2018

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Jurors' Perceptions of Child Witnesses with Autism Spectrum Disorder

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Thesis submitted
to the Eberly College of Arts and Sciences
at West Virginia University

in partial fulfillment of the requirements for the degree of

Master of Science in
Psychology

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Morgantown, West Virginia
2018

Keywords: autism spectrum disorder, jurors' perceptions, children, eyewitnesses

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ABSTRACT

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Victoria DiSciullo

The purpose of the current study is to examine the effects of child witnesses with autism spectrum disorder on jurors' perceptions. Participants were randomly assigned to one of five experimental conditions displaying scenarios varying the characteristics (autism spectrum disorder, intellectual disability, and typically developing) of a 6-year-old female child who alleged sexual maltreatment. Participants were asked to provide a series of ratings regarding the child's credibility, "accuracy, suggestibility, and ability to testify based on facts" (Orcutt et al., 2001, p. 346; see also Thomas & Krackow, 2016), as well as defendant guilt (Tessier & Krackow, 2013). Overall, the data suggest that children depicted as having some form of autism spectrum disorder were rated as less credible witnesses, less accurate in their testimony, more suggestible, and less likely to provide testimony based on fact. The defendants were rated as less guilty in the autism spectrum disorder conditions than when children were depicted as typically developing.

Key words: autism spectrum disorder, jurors' perceptions, children, eyewitnesses

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Jurors' Perceptions of Child Witnesses with Autism Spectrum Disorder

There is no current research on jurors' perceptions of child witnesses with autism spectrum disorder, other than one in progress study (Krackow, 2017). Autism spectrum disorder is a developmental disorder and can be comorbid with intellectual disability (American Psychiatric Association, 2013). Jurors' perceptions studies have been conducted regarding intellectual disability with inconsistent findings (Bottoms, Nysse-Carris, Harris, & Tyda, 2003; Najdowski & Bottoms, 2015). One of these studies found that child victims with an intellectual disability compared to those without intellectual disability were rated by jurors as more believable and more credible, and the defendant was rated as being more likely to be guilty (Bottoms, Nysse-Carris, Harris, & Tyda, 2003). A different study of intellectual disability did not find the aforementioned differences in jurors' perceptions of an intellectually disabled child witness (Najdowski & Bottoms, 2015).

Jurors' Perceptions

Existing research that has been shown to influence a jury deliberation outcome involving a child witness will now be reviewed. This research will include: characteristics of the child witness, characteristics of the interview with the child witness, characteristics of the defendant, and characteristics of the jurors.

Characteristics of the Child Witness

Age. The majority of the age findings for child eyewitnesses affected jurors in an unexpected way. A series of studies by Bottoms and Goodman (1994) looked into the victim age characteristic and asked the question of whether participant gender and victim age affect jurors' perceptions in sexual assault cases. In Experiment 1, participants ($N = 121$) were introductory psychology students who were required to read a scenario about sexual assault and following

that, filled out rating scales of defendant guilt, degree of confidence in juror's guilt judgments, and credibility of all presented witnesses. Younger victims of sexual assault (age 6) were rated as more credible than adult victims (age 22). The defendant was rated as less credible when the victim was a 6-year-old child than when the victim was age 22. The defendant was rated as less guilty when the victim was age 22 than when the victim was age 6. Younger children may have been viewed as not having knowledge about sex, leading jurors to believe that younger victims were more reliable witnesses, as they are less able to fabricate stories on the topic of sexual abuse (Bottoms & Goodman, 1994).

Jurors tended to favor the testimony of a younger child witness and find them overall more believable, credible, honest, and trustworthy than children of an older age (Buck, Warren, & Brigham, 2004; Holcomb & Jacquin, 2007; Ross, Dunning, Toggia, & Ceci, 1990; Ruva & Bryant, 2004; Schmidt & Brigham, 1996). It appears as though the naiveté associated with being so young can be an advantage for these young witnesses in sexual assault cases, whereas jurors are more likely to believe that an older child is more capable of making the story up (Bottoms & Goodman, 1994). One study by Goodman et al. (1998) found that overall jurors were more likely to rate the defendant guilty when the child was older. Jurors were also more likely to perceive older children as more believable and accurate than younger children (Goodman et al., 1998). This was the opposite finding from the previous studies researching age (Buck, Warren, & Brigham, 2004; Holcomb & Jacquin, 2007; Ross, Dunning, Toggia, & Ceci, 1990; Ruva & Bryant, 2004; Schmidt & Brigham, 1996). Nikonova and Ogloff (2005) found that when the witness was 7 years old, judicial warning regarding the dangers in convicting based upon child testimony, did not affect guilty verdicts, but when the witness was 10 years old, judicial warning led to fewer guilty verdicts (Nikonova & Ogloff, 2005).

Emotion. In addition to age, many researchers have found characteristics such as emotionality to be a factor impacting jurors in a sexual abuse case. One study by Golding, Fryman, Marsil, and Yozwiak (2003) examined the impact of emotional displays in children on jurors, such as whether the child was teary, hysterical, or calm. Participants ($N = 150$) were undergraduate students who read a summary of a trial that included the witness's crying behaviors. Jurors also looked at pencil drawings of the courtroom depicting the witness and the witness's emotional affect (i.e., whether the child was teary, hysterical, or calm). Participants also responded to a series of questions regarding their guilt ratings of the defendant, believability of the witnesses, and their recommended sentencing for the defendant. A teary or hysterical witness led to fewer guilty verdicts than when the child did not cry. Overall, female jurors voted guilty more often than male jurors. There was no significant interaction between child witness emotion and juror gender. Jurors rated the defendant guilty more often when the child witness was teary rather than calm or hysterical. The child victim was also more likely to be believed when they were teary, rather than calm or hysterical (Golding, Fryman, Marsil, & Yozwiak, 2003).

A study by Cooper, Quas, and Cleveland (2014) not only studied the demeanor of the child but examined whether the child victim's age, gender, and emotional expression affected jurors' perceptions. Participants ($N = 575$) were both undergraduate students and jurors who had been released from jury duty recently. Participants read a trial scenario and testimony transcript regarding a child sexual abuse case. Along with each of these transcripts jurors were presented with 8 drawings of a child, depicting a sad or neutral affect. After reading the materials, participants completed a post-trial questionnaire regarding their perceptions of both defendant and child witness and their decisions on defendant guilt. When the child victim was portrayed as crying, participants rated the child as more emotional than when presented with an image of the

calm child. The participants who perceived the child as highly emotional found the defendant guilty more often than the participants who perceived the child as expressing low levels of emotion. The child who was perceived as highly emotional was rated by jurors as more credible than the child who was perceived as expressing low levels of emotion. If the child was rated as highly emotional, participants found the defendant less credible than if the child was perceived to be expressing low levels of emotion (Cooper, Quas, & Cleveland, 2014). See also Regan and Baker, 1998 for congruent findings.

In summary, emotion has been related to juror verdict and perceptions of the child witness. Golding, Fryman, Marsil, and Yozwiak (2003) and Cooper, Quas, and Cleveland (2014) both found that if the child witness is teary, the guilt verdicts of the defendant are strongest and the victim is perceived most positively.

Communication Style. A series of studies by Schmidt and Brigham (1996) asked the question of jurors' perceptions of child witness credibility based upon her age, her demeanor, and questioning methods of the attorney. In the first experiment, participants evaluated the child witness and then deliberated with a 4-person jury to reach a verdict. Participants ($N = 480$) were undergraduate introductory to psychology students who watched a videotaped trial with different conditions based upon powerful (eye contact, confident speech, and good posture) versus powerless (lack of eye contact, hesitancy, and fidgeting) communication style, leading versus non-leading attorney questioning, and child age. After watching the video, participants completed a predeliberation questionnaire assessing child witness's believability, truthfulness, suggestibility, degree of harm, intelligence, self-confidence, responsibility for initiation, self-assurance, and quality of memory. At the end of the questionnaire, jurors rated the defendant's guilt and if they perceived the attorney's questioning as "leading." Participants then met in a 4-

person jury and afterwards were given a postdeliberation questionnaire asking for the juror's feelings of whether they felt that their decision was the best possible and what they believed about the guilt of the defendant. Participants belonging to juries that rated the defendant as guilty felt better about that decision than participants belonging to juries that did not find the defendant guilty. When the witness was using the more powerful communication style, she was found to be more accurate and intelligent by jurors and was also found as having less harm due to the incident. Witnesses using the powerful communication style were perceived as more credible by the jurors than witnesses using the powerless communication style. The strategy of the attorney's questions did not affect child witness ratings by jurors (Schmidt & Brigham, 1996).

The second experiment was conducted to assess perceptions of the defendant that were not asked in Experiment 1. Participants ($N = 207$) watched a trial video and directly after, responded to a questionnaire regarding child witness' personality, appearance, and behavior; the interaction between the witness and the attorney; and perceptions of the defendant. In this experiment the jurors did not deliberate. The defendant was rated guilty more often if the witness was perceived as highly accurate, truthful, and physically attractive. When the witness was portrayed as being 10-years-old and having powerful communication, the jurors rated the defendant as least physically attractive. When the witness was portrayed as being 15-years-old and was presented leading questions, jurors rated the defendant as more believable than other conditions. Women rated the witness as more physically attractive and more truthful than men. Male jurors perceived that the defendant was more physically attractive and more believable than female jurors (Schmidt & Brigham, 1996).

In summary, jurors rated children as more credible when the children used a communication style that was powerful and acted as though they were in control (Schmidt &

Brigham, 1996). Schmit and Brigham (1996) also found that the child witness' appearance, personality, and behavior affect how the jury portrays the defendant in the case.

Race. A series of studies by Bottoms, Davis, and Epstein (2004) examined whether victim and defendant race affected jurors' perceptions of child sexual assault. Experiment 1 found that the younger victim (age 12) yielded more guilty ratings than the older victim (age 16); however, this only occurred when the juror was a woman. Men rated a lower degree of guilt than women did. The jurors rated the White victim as less responsible for the abuse than Black or Hispanic victims. Same-race jurors found the defendant less credible and rated them as more guilty than jurors that were a different race than the victim (Bottoms, Davis, & Epstein, 2004). Experiment 2 found that the defendant was rated with a higher degree of guilt when the defendant and victim were the same race. When the defendant was white, jurors rated the victim as more credible. The defendant was also rated as more responsible when the victim was white than when the victim was black. Jurors rated the defendants as more guilty when defendants were the same race as the victim (Bottoms, Davis, & Epstein, 2004). Experiment 3 found that participants rated the incidence of intraracial offenses the highest and interracial offenses the lowest. Participants also found the white defendant, white victim to be the most likely racial composition for child sexual assault cases (Bottoms, Davis, & Epstein, 2004).

Intellectual Abilities

Intellectual abilities can affect jurors' beliefs about a case and the victim of the case specifically. A study by Bottoms, Nysse-Carris, Harris, and Tyda (2003) asked the question as to whether intellectual disability affects jurors' perceptions of victim credibility in a teenage sexual assault case with and without intellectual disabilities (i.e., average intelligence). Participants ($N = 160$) were undergraduate psychology students who were asked to read a case summary, watch

videos of the testimony of a teenager who had been allegedly sexually abused by her father. After reviewing juror instructions for the state of Illinois, participants provided defendant guilt ratings, verdict decisions, and ratings of victim credibility and believability. Participants also filled out a questionnaire regarding their perceptions of persons with intellectual deficiency. Jurors were more likely to find the defendant guilty and to find the victim to be more believable when the victim was intellectually disabled. Disability status did not significantly predict verdicts, but did however predict victim credibility. Female jurors were more likely than male jurors to find the defendant guilty, find the victim more honest, less suggestible, less likely to have fabricated the charge, and more credible if the victim was portrayed as having an intellectual disability than if the victim was of average intelligence. Women were more likely than men to have liberal views toward someone with intellectual disability ("feel that people with disabilities are similar to others in society;" p. 209) and individuals with a liberal attitude were likely to assign higher ratings of guilt to the defendant and higher credibility ratings to the victim (Bottoms, Nysse-Carris, Harris, & Tyda, 2003).

A study by Najdowski and Bottoms (2015) further researched how intellectual disability influenced jurors' perceptions and if those perceptions are influenced by attitudes of the jurors' about intellectual disability. Participants ($N = 45$) were undergraduate students who were provided information about a trial, including pieces of videos from a past trial. Jurors were also given a series of measures to assess their overall attitudes toward intellectual disabilities and establish their verdict of the case. Participants in the study rated intellectually disabled individuals similar to those in the general population based on life goals and human rights, and did not think that they should be segregated from the community. Attitudes toward disabled individuals did not influence guilt, verdicts, or recommendations from jurors in the trial. Men

were more likely than women to believe that the intellectually disabled defendant be sentenced in adult court rather than juvenile court (Najdowski & Bottoms, 2015).

In summary, findings of the research on jurors' perceptions of intellectual disability has varied. In one study, jurors were more likely to find the defendant guilty and to find the victim to be more believable when the victim was intellectually disabled (Bottoms, Nysse-Carris, Harris, & Tyda, 2003). In another study, attitudes toward disabled individuals did not influence guilt, verdicts, or recommendations from jurors in the trial (Najdowski & Bottoms, 2015).

Other Jurors' Perception Studies

Although the following studies are not directly relevant to the current study, they have been included in summary to allow the student to gain a thorough understanding of the previous research in the area of jurors' perceptions. Interviewing characteristics, use of closed-circuit television, characteristics of the defendant, and characteristics of the jurors can all play a role in the ratings of a child and defendant in a case.

Witnesses perceived as speaking in a powerful way have been rated as more credible than those perceived as speaking in a powerless way (Ruva & Bryant, 2004). Children testifying in court have led to jurors rating the child as more credible overall than if an outside witness, such as a social worker, were to testify in their place (Goodman et al., 2006). Hearsay witnesses have led to more guilty verdicts than expert witness testimony alone (Golding, Alexander, & Stewart, 1999). Jurors have rated the defendant guilty more often when the child interviewed was interviewed using open-ended questions and interviewed in a less leading format (Buck, Warren, & Brigham, 2004). Jurors have found the child to be less credible if the interview used was leading as opposed to nonleading (Castelli, Goodman, & Ghatti, 2005; Kalra & Heath, 1997). Female jurors who have watched closed-circuit television testimony have judged this

method to be a more fair method of testifying for the child than women watching a child testifying in open court (Goodman et al., 1998). However, jurors also rated children that testified in open court as more accurate, more honest, more intelligent, and less likely to be lying than children that testified through closed-circuit television (Orcutt, Goodman, Tobey, Batterman-Faunce, & Thomas 2001). If a trial consisted of a witness in addition to the victim of child sexual abuse, jurors were more likely to find the defendant guilty than without a witness and this additional witness increased the pro-victim judgments of males to the same level as females (Golding, Lynch, Wasarhaley, & Keller, 2015). Testimony including a sexual assault nurse examiner has led to more positively rated perceptions of the victim, as well as jurors' perceptions of the prosecution's overall case being seen as stronger (Golding, Wasarhaley, Lynch, Lippert, & Magyarics, 2015). If a case had a witness who was not the victim of the crime himself or herself, but witnessed someone else being victimized, jurors have found the defendant more guilty than if the witness was a victim (Holcomb & Jacquin, 2007).

The characteristics of the defendant can have an effect on the jurors and the verdicts those jurors decide upon in the case. Jurors were more likely to recommend that a case be tried in juvenile court than adult court when the juvenile had an intellectual disability and more likely to recommend probation or psychological treatment than prison when the juvenile had an intellectual disability (Najdowski & Bottoms, 2012). Jurors were more likely to believe child abuse to be a mitigating factor (circumstance that may lead to a lesser charge) than an aggravating factor (circumstance leading to an increase in severity of the criminal act; Stevenson, Bottoms, & Diamond, 2010). Jurors' rated the victims of homosexual defendants as more credible than those of heterosexual defendants crime (Wiley & Bottoms, 2009). Homosexual defendants had a higher likelihood of being convicted, being found less credible, having a higher

degree of guilt, and were credited with more responsibility for the crime (Wiley & Bottoms, 2009).

The characteristics of the mock jurors themselves can impact the decision of the jury as a whole. Jurors who were asked to imagine what it would be like to be the defendant, were less likely to find the defendant guilty, thought the defendant was less responsible for the crime, and were more likely to believe the sexual abuse to be a factor than those in the control condition (Haegerich & Bottoms, 2000). Women were shown to endorse a higher degree of guilt, perceive children as more believable, were more empathic towards children, and were more opposed to adult sexual behaviors towards youths than were men (Bottoms et al., 2014). Women were more likely than men to switch their vote in general from their initial individual vote to their final vote after deliberating with other jurors (Golding, Bradshaw, Dunlap, & Hodell, 2007).

Autism Spectrum Disorder

Autism has been reconceptualized from separate disorders (formerly autistic disorder, Asperger's disorder, and pervasive developmental disorder, not otherwise specified) to 1 disorder and is now termed autism spectrum disorder (American Psychiatric Association, 1994; American Psychiatric Association, 2013). The studies described herein may use broader or more specific conceptualizations of the disorder, deviating from the specific criteria in the DSM-V. Children with autism spectrum disorder exhibit some differences from typically developing children that may potentially affect jurors' perceptions when they are witnesses in a child sexual abuse case. The diagnostic and statistical manual (5th edition) states the following major categories of autism spectrum disorder symptoms: difficulties in social communication and interaction; restrictive and repetitive patterns of behaviors, activities, and interests; and symptoms present in early development. Children with autism spectrum disorder may differ in

their range of interests (Joseph, Thurm, Farmer, & Shumway, 2013), may experience differences in problem solving abilities (Alderson-Day, 2014), may experience attention problems (Mayes, Calhoun, Mayes, & Molitoris, 2012), and may exhibit more tantrums than a typically developing child (Konst, Matson, & Turygin, 2013). Children with autism spectrum disorder may also have communication deficits such as pronoun reversal (American Psychological Association, 2013) and problems engaging in reciprocal communication (Paul, Orlovski, Marcinko, & Volkmar, 2009). Children with autism spectrum disorder may exhibit differences in behaviors from typically developing children such as, repetitive behaviors (Szatmari et. al., 2006) and hyper-reactivity to sensory behaviors (Green, Chandler, Charman, Simonoff, & Baird, 2016). Children with autism spectrum disorder may experience social deficits such as a lack of interest in social relationships (Kuo, Orsmond, Cohn, & Coster, 2011) and the inability to recognize facial emotion (Trevisan & Birmingham, 2016). A portion of the research demonstrating that children with autism spectrum disorder exhibit these characteristics will now be reviewed.

Developmental Characteristics. Estes et al. (2015) found differences developmentally between infants at high risk for autism spectrum disorder and infants at low risk for autism spectrum disorder in their developmental and behavioral characteristics. Children were followed from age 6 months through 24 months (Estes et al., 2015). Children diagnosed with autism spectrum disorder need to exhibit these symptoms prior to age three (American Psychiatric Association, 2013). Therefore, this study is imperative to the development of a child with autism spectrum disorder despite the child in the current study being six years old. More boys than girls were considered to be at high risk (having a sibling that met criteria for autism spectrum disorder) for autism spectrum disorder regardless of the severity of the presenting symptoms. Children with the most severe symptoms of autism spectrum disorder had lower visual perceptual ability and

gross motor skills at 6 months, lower cognitive ability, communication, and receptive language scores at 12 months. These deficits remained at 24 months along with lower adaptive behavior ratings. Furthermore, these at risk children's abilities decreased across age compared to normed measures of typically developing children (Estes et al., 2015).

Eaves, Ho, and Eaves (1994) found developmental differences between children with autism spectrum disorder and typically developing children. Children in their sample that were autistic and were moderately to severely mentally handicapped showed later than average walking and toilet training. These children were almost all nonverbal, had a mean IQ of 27-32, had no imitation, were rarely distressed by change, were unaware of others, and had sensory preoccupation. Children that were autistic and mildly mentally handicapped were passive, had abnormal nonverbal communication and language, were not distressed over change, had problems carrying a conversation, had a mean verbal IQ of 60, and had a mean performance IQ of 70. The highest functioning group of children sought comfort, had imitation, had restricted interests, had verbal and performance IQs between 72 and 74, and were rated by parents as impulsive, hyperactive, and defiant (Eaves, Ho, & Eaves, 1994).

Attention Problems. A study by Mayes, Calhoun, Mayes, and Molitoris (2012) found that there may be a relation between autism spectrum disorder and attention deficit hyperactivity disorder. The Checklist for Autism Spectrum Disorder was used to determine 30 different autism symptoms. Children with autism spectrum disorder scored very high on symptomology of The Checklist for Autism Spectrum Disorder, but children with only attention deficit hyperactivity disorder exhibited very minimal symptoms on The Checklist for Autism Spectrum Disorder. However, when looking at attention deficit hyperactivity disorder symptoms on the Pediatric Behavior Scale, children with low functioning autism spectrum disorder and children with high

functioning autism spectrum disorder did not differ from children with only attention deficit hyperactivity disorder-combined type (rated by parents as having high symptomology of impulsivity or hyperactivity), suggesting that children with autism spectrum disorder may exhibit some symptoms of attention deficit hyperactivity disorder quite often (Mayes, Calhoun, Mayes, & Molitoris, 2012). Therefore, the child depicted as having autism spectrum disorder in the current study is described as exhibiting attention problems.

Social Relationships. Children with autism spectrum disorder have shown differences from typically developing children in their interest in social relationships in the form of their friendships. Foggo and Webster (2017) conducted a study to examine the perceptions of adolescent girls with autism spectrum disorder regarding their peer relationships. These adolescents answered a series of questions regarding their social interactions. Adolescent girls with autism spectrum disorder found it important to have friends, although found that their peers had dissimilar interests to them. These adolescents also endorsed having difficulties dealing with disagreements with their peers and knowing how to react in these difficult social situations. Adolescents also endorsed that they needed time alone and wanted to be by themselves when asked if they had preferred to be on their own or with friends (Foggo & Webster, 2017).

Many children with autism spectrum disorder reported having friends who were younger than them and some friends who had a disability (Kuo, Orsmond, & Coster, 2013). Adolescents with an autism spectrum disorder diagnosis, who were older, reported having fewer friends than those who were younger. Adolescents with autism spectrum disorder who disagreed with their parents on who their friends were had more severe autism spectrum disorder symptoms, while those who agreed with some or one of the friends their parents reported had less severe autism spectrum disorder symptoms (Kuo, Orsmond, & Coster, 2013).

Reciprocal Conversation. A study by Paul, Orlovski, Marcinko, and Volkmar (2009) found that children with autism spectrum disorder differed from typically developing children most in areas of conversation such as reciprocation of conversational topics, reciprocal interactions with other people, and responding to cues from a conversational partner. They found these results through the use of the Pragmatic Rating Scale which identifies irregularities related to autism spectrum disorder, specifically conversations (Paul, Orlovski, Marcinko, & Volkmar, 2009).

Language. Bavin et al. (2014) researched eye-tracking with children with autism spectrum disorder versus typically developing children. The purpose of this study was to determine the language processing ability of children with autism spectrum disorder and children who were typically developing. This eye-tracking task determined the amount that the child looked at a targeted stimulus, a competitor item, and distractor items when prompted. The child was asked to find a specific item (target) on the screen and then their eye movements were recorded to determine whether the child understood the experimenter's instructions. The typically developing group of children looked at the target more often than the children in the autism spectrum disorder high symptom severity group. The higher children scored on the Social Communication Questionnaire on autistic behaviors, the less children looked at the target. Children that were typically developing were more likely than children with autism spectrum disorder with high severity to have looked at the target at least once in the interval time period. Therefore, the processing of language may impact children with autism spectrum disorder dependent on the severity of their symptoms (Bavin et al., 2014).

Emotion. Within emotion, Dawson et al. (2004) examined children with autism disorder's reactions to the distress of another person, as well as social orienting and joint attention. Children with autism spectrum disorder were less likely to orient to calling the participant child's name,

humming, beeping of a timer, a ringing phone, snapping fingers, a whistle, patting hands, and a car horn than children with typical and delayed development. Children with autism spectrum disorder were less likely to initiate joint attention (sharing attention, directing someone else's attention, and following someone else's attention) and to respond to attempts to engage them in joint attention than children with typical development and non-autism spectrum disorder children with delayed development. When the examiner expressed distress, children with autism spectrum disorder looked at the examiner less than children with typical development and developmentally delayed children without autism spectrum disorder. Children with autism spectrum disorder also showed less concern surrounding the examiner in distress than typically developing children (Dawson et al., 2004).

The reaction of children with autism spectrum disorder to emotion both within themselves and others' emotions is suggestive of the disorder. Ben-Itzhak, Abutbul, Bela, Shai, and Zachor (2016) found that perception of emotions between children with autism spectrum disorder and children that were typically developing differed. Children were assessed using The Autism Diagnostic Observation Schedule Module 3 questions (Lord, Rutter, DiLavore, & Risi, 1999), which ask about events and objects that bring about emotion. Children with autism spectrum disorder provided fewer responses consistent with the displayed emotion than children that were typically developing. Children with autism spectrum disorder made statements consistent with categories such as 'non-social situations' and 'objects/animals' often and did not use categories such as 'self-awareness' and 'social situations' as often whereas, the typically developing children had significantly more statements regarding 'social situations' and 'self-awareness' (Ben-Itzhak, Abutbul, Bela, Shai, & Zachor, 2016).

A study on facial recognition by Trevisan and Birmingham (2016) looked specifically at facial emotion recognition. Facial emotion recognition was found to be positively correlated with adaptive functioning. There was a negative correlation between facial emotion recognition and autism spectrum disorder such that lower facial emotion recognition abilities were associated with higher severity of autism spectrum disorder symptoms. The relationship between facial emotion recognition and Theory of Mind was the strongest of all categories, with a positive correlation, which may be due to the methods of performance-based tasks in this study, assessing the emotions of others. Facial emotion recognition and verbal intelligence had a significant positive correlation; this may be due to verbal ability aiding participants in labeling an emotion. There was a relationship between facial emotion recognition and nonverbal intelligence, such that a child's performance on a facial emotion recognition task may be dependent on spatial reasoning, which is an important component in nonverbal intelligence. This study showed a potential association between facial emotion recognition and everyday social functioning and provided support for a contribution to a deficiency socially in autism spectrum disorder (Trevisan & Birmingham, 2016).

Sensory Behaviors. The presence of sensory behaviors have also been studied and have been found to be different between typically developing children and children with autism spectrum disorder. Szatmari et. al. (2006) looked at the presence of repetitive sensory and motor behaviors in environment and routine, and insistence on sameness in children with different forms of autism. Repetitive sensory and motor behaviors were higher in individuals with autism than those with Asperger or atypical and were also higher when the child was more developmentally delayed (Szatmari et. al., 2006).

Children with autism spectrum disorders tend to show a limited range of interests. Joseph, Thurm, Farmer, and Shumway (2013) examined restricted and repetitive behaviors in autism spectrum disorder. Using a self-report measure for parents to rate their children's repetitive behaviors, both children with autism spectrum disorder and children with PDD-NOS (which are considered to be on the autism spectrum) were rated significantly higher than developmentally delayed children on restricted interests and compulsive behavior. Overall, children with autism spectrum disorder exhibited significantly more restricted and repetitive behaviors than typically developing children and these behaviors appear to be stable over time (Joseph, Thurm, Farmer, & Shumway, 2013). Kuo, Orsmond, Cohn, and Coster (2011) also found a potential restricted interest in children with autism spectrum disorder. For example, a large percentage of the time (50%) children with autism spectrum disorder spent time with friends playing video games (Kuo, Orsmond, Cohn, & Coster, 2011).

Bellesi, Jameel, Vyas, Crawford, and Channon (2016) compared university students with autism spectrum disorder and university students without autism spectrum disorder on the social strategies they would employ in a social situation. In the first part of the task, participants stated what they would say to a character asking them an awkward question. In this part of the task, participants with autism spectrum disorder used less sophisticated strategies denoting consideration for the participant and characters' perspective than control participants. Participants with autism spectrum disorder were also less likely to show positive emotional tone than control participants. The second part of the task was having the participants rank six response strategies for appropriateness. Participants with autism spectrum disorder ranked appropriate strategies as the most skilled way to deal with the situation; however, they were

much less likely than the control participants to use them when applying them to an actual social situation (Bellesi, Jameel, Vyas, Crawford, & Channon, 2016).

Stewart et al. (2016) also looked at the presence of sensory behaviors in children with autism spectrum disorder. Children participated in a computer task in which they responded as quickly as possible when presented with sensory stimuli (i.e., they saw a dot, heard a noise, or saw and heard stimuli at the same time). Within the group of children with autism spectrum disorder, the children with autistic disorder had longer reaction times for auditory stimuli than children with Asperger's disorder (higher functioning autism disorder, including deficiencies in social and communication skills). More auditory stimuli responses were made as well as response omissions occurred in children with autism spectrum disorder than children that were typically developing. Only marginally reduced accuracy was found in children with autism spectrum disorder (Stewart et al., 2016).

Green, Chandler, Charman, Simonoff, and Baird (2016) looked further into the sensory behaviors of children with autism spectrum disorder and found a discrepancy in the type of sensory behaviors demonstrated between children with autism spectrum disorder and children with special educational needs. Children with autism spectrum disorder had more hyper-reactivity to the sensory environment than the children with special educational needs for visual, auditory, taste, tactile, and smell sensitivity. Children with autism spectrum disorder also had more oversensitivity to noise than children with special educational needs. IQ was not significantly related to sensory behaviors, but severity of autism spectrum disorder was (Green, Chandler, Charman, Simonoff, & Baird, 2016).

Tantrum Behaviors. Konst, Matson, and Turygin (2013) found differences in children with autism spectrum disorder, atypically developing children, and typically developing children in

tantrum behaviors (crying, defiance, screaming, becoming aggressive, and being disruptive).

Although tantrums are not part of the DSM criteria for autism spectrum disorder, tantrums are typically found to be comorbid with autism spectrum disorder. The correlations in this study indicated that tantrum behaviors increased in prevalence and severity as a child had more autism spectrum symptomology (Konst, Matson, & Turygin, 2013).

Severity. Within the realm of autism spectrum disorder, Szatmari et al. (2015) found many different groupings among children with autism spectrum disorder. One of the factors looked at was trajectory of language and communication, repetitive and stereotyped behaviors, and reciprocal social interaction. Specifically, three groups emerged from the sample: (1) 29.2% of children were low functioning initially and worsened over time, (2) 49.9% of children were moderately functioning initially and stayed moderately functioning over time, and (3) 20.9% of children were high functioning initially and improved over time. Language competence, IQ, and age at baseline were predictive of adaptive functioning trajectory. Earlier age of diagnosis was related to higher functioning and improving trajectory. Sex of the participant was a predictor of group trajectory membership of autistic symptoms; girls were more likely to be in the less severe symptoms group/improving trajectory group, whereas boys were more likely to be in the stable trajectory group/more severe symptoms group (Szatmari et al., 2015).

Alderson-Day (2014) found differences in children with Asperger Syndrome, children with high-functioning autism spectrum disorder, and typically developing children in verbal problem solving and perspective taking abilities. Children were given tasks and could ask twenty questions to eliminate options in the answer set in order to reach the correct conclusion. Children also received hypothetical scenarios and were able to select one of two questions that would be the most useful to ask. Children with high-functioning autism spectrum disorder formulated

verbal problem solving questions less efficiently on the presented tasks than children with Asperger Syndrome and typically developing children. This may potentially be due to atypical language development in children with autism spectrum disorder (Alderson-Day, 2014).

Rationale for the Current Study

The use of specific and various descriptions of autism spectrum disorder (e.g., repetitive behaviors (Szatmari et. al., 2006), attention problems (Mayes, Calhoun, Mayes, & Molitoris, 2012), and problems engaging in reciprocal communication (Paul, Orlovski, Marcinko, & Volkmar, 2009), etc.) serve to specify how a child with an autism spectrum disorder diagnosis may behave and appear in a courtroom setting. Inclusion of these descriptions ensures that participants rate the child based on a set of characteristics and behaviors, rather than their previous assumptions of autism spectrum disorder. This may help indicate how a participant would respond if they were a juror in an actual courtroom setting viewing the testimony of a child with autism spectrum disorder. Previous research on jurors' perceptions has examined characteristics such as the age of the child, the potential effect of intellectual disability, and the communication style of the child used in the current study, but there remains a lack of published research on the effects of autism spectrum disorder on jurors' perceptions.

The Current Study

The current study sought to examine the effects of child witnesses with autism spectrum disorder on jurors' perceptions. Children with disabilities have been found to experience higher rates of abuse than typically developing children (Stalker & McArthur, 2012). This study consisted of five conditions: (1) autism spectrum disorder- high functioning (low average IQ), (2) autistic disorder (average IQ), and (3) autistic disorder (IQ in the range of intellectual disability). There were also two control conditions included: (1) no autism spectrum disorder

control condition (functioning described) and (2) a no autism spectrum disorder control condition, which only included information about child maltreatment. Written scenarios of each of the conditions were employed for jury eligible adults to read. Following scenario reading, mock jurors completed a questionnaire regarding their perceptions of the child, defendant, and verdict.

Method

Participants

This study included 264 adult participants, age 18 or older. There were 74 participants removed due to missing data or incorrect responses to validity questions. The average age of participants was 37.14 years old, age range 19-73 years old. Participants were recruited through Amazon Mechanical Turk and all resided in the United States. The gender of participants was 49.8% female (131 participants) and 50.2% male (132 participants); one participant elected not to respond to the question regarding gender. The ethnicity of the participants was as follows: 0.8% American Indian (2 participants), 7.6% African American (20 participants), 77.7% Caucasian (205 participants), 6.1% Asian (16 participants), 5.3% Hispanic/Latino(a) (14 participants), and 2.7% Biracial (7 participants). Within the sample of participants, 8% had an immediate relative with an autism spectrum disorder diagnosis and 4.5% had some sort of professional training related to autism spectrum disorder.

Design

Participants were randomly assigned to one of five experimental conditions displayed in scenarios varying the characteristics (autism spectrum disorder, intellectual disability, and typically developing) of a 6-year-old female child who alleged sexual maltreatment (Krackow, 2017). Each portion of the scenario describing the alleged maltreatment was the same in every

condition. Each scenario differed in that the child who made the allegations was described by a therapist as either typically developing or as having some variation of autism spectrum disorder. Further, in 4 of 5 of the scenarios, the therapist described the child's functioning in the following domains: diagnosis, intellectual abilities, school placement information, communication skill level, ability to transition, range of interests, sensitivity to noise and textures, peer relationships, range of emotional expression, and ability to read emotional cues. Within autism spectrum conditions, IQ was described given that it naturally can vary depending on autism spectrum disorder level of functioning. The conditions were as follows: (1) autism spectrum disorder- high functioning (average IQ; 50 participants), (2) autistic disorder (low average IQ; 42 participants), and (3) autistic disorder (IQ in the range of intellectual disability; 48 participants). Conditions 1 through 3 consisted of vignettes that described a child with symptoms of autism spectrum disorder of varying severity. There were two control groups: (1) no autism spectrum disorder control condition (functioning described; 64 participants), which contained a vignette depicting a typically developing child that was described in similar wording to conditions 1 through 3. However, this was a typically developing control in which the child did not exhibit symptoms of autism spectrum disorder or intellectual disability, but the scenario was written in a parallel structure to conditions 1 through 3. The second control condition was a no autism spectrum disorder control condition (60 participants), which was a control that only provided information about the maltreatment portion of the scenario. No information was provided about the child's level of functioning.

Procedure

Participants were recruited through Amazon Mechanical Turk and redirected to a surveying site (Qualtrics). Participants first read an informed consent on the surveying site and

indicated yes/no whether they agreed to participate. If participants agreed to the consent, they then read one of five scenarios depicting a sexual assault trial. After reading the vignette that matched the condition to which they were randomly assigned, participants answered a series of questions. Next, they responded to three questions that assessed participants' recall of the central details that applied to all scenarios. Participants were then asked to provide a series of ratings regarding the alleged maltreatment trial. The remaining questions required participants to provide a series of ratings on a Likert-type scale ("1= not at all, to 10= no doubt in my mind;" Tessier & Krackow, 2013; Krackow, 2016) regarding "the ability to testify based on facts, the child's accuracy, believability, suggestibility" (Orcutt et al., 2001, p. 346; see also Thomas & Krackow, 2016), credibility and trustworthiness (Tessier & Krackow, 2013; see also Thomas & Krackow, 2016). Questions regarding the likelihood that the defendant maltreated the child (Krackow, 2017), guilt of the defendant (Tessier & Krackow, 2013), responsibility of the defendant for the act in question (Tessier & Krackow, 2013), and the likelihood that the defendant committed the crime in question (Tessier & Krackow, 2013) were also asked. In addition, participants were asked to respond to dichotomous questions regarding whether the participant believed the child was "credible versus not credible" and whether the participant believed the defendant was "guilty versus not guilty" (Tessier & Krackow, 2013; Krackow, 2016). Likert-type scale questions and dichotomous questions were mixed throughout the survey. The credibility and defendant guilt questions were randomly ordered in the different surveys. Participants were also asked to read two unrelated scenarios and respond to questions regarding those scenarios to determine whether they were attending to the material. Participants were prompted to provide demographic information at the end of the survey (age, gender, race, and ethnicity). Finally, participants were paid one dollar for their participation.

Hypotheses and Research Questions:

Research Questions:

1. Does the level of autistic functioning impact jurors' perceptions of credibility ratings (composite of mean ratings of credibility, believability, and trustworthiness questions; Tessier & Krackow, 2013)?

Hypothesis: Based on findings from Bottoms, Nysse-Carris, Harris and Tyda (2003), the autistic disorder condition including intellectual disability will likely be rated by jurors as more credible than the control conditions. The high functioning and autistic disorder (low average IQ) conditions will remain research questions, as there is no current literature to support a hypothesis.

2. Does the level of autistic functioning impact jurors' perceptions of defendant guilt (composite of mean ratings of the following variables: the likelihood that the defendant maltreated the child, the likelihood that the defendant committed the crime in question, guilt of the defendant, and the responsibility of the defendant for the act in question; Tessier & Krackow, 2013; Krackow, 2017)?

Hypothesis: Based on findings from Bottoms, Nysse-Carris, Harris, and Tyda (2003), it is likely that children portrayed as having autistic disorder with intellectual disability will affect jurors such that they will find the defendant guilty more often in this condition than the two control groups. The high functioning and autistic disorder (low average IQ) conditions will remain research questions, as there is no current literature to support a hypothesis.

3. Does the level of autistic functioning impact jurors' perceptions of dichotomous credibility ratings (credible versus not credible)?

Hypothesis: Findings from Bottoms, Nysse-Carris, Harris, and Tyda (2003) indicate that both male and female jurors found the victim more credible when portrayed as having an intellectual disability. Therefore, it is likely that the child in the autistic disorder with intellectual disability condition will be rated as more credible than the two control groups. The high functioning and autistic disorder (low average IQ) conditions will remain research questions, as there is no current literature to support a hypothesis.

4. Does the level of autistic functioning impact jurors' perceptions of dichotomous guilt ratings (guilty versus not guilty)?

Hypothesis: Findings from Bottoms, Nysse-Carris, Harris, and Tyda (2003) indicate that jurors were more likely to find the defendant guilty when a child was portrayed as having intellectual disability. Therefore, it is likely that jurors will rate the defendant as more guilty when the child is depicted as having autistic disorder with intellectual disability than the two control groups. The high functioning and autistic disorder (low average IQ) conditions will remain research questions, as there is no current literature to support a hypothesis.

Results

Analysis of effect sizes across males and females varied and did not reach moderate level ($d = .50$). There was one exception to this, testimony based on fact for the conditions of autistic disorder with intellectual disability and no autism spectrum disorder control ($d = .55$), indicating that males rated the child's ability to testify based on fact lower than did females. Therefore, gender does not appear to be interacting with the variables of study. Participants were asked to indicate if they had a relative with autism spectrum disorder or had professional contact with someone who had autism spectrum disorder in the survey. Analysis of effect sizes for child

credibility and defendant guilt between participants that did and did not endorse these questions did not indicate consistent patterns suggestive of differential ratings.

Child Credibility

The child credibility composite consisted of the mean of the following three child credibility questions: credibility, believability, and trustworthiness (Tessier & Krackow, 2013). The alpha for this composite was .957. A one-way analysis of variance (ANOVA) was used to determine if there were differences between participant's responses to the survey across the following five conditions: (1) autism spectrum disorder- high functioning, (2) autistic disorder (low average IQ), and (3) autistic disorder (IQ in the range of intellectual disability), (4) no autism spectrum disorder control condition, functioning described (5) no autism spectrum disorder control, with condition as the independent variable and child credibility as the dependent variable. The overall child credibility ANOVA was significant, $F(4,259) = 14.47, p < .001$.

For all further analyses Tukey's post hoc test was used to determine where there were significant differences in participant ratings between the five conditions. The Bonferroni adjustment was made to all results reported. For results, see Table 1 and Figure 1. Levene's test of homogeneity of variance was violated for this ANOVA, $3.14, p = .015$; therefore, the nonparametric version of the one-way ANOVA that does not assume equivalent homogeneity of variance, a Kruskal-Wallis test, was run. The Kruskal-Wallis nonparametric test indicated that the ANOVA for child credibility was significant.

The results between the no autism spectrum disorder control condition and the four other conditions will be compared first. The high functioning autism spectrum disorder condition and the no autism spectrum disorder control condition were not significantly different from each

other, $p = .211$. The following conditions were rated as significantly lower in child credibility than the no autism spectrum disorder control condition: the autistic disorder with low average IQ condition, $p < .001$, $d = -1.06$ and the autistic disorder with intellectual disability condition, $p < .001$, $d = -0.79$.

Next, the results between the no autism spectrum disorder control condition (functioning described) and the other four conditions will be reported. The following conditions were rated as significantly lower in child credibility than the no autism spectrum disorder control condition (functioning described): the high functioning autism spectrum disorder condition, $p < .05$, $d = -0.61$; the autistic disorder with low average IQ condition, $p < .001$, $d = -1.32$; and the autistic disorder with intellectual disability condition, $p < .001$, $d = -1.03$. There were no significant differences found in child credibility ratings between the two control conditions.

Finally, each of the three autism spectrum disorder conditions were compared to each other. The high functioning autism spectrum disorder condition was rated as significantly higher in child credibility than the autistic disorder with low average IQ condition, $p < .05$, $d = 0.60$. The following two comparisons were not significant from the autistic disorder with intellectual disability condition: the high functioning autism spectrum disorder condition, $p = .264$ and the autistic disorder with low average IQ condition, $p = .724$.

In summary, the high functioning autism spectrum disorder, autistic disorder with low average IQ, and the autistic disorder with intellectual disability conditions were all rated as significantly lower in child credibility than the no autism spectrum disorder control condition (functioning described). Both of the autistic disorder conditions were rated as significantly lower in child credibility than the no autism spectrum disorder control condition. Only the high functioning autism spectrum disorder group and autistic disorder with low average IQ group

were significantly different when the three autism spectrum disorder experimental conditions were compared on child credibility ratings.

Child Testimony- Accurate

A one-way analysis of variance (ANOVA) was used to determine if there were differences between participant's responses to the surveys across the five conditions of this study regarding the child's ability to provide accurate testimony. Levene's test of homogeneity of variance was not significant, indicating no issues with homogeneity of variance in the data. The overall ANOVA for child testimony was significant, $F(4,259) = 17.13, p < .001$.

For all further analyses Tukey's post hoc test was used to determine where there were significant differences in participant ratings between the five conditions. The Bonferroni adjustment was made to all results reported. For results, see Table 1 and Figure 2. The results between the no autism spectrum disorder control condition and the four other conditions will be compared first. The following conditions were rated as significantly lower in child accuracy than the no autism spectrum disorder control condition: the high functioning autism spectrum disorder condition, $p < .01, d = -0.35$; the autistic disorder with low average IQ condition, $p < .001, d = -0.90$; and the autistic disorder with intellectual disability condition, $p < .001, d = -0.96$.

Next, the results between the no autism spectrum disorder control condition (functioning described) and the other four conditions will be reported. The high functioning autism spectrum disorder condition and the no autism spectrum disorder control condition (functioning described) were not significantly different from each other, $p = .526$. The following conditions were rated as significantly lower in child accuracy than the no autism spectrum disorder control condition (functioning described): the autistic disorder with low average IQ condition, $p < .001, d = -1.30$ and the autistic disorder with intellectual disability condition, $p < .001, d = -1.39$. There were no

significant differences found in accurate testimony of the child ratings between the two control conditions.

Finally, each of the three autism spectrum disorder conditions compared to each other will be reported. The high functioning autism spectrum disorder condition was rated as significantly higher in child accuracy than the autistic disorder with intellectual disability, $p < .05$, $d = 0.56$. The following conditions were not significantly different from the autistic disorder with low average IQ condition: the high functioning autism spectrum disorder condition, $p = .106$ and the autistic disorder with intellectual disability condition, $p = 1.00$.

In summary, all three experimental conditions were rated as significantly lower in child accuracy than the no autism spectrum disorder control condition and both autistic disorder conditions were rated as significantly lower in child accuracy than the no autism spectrum disorder control condition (functioning described) on child accuracy ratings. The high functioning autism spectrum disorder condition was rated as significantly higher in child accuracy than the autistic disorder with intellectual disability.

Child Suggestibility

A one-way analysis of variance (ANOVA) was used to determine if there were differences between participant's responses to the surveys across the five conditions of this study regarding the question of child suggestibility. Levene's test of homogeneity of variance was not significant, indicating no issues with homogeneity of variance in the data. The overall ANOVA for child suggestibility was significant, $F(4,259) = 3.08$, $p < .05$.

The results between the no autism spectrum disorder control condition and the four other conditions will be compared first. The Bonferroni adjustment was made to all results reported. For results, see Table 1 and Figure 2. The high functioning autism spectrum disorder condition

and the autistic disorder with intellectual disability condition were not significantly different from the no autism spectrum disorder control condition. The autistic disorder with low average IQ condition was rated as significantly higher in child suggestibility than the no autism spectrum disorder control condition, $p < .05$, $d = -0.48$.

The results between the no autism spectrum disorder control condition (functioning described) and the other four conditions were not significantly different. The three autism spectrum disorder conditions compared to each other were not significantly different.

In summary, the autistic disorder with low average IQ condition was rated as significantly higher in child suggestibility than the no autism spectrum disorder control condition.

Child Testimony- Fact

A one-way analysis of variance (ANOVA) was used to determine if there were differences between participant's responses to the surveys across the five conditions of this study regarding the question about whether the child's testimony was based on fact. Levene's test of homogeneity of variance was not significant, indicating no issues with homogeneity of variance in the data. The overall ANOVA for child testimony was significant, $F(4,259) = 11.62$, $p < .001$.

The results between the no autism spectrum disorder control condition and the four other conditions will be compared first. The Bonferroni adjustment was made to all results reported. For results, see Table 1 and Figure 2. The high functioning autism spectrum disorder condition and the no autism spectrum disorder control condition were not significantly different from each other, $p = .079$. The following conditions were rated as significantly less likely to provide testimony based on fact than the no autism spectrum disorder control condition: the autistic

disorder with low average IQ condition, $p < .001$, $d = -1.09$ and the autistic disorder with intellectual disability condition, $p = .001$, $d = -0.75$.

Next, the results comparing the no autism spectrum disorder control condition (functioning described) and the other four conditions will be reported. The high functioning autism spectrum disorder condition and the no autism spectrum disorder control condition (functioning described) were not significantly different from each other, $p = .136$. The following conditions were rated as having significantly less testimony based on fact than the no autism spectrum disorder control condition (functioning described): the autistic disorder with low average IQ condition, $p < .001$, $d = -1.13$ and the autistic disorder with intellectual disability condition, $p = .001$, $d = -0.78$. There were no significant differences found in child testimony ratings between the two control conditions.

Finally, each of the three autism spectrum disorder conditions compared to each other will be reported. The high functioning autism spectrum disorder condition was rated as having significantly more testimony based on fact than the autistic disorder with low average IQ, $p = .05$, $d = 0.55$. The following conditions were not significantly different from the autistic disorder with intellectual disability condition: the high functioning autism spectrum disorder condition, $p = 1.00$ and the autistic disorder with low average IQ condition, $p = 1.00$.

In summary, both of the autistic disorder conditions were rated as having significantly less testimony based on fact than the no autism spectrum disorder control condition as well as the no autism spectrum disorder control condition (functioning described). The high functioning autism spectrum disorder condition was rated as having significantly more testimony based on fact than the autistic disorder with low average IQ.

Defendant Guilt

The defendant guilt composite consisted of the mean of the following four defendant guilt questions: the likelihood that the defendant maltreated the child, the likelihood that the defendant committed the act in question, the guilt of the defendant, and the responsibility of the defendant for the act in question (Krackow, 2017; Tessier & Krackow, 2013). The alpha for this composite was .967. A one-way analysis of variance (ANOVA) was used to determine if there were differences between participant's responses to the surveys across the five conditions of this study. Levene's test of homogeneity of variance was not significant, indicating no issues with homogeneity of variance in the data. The overall defendant guilt ANOVA was significant, $F(4,259) = 11.43, p < .001$.

For all further analyses Tukey's post hoc test was used to determine where there were significant differences in participant ratings between the five conditions. The Bonferroni adjustment was made to all results reported. For results, see Table 1 and Figure 3. The results between the no autism spectrum disorder control condition and the four other conditions will be compared first. The high functioning autism spectrum disorder condition and the no autism spectrum disorder control condition were not significantly different from each other, $p = .085$, regarding defendant guilt. The following conditions were rated as significantly lower in defendant guilt than the no autism spectrum disorder control condition: the autistic disorder with low average IQ condition, $p < .001, d = -1.04$ and the autistic disorder with intellectual disability condition, $p = .001, d = -0.77$.

Next, the results between the no autism spectrum disorder control condition (functioning described) and the four other conditions will be reported. The following conditions were rated as significantly lower in defendant guilt than the no autism spectrum disorder control condition (functioning described): the high functioning autism spectrum disorder condition, $p < .05, d = -$

0.53; the autistic disorder with low average IQ condition, $p < .001$, $d = -1.07$; and the autistic disorder with intellectual disability condition, $p < .001$, $d = -0.80$. There were no significant differences found in defendant guilt ratings between the two control conditions.

There were no significant differences found, using Tukey's post hoc comparison, in defendant guilt ratings between the varying autism spectrum disorder conditions.

In summary, both autistic disorder conditions were rated as significantly lower in defendant guilt than the no autism spectrum disorder control condition and all three autism spectrum disorder experimental conditions were rated as significantly lower in defendant guilt than the no autism spectrum disorder control condition (functioning described).

Dichotomous Credibility Rating

A logistic regression was used to determine the extent to which each of the five experimental conditions predict the ratings of credible versus not credible. The logistic regression indicated that varying autism spectrum disorder conditions predicted if the juror rated the child as credible or not credible significantly more than chance alone, ($\chi^2(4) = 33.93$, $p < .001$). The Hosmer and Lemeshow test had a Chi Square of ($\chi^2(3) = .00$, $p = 1.00$) and the Nagelkerke R Square was .17. The no autism spectrum disorder control condition was more likely to be found not credible than the child depicted as having high functioning autism spectrum disorder $\beta(\text{Exp}) = 3.429$, $p < .01$, Wald = 7.73 and less likely to be found not credible than the child depicted as having autistic disorder with intellectual disability $\beta(\text{Exp}) = .367$, $p < .05$, Wald = 4.14. The following conditions were neither more likely nor less likely to be found credible than the no autism spectrum disorder control condition: the child depicted as having autistic disorder with low average IQ, $p = .069$, Wald = 3.30 and the child depicted as having no autism spectrum disorder (functioning described), $p = .231$, Wald = 1.43.

Dichotomous Defendant Guilt Rating

A logistic regression was used to determine the extent to which each of the five experimental conditions predicted the ratings of the defendant being guilty or not guilty. The logistic regression indicated that varying autism spectrum disorder conditions predicted whether the juror rated the defendant as guilty or not guilty significantly more than chance alone, ($\chi^2(4) = 23.96, p < .001$). The Hosmer and Lemeshow test had a Chi Square of ($\chi^2(3) = .00, p = 1.00$) and the Nagelkerke R Square was .12. If the child was depicted as having high functioning autism spectrum disorder, the participant was 3.556 times more likely to give a not guilty verdict compared to the no autism spectrum disorder control condition, $p < .01$, Wald = 8.30. The following conditions were neither more likely nor less likely to give a guilty verdict than the no autism spectrum disorder control condition: autistic disorder with low average IQ, $p = .233$, Wald = 1.42; autistic disorder with intellectual disability, $p = .145$, Wald = 2.13; and no autism spectrum disorder (functioning described), $p = .505$, Wald = .45.

Discussion

The current study sought to examine the effects of child witnesses with autism spectrum disorder on jurors' perceptions. Children with disabilities have been found to experience higher rates of abuse than typically developing children (Stalker & McArthur, 2012). This makes it important to understand the impact a specific disorder may have in courtroom, to ensure the legal system is aware of the impact of the witnesses they use in testimony.

Overall, the data suggest that children depicted as having some form of autism spectrum disorder are rated as less credible witnesses, less accurate in their testimony, more suggestible, less likely to provide testimony based on fact, and the defendants are rated as less guilty than children depicted as typically developing. Children depicted as having autistic disorder,

regardless of IQ level were consistently rated as less credible and the defendant in the case as less guilty than both control conditions. Those children depicted as having high functioning autism spectrum disorder were only significantly different from no autism spectrum disorder (functioning described) condition, indicating that participants may not have as consistently rated them as less credible and the defendant in the case as less guilty. This study shows that jurors may receive children with an autism spectrum disorder diagnosis in a different way than typically developing children. This may influence the decision to include a witness with an autism spectrum disorder in the trial, as the jurors in that particular case may believe the child to be less credible and the defendant less guilty.

The first hypothesis proposed in the current study was that based on findings from Bottoms, Nysse-Carris, Harris and Tyda (2003), the autistic disorder condition including intellectual disability would likely be rated by jurors as more credible than the control conditions. This hypothesis was not supported through the data in this particular sample. In this study, the autistic disorder with intellectual disability condition was rated as less credible than both control groups.

The second hypothesis in the current study was that based on findings from Bottoms, Nysse-Carris, Harris, and Tyda (2003), it is likely that children portrayed as having autistic disorder with intellectual disability will affect jurors such that they will find the defendant guilty more often in this condition than the two control groups. This hypothesis was not supported through the data in this particular sample. In this study, the participants who read about the child depicted as having autistic disorder with intellectual disability rated the defendant as less guilty than both control groups.

The third hypothesis in the current study was based on findings from Bottoms, Nysse-Carris, Harris, and Tyda (2003), that it was likely that the child in the autistic disorder with intellectual disability condition would be rated as more credible than the two control groups. This hypothesis was not supported through the data in this particular sample. In this study, the no autism spectrum disorder control condition was less likely to be found not credible than the autistic disorder with intellectual disability condition.

The fourth hypothesis in the current study was based on findings from Bottoms, Nysse-Carris, Harris, and Tyda (2003), that it was likely that jurors would rate the defendant as more guilty when the child was depicted as having autistic disorder with intellectual disability than the two control groups. This hypothesis was not supported through the data in this particular sample. In this study, the child depicted as having autistic disorder with intellectual disability was neither more likely nor less likely to have the defendant be given a guilty verdict than the no autism spectrum disorder control condition.

There were no hypotheses made for the two experimental conditions that did not include intellectual disability, due to a lack of prior research in this area. Hypotheses based on previous research were not supported with the results from the current study; this may be due to the addition of autistic disorder rather than intellectual disability alone. In addition, the current sample was based on data from participants on Amazon Mechanical Turk, which has a different demographic make up of participants (more consistent with the US census data) than previous intellectual disability studies, which used a college sample. This may explain the differences in findings with previous studies on intellectual disability (Bottoms, Nysse-Carris, Harris, & Tyda, 2003). Despite the inconsistency between the study findings and the hypotheses, the results have

important implications for the legal system as a whole. These findings may influence whom the prosecutor and defending lawyer want to include as witnesses in testimony.

Limitations

First, this study was conducted through Amazon Mechanical Turk, an online survey system. Validity checks were made throughout the survey, which included questions that if answered inconsistently, or the incorrect answer was given, led to the participant's data being removed from the final sample. However even with validity checks, there is no indication of whether participants were honest in responding. Second, using an online database also created a different environment than if participants were real jurors in a courtroom, which impacts the interpretation of the data. These results need to be replicated in an environment closer to that of a courtroom, to generalize the findings. Third, the sample acquired may have been biased based on the need for computer and internet access in order to complete this survey. Fourth, the sample was 77.7% Caucasian; therefore, a more diverse population of race and ethnicity may yield different findings. Fifth, from 2009-2013 about 63,000 children each year had been victims of sexual abuse (US Department of Health & Human Services, 2015). Victims who were less than 18-years-old were generally female (82%; Snyder, 2000). Autism spectrum disorder is more prevalent in males (1 out of 42) than it is in females (1 out of 189; Christensen et al., 2016). Due to the scenarios being about sexual abuse, a female child was chosen, although there may be important implications when using a male child instead of a female child.

Future Directions

Four future directions have been identified. First, it is important that these results are replicated and generalized to a real courtroom setting, as the current study was online and findings need to be generalized in an environment that is more realistic, such as bringing mock

jurors in an actual courtroom where a mock trial is occurring. This will allow for further implications to be made based on the findings in a courtroom setting. Second, the child in each scenario was depicted as female; therefore, the results need to be replicated and generalized to male children as well. This is important both to note any potential gender differences, but also to consider the prevalence of autism spectrum disorder and its larger prevalence in males than females (Christensen et al., 2016). Third, these findings need to generalize to children of other age groups, as the child depicted in these scenarios was consistently depicted as 6-years-old. This is important as previous research (Buck, Warren, & Brigham, 2004; Holcomb & Jacquin, 2007; Ross, Dunning, Toglia, & Ceci, 1990; Ruva & Bryant, 2004; Schmidt & Brigham, 1996), has found varied results dependent on the age of the child used. Specifically, it appears as though the naiveté associated with being so young can be an advantage for young witnesses in sexual assault cases, while jurors are more likely to believe that an older child is more capable of making the story up (Bottoms & Goodman, 1994). Fourth, research should focus on comparing children with an autism spectrum disorder and intellectual disability alone to determine the significance of the current study. This would allow researchers to determine if the differences between the current findings and previous findings on intellectual disability were due to the addition of autism spectrum disorder.

Conclusion

In conclusion, this study has found results that suggest that a child witness depicted as having autism spectrum disorder may have different implications on a jury's decision making than a child witness depicted as typically developing. Overall, the findings suggested that children depicted as having some form of autism spectrum disorder were rated as less credible witnesses, less accurate in their testimony, more suggestible, less likely to provide testimony

based on fact, and the defendants were rated as less guilty than children depicted as typically developing. These results may impact the choice of a legal team when deciding on which witnesses may take the stand in a trial and how they prepare for a trial including a witness with autism spectrum disorder.

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Table 1.

Means and Standard Deviations for Conditions						
		High Functioning ASD (<i>N</i> = 50)	Autistic Disorder (Low Average IQ; <i>N</i> = 42)	Autistic Disorder (Intellectual Disability; <i>N</i> = 48)	No ASD Control Condition (Functioning Described; <i>N</i> = 64)	No ASD Control Condition (<i>N</i> = 60)
Child Credibility	<i>M</i> (<i>SD</i>)	6.57 (2.49)	5.07 (2.47)	5.66 (2.52)	7.48 (2.07)	7.88 (1.73)
Child Testimony- Accurate	<i>M</i> (<i>SD</i>)	5.82 (2.73)	4.50 (2.52)	4.40 (2.37)	7.58 (2.21)	6.73 (2.46)
Child Suggestibility	<i>M</i> (<i>SD</i>)	6.42 (2.38)	5.48 (2.41)	5.79 (2.60)	6.88 (2.17)	6.62 (2.32)
Child Testimony- Fact	<i>M</i> (<i>SD</i>)	6.36 (2.49)	5.02 (2.40)	5.73 (2.54)	7.50 (1.96)	7.43 (1.99)
Defendant Guilt	<i>M</i> (<i>SD</i>)	6.34 (2.55)	5.05 (2.60)	5.65 (2.70)	7.49 (2.06)	7.59 (2.11)

Note. Ratings can range from 1 to 10.

Figure 1. Means of each condition on the child credibility composite score. Error bars reflect standard deviations.

Figure 2. Means of each condition on the child variables of accurate child testimony, fact based child testimony, and child suggestibility. Error bars reflect standard deviations.

Figure 3. Means for each condition on the defendant guilt composite score. Error bars reflect standard deviations.