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SEXISM AND SEVERITY: AN EXAMINATION OF TEACHER'S ATTITUDES ABOUT
AUTISM SYMPTOMOLOGY IN THE CLASSROOM

by

KAITLYN NIEDERSTADT

A thesis submitted in partial fulfillment of
the requirements for the degree of Master of Science in Clinical Psychology
Department of Psychology and Counseling

Amy Roberson Hayes, Ph.D., Committee Chair

College of Education and Psychology

The University of Texas at Tyler
December 2021

The University of Texas at Tyler
Tyler, Texas

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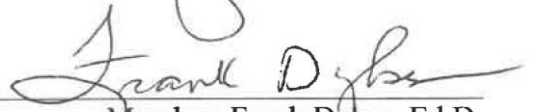
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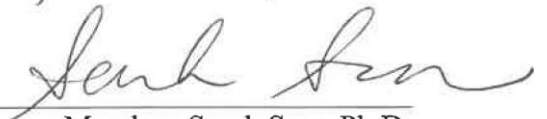
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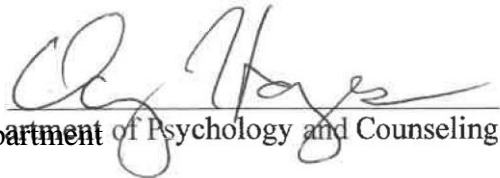
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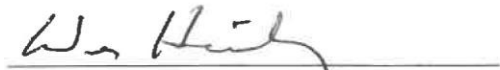
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Acknowledgments

I would like to thank the department of Psychology for allowing me to conduct this research, and give me the chance to find my passion for this topic. I cannot begin to express my deepest thanks to Dr. Amy Hayes, who has worked tirelessly alongside me making this project into what it is today. It was through our countless discussions, numerous drafts, and your reassuring responses to my emails, that this thesis was completed. Thank you for taking a chance on me and seeing something worth investing in. In addition, I would like to extend my deepest gratitude to my other members of my thesis committee, Dr. Sarah Sass and Dr. Frank Dykes. I am so happy to have you both on my committee and thankful for the insight you both have brought to this project. I am overwhelmed by the support and guidance my committee has provided me with, and forever grateful for the time you all took to make this thesis into something better than I ever could have imagined. In addition, I want to thank my Grammy for being my main rock, and letting me call her weekly with updates about any and everything. There have been times where I have been at my lowest, and yet you always manage to pull me back up. I cannot express how much I appreciate you and everything you have done for me. As well as specifically thanking my sister, Jennifer, for being not only my muse, but most importantly letting me call you and rant about my frustrations with diagnostic biases. I must also thank my parents for their encouragement throughout my academic career, and supporting the decisions I have made throughout. Especially, I would like to thank my friends for dealing with me pretty much exclusively talking about my thesis for the past year or so. I know that talking about diagnostic inequalities is not always relevant, but thank you for letting me rant about it anyway. Lastly, I want to thank my grandfather who passed away before I was able to develop this project. It was through his belief in me that I even started pursuing research. Although he was unable to be here for this, I know that he has been with me through every step of this project. This thesis would not have been possible without all of the love and support I received from each of you. Your endless encouragement has meant the world to me.

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Abstract

SEXISM AND SEVERITY: AN EXAMINATION OF TEACHER'S ATTITUDES ABOUT
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December 2021

Girls continue to be underdiagnosed and under-researched in the study of autism spectrum disorder (ASD). This is the result of a systemized preference towards masculine symptomology of ASD examined and created to diagnose ASD. The ideas produced by the research trickle down to teachers who then are in charge of flagging students for signs of ASD, however this step is not only limited by understanding, but their own inherent gender biases on behaviors. Our sample consisted of 139 current or former teachers. Each participant received one of three, (varying from severity levels and gender), rating scale of behavior association, rating scale of levels of concern about behaviors indicated in the vignettes, rating scales of likelihood of follow up on behaviors, modern sexism scale items. For each rating item, a 2 (gender of target: male or female) by 3 (symptom severity: mild, moderate, or severe) ANCOVA was conducted with participants' scores on the Modern Sexism Scale as a covariate. The results indicated severity biases in perceptions of behaviors as well as in the types of interventions sought out. There was a significant positive correlation between scores on the modern sexism scale and higher likelihood of seeking out disciplinary actions through administration. In addition, there was a significant positive correlation between gender and likelihood of giving referrals for special education, as well as diagnostic services. Future research should continue evaluating how gender and severity biases act independently, as well as together within diagnostic systems of ASD, in addition to racial biases.

Chapter One: Introduction

Children with symptoms of developmental disorders are often noticed for the first time in elementary school (Johnson et al., 2012; Young et al., 2018). The classroom setting provides a social environment where children can be naturalistically observed by someone outside of their immediate family or friends. As such, elementary school teachers are often the first individuals to notice maladaptive behaviors in children, and one of the first to refer for diagnostic testing if their behaviors elicit enough concern (Constantino et al., 2007; Johnson et al., 2012). At the population level, boys make up a disproportionate amount of the children diagnosed with developmental disorders, including autism spectrum disorder (Kreiser & White, 2014). Boys in the U.S. are four times more likely to receive a diagnosis of ASD in their lifetimes than girls (Kreiser & White, 2014). Additionally, girls who are diagnosed with ASD typically receive that diagnosis much later in life than their male counterparts (Barbaro et al., 2018; Milner et al., 2019; Morán et al., 2019; Young et al., 2018). As a result of girls being diagnosed later in life, many of the studies consisting of samples in the “normative” age range of ASD diagnosis (at least within boys) do not include girls with more moderate or mild symptoms that can appear in the absence of more noticeable cognitive delays, or behavioral problems (Duvekot et al., 2016). Thus, the purpose of the present study is to examine some of the potential causes of the differential diagnostic rates among boys and girls with symptoms of ASD.

One possible explanation of the differential diagnostic rates that we will explore in the present study is implicit gender biases inherent in the child’s environment. In practice implicit biases are predominantly formed in childhood and are developed through children’s simple categorization of others (Bigler & Liben, 2007). These simple categorizations are only subjected to change if an individual encountered by the child does not fit neatly in their categories (Bigler

& Liben, 2007). One of the biggest factors contributing to implicit bias formation is that of the size of the group being examined (Bigler & Liben, 2007). That is, it is easier for biases to form based on the smaller minority groups of people than majority groups due to the size differentiation that allows for variances to appear even greater (Bigler & Liben, 2007). One group that has many implicit biases stored against them is the population of children with autism spectrum disorder. While the population of people with ASD is small, about 1 in 68 children, what is even smaller is the proportion of girls who are diagnosed with ASD (Young et al., 2018).

These biases are not created by simple encounters alone, but by passed down through the current understandings of autism spectrum disorder research. The issue is that research on ASD is so limited, mainly consisting of research conducted on masculine samples without many variations of deficit levels (Barbaro et al., 2018; Duvekot et al., 2016; Evans et al., 2018; Leedham et al., 2019; Matheis et al., 2019; Young et al., 2018). Often, many girls with less severe symptoms, or more intact language and cognitive skills will fly under the radar, resulting in a late diagnosis, misdiagnosis, or possibly never receiving a diagnosis (Evans et al., 2018). Due to this gap in diagnosis, girls with milder deficits are often missed- resulting in a perception of boys being the majority of people with ASD (Sedgewick et al., 2015). This emphasis allows for the gender bias to be extended to not only to the research, but diagnostic tests, parents, and even more so the teachers who serve as first identifiers of disordered behaviors (Young et al., 2019).

Teachers obtain a theoretically unbiased average base line of child behavior through years of teaching, observing, and interacting with students (Young et al., 2019). Consequently, they should be able accurately identify potential disordered behaviors more easily than parents (Constantino et al., 2007; Young et al., 2018). However, teachers also are victim to their own

inherent biases about ASD, often favoring attention towards more disruptive behaviors and citing difficulties with those who partake in these behaviors (Kentrou et al., 2018). Due to gendered behavioral expectations teachers hold about autism spectrum disorder, girls who exhibit more internalized symptomologies are more likely to be overlooked, and often will not be identified until later in life (Young et al., 2018).

Taken together, research on ASD lacks when it comes to the examination of girls with ASD and those with mild to moderate symptoms. In order to better understand the spectrum aspect of ASD, there needs to be a fuller basis for the sample population in research, instead of simply favoring ASD samples of males or those with severe symptomology. To fix this gap in the research and overall understanding of ASD, there must be an examination of the omnipresent gender and symptomology biases rooted in the diagnostic system. Starting with the first to notice ASD behaviors- teachers. Accounting for implicit biases within this first wave of behavioral observation could allow for a deeper understanding of how education about ASD must be conducted. Ultimately to break the cycle, there needs to be an intervention with teachers, to examine their implicit biases and see the degree to which they are hindering girls with ASD by potentially depriving them of scholastic interventions and ultimately early diagnosis.

Symptoms and Diagnostic Criteria for Autism Spectrum Disorder

As defined by the American Psychiatric Association in the fifth addition of the Diagnostic and Statistical Manual, autism spectrum disorder consists of deficits related to two specific diagnostic areas, that of social and communicative development, and one consisting of strong, narrow interests and repetitive behavior (American Psychiatric Association, 2013; Baron-Cohen, 2002). The behaviors associated with the first diagnostic area consist of deficits regarding both verbal and non-verbal communication skills- that is, having abnormal approaches

to reciprocal conversation, reduced sharing of interests or emotions, flat affect, eye contact abnormalities, or difficulties with comprehension of gestures or facial expressions (APA, 2013). In addition, this first category also contains behaviors that indicate difficulties in maintaining and developing relationships, things like absence of interest in their peers, difficulties with adjusting behaviors to suit social situations, or difficulties with imaginative play (APA, 2013). These deficits are present across multiple contexts and indicated by either examination of current behaviors or by client history (APA, 2013).

The second criteria section covers restricted, repetitive behaviors, and these behaviors must be manifested by at least two of the behaviors listed (APA, 2013). These behaviors consist of stereotyped or repetitive movements, phrases, or use of objects (APA, 2013). In addition, two of the following behaviors must also be present; strict adherence to routines, or ritualized patterns of verbal or non-verbal behaviors, highly fixed interests that are abnormal in intensity, or the hyper- or hypo- reactivity to sensory input or external stimuli- things like excessive smelling or touching of objects, visual fascination with lights or movement (APA, 2013). There are certain behaviors that are directly listed out in the DSM-IV like fascination with spinning objects- but this is not an exhaustive list, and thus the spectrum cannot fully be accounted for in the examples listed (APA, 2013; Sedgewick et al., 2015).

When observing the severity specifiers, they are built upon both of these diagnostic criteria categories, and have three separate, severity levels for each (APA, 2013). These severities ranging from level 1: requiring support, level 2: requiring substantial support, and level 3: requiring very substantial support (APA, 2013). Within level one, the example given for the deficits in social communication consists of maintaining the ability to converse with others in full sentences, but may fail in maintaining back and forth conversations, and will have

difficulties making friends due to odd or abnormal attempts (APA, 2013). At this level the restrictive interests or repetitive behaviors shows inflexibility of behaviors, difficulty with switching between activities, and deficits in organization and planning (APA, 2013). The second level, those who require substantial support, provides examples of social deficits including limited to narrow interests, distinct odd non-verbal communication, and abnormal responses to others initiating conversation (APA, 2013). The restricted or repetitive behaviors examples include distress when changing tasks or when faced with deviation from schedules and that these kinds of behaviors are obvious to casual observers (APA, 2013). The third level of severity, which requires very substantial support, is indicated by deficits in social behaviors exemplified by use of few words, often said to fulfill a need, often done in some unusual ways, but responds only to very direct social approaches (APA, 2013). With their restricted and repetitive behaviors often being inflexible and will cause extreme difficulty when attempting to cope with change, often the other restrictive or repetitive behaviors will interfere within all aspects of their life, in addition to great difficulty and stress changing focus (APA, 2013).

Overall, these behaviors indicated by the diagnostic criteria all consist of mostly external and disruptive behaviors, which can lead to some trouble differentiating between ASD and other possible diagnoses. For example, it has been shown that the presentation of ASD symptoms can mimic those of ADHD, due to the behaviors sometimes consisting of inattentiveness and hyperactivity (Kentrou et al., 2018). Or within the diagnosis of intellectual disabilities, since intellectual disabilities are often comorbid within the ASD diagnosis, it can at times be hard to determine if the symptoms exemplified fit more so with an intellectual disability, or ASD, or if the symptoms are comorbid (APA, 2003). In addition to these murky circumstances, sometimes the behaviors will not appear at a general 'normative time,' but instead can be better perceived at

older ages when social situations increase in complexity and pose a greater challenge for individuals to process and understand (APA, 2013).

Of note, the rates of ASD diagnoses differ significantly among boys and girls. With the ratio of boys to girls with higher cognitive functioning and ASD reported as being 10 to one (Milner et al., 2019), yet the average gender diagnosis ratio claims four boys to one girl (Young et al., 2019). However, when adding the comorbid diagnosis of an intellectual disability, it evens the ratios out more so, with a gender ratio of one girl for every two boys diagnosed (Morán et al., 2019). The ratios inherently reflect the gender and severity biases discussed earlier. This kind of focus on only those with more severe symptoms creates the assumptions that led to overlooking more subtle symptoms because they do not match with people's categorical understanding of ASD (Bigler & Liben, 2007; Young et al., 2018). In summation, this bias revolves around the lack of understanding of the full spectrum of ASD and how an oversight of gender differences in phenotypical display, and attentional preferences of disruptive behaviors could be allowing for skewed perceptions (Van Schalkwyk et al., 2014; Young et al., 2018). In turn, furthering the bias and reconfirming this false narrative that boys are more likely to have ASD.

Male Bias in Autism Research

Within the realm of ASD research, much of the foundational knowledge obtained is based upon numerous studies conducted with majority male populations (Barbaro et al., 2018; Duvekot et al., 2016; Evans et al., 2018; Leedham et al., 2019; Matheis et al., 2019; Young et al., 2018). However, the validity of this research comes into question, due to the lack of applicability it has to girls with ASD. If the foundational knowledge and understanding of a disorder is based in biased samples then it is likely to leave the groups who are not examined to be consistently excluded from the narrative. If the criteria and tests are all rooted in masculine

experiences then it would naturally be harder for girls to get diagnosed because while girls and boys are similar, their behavioral patterns are not.

The applicability of the current diagnostic criteria to girls is questionable since they are based upon a biased understanding of the ASD phenotype. Even within the new research being done on the neurological components of ASD, the bias is present showing a gender ratio of 15 boys for every one girl, which ultimately reflects an ascertainment bias (Milner et al., 2019). The research reflects an oversaturation of male samples that lacks generalizability to that of females (Barbaro et al., 2018; Duvekot et al., 2016; Evans et al., 2018; Leedham et al., 2019; Matheis et al., 2019; Young et al., 2018). Therefore, as a result of this bias, girls with ASD and no cognitive deficits are not studied as often, and in turn the understanding of the ASD phenotypical presentation is limited to a primarily male focal point. With that little knowledge of what ASD looks like in girls, it in turn affects each area of diagnosis.

Diagnostic Assessments. Throughout the system of diagnosis girls are constantly in an uphill battle to be diagnosed. This is due to the skew of research that guides diagnostic practices to mainly attend to masculine presentations of ASD. The Diagnostic and Statistical Manual's understanding of ASD consists of more explicit identifiable behaviors like repetitive movements, being overly reactive or underactive to sensory input, and even having trouble with nonverbal communicative behaviors utilized for social interactions (APA, 2013). This understanding of ASD is highly restrictive however, because it relies upon homogeneous concepts of ASD, while ignoring the indications of possible gender variations in phenotypical presentations (Bitsika et al., 2018; Øien et al., 2018). Even when the DSM-5 suggests there may be potential gender differences in ASD they lack specificity on how these differences may look behaviorally (Sedgewick et al., 2015). Without a more in-depth explanation of how girls and boys on the

spectrum might differ phenotypically; the same biases will run rampant throughout the diagnostic process.

As a result of the homogeneity of the diagnostic criteria, this leads to a less sensitive diagnostic instrument to assess autism spectrum disorder in girls. Some of the most often cited assessments include The Autism Diagnostic Observation Schedule, The SCQ Lifetime Form, The Autism Diagnostic Interview-Revised, The Social Responsiveness Scale, and the Baby and Infant Screen for Children with Autism Traits (Biscuit- part 1), The Child behavior Checklist (CBCL), and the Teacher Report Form (TRF) (Au-Yeung et al., 2018; Duvekot et al., 2016; Young et al., 2018). One of the major criticisms for these tests is that they focus on the more overt and identifiable behaviors- mainly because the research has often overlooked the more covert behaviors that might be at play. For example, commonly used diagnostic instruments such as the Autism Diagnostic Observation Schedule (ADOS) and the Autism Diagnostic Interview-Revised (ADI-R) have been found to produce significant gender differences in scores and may be less sensitive in capturing females with ASD (Au-Yeung et al., 2018; Duvekot et al., 2016; Matheis et al., 2019, Young et al., 2018).

It has been observed that young boys with ASD will have more restrictive interests and repetitive behaviors than girls, and thus will score higher on these sections, leading to a greater likelihood of diagnosis (Barbaro et al., 2018). However, this could be caused by the tests only identifying gendered passionate interests, things like trains, pipelines, and maps which are more appealing to boys than girls (Duvekot et al., 2016; Young et al., 2018). While the tests ignore other gendered interests' that girls might experience- like that of animals, barbie dolls, stickers, or people (Duvekot et al., 2016; Young et al., 2018). In addition, girls with ASD have been shown to score higher on assessments of social communication skills (Barbaro et al., 2018; Øien

et al., 2018), resulting in less likelihood for diagnosis because of the high social ability- which juxtaposes the idea that ASD looks like overt social deficits. Therefore, with tests that focus on areas of severe deficits in communication or proclivity towards more gender specific repetitive behaviors and restrictive interests, those who may not fit within that realm may be systematically left out of the diagnostic pool (Duvekot et al., 2016). Thus, leaving them out of the research and further limiting the basis of knowledge for the mass public about the variations of ASD presentation.

Summary. Overall, the biases present within the research extend to the diagnostic criteria, the diagnostic assessments, and the public's perception of ASD as a whole. The gender bias present has begun to be acknowledged in the research areas, often focusing in on the differential experiences of girls and boys with ASD. Most identifying that often girls with ASD are diagnosed later in life, on average five years after boys, and having symptoms become more prominent three and a half years after boys' (Ormond et al., 2018). Often in order for girls to receive a diagnosis of ASD they must have an additional low IQ or teacher reported- behavioral problem, which was not the case when observing boys with ASD diagnosis (Dean et al., 2016). This emphasizes that in order for girls to be diagnosed they must exhibit extenuating circumstances that overemphasize their deficits and portray the stereotyped male presentation of ASD. As a result of this obstacle of diagnostic bias, girls with symptoms of ASD that are not classically identified are left without the proper supports in place due to the latency of diagnosis, and develop more psychological damage as a result (Barbaro et al., 2018; Evans et al., 2018; Kentrou et al., 2018; Leedham et al., 2019; Morán et al., 2019). Overall, the struggle for girls to get diagnosed is influenced by the gender biases present throughout the diagnostic systems. Girls with mild or moderate symptoms are struggling to meet the criteria described in the DSM-5,

caught by the diagnostic tests, and as a result are left out of the research. As a whole, the methodological biases with primarily masculine samples, clinical diagnostic tools that skew towards masculine phenotypes, and ignorance of the differing social expectations, make up the gap in the research on ASD in girls (Young et al., 2018).

The Role of Teachers in Identifying ASD Behaviors

Teachers are one of the first stops in the diagnostic pipeline, because they are able to naturalistically observe children playing and interacting in a social environment more readily than parents can (Young et al., 2018). They ultimately serve as a supposed unbiased reporter of potential problematic behaviors. In the US, in order for students who need extra supports to get those supports, it requires the completion of a functional behavioral assessment (FBA) to be conducted often first assessed by teachers, then by the special education professionals (Fennell & Dillenburger, 2018). Then following this assessment, it allows for the development of a behavioral intervention plan based on the FBA for students with special educational needs and challenging behaviors (Fennell & Dillenburger, 2018). So, this means that in order for students to first get help- teachers must be able to assess if their behaviors might be indicative of an intellectual disability or any possibly disorders. In theory, teachers have advantages over parents in their ability to identify social impairments in children, because they routinely observe numerous children in social interactions daily, and thus have a normative baseline for social and behavioral interactions (Constantino et al., 2007). In addition, they are better able to observe the children, in a more social context than their parents, since often times children will behave differently when in the company of parents. Theoretically, teachers can observe children with a more impartial lens than parents could, and so their perceptions of behaviors thus might reflect a more accurate picture of the behaviors presented (Johnson et al., 2012).

Gaps in understanding. While a teacher presents many benefits towards observing autism spectrum disorder, they are also often limited in their direct understanding of more covert behaviors' indicative of ASD (Van Schalkwyk et al., 2014). While general teachers may have a very basic knowledge about ASD, it is expected they would be less aware of the more nuanced behaviors associated with it. Often times, teachers will be given professional development to equip them with knowledge about the signs and symptoms of ASD and guidelines of how to meet the needs of these students (Danker et al., 2019). However, while they may be allotted these resources, they typically are unable to attend these trainings due to high expectations for classrooms and busy schedules- thus limiting their insights about ASD and various other disorders (Danker et al., 2019).

Most often, teachers will notice and investigate behaviors in the classroom that appear more disruptive to their lesson plans. Typically, it is shown that teachers will report higher levels of externalizing behaviors in boys with ASD than in girls with ASD (Duvekot et al., 2016). Teachers will attend to the more disruptive behaviors and will tolerate the more internalizing symptomology with no report of concern, because they are not disrupting the rest of the class (Dean et al., 2016). So, because girls with ASD may behave more discretely, their lack of social interaction may be associated with them just being shy instead of being noted as possibly an indicator of ASD (Gaffney, 2017; Young et al., 2018). Due to the externalized nature of the behaviors associated with the masculine presentation of ASD boys are more likely to be referred for special education evaluations (Dean et al., 2016). While girls with more subtle presentations of ASD are more at risk of having their needs go unmet, lacking the social and emotional supports and thus more likely to experience negative repercussions (Dean et al., 2016; Myles et al., 2019; Young et al., 2018).

In addition to the failure to notice the potential differential presentations within the classroom setting, teachers will also ignore how socialization of genders may impact behaviors conducive to ASD (Dean et al., 2016). However, this is not as a result of teachers being inherently inadequate but more so the result the research surrounding ASD ignoring the social factors contributing to displayed behaviors. Research shows that at a certain age, as children develop, they begin interacting in ways that coincide with their perceived gender category (Dean et al., 2016). This results in the children interacting in various ways, but typically leads to girls dealing with more complex social situations than boys do, because they interact in more exclusive and intimate groups (Dean et al., 2016; Ormond et al., 2017; Young et al., 2018). However, even with more social complexity, it has been shown that it is easier to differentiate boys with and without ASD, as opposed to girls with or without ASD (Evans et al., 2018). Thus, teachers scanning the playground environment is often insufficient to identify the social problems girls with ASD encounter, because from a distance- girls with and without ASD behave in same or similar ways (Dean et al., 2016). While because of the boy's more interactive active games- consisting of sports or structured interactions, it is harder for boys with ASD to more easily fit in and interact as easily (Dean et al., 2016). Thus, boys with ASD will face more overt social challenges than girls with ASD do, and thus their rejection will look different as well (Dean et al., 2016). Their rejection being more easily identified because it is more direct rejection, while girls with ASD's rejection was more so being ignored or overlooked, not acceptance nor rejection- just neglect (Dean et al., 2016; Sedgewick et al., 2015). The social environment of girls allows for more subtle interactions which in turn can more easily hide any social deficits girls with ASD are facing (Dean et al., 2016). This is due not only because of the fluidity of social groups, but also because when seen by themselves is it not noted as abnormal,

but instead indicative of them taking a more gender defiant route (Dean et al., 2016). The expectation of girls and boys with ASD to be alone on the playground reflects the male bias of ASD presentation, and does not consider the impact of the differences in socialization of the genders (Dean et al., 2016). This male bias within the expectation of ASD behaviors has allowed girls with more subtle and innocuous symptoms of ASD to go unnoticed and as a result not be provided the supports needed for success.

Mainstream teachers' knowledge about ASD is based upon the research that is taught to them in their schooling. Most of the research thus far being oversaturated with male samples, thus skewing perceptions to reference males as being more likely to present with ASD symptoms (Leedham et al., 2019; Milner et al., 2019; Young et al., 2018). Overall, even when teachers do refer girls for further testing the tests are based in male symptomology as well, and so they are more likely to not obtain diagnosis since their scores are lower and may not be perceived as ASD (Evans et al., 2018; Duvekot et al., 2016; Matheis et al., 2019; Young et al., 2018). So, even if the girls are caught for testing the few that are suggested for assessments, they are denied diagnosis. Yet, even though there is bias in the tests, the ones who are sent by teachers are going to be the ones who have more significant cognitive delays and behavioral issues (Duvekot et al., 2016; Young et al., 2018). The first step starts with examination of teacher's present biases about ASD.

Gender-differentiated Presentation of Symptoms

One of the arguments for why girls are left out of the research is due to the strict basis of understanding of the ASD phenotype ignoring the signs indicative of a female phenotype. Research has suggested a female phenotype for ASD that would differ from the typical diagnosis primarily in the area of behavioral interaction (Milner et al., 2019). That is, the section of the

diagnostic tests that focuses on deficits in social skills may not be sensitive or useful for girls with ASD because of the increased socialization in this area for girls in general. While it has been shown that one of the phenotypical traits for girls with ASD may actually exhibit more internalized symptomology than boys do, resulting in less awareness of teachers to these symptoms (Evans et al., 2018). As a result of this bias towards overt symptoms only the girls with more severe and disruptive symptoms will be referred for testing, habitually missing those with less blatant and disorderly behaviors (Milner et al., 2019; Young et al., 2018). In order for girls to be diagnosed they must also present behavioral problems, significant mental difficulties or mental health problems (Young et al., 2018).

Although teacher flags for behavior are one potential mechanism in this identification disparity, the primary issue most likely lies in the content of the diagnostic assessments. These assessments were created using research that focused primarily on males with ASD, thus the accuracy of identifying girls with a different phenotypical display will be more difficult to catch and often left to go undiagnosed (Young et al., 2018). The research indicates that while girls show selective impairment in language compared to males, and they tend to express less issues related to unusual sensitivities, and social communication as well (Milner et al., 2019; Øien et al., 2018). It has also shown that girls on the spectrum will do better with communicative tasks and will have more complex language skills compared to boys on the spectrum with the same IQ (Sedgewick et al., 2015). In addition, the research found distinct differences in girls' phenotypical presentations of ASD compared to boys, like less restrictive and repetitive behaviors, joint attention, and greater experiences of lifetime sensory issues (Øien et al., 2018; Milner et al., 2019; Morán et al., 2019). As well as differences in what the genders intense interests are, with girls on the spectrum's interests being more aligned with those of their

neurotypical peers consisting of people and animals (Sedgewick et al., 2015). While the tests will capture obsessions with objects or things that are more typical of a masculine presentation of ASD (Sedgewick et al., 2015). These kind of biased and overgeneralized ideas about ASD, have led to more girls being misdiagnosed, diagnosed later in life, or undiagnosed completely (Sedgewick et al., 2015). If this continues, girls will continually not meet the criteria required for diagnosis, thus reinforcing the cycle of gender inequities present throughout the diagnostic process (Morán et al., 2019).

Friendships. The experiences of girls with ASD are vastly different than that of boys as a result of social pressures that they experience as they age (Bargiela et al., 2016; Barbaro et al., 2018; Dean et al., 2016; Evans et al., 2018; Kentrou et al., 2018; Ormond et al., 2017; Sedgewick et al., 2015). It has been shown that even in the ways that male and females communicate and utilize language, with women using language to maintain affiliations, while men use language to achieve self-assertion (Leaper & Smith, 2004). This kind of use of speech can be attributed to the social behaviors that occur throughout life- starting with how children interact with one another in childhood. Girls during this time show a propensity for creating and enforcing social norms, and thus, girls with ASD are often under immense pressure to conform to what their gender peer group (Dean et al., 2016). The social environment that girls are subjected to has been shown to be more socially complex than that of boys', thus there are more social pressures for girls with ASD to face (Dean et al., 2016; Gaffney, 2017; Ormond et al., 2017; Sedgewick et al., 2015; Young et al., 2018).

There is a common misconception of individuals with ASD do not seek out or desire friendships or social interactions (Milner et al., 2019). This misconception is founded in the masculinized ideas of ASD, often reverting ASD to be more masculine, and therefore less

interested in interacting with others. It has been shown that females with autism are as socially motivated as the neurotypical counterparts, while males with ASD are less so than others (Milner et al., 2019; Sedgewick et al., 2015). As a result of this increased social motivation, girls with ASD will report having similar friendship qualities to neurotypical girls, and have shown to be just as likely to be part of neurotypical girls' conversations about stereotypical feminine interests like boys, fashion, and shopping (Milner et al., 2019; Sedgewick et al., 2015). In part because of this ability to mesh with neurotypical girls, girls with ASD can avoid the isolation that boys with autism face (Sedgewick et al., 2015). As a result, they are more accepted and have a larger number of relationships allowing for their potential inadequacies to be hidden due to the lack of isolation (Sedgewick et al., 2015). However, that is not because the boys do not want to interreact, but more so because of the lack of emphasis on more intimate social connections that boys' social environments enforce (Dean et al., 2016). This emphasis placed on social interaction will cause girls with ASD to have more of a focus on the people around them, their relationships, their own direct friendships with peers, and overall have a greater interest in social contact as a whole (Sedgewick et al., 2015). Girls with ASD also have greater propensity for traditional friendships than males on the spectrum, which is why girls with ASD can maintain relationships with neurotypical girls, and why boys are more actively rejected by neurotypical boys (Bargiela et al., 2016; Sedgewick et al., 2015; Young et al., 2018). In addition, they can also have more intimacy within their friendships than boys with ASD do, reflected in the less sentimental ways boys on the spectrum describe their friendships (Sedgewick et al., 2015). However, both males and females with ASD will report less conflict in their friendships than their neurotypical counterparts (Milner et al., 2019).

However, while girls with ASD may be able to blend more effectively, interactions can be just as taxing on some of them. This is due to the multitude of unspoken norms, social cues, and intricacies associated with the friendships between girls. So, some girls with ASD may have an easier time interacting with boys because their communication style is more simplistic (Milner et al., 2019). In addition, because some girls with ASD will feel a disconnect between themselves and the gender norms associated with girls and will have more interests coinciding with boys than other girls (Milner et al., 2019). Thus, the types of interests and abilities for girls and boys with ASD will be driven more by where they are on the spectrum rather than their gender. So, even if they do have reports of being more social than boys with ASD, it is important to emphasize that both boys and girls on the spectrum are able to fall within a wide range of symptoms and therefore no one's deficits will manifest in the exact same ways (Milner et al., 2019; Morán et al., 2019). In addition, this higher social motivation may be more so the want of more close friends, and desire to fit in- thus they may be more prone to developing skills to compensate for their social oddities.

Coping strategies. While it has been shown that girls with ASD are more content in their own company compared to males with ASD, they also find the demands and disappointments of social endeavors more of a burden psychologically and emotionally than boys report (Milner et al., 2019). This burden they feel is due to the social expectations' girls are awarded combined with their greater awareness of their symptoms than boys with ASD may experience (Duvekot et al., 2016; Gaffney, 2017; Milner et al., 2019; Morán et al., 2019; Ormond et al., 2017). As a result of this increased awareness of their social deficits, girls on the spectrum will in turn be more likely to adjust their behaviors in an effort to blend and possibly avoid the risk of violating social norms (Dean et al., 2016; Morán et al., 2019). If they were to

fail to conform it could lead to a potential risk for aggression and exclusion from their peers (Dean et al., 2016). So, girls and women with ASD will engage in the process of masking or camouflage. There have been reports of about 68% of women with high functioning ASD participating in these masking and camouflaging techniques (Dachez & Ndobu, 2017).

The camouflaging process has two main displays, the active or the passive types (Young et al., 2018). The active form of camouflage is in their copying of their peers, attempts of overcoming their social communication deficits of typical ASD (Young et al., 2018). This kind of active form of camouflaging looks like girls actively attempting to seem normal and fit in with their peers to maintain friendships, and attempting to learn the social norms and cues required to fit in (Milner et al., 2019; Young et al., 2018). This could look like a girl learning stock phrases of social etiquette or making conscious efforts to study the appropriate amount of time to hold eye contact with others (Milner et al., 2019). It has been shown that girls with ASD are more capable of holding reciprocal conversations and have motivations to initiate more friendships than boys with ASD (Milner et al., 2019). There has been evidence that the interaction of girls with ASD in group play with neurotypical girls will aide in strengthening their abilities to empathize and interact with individuals (Dachez & Ndobu, 2017; Young et al., 2018). The superficial adaptations allow for them to go undetected by teachers, parents, diagnosticians, tests, and in turn leave them unaccounted for in the narrative (Dachez & Ndobu, 2017; Evans et al., 2018).

While the other more passive approach consists of mimicking behaviors such as accents or other unconscious efforts to remain unnoticed (Dachez & Ndobu, 2017; Young et al., 2018). The reason the more passive approach can occasionally help to hide the behaviors is the combination of the female social landscape. Thus, by hovering close by to other girls, it allows

for the appearance of social relationships, even when the girls with ASD may be just blending in and mimicking their peers' interactions (Dean et al., 2016; Kentrou et al., 2018; Milner et al., 2019; Ormond et al., 2017; Young et al., 2018). This passive tactic permits girls with ASD to hide in plain sight and be overlooked by teachers who might be fixated on the stereotype of children with ASD being alone on the playground (Dean et al., 2016; Kentrou et al., 2018; Milner et al., 2019; Ormond et al., 2017; Young et al., 2018).

Generally, these coping behaviors were likely adapted as being due to pressure to meet the expectations a neurotypical world imposes (Milner et al., 2019). Those with higher functionality are able to utilize these camouflaging tactics to blend in and go unnoticed, which is often intentional when feeling like an outsider (Dachez & Ndobu, 2017; Evans et al., 2018; Milner et al., 2019). The issue overall, is that even if the masking and camouflage techniques worked, girls and women with ASD who use them will often report difficulties with constant exhaustion and sometimes a feeling of identity loss (Milner et al., 2019). In addition, reporting increased stress and anxiety symptoms compared to those who do not engage in these behaviors (Milner et al., 2019). However, not all women with ASD found that utilizing the masking and camouflaging techniques were useful, and often that they were still victim to social exclusion as a result of their social deficits (Milner et al., 2019).

Social Expectations and Theory Creation

One of the ways people in the past have tried to rationalize the gap of girls in the research on ASD has been through the extreme male brain theory (Baron-Cohen, 2002). This theory claims that the reason why girls are not diagnosed with ASD as often as boys are is because of the naturalistic differences in brain development (Baron-Cohen, 2002). This masculinized brain theory makes the claim that there is a correlation between increased testosterone exposure in utero and ASD symptomology like low social-

emotional understanding, pragmatic language and friendship development, in addition to high levels of attention to detail, and obsessions with cause-and-effect systems (Evans et al., 2018). At first glance one might see this theory and fall victim to its biologically driven claims, and assume that men are more likely to have ASD. However, this theory does not account for the subtleties associated with societal gendered expectations and how they play into ASD symptomology display and diagnosis (Evans et al., 2018).

Ultimately, the idea that a lack of empathy is more masculine is based in the societal expectations that men will have fewer nurturing qualities, and thus will suffer more so when it comes to emotional understanding and such. However, to limit ASD symptomology to being linked with this idea of masculinization is ridiculous because it is a spectrum in terms of abilities. It actively ignores the way that social expectations will shape behavior, and allows girls to be further excluded from the narrative due to their potential increased social motivation permitting them to hide. Ultimately, this theory allows for the continuation of an idea that boys are more likely to have ASD due to the social norms that encourage less empathy development in boys. The use and popularization of a theory that posits a bias towards masculinity as a whole is something to be weary of based upon how it will in turn shape other's perceptions of ASD.

The Present Study

Too often girls are left out of the general public's representations of ASD. This kind of implicit gender bias has stemmed from theories, research studies, and led to a very limited understanding about girls with ASD (Barbaro et al., 2018; Baron-Cohen, 2002; Duvekot et al., 2016; Evans et al., 2018; Leedham et al., 2019; Matheis et al., 2019; Young et al., 2018). This implicit bias has created a system of diagnosis that continually dismisses and overlooks symptoms of ASD in girls. The diagnosis of ASD is reliant upon teachers', parents', and healthcare workers' expectations of what ASD will look like, which can be influenced by gender biases about behaviors and ASD symptoms (Young et al., 2018).

In this study, we hypothesize that manipulating the severity of the autism-related behaviors of a target child will affect teachers' levels of concern, methods of follow-up, and perceptions of the cause of the behavior. Specifically, we believe teachers will have higher levels of concern, be more likely to refer for further testing, and perceive great levels of disability when the behaviors are more externally salient and disruptive. However, we also predict that the gender of the target child will act as a moderator in this relationship between severity of autism symptomology and teacher response. Specifically, we believe that teachers will be less concerned, and be less likely to refer girls with moderate symptoms of autism to further testing than boys with the exact same set of symptoms. Additionally, we predict that teachers will perceive severe autism symptoms and behaviors in the classroom to be even more disruptive from girls than boys with the same symptoms because of their incongruence with typical gendered behaviors for girls.

Chapter Two: Method

Participants

The sample population consisted of 139 current or former teachers with classroom experience ranging from kindergarten to 12th grade. The majority of participants were classified as elementary educators, those with experience with grades kindergarten through sixth grade (n=80, high school educators with n=57). These participants were collected through the teachers' listservs that can be accessed through the College of Education and Psychology, in addition to snowball sampling to identify more teachers from our original outreach. The gender breakdown of the sample was as follows: 107 women, 30 men, and 2 who identified as non-binary. The sample was primarily white (n=113), with the fewest percentage being Hispanic (n=5), and the rest consisting of multiracial and black or African (multiracial n=12, black or African= 8). Approximately 58.4 % of the sample had elementary school training (n=80), with 41.6% having no elementary school training (n=57). The average number of years the participants had been teaching was 15.2, with a range from 1 to 40 years of experience. A majority of the sample, 54.3% obtained special education training through hands on classroom training. With the rest having either a certification (23.2%), coursework in undergraduate classes (15.9%), or no training with special education (6.5%). The demographics of the sample are reflected in Table 1.

Procedure

Each survey contained demographic items, one of three counterbalanced vignettes (varying from severity levels and gender), rating scale of behavior association, rating scale of levels of concern about behaviors indicated in the vignettes, rating scales of likelihood of follow up on behaviors, modern sexism scale items. Participants were informed that they would answer

several questions about the behaviors exhibited in the vignette and their perceptions of those behaviors.

Measures and Materials

Demographic Questionnaire. Participants were asked to report their age, gender, race, teacher status, years of teaching experience, grade level they teach, subject they teach, and familiarity with special education.

Vignettes. The vignettes utilized were created by using the DSM-IV specifiers for severities ranging from level 1: requiring support, level 2: requiring substantial support, and level 3: requiring very substantial support (APA, 2013), then altering them according to gender. Each teacher will receive one of the following vignettes describing: 1) mild symptoms, female student 2) mild symptoms, male student 3) moderate symptoms, female student 4) moderate symptoms, male student 5) severe symptoms, female student 6) severe symptoms male student. The full vignettes are listed in Appendix A.

Assessment of Teacher's Levels of Concern. Participants rated their levels of concern for the behaviors described in the vignette using a face-valid a rating scale of 1 being "*not at all*", 3, "*a medium amount*", and 5 being "*extremely concerned*".

Assessment of Teacher's Perceptions of Behaviors. Participants rated how they viewed the behaviors and rated the likelihood of the behavior being influenced by various factors on a scale of 1 to 5. For instance, "How likely is their behavior influenced by parental influence? How likely is their behavior influenced by personality of the child? How likely is their behaviors influenced by peer provocation? How likely is their behaviors influenced by anger issues? How likely is this behavior influenced by a defiant disorder? How likely is their behavior influenced by a learning disability?" Then the teachers' rated on a scale of one to five of the likelihood they would do the following actions for follow up measures, "Rate your likelihood of seeking out

follow up by contacting guardians, by seeking disciplinary measures through administration, seeking out a school counseling referral, seeking out special education department or diagnostic referral? observing behavior and just keeping an eye on the behaviors as opposed to referring to other departments.”

Modern Sexism Scale. The modern sexism scale (Swim et al., 1995) scale was used to assess participants’ beliefs about the roles of males and females in modern society. This scale has participants rate their agreement with a series of statements- on a scale of 1 to 5, with one indicating fewer sexist responses and five indicated more sexist responses.

Chapter Three: Results

Overview of Analyses

Each participant received one classroom vignette (gender of the target child and level of symptomology counterbalanced across participants) to read and rate their (a) level of concern, (b) understanding of the causes of the behavior, and (c) proposed follow up or intervention. The number of participants that answered the questions varied, however, each condition on average received approximately 20 participants per condition. However, the number that answered each question did vary as a result of the participants skipping some questions and not others. For each rating item, I conducted a 2 (gender of target: male or female) by 3 (symptom severity: mild, moderate, or severe) ANCOVA with participants' scores on the Modern Sexism Scale as a covariate. For each ANCOVA, I assessed the data for appropriate assumptions including linearity of the relationship and homogeneity of group variances. Unless otherwise noted, each ANCOVA met these statistical assumptions.

Overall Level of Concern

Results of an ANCOVA with level of concern as the dependent variable revealed a significant main effect of symptom severity, $F(2,107) = 20.73, p < .001, \eta^2 = .27$. There was not a main effect of the target's gender on overall level of concern, $F(1,107) = .172, p = .68$, nor was the interaction of gender and symptom severity significant, $F(2,107) = 1.404, p = .25$. Bonferroni post hoc tests of the symptom severity main effect indicated that participants' concern was higher for severe compared to both mild ($p < .001$) and moderate symptoms ($p < .001$).

Beliefs about Causes of Behavior

Parental influence. The first potential cause of behavior assessed was parental influence. The main effects of target gender, $F(1, 104) = .00114, p = .973$, and ASD symptom severity, $F(2, 104) = .675, p = .511$, were not significant. The interaction effect was also not significant, $F(2, 104) = 1.484, p = .231, \eta^2 = .027$.

Child's personality. Next, we assessed participants' ratings of child personality as a potential cause of the behaviors. Assumption checks revealed that the homogeneity of variances (Levene's) was not met for these data, $F(5, 105) = 2.91, p = .017$. Controlling for scores on the MSS, there was a main effect of symptom severity on ratings of the personality behavior cause, $F(2, 105) = 6.95, p = .001, \eta^2 = .109$. A Bonferroni-corrected post hoc test revealed a significant difference in attributions to personality between the moderate/mild and severe symptomology vignettes. Specifically, participants were more likely to attribute the severe symptoms to a child's personality than they were either the moderate or mild symptoms.

Peer provocation. We next assessed participants' attributions of the behaviors in the vignettes to peer provocation. We found no significant effects of any predictor on this dependent variable.

Anger issues. We next assessed participants' ratings of anger issues as the underlying cause of the symptoms described in the vignettes. There was a significant main effect of symptom severity, $F(2, 102) = 6.28, p = .003, \eta^2 = .104$. Bonferroni-corrected post hoc tests revealed that there were significantly more attributions to underlying anger issues for the severe compared to the mild vignette, $p < .001$.

Defiant disorder. We next examined the effects of the contents of the vignettes on attributions to an underlying defiant disorder. Again, there was a significant main effect of

symptom severity on participants' ratings of this cause, $F(2,104) = 5.616, p = .005, n^2 = .094$.

Post hoc analyses revealed that participants' attributions to a defiant disorder increased between mild and severe symptomology.

Learning disability. Finally, we assessed participants' ratings of an underlying learning disability as the cause of the behaviors presented in the vignettes. There was a significant main effect of symptom severity, $F(2,105) = 8.61, p < .001, n^2 = .131$. When conducting a Bonferroni test, it appears as though there is a significant difference between identifying behaviors as a learning disability comparing mild to severe symptomology ($p < .001$).

Likelihood of Intervention

Contacting guardians. We examined participants' ratings of their likelihood of contacting parents/guardians in response to the vignettes using an ANCOVA with MSS as the covariate. Tests of statistical assumptions revealed that these data violated homogeneity of variance (Leven's test $F(5,108) = 93.8, p < .001$). There was a main effect of symptom severity on likelihood of contacting parents, ($F(2,107) = 15.507, p < .001, n^2 = .141$). Bonferroni tests revealed significant difference when comparing likelihood of contacting guardians between severity levels of mild versus severe ASD symptoms ($p < .001$).

Discipline through the administration. We next tested whether the content of the vignettes had an effect on teachers' likelihood of a discipline referral for the target child. The only significant effect was of the covariate, $F(1,105) = 4.910, p = .029, n^2 = .043$. That is, teachers who had higher scores on the modern sexism scale were more likely to refer a child for a discipline issue, regardless of the gender of the child or the level of symptoms in the vignette.

School counseling referral. We next analyzed the effects of the vignette contents on teachers' likelihood of referring the target child for school counseling. There were no significant effects of the predictor variables or the covariate in this test.

Special education referral. We next tested the extent to which content of the vignettes affected the likelihood of teachers referring the target child to the department of special education. The data in this test violated Levene's homogeneity of variances assumption, $F(5,107) = 4.99, p < .001$. The ANCOVA revealed significant main effects of both the gender of the target child, $F(1,106) = 5.746, p = .018, n^2 = .043$, and symptom severity, $F(2,106) = 9.446, p < .001, n^2 = .143$. Bonferroni post hoc tests for the main effect of gender showed that teachers were significantly more likely to refer boys than girls for special education, regardless of symptom severity. Post hoc test also showed that, for the main effect of symptom severity, teachers were more likely to endorse a special education referral for both moderate and severe symptoms compared to mild symptoms.

Diagnostic referral. We next tested the effect of the content of the vignettes on the likelihood of teachers referring the target child for a diagnostic evaluation. The data in this test violated Levene's homogeneity of variances assumption, $F(5,107) = 3.18, p = .010$. First, for this test there was a significant relationship between the covariate (scores on the Modern Sexism Scale) and the dependent variable, $F(2,106) = 5.42, p = .054, n^2 = .030$. Controlling for MSS scores, the ANCOVA revealed a significant main effect of the gender of the target child, $F(1,106) = 5.40, p = .022, n^2 = .042$, as well as a significant main effect of symptom severity, $F(2,106) = 5.66, p = .005, n^2 = .088$. Bonferroni post hoc tests of the main effect of gender showed that teachers were more likely to refer boys than girls for diagnostic testing, regardless of symptoms. Additionally, the post hoc tests for symptoms severity showed that teachers were

significantly more likely to refer students with severe symptoms for diagnostic testing than those with either mild or moderate symptoms.

Chapter Four: Discussion

In this study, we predicted that by manipulating the severity of the autism-related behaviors of a target child would affect teachers' levels of concern, proposed methods of following up, and their perception of the causes of the behavior. Specifically, we predicted that teachers would report higher levels of concern, be more likely to refer for further testing, and perceive greater levels of disability when the behaviors are more externalized and disruptive. In addition, we predicted that the gender of the target child would act as a moderator in the relationship between severity of autism related symptomology and the response of the teacher. Specifically, we expected that teachers would be less concerned by behaviors, and less likely to refer girls with moderate ASD symptomology compared to boys with moderate symptomology. Additionally, we predicted that teachers would perceive severe ASD behaviors to be seen as more disruptive from girls than boys as a result of the potential gendered expectations of girls' behaviors.

Contrary to our predictions, there were no significant relationships found within the interaction of gender and level of ASD symptom severity on the teachers' perceived behavioral causes, or their reported likelihood of intervention. However, gender and the level of ASD symptom severity were independently related to various behavioral perceptions and interventions.

As predicted, the severity of ASD related behaviors resulted in an increase in teachers' overall level of concern. Specifically, we found that teachers reported higher level of concern for severe ASD symptomology as opposed to both mild and moderate symptomology. Additionally, perceived behavioral causes were also influenced by severity of ASD related symptom presentation. Teachers attributed behaviors exhibited in the severe symptom vignette to be more

related to underlying anger issues, a defiant disorder, or a learning disability, compared to the mild symptom vignette. When reviewing the reports of likelihood of interventions, the severity bias was also prominent: there were higher rates of contacting guardians for the severe symptom vignette as opposed to the mild symptom vignette. Teachers also reported a higher likelihood of giving a special education referral for both severe and moderate symptoms opposed to mild symptoms. However, this acknowledgement of moderate symptomology did not remain when reporting likelihood of diagnostic referral, with teachers reporting a higher likelihood of seeking out diagnostic referrals for those with severe symptomology as opposed to be moderate and mild symptomology.

These findings further support the literature on attentional biases toward more severe and disruptive behaviors, inherently overlooking the more subtle symptomologies presented (Kentrou et al., 2018; Young et al., 2018). The increased attention paid to those with severe symptomology allows for the continuation of a misconstrued idea of ASD only consisting of behaviors that are extremely disruptive or debilitating (Van Schalkwyk et al., 2014; Young et al., 2018). An unanticipated interaction was found between higher scores on the modern sexism scale and a reported higher likelihood of seeking out disciplinary actions through administration. This relationship was present regardless of the gender of the target child, or the severity of the symptoms described in the vignette; that is, teachers with more traditionally sexist gender beliefs were more likely to think an administrative discipline referral was the appropriate follow up, regardless of the behaviors presented. Specifically opting to choose a higher level of intervention instead of other, less punitive options (e.g., contacting guardians, referring to counseling) could be indicative of more traditional values and authoritarianism in general (Rich,

1977; Arbeau & Coplan, 2007). Further research should investigate the correspondence between a zero-tolerance approach to disruptive behaviors and the level of sexist beliefs of educators.

A few of the results supported the prediction of a child's gender influencing the method of interventions. The gender of the target child was found to be significantly related to likelihood of giving referrals for special education, as well as for diagnostic services. This supports the evidence in favor of a gender bias in teachers' reactions to behaviors, specifically, reacting differently to boys exhibiting the exact same symptomology as girls. While the bias was not directly found in the behavioral attributes, the interventions rates indicate a greater level of perceived disordered behaviors in boys than girls. This finding supports the research centralized on boys being more often flagged for disordered behaviors and receiving intervention services (Dean et al. 2016). So, while the results suggest that teachers were more influenced by severity, this likelihood of referral shows one of the ways that gender impacts perceptions of behaviors and responses to them. Thus, indicating one of the main avenues that serves to skew perceptions of ASD towards a masculine population by way of continually exempting girls from diagnostic or special education evaluations (Milner et al., 2019; Morán et al., 2019; Van Schalkwyk et al., 2014; Young et al., 2018).

Limitations

Our study was not without limitations, including those involving the overall timing of data collection, methods of sample recruitment, and resulting characteristics of the sample. Data collection primarily took place outside of regular school semesters (e.g., in the summer), and thus our access to teachers through their work email and university contacts decreased. In addition, our sample consisted of primarily those who could be directly contacted through the University of Texas at Tyler's College of Education and Psychology's teacher listserv, as well

through the snowball sampling that was conducted on social media by the researchers. Our sample also included a few people ($n = 51$) who had been a teacher but were not currently employed as a teacher. Thus, our results consist of the perceptions of many who may have been out of the teaching profession for some time and are not up to date on policies surrounding classroom behavior management. In addition, we allowed for high school educators to participate in the study as well, which resulted in our sample having less focus on exclusively elementary educators. Overall, the inclusion of the severe symptomology likely skewed our results in a way that violated the homogeneity of variance. Since the level of concern and likelihood of interventions theoretically would be higher for those symptoms as opposed to mild symptoms it would alter the homogeneity of variance. This could have resulted in some results possibly looking as if they are not significant when in fact they are.

Future Directions

It is important for future studies to replicate the methods employed in our study with a larger and more representative sample of teachers. The sample in the present study focused on elementary school educators but included some secondary teacher, and ones that are either currently or previously employed as teachers. So, providing for a sample that consists only of currently employed elementary educators would be optimal to see the beliefs that those currently working in the field. Future research should extend data collection by reaching out directly to the independent school districts in various regions, as opposed to those directly linked to the College of Education and Psychology of the University of Texas at Tyler.

Our results show clearly that the level of symptom severity has a large impact on the treatment of children who possibly need intervention, especially the potential for children with mild and even moderate symptoms to be overlooked. Future research should continue to

examine how awareness among educators might help capture children with lower levels of symptoms into programs that could help their academic and social outcomes.

It would also be interesting to investigate the severity biases in regards to behavioral attributions, specifically with respect to anger issues. This is a finding that should be investigated into because of how the relationship between the student and the teachers can be impacted by negative behavioral perceptions. Overall, examining how the relationship between teachers and students with more disordered behaviors are influenced by negative behavioral perceptions. As well as looking into how these negative biases related to more severe symptomology could be counteracted by a deeper education.

In addition, further research needs to be conducted on how age of the teacher may relate to more sexist belief systems, and if those who are currently employed report more beliefs aligned with sexism or traditional beliefs. This is important to see how the perceptions of the field might be changing as society becomes less overtly sexist and more implicit. Further research should also test the influence of race on the various behavioral attributions, and likelihood of interventions. This is a commonly seen report of teachers being more likely to attribute behavioral problems in people of color to more conduct or oppositional defiant disorder, instead of developmental or learning disorders. So, by examining these implicit racist beliefs we can also further our understanding of how teachers' biases are influencing diagnostic understandings.

Overall, the next steps in the research need to be focused on identifying the differences in phenotypical presentation, and how these variations can be accounted for in diagnostic tests, educator's education, and the public's perception of autism spectrum disorder as a whole. This is

needed to further account for those who do not fit the stereotyped behaviors that are currently the standard for ideas of what ASD looks like.

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Appendix A.

Vignettes

Mild vignette; or level 1: requiring support as defined by DSM: Female

Cindy is a 7-year-old in your class. She does well in class academically, has good grades, and enjoys learning about various subjects, but she has a fascination for various animals and enjoys talking about them more than anything else. She appears to have a good small group of friends, but other children find some of her comments “weird” and will hesitate to interact with her often. She does not offer to speak up much in class, but when called upon she will answer the question she is asked. Although she is neat about some things (like keeping her pencil case neat and organized), she struggles with keeping up with some papers- often finding her assignments crumpled at the bottom of her backpack or strewn around her work area. She insists that you say your good morning phrase- “Good morning, Girls and Boys, today is a great day to learn” every day, and will remind you to say it if you forget and will insist that the substitutes say it as well, refusing to allow class to begin without this phrase said in the exact same way. She also gets frustrated if the class schedule changes without notice, and if the class is running late to lunch, checking her watch and insisting that the class must run to lunch so you all are not late. During lunchtime, you sometimes overhear her conversations, and she seems to talk about various things like animals, her favorite toys, or some tv show she watched the other day. However, sometimes she makes comments to the other children that do not go over well. Thus, resulting in the opposite child tattling on her, and Cindy apologizing but still seeming unsure as to why she needed to apologize.

Mild vignette; or level 1: requiring support as defined by DSM: Male

Jerry is a 7-year-old in your class. He does well in class academically, has good grades, and enjoys learning about various subjects, but he has a fascination for various animals and enjoys talking about them more than anything else. He appears to have a good small group of friends, but other children find some of his comments “weird” and will hesitate to interact with him often. He does not offer to speak up much in class, but when called upon he will answer the question he is asked. Although he is neat about some things (like keeping his pencil case neat and organized), he struggles with keeping up with some papers- often finding his assignments crumpled at the bottom of his backpack or strewn around his work area. He insists that you say your good morning phrase- “Good morning, Girls and Boys, today is a great day to learn” every day, and will remind you to say it if you forget and will insist that the substitutes say it as well. Often refusing to allow class to begin without this phrase said in the exact same way. He also gets frustrated if the class schedule changes without notice, and if the class is running late to lunch, checking his watch and insisting that the class must run to lunch so you all are not late. During lunchtime, you sometimes overhear his conversations, and he seems to talk about various things like animals, his favorite toys, or some tv show he watched the other day. However, sometimes he makes comments to the other children that do not go over well. Thus,

resulting in the opposite child tattling on him, and Jerry apologizing but still seeming unsure as to why he needed to apologize.

Moderate Vignette: Requiring Substantial Support as defined by the DSM: Female

Joanie is a 7-year-old girl in your classroom. She is doing just fine academically (good grades but not great). She appears to struggle with some social and academic tasks. You have noticed that she is often very exaggerated in her gestures and facial expressions, often taking too long to break eye contact, overexaggerated hand and arm gestures, and will display sometimes comical facial expressions when interacting. She will interact with the other children, but mainly when she can talk about her favorite boy band. Joanie will only initiate conversations with others if it is about this band, but does respond to questions when asked directly. She will interact with peers at recess when she is asked to play, but sometimes she enjoys sitting in the classroom reading a book or a magazine about her favorite boy band. She is very enthusiastic about the band and can tell you all about the lives of each band member. You often have to ask her to stop reading once recess is over and she will pout, and sometimes try to keep reading while you are teaching. This behavior specifically has caused some conflict, where you have had to ask her multiple times to pay attention to the lesson. She does eventually follow instructions but the process of asking over and over has become a disruption. During lunchtime, you sometimes overhear her conversations, and she seems to talk about various things like animals, her favorite boy band, or some tv show she watched the other day. However, sometimes she makes comments to the other children that do not go over well, resulting in hurt feelings. When prompted to apologize, Joanie often resists, claiming that she doesn't understand why what she said hurt the other child's feelings and will state that the other child is too sensitive. Joanie also has a habit of tapping her feet three times before walking through doors, and will be very careful to not step on any cracks for fear of her mom's back breaking. Any deviations from these rituals can cause her to become noticeably upset.

Moderate Vignette: Requiring Substantial Support as defined by the DSM: Male

Jimmy is a 7-year-old boy in your classroom. He is doing okay academically, but appears to struggle with some social and academic tasks. You have noticed that often times he is very exaggerated in his gestures and facial expressions, often taking too long to break eye contact, having overexaggerated hand and arm gestures, and will display sometimes comical facial expressions when interacting. He will interact with the other children, but mainly when he can talk about his favorite boy band member. Jimmy often times will only start conversations with others if it is about this boy, but when asked directly he will respond to any questions you ask him. He will interact with others at recess, but sometimes he enjoys sitting in the classroom reading a book or a magazine about his favorite boy band member. He is very enthusiastic about him and can tell you all about his life and how he got famous. Often times you will have to ask him to stop reading once recess is over and he will pout, and sometimes try to keep reading while you are teaching. This resulting in a bit of a tiff where you have to ask him multiple times to pay

attention to the lesson, but eventually he will listen and put things away. During lunchtime, you sometimes overhear his conversations, and he seems to talk about various things like animals, his favorite boy band, or some tv show he watched the other day. However, sometimes he makes comments to the other children that do not go over well. Thus, resulting in the opposite child tattling on her, and Jimmy at first resisting apologizing but eventually giving in and saying sorry. He will claim that she doesn't understand why what he said hurt the other child's feelings and will state that the other child is too sensitive. Jimmy also has a certain superstition about walking through doors, and will be very careful to not step on any cracks for fear of his mom's back breaking. Resulting in him taking extra time when walking from place to place in order to avoid this experience. Thus, if he steps on one will be notably upset and concerned about his mother, and requires soothing to calm back down.

Severe Vignette: Level 3 Requiring Very Substantial Support as defined by the DSM: Female

Amy is a 7-year-old girl in your class. She struggles with a lot of different tasks in class, including social tasks and academic tasks. You have noticed that she does not really interact with the other children in the classroom, often avoiding eye contact and does not initiate conversations unless she is asking you to go to the bathroom, or saying she wants his afternoon snack. She has a hard time communicating with others in general, often repeating quotes from her favorite movies instead of responding appropriately in the conversation. When children in the class are making a lot of noise, she becomes upset and will yell at the other children to shut up. She is also particularly sensitive to being touched by others, and by the lighting in the classroom. Amy appears to prefer being on her own more than interacting with others. She has an intense and rigid interest in reading about and playing with her toy Lego man that she takes with everywhere with her. She carries it in her pocket and will often ignore school work to play with his toy. If she is asked to put it away, she will become extremely upset and will have to be removed from the classroom in order to collect herself. This causes issues because she will opt to play with her Lego man even after repeatedly being told to put it away and focus on her school work. She struggles the most with switching between tasks and topics, often causing a disturbance for the other children because she does not want to talk about writing- instead she wants to keep working on her math. She tends to panic if his mother is ever late for pick up and will often become physically anxious if she is not there at the exact time that she gave her that morning. This leads to great distress and requires either yourself or a fellow team member to attempt to calm her down while being mindful that she hates to be touched and responds poorly to any raised voice.

Severe Vignette: Level 3 Requiring Very Substantial Support as defined by the DSM: Male

Jeremy is a 7-year-old boy in your class. He struggles with a lot of different tasks in class, including social tasks and academic tasks. You have noticed that he does not really interact with the other children in the classroom, often avoiding eye contact and does not initiate conversations unless he is asking you to go to the bathroom, or saying he wants his afternoon snack. He has a hard time communicating with others in general, often repeating quotes from his favorite movies instead of responding appropriately in the conversation. When children in the class are making a lot of noise, he becomes upset and will yell at the other children to shut up. He is also particularly sensitive to being touched by others, and by the lighting in the classroom. Jeremy appears to prefer being on his own more than interacting with others. He has an intense and rigid interest in reading about and playing with his toy Lego man that he takes with him

everywhere. He carries it in his pocket and will often ignore school work to play with his toy. If he is asked to put it away, he will become extremely upset and will have to be removed from the classroom in order to collect himself. This causes issues because he will opt to play with his Lego man even after repeatedly being told to put it away and focus on his school work. He struggles most with switching between tasks and topics, often causing a disturbance for the other children because he does not want to talk about writing- instead he wants to keep working on his math. He tends to panic if his mother is ever late for pick up and will often become physically anxious if she is not there at the exact time that she gave him that morning. This leads to great distress and requires either yourself or a fellow team member to attempt to calm him down while being mindful that he hates to be touched and responds poorly to any raised voice.

Appendix B. Survey Items

Demographics

- 1) Are you a teacher?
 - a. Yes-I am currently a teacher, No-I have never been a teacher, Not currently but I have been in the past
- 2) What is your (gender identity or sex?)
 - a. Male, female, nonbinary?
- 3) What is your age?
- 4) What is the race or ethnicity do you identify with?
 - a. Native American (Chickasaw, The Seminole, Blackfoot, Navajo, Sioux, Apache, Cherokee, Cheyenne, etc.)
 - b. Asian (Chinese, Filipino, Asian Indian, Vietnamese, Korean, Japanese etc.)
 - c. Black or African American (African American, Jamaican, Haitian, Nigerian, Somalian, Ethiopian)
 - d. Hispanic, Latino, or Spanish Origin (Mexican, Mexican American, Puerto Rican, Cuban, Salvadorian, Dominican, Colombian)
 - e. Middle Eastern or north African (Lebanese, Iranian, Egyptian, Syrian, Moroccan, Algerian, ECT)
 - f. Native Hawaiian or other pacific islander (Native Hawaiian, Samoan, Chamorro, Tongan, Fijian, Marshallese, etc.)
 - g. White (German, Irish, English, Italian, Polish, French, etc.)
 - h. Multiple races and or ethnicities
 - i. Another race or ethnicity not listed above please specify
- 5) How many years have you been teaching?
- 6) What subject do you teach?
 - a. Social Studies, Foreign Language, Math, Special Education, Physical Education, English, Arts, Science
- 7) What grade level(s) do(did) you teach (select all that apply)?
 - a. K, 1, 2,3,4, 5, 6,7,8,9,10, 11,12
- 8) What is your experience with special education?
 - a. Course work in undergrad
 - b. Special education certificate
 - c. I have had only hands-on training through classroom experience
 - d. I have had no training in special education

Behavior Severity

On a scale of 1-5, how concerned are you about this child's behaviors?

1 2 3 4 5

How likely is their behavior influenced by parental influence?

12345

How likely is their behavior influenced by personality of the child?

12345

How likely is their behaviors influenced by peer provocation?

12345

How likely is their behaviors influenced by anger issues?

12345

How likely is this behavior influenced by a defiant disorder?

12345

How likely is their behavior influenced by a learning disability?

12345

Rate your likelihood of seeking out follow up by contacting guardians

12345

Rate your likelihood of seeking out follow up by seeking disciplinary measures through administration

12345

Rate your likelihood of seeking out a school counseling referral

12345

Rate your likelihood of seeking out special education department or diagnostic referral?

12345

Rate your likelihood of observing behavior and just keeping an eye on the behaviors as opposed to referring to other departments

12345

Modern Sexism Scale

Old fashion sexism

1. Women are generally not as smart as men.*1'
1-5 , 5 being the lowest agreement level
2. I would be equally comfortable having a woman as a boss as a man.
1-5, 5 being the highest agreement level
3. It is more important to encourage boys than to encourage girls to participate in athletics.*
1-5 , 5 being the lowest agreement level
4. Women are just as capable of thinking logically as men.
1-5, 5 being the lowest agreement level

5. When both parents are employed and their child gets sick at school, the school should call the mother rather than the father.*

1-5, 5 being the lowest agreement level

Modern Sexism

Denial of continuing discrimination

1. Discrimination against women is no longer a problem in the United States. 1-5, 5 being the highest agreement level

2. Women often miss out on good jobs due to sexual discrimination. 1-5, 5 being the highest agreement level

3. It is rare to see women treated in a sexist manner on television.* 1-5, 5 being the lowest agreement level

4. On average, people in our society treat husbands and wives equally.* 1-5, 5 being the lowest agreement level

5. Society has reached the point where women and men have equal opportunities for achievement.* 1-5, 5 being the lowest level of agreement

Antagonism towards women's demands

6. It is easy to understand the anger of women's groups in America." 1-5, 5 being the highest level of agreement

7. It is easy to understand why women's groups are still concerned about societal limitations of women's opportunities. 1-5, 5 being the highest level of agreement

Resentment about special favors for women

8. Over the past few years, the government and news media have been showing more concern about the treatment of women than is warranted by women's actual experiences.* 1-5, 5 being the lowest level of agreement

Table 1

Characteristics of the sample.

Sample Descriptives

	Age	Teacher	YearsExp	Gender	SPEDtraining
N	137	144	137	139	138
Missing	7	0	7	5	6
Mean	43.8	1.71	15.2	1.80	2.51
Median	44	1.00	14	2	3.00
Standard deviation	12.6	0.960	10.2	0.437	0.839
Minimum	22	1	1	1	1
Maximum	78	3	40	3	4