and Rudolph (2006) noted that boys in a group lean towards a social behavior structure that adheres to a stringent dominance hierarchy within a dense group that engages in competitive, organized and often rough and tumble play (Rose & Rudolph, 2006). Meanwhile, girls who are immersed in a positive peer group will often have experiences that include the characteristics of cooperation and positive social behavior, which can contribute to individual well-being in the emotional realm (Rose & Rudolph, 2006).

In further study of relationships, Houghton et al. (2020) conducted a study that dealt with the importance and complexity that peer relationships take on as people approach and go through adolescence. This study utilized a sample of 84 adolescents to complete wellbeing and mental health questionnaires, which provided information that was analyzed to determine if there was a greater incidence of loneliness and depressive symptoms among adolescents with an ADHD diagnosis and how significant a factor loneliness played in depression among adolescents with ADHD (Houghton et al., 2020). For the purposes of the study, the term loneliness was defined as "the negative emotions that arise in response to a perceived discrepancy between the actual and desired or achieved quality and quantity of social relationships" (Houghton et al., 2020, p. 237). Peer relationships are of utmost importance to adolescent mental health and development. However, in adolescents with ADHD, social interactions and relationships with peers are of even more significant importance. Houghton et al. (2020) noted that relationships within the context

of ADHD are especially troubling, given the plethora of social challenges reported by adolescents and young adults with ADHD. Adolescents with ADHD experience some of the highest levels of peer relationship difficulties (Antshel et al., 2009).

Houghton et al. (2020) found that these adolescents often have fewer friends, are more frequently rejected by their peers, have poor interactions with those peers, fewer reciprocal friendships with same-aged peers, and are frequently left out of extra-curricular activities, compared to their non-ADHD peers. More recent studies have also found that adolescents with ADHD are more likely have a self-perception of fewer positive and more negative features, especially with regard to their friendships. They are often less satisfied with their peer network group compared to non-ADHD adolescents of the same age (Grygiel et al., 2018).

Because adolescents with ADHD may differ from their peers on the definition of friendship, a state of loneliness may have even more significance for them than for their atypical peers. According to Houghton et al. (2020), adolescents with ADHD define a best friend as someone who is "entertaining" or "fun". Meanwhile, their neurotypical peers define a best friend as someone who is able to provide things like emotional support and a sense of security (Houghton et al., 2020). There appears to be a disconnect from the emotional aspects of friendship in adolescents with ADHD, which may contribute to the increase in loneliness and internalizing symptoms, such as depression (Houghton et al., 2020). Previous studies have noted the buffering effect that close friendships can have against depression and anxiety in adolescents. Therefore, a faulty understanding of those aspects of a close friendship, which may matter most in protecting against loneliness and depression, could, in effect, put an adolescent with ADHD at greater risk for the negative counterparts of the protective close friendship scenario. Houghton et al. (2020) note that adolescents who report higher levels of emotional vulnerability, often those with ADHD, tend to automatically focus on and perceive ambiguous information of a typical day

to day nature as negative or even threatening. A consequence of this unconscious interpretive bias is that, for these individuals, their perceptions become distorted and dysfunctional, which increases negative patterns of thinking. These in turn lead to adverse mental health (Grafton & MacLeod, 2014).

Agoston and Rudolph (2016) used diagnostic interview and norm referenced behavior rating scales to assess both depression and EF deficits (Agoston & Rudolph, 2016). They took 494 second grade youth (267 girls, 227 boys) from various ethnic groups and socioeconomic classes and invited them to participate in the study. Students were given annual assessments over 5 years to screen for depressive symptoms and stressful peer events. Sixth grade teachers of the participants completed surveys on academic performance as well as executive function. The participants themselves completed interviews of depression either in person or via phone. (Agoston & Rudolph, 2016).

The stressful peer events measure consisted of a final 13 items taken from other similar rating scales. Items included "A friend died", "You had a physical fight with a friend" and. "You were not invited to a party that you wanted to go to" among others. Participants were asked to indicate a yes or no answer as to whether they had experienced any of the events and, if yes, rate how bad it was for them on a scale of 1-5 (Agoston & Rudolph, 2016). Analysis of the results showed that the female participants experienced "significant positive correlations between peer stress and EF deficits, peer stress and depression, and EF deficits and depression. In boys, there was a significant correlation between peer stress and EF deficits but not between these variables and depression" (Agoston & Rudolph, 2016 p. 1082). Girls carry around not only their own stress, but the stresses of their peers as well. For girls with atypical abilities to set boundaries and regulate attention and emotion, this weight can probe unbearably heavy.

Agoston & Rudolph, 2016 found that when exposed to peer stress, some adolescents are more vulnerable to subsequent depression, whereas others show greater resiliency or are less affected by these adverse effects. (Agoston & Rudolph, 2016). Ultimately the findings supported the hypothesis that heightened stress was a significant predictor in subsequent depression in girls but the same did not hold true for boys. Girls' stronger emphasis on interpersonal connectedness and greater concerns about peer evaluation and relationship disruption relative to boys (Rose & Rudolph, 2006; Rudolph, 2002) likely amplify their sensitivity to peer stress, resulting in negative self-evaluation, sad affect, and other symptoms of depression (Agoston & Rudolph, 2016).

> This study also reveals potential points of intervention for preventing depression in girls. Interventions targeting EF deficits, such as EF coaching in elementary school, may help girls maintain a positive trajectory and reduce negative outcomes after experiencing stressful peer events. Addressing EF deficits may be effective in promoting more competent cognitive and behavioral responses in girls facing peer stress, thereby reducing further disruption in their relationships and consequent vulnerability to future depression. (Agoston & Rudolph, 2016, p. 1086).

Agoston and Rudolph, (2016) noted that ADHD symptoms often present differently in boys than they do in girls. This study analyzed the relationship between peer stress and adverse effects to those with executive function deficits. The study found that when exposed to stressful peer events, youth may focus excessively on their difficulties and negative emotions and have feelings of social ineffectiveness. This can lead to social withdrawal, a decrease in self-worth, sadness, and other symptoms of depression (Agoston & Rudolph, 2016 p. 1071).

Agoston and Rudolph (2016) highlighted the ways in which executive function deficits lead to both a greater chance of anxiety and depression and to those with EF deficits being more susceptible to being adversely affected by peer stress. Agoston and Rudolph (2016) found that working memory involves the ability to hold information in mind. People use working memory for the purpose of manipulating information or following through with tasks (Miyake et al., 2000). The ability to plan and organize is a function of working memory, as is the management of current tasks or future tasks, planning and organizing actions over a period of time, and regulation of emotion and behavior in order to follow through with plans. Shifting any piece of those plans requires the ability to switch focus between pieces, maintain attention to one area (Agoston & Rudolph, 2016).

In further support of this ramification of EF deficits specifically affecting females, Agoston and Rudolph found that girls have a stronger need to be part of a group and feel connected with each other than boys. They also noted that, when exposed to peer stress, girls' sense of self-worth may be threatened. This can lead to sadness or the appearance of sadness (sad affect), negative self-evaluation, feelings of hopelessness, and ultimately depression in girls more than boys (Agoston & Rudolph, 2016).

Executive Function

Becker et al., noted several areas for further research, including how the onset of puberty in the girls involved in the study could have affected results. They also noted that the girls in the study had been referred to an ADHD specialty clinic were likely to have more severe impairments related to their ADHD and as such, more sleep difficulties. Becker et al., also noted that girls may be more affected than boys by peer problems, which could also lead to impaired sleep (Becker et al., 2018).

A 2015 study by Günther et al. examined the ways in which similar deficits common to ADHD are expressed differently in boys than in girls, specifically in regard to the management and execution of attention tasks (Günther et al., 2015). Günther et al., notes that "Relatively few studies have examined whether sex differences are detectable for symptoms of inattention.

The results of these studies can be contradictory. Although this question has been studied many times, many studies have gone into more detail in terms of methodology and detail of the research question. Günther et al.'s sample consisted of 175 children with the combined subtype of ADHD and a control group of 132 neurotypical participants ages 8 to 14. Of the ADHD group, 89 were females. The control group contained 60. The participants were given five different tests to measure alertness, sustained attention, focused attention, divided attention, and a set-shifting task. The study results confirmed that the children with ADHD performed worse on all aspects of attention compared with control participants. They also contained overall general differences based on gender, including boys exhibiting faster reaction times and greater response variability. Axelsson, Andersson, and Gulz (2016) examined the idea of Learning-by-Teaching (LBT) in preschoolers and how it can be utilized to examine and identify executive function deficits early on. This study took participants from a rural Swedish town and was given a pretest that included both a sustained attention task and an inhibition task to measure their abilities in each domain. They were then allowed to play a digital LBT game to which they'd had no previous exposure. This initial exposure was without any distracting animations, as the researchers wanted them to familiarize themselves with the game. Researchers gave the game to the participants before data collection to ensure that novelty was not a factor in the gathering of their results. During the data collection portion, the same game was played, this time with distracting visual stimuli. The study used a remote tracking eye sensor to measure the duration of time that children could avoid looking at the distracting stimuli (as they were instructed to do)

(Axelsson et al., 2016). The findings ultimately indicated that "males and females with ADHD experienced comparable attention deficits" (Günther et al., 2015, p. 764). The problems with Günther et al.'s (2015) study are that the tasks used as a measure were all external attention tasks and did not draw on executive function demand. The researchers postulated that the differences noted could be generalized and did not differ between the control and test groups. The boys' responses were more impulsive, rapid and had less variation on a continuous performance task. In contrast, the female subjects in both groups outperformed males on various tasks designed to measure executive function (Günther et al., 2015).

One of the most compelling findings of this study is that the participants, all preschool-aged children, were able to develop their executive function, as demonstrated through an increased level of attention paid to the more important features of the game (Axelsson et al. 2016). Whereas video games are often thought to decrease one's executive function ability, this is evidence that video games increase one's capacity of focus and help make gains on executive function deficits.

Barkley and Fischer (2011) examined the difference between self-reported executive function deficits and EF tests and the level of major life activity impairments that adults who were children with ADHD Hyperactive type may face. This study was completed by Russell Barkley, who is one of the most prominent voices in ADHD research. One of the reasons for this study was that previous research did not look at how these deficits adversely affect adult life, both generally with specific attention to occupation (Barkley & Fischer, 2011).

This was longitudinal and followed participants from childhood to adulthood. One of its strengths was controlling for participants who "grew out" of their ADHD or did not present with ADHD in adulthood. Barkley et al. (2008) found that those with ADHD in adulthood had the following overall commonalities:

> lower occupational status and annual salaries then control groups followed to adulthood worst employer rated job performance more job dismissals being fired or being laid off changed jobs more often less adequate in fulfilling work demands less likely to be working independently and to complete tasks and less likely to be getting along well with supervisors as rated by employers and poor performances at job interviews and find certain tasks at work too difficult for them. (Barkley et al., 2008)

Interestingly, the research suggests several areas of inconsistency with standard EF tests, especially in individual level studies. Most tests for EF are borrowed from other areas of psychological research and were not meant to assess EF or the related constructs (Barkley & Fischer, 2011). Most of these tests involve more than one cognitive process, as well as IQ, and only some of these are supposed to reflect EF (Anderson, 2002; Mahone et al., 2002). Perhaps most compellingly, EF tests are repeatedly shown to have a poor correlation with self-ratings and ratings of significant others (Barkley & Fischer, 2011). The study ultimately finds that ADHD is associated with more impairment in EF in daily life than is evident on EF tests (Barkley & Fischer, 2011). This impairment is likely to have life-long effects for those dealing with an EF deficit, not only in terms of their everyday life activities but also, to their self-confidence, self-perception, and self-actualization.

Ishihara et al. (2018) researched the relationship between sports experience and executive function. Sixty-eight participants ages 6-12 were given evaluations that measured executive functions including working memory, inhibitory control and cognitive flexibility. They then participated in regular tennis lessons and were administered the same measures. All three of the measured components of executive function were found to be more closely related to the overall physical fitness level than the level of physical activity in participants. Greater cognitive

flexibility was related to prior tennis experience only in the male participants (half the sample) (Ishihara et al., 2018). This study provided interesting conclusions but had several limitations, which included using a cross-sectional design and lack of data on socioeconomic status (Ishihara et al., 2018).

Executive Function and Emotional Regulation

A significant factor of ADHD is the degree to which one's self-perception is affected by the perception of others due to ADHD traits. People with ADHD are often considered lazy, stupid, unfocused, immature, and often internalize those messages.

Behavior is often the most outwardly noticeable symptom of ADHD. Though the public perception of ADHD is often one of a hyperactive child distracting the class, there is compelling evidence that many symptoms of ADHD are in fact internal and that those internalized symptoms are the most common in females. Mowlem et al. (2019) noted that girls may express their challenges differently than boys in displaying emotional symptoms used for diagnostic criteria for ADHD. They further suggest that this may be a more important characteristic to the female participants than for males. Higher rated emotional problems in girls than boys with ADHD have been shown previously (Novik et al., 2006). Emotional problems may not be perceived as significantly problematic compared to disruptive behaviors by certain figures in the diagnostic process (Mowlem et al., 2019).

A study by Grskovic et al. (2004) examined the effect of implementing a class-wide timeout/re-directing strategy on the following two areas; frequency of teacher-assigned time-outs, the time students spent in a disciplinary situation. It then taught the staff and students a technique using ARB and counting backward with those to decrease the amount of student's time spent in time-out (TO) and the number of TO assigned by staff. Using a multiple baseline design across academic classroom periods, results showed that Active Response Beads Time-Out (ARB-TO) and teacher redirections decreased the total time spent in timeout and number of TO assigned across the three class periods. Results were maintained at one, two- and four-week follow-up sessions (Grskovic et al., 2004).

The participants in this study were 11 male students and one female student. All students were enrolled in a self-contained, emotional support elementary classroom in an outpatient facility serving youth and adults. The students ranged in age from 7 years 10 months to 12 years 5 months. All students were identified as having emotional disabilities with coexisting Attention Deficit/Hyperactivity Disorder and/or Learning Disabilities (Grskovic et al., 2004).

The researchers in this study used quantitative methods of research. They noted that previously there was a time out or "TO" system in place on-site that was used throughout the program. In the program, a non-exclusionary time out, in which the student was required to place head on desk for an initial 10s, was assigned by either of two teachers or the paraprofessional as a consequence for violations of class rules. These could include refusing to begin their work or complete work, being out of seat, talking out of turn, making rude or obscene gestures and language, aggression, and destruction of property. If the initial non-exclusionary time-out request was not complied with, the teacher or paraprofessional gave a first reminder of the time-out requirement to the student and then walked away. If the first reminder was met with noncompliance, additional time was added to the original non-exclusionary time out. An exclusionary time-out, in which the student was sent to or escorted to the time-out room, was assigned when either (a) the non-exclusionary time-out was not complied with and an escalation of behavior occurred, or (b) extreme behavior was exhibited by a student. This could include aggression towards oneself, staff, or other students, throwing objects, or other physically destructive behavior. This class wide time-out system was in place at the center for several years, and all staff was trained and monitored in the existing TO protocol. This TO system was in place during baseline (Grskovic et al., 2004).

All instruction took place in one classroom. All data were collected from a connecting observation room (with a two-way mirror), which was entered outside the classroom without

teacher or student awareness. To establish a baseline, the researchers conducted 30-minute sessions. This study's primary dependent variable was the percentage of 10-second intervals containing any kind of disciplinary actions. TO intervals were scored immediately following a teacher stating directly to a student that the student had a time-out, to a student and stopped when the teacher asked the student if they could state the reason for the time-out (e.g., "Matt, do you know why you were in TO?").

The TO episode was recorded as well as the type of time-out that was assigned (non-exclusionary or exclusionary). A non-exclusionary time-out was recorded when a student was asked to put his/her head down on the desk for 10 seconds following the teacher stating something letting the student know that had a time-out. An exclusionary TO was recorded when the student was verbally sent to the time-out room following the teacher stating that the student had a time-out. Both exclusionary and non-exclusionary TO ended with the verbal teacher review as stated above. Once the baseline was established, Active Response Beads (or ARBs) were constructed by stringing round wooden beads on a velvet cord. Knots were tied at each end of the cord to prevent the beads from sliding off. Two 30-minute trainings were conducted by the researchers for both staff and students. The purpose of the training was to (a) explain to students that if they complied with the new initial teacher request, they could avoid extended placement in time-out, and (b) teach students a new ARB-TO strategy. All students were taught an ARB-TO sequence requiring the following steps (a) following the teacher request to get an ARB by walking to the teacher desk and picking up the Active Response Bead (b) walking back to own desk, (c) sitting and putting head down on desk, (d) using the ARB (counting backward, vocally to sub vocally, from 10 to 1, each number they exhaled a breath while sliding the beads left to right on the cord,) and (e) lifting the head off the desktop when counting reaches one. Counting the ten beads and exhaling lasted about 10 seconds, similar in duration to the initial non-

exclusionary time-out request of head on desk. Following instruction, each student's performance was assessed until three consecutive correct trials (100%) were achieved (Grskovic et al., 2004).

After the training was complete, teachers and paraprofessionals were instructed to assign the ARB-TO as a replacement for assigning non-exclusionary TO when possible that had previously warranted a non-exclusionary TO, they should re-direct the student by giving the verbal prompt, "Get an ARB" (Grskovic et al., 2004, p. 29). After the students walked to the teacher desk to get the ARB, the teacher was told to provide feedback, either positive or negative, depending on the situation. Successful termination of the ARB-TO procedure, for instance if the student counted from 10 to 1 while moving beads, with head on desk) by the student resulted in teacher praise. When the student returned the ARB to the teacher's desk, the teacher should provide additional verbal praise such as saying "thank you" for the delivery of the ARB, redirect the student back to the academic task, and offer academic assistance (Grskovic et al., 2004).

Using the ARB-TO strategy seemed to help students spend less time in an exclusionary TO, therefore missing less instructional time. This study did a good job of examining the benefits of proactive interventions in decreasing the time students spend in time-out scenarios. It examined several aspects of the interventions and detailed what worked well. Though the study did a good job of supporting its conclusions with data, further research is needed to determine the level of success these proactive interventions will have over time. The article states this and is quick to acknowledge that further research is required to support more concrete results.

Classroom behaviors in specific are an area often targeted to help students with ADHD manage their symptoms in a way that benefits them and their peers. There are many strategies to do this. Fudge et al. (2008) focuses on evaluating the effects of using the Color Wheel classroom

management system (CWS) on on-task (OT) behavior in a general education, 2nd-grade classroom during transitions (Fudge et al., 2008).

The researchers hypothesized in Fudge et al. (2008) that using the color-wheel system (CWS) would help students ease transitions and increase their on-task behavior. Participants were a general education teacher (male, with over 20 years' experience) and all 12 students (7 African American females and 5 African American males) in a general education, 2nd-grade classroom. All participants were 7-8 years old (Fudge et al., 2008). The study was based on the idea that transitions are challenging for most students and that using a simple and visual tool such as the CWS might help decrease behaviors. The CWS utilized three sets of rules coded Green, Yellow, and Red and designed for different classroom activities.

The Color Wheel was posted in the classroom and adjusted by the teacher as transitions from one activity to another occurred and from one set of rules to another (Fudge et al., 2008). The study included establishing the number of off-task behavior occurrences when using a token economy cost/loss system designed to punish inappropriate behaviors. The response–cost system involved having all the students start each day with 100 points. The students lost points in five-point increments for various offenses. When a student fell below 80 points for the day, half of their classroom privileges were lost (e.g., loss of half of recess time, loss of computer time). When a student fell below 60 points for the day, all classroom privileges were suspended, and the student's parents were called and informed of their child's inappropriate behaviors. Although the response–cost system was in place throughout the school, researchers observed several instances of students misbehaving and the teacher failing to remove points (Fudge et al., 2008). This study supported the idea that a tool like the CWS helps decrease negative behaviors and increase on-task behavior. The CWS let students know and prepare for what behaviors were expected as they transitioned from one task to another.

ADHD Referrals and Diagnosis

In Sciutto et. al (2004) regarding the effects of both types of external symptom and gender on the incidence of ADHD referrals, there is evidence of a strong correlation between the less disruptive symptom of inattention and the more disruptive symptoms of hyperactivity and combined hyperactive/aggressive behavior (Sciutto et al., 2004). Mowlem et al. (2019) found that there are proportionally more boys than girls with ADHD who upset or annoy the teachers who work with them. The study also found that parents tend to see the 'feminine' ADHD diagnostic items (inattention, distraction, depression, withdrawal) as less of a problem than the more 'masculine' traits of physical or verbal hyperactivity or behaviors based on a lack of developmentally appropriate emotional regulation (Graetz et al., 2005; Ohan & Johnston, 2005). These explanations have likely led to an ADHD stereotype of a 'disruptive boy'. Combined with the higher rate of diagnosis in boys, this could influence the differing perceptions of similar behaviors in boys and girls by individuals who are integral in the referral and diagnostic process (Mowlem et al., 2019).

Sciutto et al. (2004) examined teacher perceptions and subsequent referrals by taking a sampling of teachers and giving them academic records of a fictional student, then asking how likely they were to refer the student for evaluation by the school psychologist. The sampling of participants was comprised of 199 teachers for grade 1-4 in suburban Ohio. They consisted of 18 men and 181 women, ages ranging from 23 to 66 (M= 44.63, SD= 9.88), a range of 1 to 40 years of teaching experience (Sciutto et al., 2004). The teachers in the study were all given the complete record of a fictional 7-year-old who was said to be exhibiting impairment in his or her functional school skills (both academic and social). Grades, comments from previous teachers, and standardized test scores were included for each year in the fictional student's profile. Each profile also contained information about the child's inconsistent academic performance and low

grades in several areas for each year. Each record also included a paragraph including five to six comments describing the fictional child's classroom behavior. For each year of the fictional record the teacher was asked to use a rating scale of one to six to indicate the likelihood that they would refer the child to a school psychologist for evaluation.

The teachers were also asked to rate how destructive the child would be in a typical classroom environment on a scale of one to six (Sciutto et al., 2004). The results indicated that although the gender of the fictional child did not significantly impact the likelihood of referrals, the type of profile (inattentive, hyperactive, or hyperactive/aggressive) had a considerable effect on the likelihood of referral. Teachers found students with the inattentive profile to be significantly less of a disruption than the students with the hyperactive or hyperactive plus aggression profile. Teacher perceptions of the level of disruptive behaviors were positively connected to the likelihood that the teacher would refer the student for evaluation with a psychologist.

To further examine for bias based on gender, the researchers analyzed the results by examining the covariance of gender and symptom type using perceived disruption as the control and the likelihood of referral as the dependent. The results indicated that teachers were more likely to refer male students than female students regardless of the symptom type. It is also relevant to note that once the subtypes were divided, the data showed that the teachers were "approximately 1.5 times more likely to refer a hyperactive boy than a hyperactive girl" (Sciutto et al., 2004, p. 251). Teachers who had previously had a high incidence of referrals were more likely to refer students but were unrelated to relative years of experience. There was also no difference in the likelihood of referral between male and female teachers.

Adult Ramifications of ADHD

Postsecondary students with ADHD face academic difficulties that their neurotypical peers of comparable intellectual ability do not. Among these are weaker overall academic skills, lower graduation rates, lower intellectual self-confidence, and lower self-rankings on subjects of math, writing and general academic ability (Willoughby & Evans, 2019). Willoughby and Evans' (2019) research placed a focus on improving the self-process of compassion, acceptance, and regulation of learning. Seventy and a half percent of the participants of the study reported having ADHD (or ADHD in addition to other diagnosed learning disorders, making it a strong sample of determining attitudes among post-secondary students with ADHD) (Willoughby & Evans, 2019). The 78 final participants were given an online questionnaire that included items from a combination of questions from the measures of disability, positive and negative affect and depression. Their results on these measures ultimately indicated that post-secondary students with ADHD or another learning disability have a lower level of self-compassion than other post-secondary students (Willoughby & Evans, 2019).

Guendelman et al. (2016) examined the connection between interpersonal dysfunction in girls diagnosed with ADHD and the rate of victimization by intimate partners later in life. To complete the study, researchers took data from a previous study and tracked the relationships and behaviors and outcomes, specifically related to intimate partner violence. This pool of participants was then divided by the researchers into groups by age. All groups contained participants with an ADHD diagnosis as well as control participants without a diagnosis of ADHD. The findings indicated that young women with a diagnosis of ADHD in childhood are at a specific risk for intimate partner victimization (IPV). For the subjects in this study, childhood ADHD was shown to be an important predictor of physically violent victimization in their intimate relationships. This vulnerable population requires IPV prevention and intervention, with academic empowerment as a key target. Additionally, Guendelman et al. (2016) found that

across the sample there was a pattern of internalizing behavior during adolescence. Additionally, the researchers questioned with the measure they used was sufficiently sensitive to distinguish between those who did subsequently become vulnerable to IPV versus those who did not (Guendelman et al., 2016). The researchers also found that there was a specific association between childhood ADHD and a substantial increase in risk for being physically abused by a romantic partner by young adulthood (Guendelman et al., 2016).

Heckel et al. (2013) completed a thorough study examining the relationship between ADHD in children and divorce, remarriage, or multiple transitions happening in their family. Most interestingly, there were significant differences in the severity of ADHD symptoms of children who were raised in a stepfamily and those who were raised by a single mother. Those who grew up in a stepfamily showed higher rates of hyperactivity and social problems on standardized measures than those living with a single mother. They also showed higher rates of oppositional behavior, rule breaking, externalizing problems, anxiety and depression; those levels were less distinctive than the difference previously mentioned (Heckel et al., 2013).

CHAPTER III: DISCUSSION AND SUMMARY

Summary of Literature

Gender is a significant factor when it comes to Attention Deficit Hyperactivity Disorder (ADHD). The impact it has on a person can be noted from the very first signs of being atypical in childhood all the way through one's adult life. Mowlem et al. (2019) looked at the various factors involved in meeting the diagnostic criteria for ADHD and their relation to the subject's gender. According to the study, girls are referred for diagnosis less frequently, and therefore diagnosed less often. The study also noted that girls are less likely to display hyperactive or impulsive symptoms, which are easily noted by an external observer (teacher, parent).

There is a wealth of information that supports the findings that differences in referrals based on gender and gender differences in symptom expression mirror each other (Sciutto et al., 2004). Additionally, the discrepancies in the way symptoms of ADHD are expressed suggests that there is often a bias in teacher perceptions and that it may influence decisions to refer or outcomes. Sciutto et al. note that

> a significant limitation of this study was that it used an analogue methodology. Our results are based on teachers' responses to a hypothetical written description, which may not reflect the complexity of information that teachers typically face when considering a referral. Teachers' referral decisions in this study may differ in important ways from their decisions in school settings. (Sciutto et al., 2004, p. 252).

Future studies in this area should seek out a more diverse sample in terms of both geography and gender of teachers.

Several of the studies that were part of this review noted the presence of comorbid attention or mental health disorders with ADHD. Becker et al. (2018) examined the correlation

between ADHD and sleep problems. Goh, Martel, and Barkley (2020) researched the concept of Sluggish Cognitive tempo (or SCT), a relatively new disorder that has many similarities to ADHD. SCT overlaps with the symptoms of Inattentive-type ADHD and also has distinctions from ADHD. These can be found in areas of slow processing speed and higher rates of depression, which superseded the level of impairment experienced by those with ADHD. Houghton et al. (2020) examined the relationship between loneliness, depression, and ADHD in adolescents. Willoughby and Evans (2019) studied the level of self-compassion that other post-secondary students demonstrate. Their results on these measures ultimately indicated that post-secondary students with ADHD or another learning disability have a lower level of self-compassion than other post-secondary students (Willoughby & Evans, 2019). These studies all noted internalizing behaviors were more prevalent among the female participants.

Looking further at comorbid mental health disorders, Blanco-Vieira et al. (2019) studied the correlation between ADHD and Obsessive-Compulsive Disorder, also known as OCD. This study found a connection between the presence of comorbid ADHD and OCD diagnoses, as well as earlier onset symptoms and more severe symptoms than those without a comorbid ADHD diagnosis. The Blanco-Vieira (2019) study also notes that the participants who had both disorders had a higher incidence of sensory processing deficits and comorbidity with Tourette's Syndrome. This study seemed to make a significant case for the idea that adults with ADHD and OCD represent a specialized grouping of symptoms and needs among the greater population of both adult communities.

Heckel et al. (2013) examined the relationship between ADHD in children and divorce, remarriage, or multiple transitions happening in their family. This study found that there were several pieces of data relating to depression and anxiety relating to ADHD, although those could

also be attributed to potentially traumatic life events given the other factors of the study. Most interestingly, the study showed that children raised in stepfamilies had higher rates of hyperactivity and social skill differences than those raised in homes with just a single mother. Øie et al. (2018) performed a study that also focused on the relationship between depression and inattention and hyperactivity, as well as other symptoms of ADHD and more specifically, the disparity between parent-reported symptoms and self-reported symptoms. The Øie et al. study (2018) noted that for girls in particular when their rates of hyperactive/impulsive symptoms decline, their self-reported depression rates often increase. The same was found to be true for inattentive symptoms in girls but to a lesser extent. This idea may relate to the emotions tied with "masking" that girls often use to cope with their ADHD symptoms. Meanwhile, the Mowlem study found that girls with ADHD are more likely to experience inattention. They are also more likely to have internalizing symptoms of ADHD such as anxiety and depression, which in turn lead to an alternate diagnosis that may address some, but not all of their symptoms (Mowlem et al., 2019).

Rose (2002) further examined internalized symptoms of ADHD through studying the concept of co-rumination and its effects on friendships. This study defined co-rumination as "extensively discussing and re-visiting problems, speculating about problems, and focusing on negative feelings" (Rose, 2002, p. 1830). The construct of co-rumination is related to positive adjustments of friendship as well as an emotional adjustment that can be problematic. In fact, the study found that "co-rumination was related to high-quality, close friendships and aspects of depression and anxiety" (Rose, 2002, p. 1830). Rose and Rudolph (2006) performed a further study in order to further examine the differences in peer relationships and how they change as girls and boys undergo developmental changes. However, this study contradicted itself consistently throughout, which made it difficult to determine the validity of their results and

understand their ultimate conclusions. Hinshaw et al. (2002) compiled data which was examined to explore the connection between interpersonal dysfunction in girls diagnosed with ADHD and the rate of victimization by intimate partners later in life (as cited in Guendelman et al., 2016). This was an important area to study with significant ramifications. However, the initial study was conducted with the objective to "collect ecologically valid participant data rather than to provide therapeutic intervention" (Guendelman et al., 2016, p. 157). Since participants were recruited from many places that generally function to support youth, most notably mental health centers, one can only assume that participants would be under some assumption that involvement in the study could lead to some type of therapeutic intervention. There is no way to know if there were patterns formed or reinforced by the lack of therapeutic intervention in the original data gathering study, which precluded participants towards IPV in their adult lives (Guendelman et al., 2016).

One of the main factors of ADHD is a deficit in Executive Function or EF. Executive Function deficits can be tied to difficulties with working memory, reading and math struggles, and difficulties in keeping track of and accurately noting the passage of time (Barkley & Fisher 2019), among other things. Günther et al. performed a 2015 study to compare and contrast the differences in expression of deficits related to attention tasks in girls and boys. Although this question has been studied many times, they noted there were relatively few studies that specifically examined whether differences due to gender were detectable when looking at symptoms of inattention. They also noted that the results of these studies were often contradictory (Günther et al., 2015). Arnett et al. (2015) examined the reasons that there is a higher rate of ADHD in males than in females using subjects from a twin study. Although this study had a significant amount of data, they failed to consider differences in subtype and rate of subtype in comparison to gender (Arnett et al., 2015). Gender and ADHD subtype shared an

important relationship multiple times throughout the studies in this review (Guendelman et al., 2016; Mowlem et al., 2019; Rose & Rudolph, 2006).

In their 2019 study, Barkley and Fischer looked at the relationship of time-reproduction deficits, which are prevalent in people with ADHD, and the potential ramifications these deficits may cause in major life activities. In a previous study in 2011, the same researchers examined the self-reported executive function deficits and the tests that measure those deficits as well as the level of major life activity impairments that adults with a childhood diagnosis of ADHD Hyperactive type (Barkley & Fischer, 2011). Regulating the symptoms connected to EF dysfunction can happen through therapies such as Cognitive Behavior Therapy, through sports or exercise, diet, and medication as found by Ishihara et al. (2018). Axelsson et al. (2016) performed interesting research on using the educational paradigm of Learning-by-Teaching (LBT) in preschoolers and its utilization in examining and identifying executive function deficits early in life. They were able to find that the subjects were able to increase their EF ability to an extent throughout the study. Fudge et al. (2008) looks at a tool known as the Color Wheel System for classroom management system and the success of implementing it in a second-grade general education classroom (Fudge et al., 2008, p. 575). Tools like this could be used to help regulate EF because of their basis in concrete language and visual representations of abstract ideas.

Similar to girls with ADHD, Twice Exceptional learners (2E) often struggle with a disconnect between their true abilities and what they are able to demonstrate externally in a way that is comparable to their neurotypical peers. Ronksley-Pavia et al. (2019) studied the effects of bullying on 2E youth and found that they are at risk of underachievement at school as well as developing depression and anxiety disorders. Bianco and Leech (2010) performed another significant study regarding 2E learners, which examined the effect that teacher training programs

had on a teacher's willingness to refer students for participation in a gifted and talented program as well as their understanding of a student's disabilities. However, their sample was not random, and participants ended up being chosen from just 19 schools, all within the same district. The teachers were also asked to make decisions based on limited information and fictional situations that may have affected their results (Bianco & Leech, 2010). Agoston and Rudolph (2016) found that using a community sample in their study served to restrict the severity of depressive symptoms in their subjects.

Limitations of the Research

Original search parameters for this review were peer-reviewed academic studies within the years of 2010-2020 that had a primary focus on ADHD, ADHD subtypes, and gender, with a particular interest in the condition known (but not officially recognized in the DSM –V) as Rejection Sensitive Dysphoria. In looking at the available research within those parameters, it became apparent that there was not enough research specifically focused on those topics to complete a thorough literature review. The search parameters were widened to include studies from 2000 on, though preference was still given to more recent studies within the original time period.

The studies reviewed herein span participant age from young children to mature adults. Emphasis was placed on studies where the participants were elementary aged through adolescence. This preference was due to the fact that that age group has the most potential for intervention and treatment having meaningful implications later in life. Several studies also utilized a longitudinal approach and gave meaningful information about the trajectory that diagnosis and treatment or lack thereof can have on girls and women throughout their lives. Studies primarily focused on the school setting or a cross-categorical school/home setting. Because an ADHD diagnosis, like any disorder's diagnosis, must be apparent in more than one

setting, there were no studies that focused exclusively on a subject in a home-setting. Additionally, preference was given to qualitative and mixed-method studies.

Although research on Rejection Sensitive Dysphoria was one of the original cornerstones of the broader topic of this review, it had to be abandoned. The researcher was not able to find a single study on the topic that both met the academic rigor required for this review, and which was ultimately focused on dysphoria as a whole as opposed to briefly mentioned Rejection Sensitive Dysphoria. Although there are many pieces of literature on the topic, those that meet the rigor and standards of a true academic study have not yet been completed.

Implications for Future Research

As mental health becomes more commonplace in the collective everyday consciousness, ADHD is gaining more recognition and the topic of more discussion. There are several studies that delve into ADHD and its many faces, as well as how it might be missed despite screening measures. Although there is a fair amount of data discussing the misconceptions and ways in which teacher bias can lead to missed diagnosis, there is little in terms of ways to solve that aspect of the problem. Most teacher preparation programs touch ever so briefly on conditions like ADHD and then move on. More comprehensive, yet still brief understanding of ADHD by teachers in training could lead to both more successful interventions and more accurate screening and diagnosis.

Rejection Sensitive Dysphoria in relation to ADHD seems to be an important relationship, but there is little to no research to be found about the connection between the two. Much of the research regarding ADHD in women discuss the prevalence of internalized symptoms such as anxiety and depression, but there is little to no mention of a connection to rejection sensitive dysphoria. This may be due to it not being recognized formally as a disorder in the DSM-V. However, a pronounced and perseverative emotional reaction to real or even

perceived negative interactions could have a profound effect on many of those internalized symptoms that are so common in women and girls with ADHD. The fact that there are some anecdotal reports of the use of medication to successfully treat RSD compounds the need for future research.

Implications for Professional Application

The findings of this literature review show that, in order to reduce missed referrals and inaccurate diagnoses, especially among girls, more research must be done to specifically examine the fundamental reasoning driving teacher perceptions and experiences which lead to referral for those with ADHD (Sciutto et al., 2004).

As stated in previous areas of the review, it is of paramount importance for teachers to be aware of the potential individualized needs of 2E learners. Often, the key to unlocking any student's potential is finding that specific connection to something they are truly passionate about. With 2E students, the engagement, and the avenues to it often present differently than those that would attract either a "typical" gifted student or a "typical" student with a specific disability. Because so many disabilities share the ability to hyper-focus in certain areas, that can often be the key to unlocking that engagement, while things that would grab the attention of a singularly exceptional student often do not create successful outcomes.

Further, the internalizing symptoms of ADHD, combined with a lack of ability to successfully develop a growth mindset, can likely lead to real damage to one's mental health. Neurotypical students generally can be expected to encounter at least some degree of struggle and challenge in the early years of their academic life. For 2E students, especially those with a hidden disability like inattentive ADHD, they appear to be doing "just fine," while in actuality, these students are often putting in little to effort in their learning and feeling bored or unchallenged much of their time in school. This becomes what they expect of learning, that

something will be introduced, they will rapidly understand it and be ready to move on but will not be able to. The ability to problem-solve or work through a challenge remains unused until that first true challenge comes along, by the time they have spent 5 or 6 years having everything follow the same pattern. Often in that time, when their brains are not needing to problem solve and grow in that way, they instead spin-off into anxiety, depression, unhealthy perseverations, and intrusive thoughts. Then when suddenly, those same brains are faced with a true challenge, they are utterly undone, and the challenge only affirms all the self-criticism and negative patterns of thought and emotion.

Conclusion

The research confirms that internalized symptoms of ADHD are prevalent in girls and women with the disorder, and that these symptoms often have detrimental life-long effects on one's mental health and self-esteem. There is further confirmation in the research that, along with the effects of depression and anxiety, girls and women with ADHD struggle to understand and internalize social norms. These social deficits can lead to a toxic cycle of separation from self in a quest to "be normal", though the perceived "normal" is illusory and unattainable. The research shows that girls spend their formative years learning to be excellent mimics while actively repressing the aspects of their nature that must explored to attain a healthy self-perception. Therefore, bringing the topic of varied ADHD presentations, and more specifically those in women and girls to the forefront of educator training and professional development can have lifelong positive impacts for girls with ADHD. Highlighting these areas in mental health conversations is also crucial. For women who went undiagnosed or misdiagnosed as children and carry years of baggage and self-criticism with them, these conversations can begin the healing process. A 20,000-criticism discrepancy is too much for those women and girls to continue to bear.

References

Agoston, A. M., & Rudolph, K. D. (2016). Interactive contributions of cumulative peer stress and executive function deficits to depression in early adolescence. *The Journal of Early Adolescence, 36*(8), 1070-1094. 10.1177/0272431615593176

Anderson, P. (2010). Assessment and development of executive function (EF) during childhood. *Child Neuropsychology; Child Neuropsychology, 8*(2), 71-82. 10.1076/chin.8.2.71.8724

Arnett, A. B., Pennington, B. F., Willcutt, E. G., DeFries, J. C., & Olson, R. K. (2015). Sex differences in ADHD symptom severity. *Journal of Child Psychology & Psychiatry, 56*(6), 632-639. 10.1111/jcpp.12337

Axelsson, A., Andersson, R., & Gulz, A. (2016). Scaffolding executive function capabilities via Play-&-Learn software for preschoolers. *Journal of Educational Psychology, 108*(7), 969-981.

Barkley, R. A. (2013). Distinguishing sluggish cognitive tempo from ADHD in children and adolescents: executive functioning, impairment, and comorbidity. *Journal of Clinical Child and Adolescent Psychology, 42*(2), 161-173. 10.1080/15374416.2012.734259

Barkley, R. A., & Fischer, M. (2019). Time reproduction deficits at young adult follow-up in childhood ADHD: the role of persistence of disorder and executive functioning. *Developmental Neuropsychology, 44*(1), 50-70. 10.1080/87565641.2018.1541992

Barkley, R. A., Murphy, K. R., & Fischer, M. (2008). *ADHD in adults: what the science says*. Guilford Press.

Barkley, R., & Fischer, M. (2011). Predicting impairment in major life activities and occupational functioning in hyperactive children as adults: self-reported Executive Function (EF) deficits versus EF tests. *Developmental Neuropsychology, 36*(2), 137-161. 10.1080/87565641.2010.549877

Becker, S. P., Cusick, C. N., Sidol, C. A., Epstein, J. N., & Tamm, L. (2018). The impact of comorbid mental health symptoms and sex on sleep functioning in children with ADHD. *European Child & Adolescent Psychiatry, 27*(3), 353-365. 10.1007/s00787-017-1055-2

Becker, S. P., Leopold, D. R., Burns, G. L., Jarrett, M. A., Langberg, J. M., Marshall, S. A., McBurnett, K., Waschbusch, D. A., & Willcutt, E. G. (2016). The internal, external, and diagnostic validity of sluggish cognitive tempo: A meta-analysis and critical review. *Journal of the American Academy of Child and Adolescent Psychiatry; J Am Acad Child Adolesc Psychiatry, 55*(3), 163-178. 10.1016/j.jaac.2015.12.006

Bianco, M., & Leech, N. L. (2010). Twice-exceptional learners: Effects of teacher preparation and disability labels on gifted referrals. *Teacher Education & Special Education, 33*(4), 319-334. 10.1177/0888406409356392

Blanco-Vieira, T., Santos, M., Ferrão, Y. A., Torres, A. R., Miguel, E. C., Bloch, M. H., Leckman, J. F., & do Rosario, M. C. (2019). The impact of attention deficit hyperactivity disorder in obsessive-compulsive disorder subjects. *Depression and Anxiety, 36*(6), 533-542. 10.1002/da.22898

Fudge, D. L., Skinner, C. H., Williams, J. L., Cowden, D., Clark, J., & Bliss, S. L. (2008). Increasing on-task behavior in every student in a second-grade classroom during transitions: validating the color wheel system. *Journal of School Psychology, 46*(5), 575-592. 10.1016/j.jsp.2008.06.003

Gardner, D. M., & Gerdes, A. C. (2013). A review of peer relationships and friendships in youth with ADHD. *Journal of Attention Disorders, 19*(10), 844-855. 10.1177/1087054713501552

Goh, P. K., Martel, M. M., & Barkley, R. A. (2020). Clarifying ADHD and sluggish cognitive tempo item relations with impairment: A network analysis. *Journal of Abnormal Child Psychology, 48*(8), 1047-1061. 10.1007/s10802-020-00655-2

Graetz, B. W., Sawyer, M. G., & Baghurst, P. (2005). Gender differences among children with DSM-IV ADHD in Australia. *Journal of the American Academy of Child and Adolescent Psychiatry, 44*(2), 159-168. 10.1097/00004583-200502000-00008

Grafton, B., & MacLeod, C. (2014). Enhanced probing of attentional bias: The independence of anxiety-linked selectivity in attentional engagement with and disengagement from negative information. *Cognition and Emotion, 28*(7), 1287-1302. 10.1080/02699931.2014.881326

Grskovic, J. A., Hall, A. M., Montgomery, D. J., Vargas, A. U., Zentall, S. S., & Belfiore, P. J. (2004). Reducing time-out assignments for students with Emotional/Behavioral Disorders in a self-contained classroom. *Journal of Behavioral Education, 13*(1), 25-36. 10.1023/B:JOBE.0000011258.06561.82

Grygiel, P., Humenny, G., Rębisz, S., Bajcar, E., & Świtaj, P. (2018). Peer rejection and perceived quality of relations with schoolmates among children with ADHD. *Journal of Attention Disorders, 22*(8), 738-751. 10.1177/1087054714563791

Guendelman, M. D., Ahmad, S., Meza, J. I., Owens, E. B., & Hinshaw, S. P. (2016). Childhood Attention-Deficit/Hyperactivity Disorder predicts intimate partner victimization in young women. *Journal of Abnormal Child Psychology, 44*(1), 155-166.

Günther, T., Knospe, E. L., Herpertz-Dahlmann, B., & Konrad, K. (2015). Sex differences in attentional performance in a clinical sample with ADHD of the combined subtype. *Journal of Attention Disorders, 19*(9), 764-770. 10.1177/1087054712461176

Heckel, L., Clarke, A. R., Barry, R. J., McCarthy, R., & Selikowitz, M. (2013). Child AD/HD severity and psychological functioning in relation to divorce, remarriage, multiple transitions and the quality of family relationships. *Emotional & Behavioural Difficulties, 18*(4), 353-373.

Houghton, S., Lawrence, D., Hunter, S. C., Zadow, C., Kyron, M., Paterson, R., Carroll, A., Christie, R., & Brandtman, M. (2020). Loneliness accounts for the association between diagnosed Attention Deficit-Hyperactivity Disorder and symptoms of Depression among adolescents. *Journal of Psychopathology & Behavioral Assessment, 42*(2), 237-247. 10.1007/s10862-020-09791-x

Ishihara, T., Sugasawa, S., Matsuda, Y., & Mizuno, M. (2018). Relationship between sports experience and Executive Function in 6-12-year-old children: Independence from physical fitness and moderation by gender. *Developmental Science, 21*(3)

Jellinek, M. S. (2010). Don't let ADHD crush children's self-esteem. *Clinical Psychiatry News, 38*(5), 12. doi:10.1016/s0270-6644(10)70231-9

Lange, K.W., Reichl, S., Lange, K.M. *et al.* The history of attention deficit hyperactivity disorder. *ADHD,* 2, 241–255 (2010). 10.1007/s12402-010-0045-8

Mahone, E. M., Hagelthorn, K. M., Cutting, L. E., Schuerholz, L. J., Pelletier, S. F., Rawlins, C., Singer, H. S., & Denckla, M. B. (2010). Effects of IQ on Executive Function measures in children with ADHD. *Child Neuropsychology, 8*(1), 52-65. 10.1076/chin.8.1.52.8719

Miyake, A., Friedman, N. P., Emerson, M. J., Witzki, A. H., Howerter, A., & Wager, T. D. (2000). The unity and diversity of Executive Functions and their contributions to complex "Frontal Lobe" tasks: a latent variable analysis. *Cognitive Psychology, 41*(1), 49-100. 10.1006/cogp.1999.0734

Mowlem, F., Agnew-Blais, J., Taylor, E., & Asherson, P. (2019). Do different factors influence whether girls versus boys meet ADHD diagnostic criteria? Sex differences among children with high ADHD symptoms. *Psychiatry Research, 272*, 765-773. 10.1016/j.psychres.2018.12.128

Ohan, J. L., & Johnston, C. (2005). Gender appropriateness of symptom criteria for Attention-Deficit/Hyperactivity Disorder, Oppositional-Defiant Disorder, and Conduct Disorder. *Child Psychiatry and Human Development, 35*(4), 359-381. 10.1007/s10578-005-2694-y

Øie, M., Hovik, K. T., Andersen, P. N., Czajkowski, N. O., & Skogli, E. W. (2018). Gender differences in the relationship between changes in ADHD symptoms, executive functions, and self- and parent-report depression symptoms in boys and girls with ADHD: A 2-year follow-up study. *Journal of Attention Disorders, 22*(5), 446-459. 10.1177/1087054716664407

Reis, S. M., Baum, S. M., & Burke, E. (2014). An operational definition of Twice-Exceptional learners: implications and applications. *The Gifted Child Quarterly, 58*(3), 217-230. 10.1177/0016986214534976

Ronksley-Pavia, M., Grootenboer, P., & Pendergast, D. (2019). Bullying and the unique experiences of Twice Exceptional Learners: student perspective narratives. *Gifted Child Today, 42*(1), 19-35. 10.1177/1076217518804856

Rose, A. J. (2002). Co-rumination in the friendships of girls and boys. *Child Development, 73*(6), 1830-1843. 10.1111/1467-8624.00509

Rose, A. J., & Rudolph, K. D. (2006). A review of sex differences in peer relationship processes: Potential trade-offs for the emotional and behavioral development of girls and boys. *Psychological Bulletin, 132*(1), 98-131. 10.1037/0033-2909.132.1.98

Sciutto, M. J., Nolfi, C. J., & Bluhm, C. (2004). Effects of child gender and symptom type on referrals for ADHD by elementary school teachers. *Journal of Emotional & Behavioral Disorders, 12*(4), 247-253. 10.1177/10634266040120040501

Willoughby, D., & Evans, M. A. (2019). Self-processes of acceptance, compassion, and regulation of learning in university students with Learning Disabilities and/or ADHD. *Learning Disabilities Research & Practice, 34*(4), 175-184.