2020

The Unique Characteristics of Trauma in Individuals with Autism Spectrum Disorder

Jana Laine Jonasen
Bethel University

THE UNIQUE CHARACTERISTICS OF TRAUMA IN INDIVIDUALS WITH AUTISM SPECTRUM DISORDER

A MASTER'S THESIS

SUBMITTED TO THE FACULTY

OF BETHEL UNIVERSITY

BY

JANA JONASEN

IN PARTIAL FULFILLMENT OF THE REQUIREMENTS

FOR THE DEGREE OF

MASTER OF ARTS IN SPECIAL EDUCATION

OCTOBER 2020

BETHEL UNIVERSITY

THE UNIQUE CHARACTERISTICS OF TRAUMA IN INDIVIDUALS WITH AUTISM SPECTRUM DISORDER

Jana Jonasen

October 2020

APPROVED

Thesis Advisor: Nathan Elliott, M.A.

Program Director: Katie Bonawitz, Ed.D

Acknowledgments

First, I would like to acknowledge my family for allowing me to take the time to finish this and for being so patient with me through this journey. Justen, Gabe, and Connor, I'm thankful for your love, your sacrifice during this time, and just being there for me. I would especially like to thank Linda Jonasen for allowing me to stay at her second home in Florida, providing me space and ability to finish, and also for your support throughout this time. I would like to thank the FitzPatrick family for being such a help to my family; without you, this would not have happened.

I would like to thank my leaders at my school for giving me the knowledge and also the experience to do this. Tom for teaching me so much more about trauma and encouraging me to learn more; Jamie, for always supporting me to be being my best and allowing me to learn from you. Karen for talking me through incidents with my students and helping me to understand them more. Professor Elliott, for encouraging me and guiding me through the process of writing my thesis. I appreciate all your input and your guidance during this journey.

To all my dear friends, Kristin G, Cori B, Kristin B, and Cathy B, thank you so much for your encouragement. You were my support system through this journey.

Finally, I would like to thank my Lord and Savior, who gave me the wisdom, strength, and courage to go on this journey.

Abstract

Research has shown characteristics of individuals with ASD that have been exposed to trauma are difficult to determine. With more of trauma at an early age and the overshadowing of characteristics between trauma and ASD it will be difficult to determine where an individual is demonstrates ASD characteristics or PTSD characteristics. Evidence suggests that individuals with ASD are at an increased risk of exposure to trauma due to their social communication deficits and emotional control. Evidence shows that individuals with ASD experience substantially more trauma or traumatic childhood experiences which may contribute to greater chances of physical and mental trauma. PTSD diagnosed in individuals with ASD is due to "diagnostic overshadowing," which can lead to a misdiagnosis of problematic behaviors or anxieties. Responsive self-report measures and validation of established trauma evaluation measures for this population are required.

Table of Contents

CHAPTER I: INTRODUCTION

"Understanding each child's individual differences helps us tailor our relational and therapeutic approaches (Delahooke, 2019, p 12). In recent years, the increase in numbers of students needing special education, especially due to a specific disability or addressing behavioral needs had me question whether or not we are addressing these individual differences. I was curious as to why we are seeing such an increase in autism. Is this due to the increase in individuals experiencing traumatic events or is this just the increase of Autism diagnosis?

Context

Special education has evolved significantly since the 19th century. Long ago special education was designed to provide support for non-English speaking immigrants who migrated to the US during the 19th and the first half of 20th century (Wright, 2020). Many people were afraid that these new immigrants would create social problems for America due to their differences in language and culture. Wright explains that Horace Mann proposed a way to alleviate these social problems by educating newly-arrived immigrants by creating common schools in each community focusing on teaching common values.

Since the time of Horace Mann, there have been numerous pieces of legislation that have supported students with special needs. For example, many private residential schools for the deaf, blind and mentally delayed began to develop in the 20th century (Wright, 2020). Early Special Education was created to educate African Americans on moral values. In the 1950s, *Brown vs. Board of Education* put into place the Equal Education Act which was to give equal rights to Africa Americans. Then in 1965 the

Elementary and Secondary Education Act was passed to address the inequality of education for underprivileged children. This led to the 1970s when the PACs and the Education of All Handicapped Children Act which gave all children with disabilities the right to an education. Finally, in 2004, the Individuals with Disabilities Education Improvement Act (IDEA) was passed. This law provides protections for individuals with disabilities and their parents by providing an educational experience that meets each child's unique needs and preparing them for the future.

Over the years, autism has been a part of much research and continues to mystify experts. Autism was first thought to be schizophrenia according to Swiss psychiatrist, Eugen Bieuler ("History of Autism" 2020). In the 1930s shock therapy was utilized to try to cure their antisocial behavior and self-destructive behavior. Psychiatrist Leo Kanner defined autism as individuals who lack affective contact, are fascinated with objects, possess a desire for sameness and don't communicate with language before 30 months. In the 1940s, Professor Bruno Bettelheim believed that autism is caused by a "refrigerator Mom" a cold and uncaring mom. The treatment for this was to take the child out of the home. In the 1960s individuals with ASD were given LSD as part of their treatment to treat their anti-social behavior ("History of Autism" 2020). In the 1980s, different forms of behavioral therapies were utilized. During this time ASD was determined to not be a part of the schizophrenia category and was attributed to an auditory sensitivity. A few years later, during the 90s scientists began to experiment with "holding therapy" where the patients were held in order to make them imitate different social behaviors like maintaining eye contact. Today we know autism as autism spectrum disorder and there are specific behavioral therapy and psycho-dynamic therapies to support them in their

learning. With that said there is much debate about what causes it and what is the best way to support individuals with ASD ("History of Autism" 2020).

Trauma in schools has increased over the years, from school shootings, to mental illness in the family or bullying. Hoover and Romero (2019), estimated that 68% of children age 16 would experience a traumatic event. Despite the source of the trauma the need for understanding trauma in children and the change in their development provides the knowledge for the appropriate intervention for students (Walkey & Cox, 2013). Neuroscientist studies have shown that when a child experience trauma it alters the development of the brain.

Theoretical Framework/Definition of Terms

The DSM IV (2013) defines autism spectrum disorder (ASD) as a condition in which a person exhibits persistent deficits in three areas of social communication and interaction, plus two of four types of restricted, repetitive behaviors. Social communication and interaction deficit must be seen across multiple contexts. According to this definition, the individual can exhibit difficulty with back-and-forth conversation or failure to initiate or respond in conversation. The individual can also show deficits in nonverbal communication including eye contact, body language, understanding gestures, and facial expressions. They may also have difficulty maintaining, developing and understanding relationships, such as having a hard time changing their behavior for different social situations. Demonstrating repetitive patterns of behavior, interests or activities are also included in the diagnosis process. This could be repetitive movements such as lining toys or flipping objects or repeating back information they have heard. The

individual may exhibit hypo or hyperreactivity to stimuli such as sounds, textures, excessive smelling, touch and lights or movement (DSM IV, 2013).

The DSM IV (2013) criteria for PTSD is an individual who was exposed to a traumatic event either personally or witnessed which led to feelings of intense fear and helplessness. The individual likely reexperienced the traumatic event and as a result they are having distress from the recurrence of the trauma. This stress could be exhibited in young children and as having repetitive play. The individual will typically avoid stimuli associated with the trauma. They could avoid thoughts feelings, conversations, activities, places or people which could be related to the trauma. Finally, their behavior could change as a result of experiencing the traumatic event, for example they might experience difficulty with sleeping, strong anger, difficulty concentrating, exaggerated startle response and or being hypervigilant (DSM IV, 2013).

The Center for Disease Control (2020) and Prevention (CDC) describes Adverse Childhood Events (ACEs) as the potentially traumatic events that have happen in 0-17-year-old. Individuals could have experienced violence, abuse, or neglect, witnessed a violent act such as having a family member attempt or die of suicide. This includes environmental situations that undermine the child's sense of safety and stability

Comorbidity is when an individual has two or more chronic diseases or conditions. Individuals with ASD are especially more vulnerable to co-occurring mood disorders and oftentimes experience higher levels of anxiety (Kerns et al., 2017). When trying to help students it is important to look at every aspect of the students of their lives. Research has shown that higher levels of distress and depressive symptoms could be due

to the everyday events for individuals with ASD (Taylor & Gotham, 2016). These events could be the change in their daily schedule changing, social interactions, or uncertainty.

Rationale

In recent years there has been an increase in the diagnosis of autism spectrum disorder. According to the Center of Disease Control (CDC), in the past 20 years the diagnosis of ASD has grown significantly in the year 2000 1 person in 150 was diagnosed with ASD while one in 54 was diagnosed in 2020. The National Center of Education Statistics reported that in public schools 14% students receive special education services and of that number, 33% of them have a specific learning disability (National Center of Education Statistics, 2019).

According to The National Council (2020) 70% of adults in the US have experienced one traumatic event during their lifetime. And more than 33% of youth who have experienced trauma will begin to exhibit post traumatic stress disorder (PTSD) (The National Council, 2020).

In reviewing existing literature on signs of posttraumatic stress it was discovered that 26% of individuals exposed to traumatic events and 67% demonstrated signs (Mehtar & Mukaddes, 2011). It could be hypothesized that individuals with ASD and co-occurring intellectual disability would be at even higher possibility of PTSD development than those without an intellectual disability.

In my own experience as an educator, I have worked with students with autism, students who have experienced traumatic events, and some who have both. The way these diagnoses impact one another affects the needs of students. The educational community at large would benefit from increased understanding of the interaction

between ASD and PTSD to better support those needs. The resiliency of students depends on it.

Research Focus

As a teacher I began to question the diagnosis or label that was given to my students this led the question are we seeing a rise in ASD or is this more trauma? As educators we spend time looking at students and strive to support them and meet their needs. How can I become a teacher who is meeting every aspect of the students needs and their diagnoses? I wanted to learn more about trauma and ASD, in order to determine if there is a need for more vigilance of characteristics exhibited before giving a label. I began my research by looking at trauma in individuals with ASD and noticing their unique traits about them compared to neurotypical individuals. Researching trauma, PTSD, and Adverse Childhood Events (ACEs) and the effects they have on the youth and individuals exposed to traumatic events. In my research trauma and ASD, the overshadowing of characteristics between individuals with ASD and neurotypical brain development who had been exposed to traumatic events was of concern to me. I asked how differently are the characteristics of individuals with ASD and individuals with neurotypical brain development vary when exposed to trauma. More importantly are we looking at an increase in ASD or are we not seeing the trauma individuals are being exposed to. As educators, is there a need for more training on trauma, with a focus on how the body responds to trauma? Does more research need to be done to look at the effects of trauma and how it affects individuals with ASD?

The characteristics of ASD and those of individuals who have been exposed to trauma are similar. Hoover and Romero, (2019) research made several points in diagnosis of individuals may be disregarded for PTSD diagnosed in individuals with ASD due to "diagnostic overshadowing," which may lead to incorrect diagnosing of difficult behaviors or anxieties. The ‘diagnostic overshadowing” can make it difficult to get the correct diagnosis or understanding of their characteristics they are exhibiting. The importance of understanding both ASD and trauma in individuals is vital in giving them support.

CHAPTER II: LITERATURE REVIEW

Literature Search Procedures

To locate the literature for this thesis, searches of Educator's Reference Complete, Expanded Academic ASAP, Education Journals, ERIC, Academic Search Premier, Google Scholar, and EBSCO MegaFILE were conducted for publications. This list was narrowed by only reviewing published empirical studies from peer-reviewed journals that focused on trauma, autism, special education, and screenings found in journals that addressed the guiding questions. The keywords that were used in these searches included "trauma and asd," "symptoms of ASD," "symptoms asd and trauma," "symptoms of trauma," "ACEs in individuals," ACEs in individuals with autism, and "trauma and autism." The structure of this chapter is to review the literature on trauma in individuals that are neurotypical and look at how individuals respond to trauma in three sections in this order: Trauma and ASD, PTSD, and Comorbidity

Trauma and ASD

Individuals who are showing signs of abnormalities and impairments in development, social contexts, and difficulty with communication and/or being in social settings is commonly diagnosed as Autism Spectrum Disorder (ASD). Baudino (2010) states, "Autism is typically characterized by a lack of nonverbal communication skills, such as eye contact, facial expressions, body postures, and even gestures. Children diagnosed with autism often have marked difficulties in social contexts, such as making friends and relating to others" (115). The author studied an individual with ASD and her response to trauma. The diagnosis and responses were interrelated. During the week the participant spent 1 hour 30 minutes participating in dance therapy. The therapy took a

playful approach to concentrate on the participants nonverbal communication. The trauma was influential in the way she connected with others and how she understood her external world. The participant was exhibiting characteristics of an individual that had experienced trauma: she was demonstrating self-injurious behavior, including hitting herself, throwing herself against the wall , and banging her head on the floor. Baudino stated that the participant's fit trauma parameters with her behaviors and symptomatology; used autistic defenses to protect and felt that she was not autistic. For example, when an individual with ASD has change in their routine, they may start banging their head. Children's behavior that has been exposed to trauma creates a protective stance that reveals repetitive behavior to seek sameness as a way to create protection. They need to understand, anticipate, and get familiar with their world, to prevent frustration. Baudino suggested that child in this case study had experienced early trauma such as emotional and physical and/or neglect. She felt this was why she was exhibiting similar characteristics meeting the criteria for autism.

A study by Kerns, Newshaffer, Berkowitz, and Lee (2017) researched the exposure to adverse childhood experiences (ACEs) and how poverty, intellectual disability, and mental health effects individuals who have been exposed. The study examined 65,680 participants who were between the ages of 6 to 17-year-old. In this study, there were 62,067 neurotypical participants and 1,280 with ASD. Children with lower income were significantly higher relationships between ACEs and ASD and this number decreased when they were observed for mental health conditions. The authors felt the relationship between ACEs and ASD was controlled by the family's income and

whether the participants had co-occurring health mental health. Individuals with ASD have a higher risk of adverse childhood experiences than those without ASD.

Kerns, Newschaffer, and Berkwoirtz (2015) looked at the rationale for examining trauma and the characteristics of individuals with ASD. The authors were studying for a deeper understanding of ASD's relationship with trauma and how we could understand both of them. Work in trauma research shows that individuals with ASD experience substantially more trauma or traumatic childhood experiences which may contribute to greater chances of physical and mental trauma. Individuals exposed to traumatic events may exhibit changes in mood, arousal, behavior, and/or traumatic stress. Research has shown that there are structural inconsistencies of the brain (e.g., amygdala medial prefrontal cortex, orbitofrontal cortex, and cingulate cortex) and there are similar physiological abnormalities (e.g., increased startle response) in the absence of emotional regulation and ASD. Individuals with arousal and emotion dysregulation have irregularities neurologically and are more like to have traumatic stress. When exposed to trauma it causes a disruption in the functioning of the amygdala and prefrontal cortex, which has been shown in both neurotypical brain development and those with ASD.

In both individuals with trauma and ASD, there is a display of exaggerated cortisol response to new and threatening stimuli. They will also have elevated salivary cortisol levels when they feel something traumatic is going to happen. Kerns et. al reported that trauma has the capability to change the developmental course of individuals and to look at the transactional relationship between trauma and ASD. Mehtar and Mukaddes (2011) discovered that 26% of individuals exposed to traumatic events, 67% demonstrated signs of posttraumatic stress. This was twice the rate seen in neurotypical

participants. An individual with trauma and ASD experiences increased risk exposure to a wide range of negative psychological and physical situations in life. Individuals with intellectual and developmental disabilities experience traumatic events 1.5 to 3 time more often than those with neurotypical brain development (Kerns, Newshaffer, & Berkowitz, 2015). The authors noted that 63% percent of individuals with ASD meet the language disorder criteria, which makes it difficult for them to communicate their emotional experiences or struggles.

Mehtar and Mukaddes (2011) point out that it can be difficult for individuals with ASD to say what they feel emotional and how they feel about their feelings. The authors studied 69 participants from Istanbul (53 males, 16 females). All participants who had met the criteria for ASD under the DSM-IV. Eighteen of the participants had trauma in their history, and 12 were diagnosed with PTSD. In the 18 cases (11 boys and seven girls) and the 12 cases (8 boys and four girls). The results from this study revealed that of the participants, 18.5% were exposed physically abuse, 16.6% were sexually abused, 40% had a history of sexual abuse. The authors discovered that the incidence of trauma was higher in girls than in boys. However, because individuals with ASD had fundamental struggles defining and labeling their inner cognitive states, arousal encumbrance trauma may have gone undetected, and the number of incidences may be higher than the data shows. Communication deficits can make the levels of distress associated with stressful or traumatic events difficult to understand. Individuals with an ASD diagnosis have profound challenges in identifying and explaining their inner mental states, memories, and afflictions of daily life, which may make it difficult to differentiate the stressful events and their symptoms of trauma or ASD.

Hoover and Kaufman (2018) reported that research investigating bullying and adverse childhood experiences (ACE) in persons with ASD had risen in recent years. A study of 14,508 students, of which 17% were students with ASD, in five school districts in the United States, consisting of 17 middle schools, six high schools, two alternative schools in grades 6 through 12. Individuals with ASD were discovered to have experienced more ACEs than neurotypical peers. (Rose, Simpson, Moss, 2015). Hoover and Kaufman reviewed the data and found that individuals with ASD are bullied by peers 3-4 times more than neurotypical individuals. Peer victimization of individuals with ASD has been shown to have adverse effects on their academic and social function. Individuals exposed to ACEs had a delayed diagnosis of ASD compared to those individuals without adverse childhood experiences. The authors stated that this delay could be detrimental to effective intervention.

Brenner, Mazefsky, Smith, and Gabriels (2017), conducted a study with 350 participants, 4-21 years of age, in specializing psychiatric hospitals. The study's objective was to survey how to conduct markers of trauma because of maltreatment in youth with ASD and parental figure report on child abuse. and related behavioral side effects. Out of the 350 participants, 99 indicated that they were abused. The participants were split into two groups those who were caregivers who reported abuse and those who were not caregivers. The authors' theory was threefold. First, they believed that individuals with ASD were more likely to exhibit symptoms of trauma and the symptoms were similar to symptoms of PTSD. Second, individuals with ASD don't show symptoms in the same way because they communicate and understand emotions differently. Third, individuals with ASD respond similarly to stressful events as neurotypical individuals. Individuals

with ASD experience more intrusive thoughts, distressing memories, irritability, loss of interest, and lethargy due to abuse.

Stack and Lucyshyn (2018) examined the core symptoms of individuals with ASD that have incurred trauma or adverse childhood events. They evaluated whether people with ASD are more vulnerable to trauma and whether they communicate these symptoms in the same way as neurotypical individuals. The authors stated the characteristics of ASD are social and included communication deficiency, restricted behaviors and interests; 40%-50 % have intellectual disabilities, socially naivety, and inappropriate behaviors. Recognizing trauma symptoms in individuals with ASD can be a challenge because of these characteristics. The behaviors seen in individuals with ASD are also seen in individuals with trauma or adverse childhood events. The similarities in the two make for a challenge in determining if the behavior exhibited represents trauma or ASD. When an individual experiences danger it will activate the limbic system to protection them. This occurs more quickly in someone who has experienced trauma than someone without a traumatic background. The hypothalamus, amygdala, and hippocampus are what make up the limbic system. Hypothalamus and brain stem function their best when the limbic system is regulating them. The limbic system filters the sensory information that needs to have additional processing. The authors went on to talk about the research showing how the hippocampus helps to regulate the response to stress, explicit memory, and fear conditioning. The hippocampus may fail to terminate stress responses and to determine when the environment is unsafe. A child is impulse control, emotional regulation, and cognition will be inhibited when the individual does not have the support to work through the threat.

Berg, Acharya, Shiu, and Msall (2017) studied 95,677 participants nationwide between the ages of 0 and 17 by collecting parent interviews. The study was conceived at the time of the diagnosis of ASD on the crucial role of adverse childhood events. The authors noted that individuals with ASD are at higher risk of adversity and would like to improve early detection. ACEs exposure resulted in delays in the therapy and diagnosis of individuals with ASD. The study considered the time of diagnoses and the number of adverse childhood events. The results of the study showed that participants with three or more ACEs resulted in an elongated time of diagnosis. The author concluded that ACEs might pose barriers to the diagnosis and treatment of individuals with ASD, and early diagnostic gains may not extend to children with ASD experiencing ACEs. The missed chance to diagnosis early and provides intervention magnifies in individuals with both adverse families and ASD diagnosis and are exhibiting health, behavior, and functioning difficulties (Berg, et al., 2017).

Fuld's (2018) article investigates emerging research related to stressful life and traumatic events as they effect wellbeing and mental health in individuals with ASD. The fundamental discoveries bring up the basic issue of in what manner should we intellectualize the issues confronting those with ASD and eventually, how we practice interventions. The author expressed that we should think about opportunities and appraisals for an individual with ASD to survey and decide on the appropriate treatment plans. Individuals with ASD face comorbid symptomatology as well as the fuel of key manifestations of ASD to help ensure the fundamental causes for these side effects are not overlooked. The research found a high severity in ASD characteristics in individuals who have faced adverse childhood experiences. The article pointed out that different

researchers have attempted to discover what establishes stress and trauma, more predominantly as it relates to individuals with ASD. The authors felt it was important to state individuals with ASD have been described as being direct, literal, loyal, honest, and persistent.

The study performed by Gong, Want, Cheung, and Chan (2017) studied 2,469 participants who were attending college to find out whether traumatic events have a variable in the similarity between schizotypal and autistic traits. The participants each completed the Schizotypal Personality Questionnaire, Autism Spectrum Quotient, and the Childhood Trauma Questionnaire-Short Form. The study results reinforced the author's understanding of the similarity between autistic and schizotypical traits by examining the influence of childhood trauma. The author stated that they could not find an association between autistic traits and schizotypal traits that could be explained by childhood trauma. Trauma to children and emotional abuse proved to be the most important risk factors of psychosis. Neuroimaging investigations of ASD indicated a variety of useful similar networks between the prefrontal cortex and the amygdala. These equivalent peculiarities had been seen in individuals that have adverse childhood experiences on a regular basis along with other-related psychopathology. The authors found that although childhood trauma may lead to a propensity in social experiences toward hostility and aggression it is unlikely to be related to the deficits in social information processing.

Individuals with autism could be inclined to interpret non-compromising stimuli as undermining because of confusion of expressive gestures and circumstances. The responsiveness to noise and other stimuli may be increased. For example, going to a new place may be a threatening and traumatic event for an individual with ASD.

Hoch and Youssef (2019) examined 7,695 cases of community mental health professionals and individuals who may have undergone stressful experiences and identified trauma-related problems in individuals with autism spectrum disorders (ASD) and developmental disabilities (DD) are not readily understood. Psychologists and mental health providers conducted assessments and evaluations for mental health disorders and autism. The study included 77.4% male participants and took place in MN between August 2013 until February 2018. Of the 3402 (44.2%) participants had annuals assessment, 4286 (55.7%) evaluation and 7 (.1%) had a neuropsychological assessment. Trauma was reported in 50.6% of participants, including 40.3% with developmental disabilities and 23% with ASD. The study found that individuals with ASD were 66% less likely than those with mental health problems to report trauma. The participants had Trauma/Stressor interconnected diagnoses that were condensed to three levels. The first level consists of no diagnosis associated with trauma. The second level includes diagnoses of disinhibited social involvement, adjustment disorder, acute stress, reactive attachment and other diagnoses related to trauma/stressors. The third level is post-traumatic stress disorder (PTSD). The authors found that there are lower rates of trauma reporting from individuals with ASD.

A similar study by Berg, Acharya, Shiu, Stolbach and Msali (2016) aimed to study the effects of adverse childhood experiences on participants with ASD and access to diagnostic and therapeutic services. The authors obtained the information for the study by using the 2011 and 2012 National Survey of Child Health to assess the occurrence of ACEs with or without ASD. Their study, conducted through parent interviews and participants, included 1,624 participants with ASD, between the ages of zero to seventeen

years old. The aim of this study was to identify the various aspects of ACEs and ASD characteristics among families. The authors investigated the family ACEs level and the connection with the age of ASD diagnoses and the timing of therapy services. The research points to the benefits of early intervention in a child's wellbeing with ASD. Berg et al. (2016) suggest that it is difficult to obtain early diagnosis in children with ASD who have experienced a high ACEs score. Individuals with a more severe risk of delayed diagnosis of ASD as a result of ACEs may be counterbalanced by their greater probability of earlier age evaluation and treatment. Moderate delays of diagnosis and access to therapy can be seen in individuals exposed to ACEs. The authors concluded that individuals with ASD exposed to adversities are at higher risk of not getting access to services and a proper diagnosis. Of the participants with ASD approximately 51% were exposed to a variety of ACEs, and of that number 10.2% experiences four or more ACEs compared to participants without ASD 5.1% have experience more than four ACEs.

Roberts, Ferguson, and Crusto (2012) conducted a 22-month study of 170 children attending Headstart. The median age of the children was 49 months. The purpose of the study was to take a look at children aged 3 through 5 years and see what a lifetime of exposure to trauma had on their psychosocial health and health-related quality of life (HRQOL). They discovered that of the 170 of the children, 123 of them (or 72% of participants) had experienced at least one event of trauma. Of that 72%, 27% had one event, 18% had two events, 12% had three events, and 16% had four or more events of trauma. The study revealed that the most common type of trauma was domestic violence (27%), followed by the death of a loved one (18%), and severe illness to a medical procedure (18%). The findings of this research indicate correlations between the

internalization, externalization, and somatic symptoms of young children and exposure to traumatic events. The author has found links between the stress of exposure of young children and distinctive forms of health problems. Roberts, Ferguson, and Crusto (2012) stated that traumatic experiences have an effect on the development of health in individuals in all stages of their development. The individual's morbidity could be powerfully affected by early life experience, such as trauma or adverse childhood experiences. This is correlated with the number of psychosocial health issues in young children that have trauma that can hinder healthy development and place them at risk for severe psychological and physical problems.

In a study, Cprek, Williamson, McDaniel, and Williams (2015) studied nine individual ACEs, total ACE scores in relation to the delayed risk. The purpose of the study was to look at participants behavioral and social developmental and determine if adverse childhood experiences (ACEs) played a role in the participants development of behavior and social development. The study was conducted nationwide for children ages one to five years. To gather data, the authors used the 2011/12 National Survey of Children's Health and phone interviews. The study found that more than 25% of the participants had a moderate to high risk of mental, cognitive and social delays. Forty percent of participants were at some risk of developmental delays under the age of five. Of those who responded, children who had two ACEs resulted in a moderate to high risk of delay of 32.6%, three ACEs resulted in a 36.9% risk of delay, and four ACEs resulted in a risk of delay of 42.2%. The importance of the relationship between the score of ACEs and the probability of delay was found to be significant. The authors discuss the importance of early childhood detections of trauma (ACEs) is the first five years of life

are crucial to child growth, influencing cognition, mental health, and social skills development. Adverse experiences in childhood have been related to emotional and behavioral competences. When researching ACEs and possibility for mental health, socialization, and academic problems among adolescents, the authors indicated a dose-response association occurs.

A similar study Berb, Shiu, Acharya, Stoback, and Msall (2016) aimed at determining if ACEs among families of children with or without ASD put them at a higher risk for trauma. The authors obtained their data from the 2011/12 National Survey of Child health. They investigated the data for estimating the frequency of ACEs in families without or with children diagnosed with ASD. Depression, hypertension, seizure and sleep disorders, as well as premature mortality have been associated with ASD. The research of the experiences by individuals with ASD is minimal in the role of ACEs in relation to the disparities despite the well-established relationship between detrimental health outcomes and childhood adversity. Studies have also suggested a link between ASD in childhood and ACEs at a community level. Research by the author found that 2.6% of U.S. adolescents, aged three to seventeen, received diagnoses related to ASD.

Fifty-two percent of the 2.6 % of participants rated having mild ASD symptomatology, and 48% were rated to have mild to severe ASD. Eighty-two percent of the participants were male and the average age diagnosis of ASD was 10.4 years. The author's results showed that children with ASD are at great risk of exposure to violence due to environment, mental disorder, parent divorce, drug abuse and a higher over the average ACE score. The study by Berg et al. (2016) linked the severity of childhood ASD to a higher cumulative ACE score. Individuals with ASD early diagnosis may be delayed

and deterred of access to early diagnosis and treatment due to the exposure to stressful family experiences, which will result in more severe ASD symptomatology.

Kerns et al. (2019) study examined how often providers in a community setting offer trauma services to individuals with ASD. The authors contemplated factors related to delivering these services and assessed the supposed need for training. The findings suggest that youth with ASD recurrently experience trauma, yet the evidence-based guidelines for evaluating the treatment of trauma in children with ASD are lacking. The research determined that 10 % of the providers look at trauma, and 75% believe that it needs more attention. Kerns et al. (2019) findings propose that the characteristics of providers and the individuals with ASD they serve could influence trauma-related symptoms screening and treatment. Mental health providers were more than likely to screen for and treat trauma-related symptoms. It was determined that 30% to 60% of other providers reported screening. These findings reflect the increase in trauma awareness. Educators were least prone to report providing trauma screening, which is due to educators focusing more on teaching rather than mental health. The authors suggested that teachers in general education lack the education to know how to address trauma in their students.

Levi (2017) gives a depiction of a seven-year-old boy with ASD and the developmental psychotherapy from his disability along the trauma he experienced. The author proposed a possible way to quantitatively quantify the results of psychotherapy by using psychological assessments. He believed that using standardized psychological testing helped with the therapy process and helped the therapist to get to know the child. The author felt that it was a challenge for psychotherapists to create use of research

methods that do justice to intricate developmental processes and to do this constructively. Children who have been exposed to a traumatic event early in their life can be challenging to assess; the trauma can be harmful to an unstructured personality. The child can have a difficult time taking in information, poorly developed listening skills, and be incapable of concentrating, and make sense of things. The author described it as a fragmented personality structure. The author suggests that instead of feeling they are being helped to process their trauma, they can feel further traumatized by emotional neglect, educational neglect, and indifference of those who are proclaimed as helpers. In the case study of the young individual with ASD, he had two siblings that were on the spectrum. The author believed that even though the parents had some genetic susceptibility regarding neuro-developmental disorders, this family had some environmental influences as well.

Condon, Holland, Slade, Redeker, Mayes, and Sadler (2019) examined the connection among previous maternal experiences, current maternal traumatic stress disorder (PTSD) symptoms, and children's signs of exposure to chronic stress. The 45 participants were maternal/child who had reported a history of ACEs, mothers between the ages 19 to 33, and children at a mean age of 6.7 years. Eighteen percent of mothers conveyed low to moderate levels of childhood trauma, 22% moderate to high, 15% severe to extreme levels. Results suggest that previous maternal experiences may have important influences on a child's health and affect the child's possibility of experiencing toxic stress; mothers had higher blood pressure levels, and children had increased behavioral problems. Being exposed to chronic stressors over time may lead to changed development of the brain, numerous physiologic systems, and ultimately, deprived

mental and physical health. The authors discussed some conceivable psychosocial pathways through maternal ACEs and trauma history that may lead to amplified stress and interrupted physiological development in children. The study suggested that the influence of maternal ACEs is not restricted to the prenatal or infancy period but may resume through preschool and the early school years.

PTSD

Rumball, Happe, and Grey (2020) study aimed to explore the rates of probable posttraumatic stress disorder (PTSD) and experience of trauma in individuals with autistic spectrum disorder (ASD). In this study, fifty-nine participants between the ages of 19 and 67 years of age with 36 females with ASD. The participants completed online and in-person questionnaires about their experiences of traumatic or stressful events and associated mental health difficulties. Rumbal et al. followed DSM-5 and non-DSM-5 traumas and used the rates of self-reported PTSD characteristics and finding that many of the subjects met the DSM-5 PTSD Criterion A. Of the 59 participants, 35 reported a "non-DSM-%" traumatic event. Seventy-two percent of females reported and 48% of males reported a traumatic event. The authors found over 40% showing possible PTSD within the last month and over 60% reporting probable PTSD at some point in their lifetime. The experiences included a wide range of life events as traumatic. The current diagnostic systems would not recognize many of the life events experienced as traumatic. Individuals with ASD have a greater chance of developing PTSD when exposed to trauma. The authors felt that this raised concerns for this group and they likely could not receive the help they need for probable PTSD. Rumball, Happe, and Grey (2020) stated that it could be hypothesized that individuals with ASD and co-occurring intellectual

disabilities would be at an even higher possibility of PTSD development than those without intellectual disability.

The exposure to childhood interpersonal traumatic stressors has to be described as a silent epidemic. D'Andrea, Ford, Stolback, Spinazzola, and Kolk (2012) provided an overview of several studies on the effects of interpersonal trauma in childhood. The authors studied articles that included childhood victimization symptoms, research on biological systems interrupted by childhood trauma consistency, application of nonspecific diagnosis related to maltreated children and the effects of interventions effects. Numerous studies have recognized that exposure to interpersonal trauma is related to impulse dysregulation, alterations in a schema, and interpersonal difficulties. Maltreated children showed difficulty understanding and expressing emotions. It was also discovered that many of them could be sensitive to facial cues. Many studies point out when exposed to trauma children's executive functioning declined, and aggression increased. In many cases, they have a distorted view of themselves and the world. The children will more likely accept attention deficits, aggressive behaviors, dissociation, emotion dysregulation, and have inappropriate behavior socially and lability.

Haruvi-Lamdan, Zahar, Kraus, and Golan's (2020) study examined the posttraumatic stress symptoms (PTSS) in individuals with ASD and neurotypical brain development. The authors looked at various potentially traumatic life events, and this could include adverse social events and events that were more commonly studied in relation to PTSD. The aim of the research was to illustrated the PTSS level in individuals with ASD and, more specifically to evaluate what events individuals with ASD experience as traumatic. The study consisted of 25 participants with ASD and 25

neurotypical of the 50 in the group 10 were females. The participants were requested to take part in life events study, which included using advertisements placed on internet forms and social media networks. In the beginning a short phone interview was conducted in order to assess compatibility to the study, schedule a meeting, and provide information for the study. Individuals with ASD showed an increase of experiencing potentially traumatic events, especially social victimization (bullying). The conclusion of the study, the authors found that with the increased vulnerability to trauma and heightened PTSS, most importantly to social stressors, females with ASD may be at an amplified risk for trauma. It is essential to point out that individuals with ASD may show a unique profile to PTSS. As there is also the possibility of the increased hyperarousal symptoms resulting from a commonality between ASD characteristics and PTSS, there are some similarities between traits that are characteristic of both conditions that may inflate the level of PTSS reported by individuals with ASD.

As a part of Hoover and Kaufman's (2019) review of 17 schools of bullying, they took a look at PTSD in individuals with ASD. They felt that there was a necessity for assessment of trauma experiences and PTSD characteristics. PTSD in ASD populations, however, has been little studied, with only two out of 86 studies evaluating anxiety disorders in children with ASD, including an assessment of PTSD. Individuals with ASD and reports of child maltreatment experienced typical trauma-related symptoms, including intrusive thoughts, distressing memories, irritability, and depressive effect; however, only 7% met full diagnostic criteria for PTSD.

Stack and Lucyshyn (2018) examined the effects of trauma on the development of young participants. They discussed why individuals with ASD might have increased

susceptibility to trauma, as well as the common understanding of how trauma and PTSD symptoms are exhibited. To include an overview of trauma care in children with neurotypical development and to suggest a tailor-made treatment model for managing trauma in an individual with ASD. The authors noted that individuals exposed to trauma could have feelings of extreme terror, helplessness, and panic when trauma happens and this may lead to a PTSD like characteristics. The observable behavior characteristics of individual with ASD could also be seen in individuals with PTSD. Individuals with PTSD have a reduced hippocampal volume. The hippocampus plays a role in the individual's response to stress, explicit memory, and fear conditioning. The consistently heightened arousal to stress may fail to terminate stress responses and challenge determining when things are unsafe. The amygdala and prefrontal cortex, areas correlated with the regulation of emotions showed changes in functional connectivity (Mazefsky et al. 2013). The authors concluded that collaborative research is needed to help understand and treat trauma in individuals with ASD.

In this article, Carrigan and Allen (2011) did a study on a 26-year-old male with autism. The participant had experienced bullying. The authors believed when he felt threatened he would become aggressive and may overgeneralize from the trauma to interpret regular events as more dangerous than others. They reported on the treatment for PTSD using careful questioning, adaptions of language, and concepts, looking to find cognitive approaches to treating PTSD. The authors suggested the diagnosis of PTSD in individuals with ASD was difficult as the characteristics they exhibit showed exhibited differently than what the criteria outlined. Individuals with intellectual disabilities are at risk experiencing traumatic adverse life events due to their vulnerability to physical and

sexual abuse that can lead to psychological problems. The traumas are more likely to lead to PTSD in individuals with ID. Though they are more likely to have PTSD, the individuals working with them may not be aware of PTSD, as they may present in different ways than a neurotypical individual. The individual may act out in a typical form similar to neurotypical individual that had experienced trauma, yet due to the individual diagnosis, caregivers may see it being part of the diagnosis and not due to trauma.

Some authors have argued that individuals with PTSD lack metacognitive abilities. Mehtar and Mukaddes (2011) theorized individuals with ASD struggled with describing their inner mental life, which creates difficulty in detecting signs of PTSD. The authors disagreed in this case as the participant. The participant was afraid to express himself as he was afraid it would upset his parent. When he knew he was not going to offend his parents, he was able to answer questions and explain emotionally and psychologically what he was thinking. It became clear to the authors that the individual had PTSD. In their study, they provided therapy for the individual, Cognitive Behavior Therapy. Due to the individual's disability, they needed to modify to better fit his needs.

Hoover and Romero (2019) conducted a study of 22 participants between the ages of eight and 15. The participants and parents were recruited from an urban pediatric hospital from outpatient behavior health treatment clinics. They were screened for ASD medical diagnosis, one or more trauma experiences, and for the ability to speak and understand English. The aim of the study was to investigate the ability of individuals with ASD to construct a web-based tactile screen app for evaluating self-reported trauma and symptoms. The prototype for the app was tested on individuals that had been exposed to

trauma. The majority of the individuals reported bullying and teasing by 75% of them. The authors said that it is estimated that by the age of 16, 68% of adolescents in the US have been exposed to some traumatic event. Individuals with ASD are more likely to experience traumatic childhood experiences than those of their neurotypical peers. Adverse childhood experiences are income insufficiency, household mental illness, parental divorce, substance abuse, and neighborhood violence. Distinguishable PTSD symptoms such as depression, anxiety, adaptive behavior regression, and suicidality after traumatic experiences are common. It was determined in the study that 25% of the participants tested positive for PTSD and had six or more trauma exposures. Several of the points the authors made may be disregarded for PTSD diagnosed in individuals with ASD due to "diagnostic overshadowing," which may lead to incorrect diagnosing of difficult behaviors or anxieties.

Abram et al. (2007) study was part of the Northwestern Juvenile Project. 1829 youth and the study were of 898 participants with PTSD and comorbid psychiatric disorder who were between the ages of 10 to 18 years old. Patients in detention centers often have one or more mental disorders, the most common Posttraumatic stress disorder. The data was collected for 13 months on 532 males and 366 females. PTSD affects 1 in 10 youth, and one of the most depilating aspects of PTSD and the possibility of co-occurrence with other psychiatric disorders. The authors used the PTSD module of the DISC-IV, which assesses eight traumatic experiences; you or someone close has been badly hurt or died, attacked physically, beaten badly, threatened with a weapon, sexual abuse, bad accident, natural disasters (fire, flood, tornado etc.), heard or seen someone get hurt badly or killed, and seen a dead body. The research indicated that 93% of the

individuals studied had PTSD and one comorbid mental disorder, and 54% had two or more types of comorbid disorders, such as anxiety behavioral and substance use disorders. Eleven percent of the participants had four types of comorbid disorders. In this study over half of the participants have two or more types of comorbid disorders.

Comorbidity. Taylor and Gotham, (2016) researched 36 participants with ASD, all of whom were in their final high school year. In a standardized interview questionnaire, parents and participants were asked to answer questions. Frequencies were used to analyze the distribution of incidents and traumas in cumulative life. The research centered on two related variables that predict psychopathology in ASD on a daily basis: cumulative stressful life events and traumatic experiences. Of the 36 individuals in the study, 50% of them had experienced trauma. Over 50% of youth had experienced at least one trauma, and half of them were reported to have mood or anxiety characteristics. The most common anxiety condition was obsessive-compulsive condition, with depression being a mood disorder. The authors' conclusions suggest that mood symptomatology in individuals with ASD that are in their transition-age is often related to traumatic events. The research of the individuals they surveyed did not equate trauma or accumulated life events with anxiety. In individuals with ASD, it is more likely that anxiety will develop in the earlier years. Anxiety and mood disorders are more common in adolescents and adults with ASD, and they felt this could be attributed to trauma. Adults with ASD who observed a more significant impact of ASD symptoms on their lives tended to have higher depressive symptoms if they also reported higher levels of cognitive perseveration.

Rumball, Happe, and Grey (2020) stated that individuals with ASD often show intense anxiety responses to harmless situations (deviations in routine or sensory stimuli)

due to their different perception and comprehension of the world. Rumball et al. discovered that individuals who struggled intellectually and or have PTSD have an elevated rate of anxiety compared to their neurotypical peers and or no PTSD. Individuals with ASD have heightened incidences of adverse life events and anxiety disorders and there is lack of studies of the risk of trauma exposure or PTSD development with individuals with PTSD.

McGillvray and Evert (2014) did a study of 109 participants with ASD to determine if they were more likely to have a mood disorder. They were given Stress Survey Schedule and Depression Anxiety Stress Scales (DASS), which was modified to enable self-report (SSS). The authors noted that individuals with ASD are especially more vulnerable to co-occurring mood disorders and with higher levels of anxiety than those seen in individuals with neurotypical brain development. An example that they gave was in the neurotypical population it was reported that 20.8% and 28.8% had mood and anxiety disorders. Individuals with ASD, however, came in at 53% with mood disorders, and of that, 50% were anxiety disorders. Among those diagnosed explicitly with Asperger syndrome, 70% of the participants reported at least one instance of significant depression, and 56% reported an anxiety disorder. The study expressed the significance of age and gender in considering the nature of stressful events and psychological comorbidity on individuals with ASD. The results they found were consistent with other studies in the fact that individuals with ASD have a higher rate of psychological disorders. The authors suggest that the higher levels of distress and depressive symptoms could be due to the everyday events for individuals with ASD.

These events could be the change in their daily schedule changing, social interactions, or uncertainty.

The aim of the Rigles (2016) study was to evaluate the predominance of ACEs among individuals with ASD and how their experience of ACEs in this population is related to well-being, resilience and mental wellbeing in comparison with children without autism. This research uses the new and nationally representative children's sample and reports variances in the relationship between ACEs, resilience, and safety compared with children with autism. Fifty-six thousand seven hundred forty-six participants between the ages of 6 and 17, with 1188 participants with ASD, and 85% were males. Rigley examines the resiliency and how this helps individuals through adverse childhood events. While this group has undergone more ACEs than their peers, resilience does not appear to be linked significantly to the rise in ACEs. The author felt the increased risk for ACEs was due to the stress that parents and caregivers had experienced. Children with autism undergo substantially more adverse childhood events, have substantially less stamina and well-being and significantly higher mental health risks relative to their peers. Individuals with ASD showed higher depression and anxiety rates. This could be masked by the fact that depression, and anxiety exhibit the same characteristics as ASD. A survey of 350 participants with ASD revealed symptoms of depression at 54% with higher functioning ASD and at 40% with lower functioning ASD. (Mayes et al. 2011).

In a study by Kerns, Newschaffer, and Berkowitz (2015), they reported that individuals with ASD present with psychological comorbidities, mainly anxiety disorders with 40% of the population. Several researchers have theorized that deficits in the

regulation of emotions can predispose people to anxiety disorders. The study results showed that anxiety and depression were higher in individuals with ASD. Parents reported anxiety, depression, and attention deficit disorder. Individuals with ASD had higher rates of ID, depression, anxiety, behavioral and attention problems. The study reported that individuals with ASD have a comorbidity of the following duel diagnosis anxiety 40.5 %, depression 20.9%, ADD/ADHD 49%. Compared to individuals who have neurotypical brain development, anxiety 5.5%, depression 4.3%, and ADD/ADHD 11.1%. The study showed that Comorbidities are consistently found in individuals with ASD.

Lew and Xian's (2019) wanted to create a relationship between latter groups of adverse childhood experiences (ACEs) and internalizing disorder (US children's anxiety and depression). They obtained much of the data from 2016 NSCH for children between the ages of six and seventeen. Economic poverty, divorce, drug abuse and mental health were among the latent groups. The authors stated that there is a wider range of psychiatric disorders affecting children. They identified two categories of internalizing disorder (depression and anxiety) and externalizing disorder (ADHD and defiant oppositional disorder). Studies have shown that individuals who have adverse childhood experiences are at risk for mental health. The study consisted of 35,718 individuals; 10% who reported anxiety, 11.4% with depression, and 3.8% who reported both. The number of ACEs associated with participants with some comorbid internalizing disorders was substantially higher; for example, participants with four or more ACEs had at least double the risk of comorbid internalizing disorders (anxiety, depression). The authors

summed up that the development of children's mental wellbeing would have both an immediate and enduring positive impact on the general wellbeing of the US population.

Robinson (2018) published a study improving the group therapy approach Emotion Focus Therapy (EFT) to interact with several levels of emotional regulation and interpersonal relatedness challenges for individuals with autism. The author wanted to examine whether Emotion Focus Therapy for Autism Spectrum (EFT-AS) would be an effective treatment, especially for an individual that had experienced trauma. The author felt it was essential to look at trauma and its effects on individuals with ASD, and they can be helped with the impact of trauma. The author claimed that emotional perception and perceptivity play a significant role in the ability to control emotions and trauma recovery. Individuals with ASD report they feel disconnected from emotional experiences. This incapability to connect emotionally can make it challenging to identify emotion and effectively cope with traumatic experiences. Through this, it was decided that social-emotional differences in relation influence individuals with ASD in order to establish experiences linked to trauma. Studies found that 74% of young people with ASD had clinically significant emotional problems, such as depression, anger, or anxiety compared to 18% of those with neurotypical brain development. Due to a lack of interpersonal engagement, which could lead to social isolation and rejection by others, the lack of interpersonal engagement skills can lead to both internalizing and externalizing, and this could lead to traumatic experiences.

Abram et al. (2007) who studied individuals with PTSD in juvenile detention centers found that comorbid disorders have an unfavorable impact on diagnosis and treatment. The authors suggested that youth with PTSD and comorbid disorders have

considerably more behavioral issues, impaired interpersonal relationships, and health problems than those without comorbid disorders.

Warrier and Baron-Cohen (2019) performed a study of 150 participants with ASD with a sample size of 105,638. The study aimed to determine if individuals with ASD are more likely to self-harm and have suicidal behavior and ideation (SSBI). The authors' considered previous studies associated with autism, childhood trauma self-harm, and suicidal behavior and ideation (SSBI). The authors believed that childhood trauma could influence more autistic traits measured later in life. It also directed them to account for a genetic propensity for other co-occurring conditions, such as ADHD, depression, and schizophrenia. The authors believed that SSBI in individuals with ASD might be because they have experienced bullying, ridicule by their teacher, late diagnosis, lack of early support, and lack of support. Results suggest that autism and childhood trauma interact substantially to contribute to increased self-harm and suicidal behavior and ideation. Trauma contributes to SSBI; it is vague how this interacts with autism or autistic traits.

White and Roberson-Nay (2009) studied 20 participants between the ages of seven and fourteen receiving outpatient services. All of the participants a clinical diagnosis of ASD and they all attended public school. Ninety percent of the participants were male and attended public education. The participants took part in an Autism Diagnostic Observation Schedule (ADOS) which is an organized interview established on an observational assessment. The aim was to investigate the relationships deficient in participant ASD between isolation, anxiety and degree of social ability. A substantial relationship was found between parent-reported participants withdrawal, depression, and social disability was discovered. The authors suggested the relationship between social

disability anxiety and higher-functioning young people who are conscious of their social impairment, underestimate social signs and social failure expectations. Results of the study showed higher anxiety in high functioning adolescents with ASD, with both parents and adolescents being used as informants. Of the participants 25% scored in the clinical range and 35% scored in the higher social anxiety. Parents reported that child anxiety was related to their lack of capability to initiate with peers. The children reported anxiety was not due to their social ability.

CHAPTER III: DISCUSSION AND SUMMARY

Summary of Literature

Autism has risen dramatically in numbers over the last 20 years, diagnosing 1 over 150 people in 2000, and one in 54 in 2020 (CDC, 2020). In Baudino's , 2010 study, individuals with Autism spectrum disorder (ASD) are showing signs of abnormalities and impairments in development, social contexts, difficulty with communication, lacking nonverbal communication (e.g. eye contact, facial expressions, body postures and gestures). They could also have difficulty making or relating to friends and being in social settings can be stressful for them (Baudino, 2010). They have difficulty in identifying and explaining their inner mental states, memories, and afflictions of daily life (Mehtar et al., 2011).

As the number of individuals with ASD being diagnosed increased, so did the number of children being exposed to trauma or adverse childhood experiences (ACEs). The exposure to childhood interpersonal traumatic stressors has been described as a silent epidemic. It is estimated that by the age of 16, 68% of adolescents in the US have been exposed to some traumatic event (Hoover et al., 2019). Stack et al. (2018) research found that trauma can cause a disruption in the functioning of the amygdala and prefrontal cortex. Over time as individuals who have experience trauma continue to have overexposure to traumatic events this may cause the hippocampus to terminate stress response and to determine when the environment is unsafe. Brenner et al. (2017) found that the child's impulse control, emotion regulation, and cognition will be inhibiting. This is especially true when the individuals do not have the support needed to work through the threat. D'Andrea et al. (2018) reviewed numerous studies showing that exposure to

interpersonal trauma is related to impulse dysregulation, alterations in a schema, and interpersonal difficulties.

Gong et al. (2017) found that childhood trauma may lead to a propensity to social experiences with hostility and aggression. Roberts et al. (2012) found linkages between trauma and health problems. Researchers found that trauma could contribute to a hindrance in their healthy development and put them at risk for serious psychological and physical problems. In general, children exposed to traumatic events early in life are challenging to assess (Levi 2020). These traumatic events can be harmful to an unstructured personality since they can have difficulty with taking in information, developing listening skills, concentrating, or making sense of things. This is true especially when the child is not helped with processing the trauma. This emotional and educational neglect can cause them to feel further traumatized, by emotional and educational neglect, which can cause them to exhibit changes in mood, arousal and behavior, and/or traumatic stress.

Individuals with ASD are 1.5 to 3 times more likely to experience trauma compared to individuals with neurotypical brain development (Kerns et al., 2015). The work in trauma research shows that individuals with ASD experience substantially more traumatic childhood experiences which may contribute to increased chances of experiencing physical and mental challenges. Mehtar et al. (2011) found individuals with ASD have a profound challenge in identifying and explaining their inner mental states, memories and afflictions of daily life. They have difficulty defining struggles, labeling inner cognitive states, and arousal encumbrances. This challenge can make it difficult to differentiate stressful events and the characteristics of ASD, which means that the data

could show lower instances of trauma. A study by Robinson (2018) found that individuals with ASD reported feeling disconnected from emotional experiences. This incapability to connect emotionally can make it challenging to identify emotion and effectively cope with trauma. Brenner et al. (2017) suggested that a child's impulse control, emotional regulation and cognition will be inhibited when the individuals do not have the support to work through the trauma or threat. Hoover et al. (2018) stated that individuals exposed to adverse childhood experiences had a delayed diagnosis of ASD compared to those who had not been exposed. It could be hypothesized that individuals with ASD and co-occurring intellectual disability would be at even higher possibility for the development of PTSD (Rumbal et al. 2020).

Kerns et al, (2013) reported that in both individuals with trauma and ASD, there is a display of exaggerated cortisol response to new and threatening stimuli. Trauma has the capability to change the developmental course of individuals and to look at the transactional relationship between trauma and ASD (Kerns et al. (2013). Kerns et al. (2015) found when exposed to traumatic events can disrupt the functioning of the amygdala and prefrontal cortex and this has been seen in both individuals with ASD and neurotypical brain development. Haruvi-Lamdan et al. (2020) found that there is are links between ASD characteristics and PTSS; there are some similarities between the traits that are characteristics of both conditions that may inflate the level of PTSS reported by individuals with ASD. Individuals can have feelings of extreme terror, helplessness and panic when trauma occurs, which this may lead to PTSD like characteristics (Stack et al., 2018). The observable behavior characteristics of individuals with ASD can be seen in

individuals with PTSD. Due to "diagnostic overshadowing" between PTSD and ASD, it can be difficult to diagnose individuals with ASD with PTSD (Stack et al., 2018).

Comorbidity is common with individuals with ASD, especially anxiety and mood disorders. Taylor et al. (2016) felt that this could be attributed to trauma. Individuals who struggled intellectually and with trauma have an elevated rate of anxiety (Rumball et al., 2020). McGillvray et al. (2014) research found that individuals with ASD have a higher rate of psychological disorders which could be due to the stress of daily schedule change, social interactions or uncertainty. Warrier et al. (2019) felt that individuals with ASD increase in comorbidity and trauma was due to bullying, ridicule by their teacher, late diagnosis, or lack of early support. Researchers suggested that childhood trauma interacted substantially to contribute to the increase in self-harm and suicidal behavior (Warrier et al., 2019).

Limitations of the Research

In gathering research for this literature review, it was very clear that there has been limited research on individuals with ASD and trauma. More specifically, the effects of trauma on an individual's growth, particularly in those early years of development can have an effect on their brain growth. The existing research on ASD related to trauma exposure relies heavily on caregiver reporting. This can be inaccurate at times due to the assumption of how the individuals feel or about what has happened to them. This is due to the fact that individuals with ASD have a difficult time expressing feelings or understanding their feelings. Also, communication can be a difficult aspect of individuals with ASD and they and the caregivers can have different aspects of traumatic situations. Many children with ASD have been described as being in their own little world. It is

difficult to determine if trauma has been a catalyst for them going deeper into their own little world or that they were not affected by the trauma. One can also assume that due to their difficulty with socialization and understanding their feelings, they are not understanding the trauma.

Implications for Future Research

Trauma and the effects on the development of children and the relationship the two have together and the effects trauma, especially in the early years of development. The importance of having a conversation with parents, primary caregivers, school districts, child protections services on the impact that adverse childhood experiences and/or trauma have on the development of children. Research in early intervention of children who had experienced adverse childhood experience, examining the developmental, social or behavioral delays and gaining a greater understanding of the relationship between trauma and the development of youth. Followed by comparing this information with the developmental, social or behavioral delays of individuals with ASD. Research on the developmental and biochemical rarely focuses on the psychosocial stressors and whether this can have an influence on the diagnosis of ASD.

This leads to having a better way of assessing children with ASD that have been exposed to trauma. To improve the medical distinction between PTSD, anxiety, depression, and other comorbidities, ASD-adapted trauma interventions and other comorbidities.

Implications for Professional Application

The professional implication of the reviewed material is to broaden my understanding of trauma and the implications on individuals both with ASD and

neurotypical development. The importance of educating ourselves on trauma and ASD and how each individual looks when they have been exposed to adverse childhood events.

Educators and school districts should recognize the effects of trauma on individuals and how it affects their development, both socially and behavioral response. When working with children it is important to look at the function of the behavior. Children increasingly being exposed to trauma and especially those with ASD. Educators and school districts need to recognize the rising numbers of ASD and trauma, which leads to having more training on both to better serve the population. I feel it is very important for me to look at my students through different eyes. Over the years that I have been teaching I have looked at students with ASD and thought their behavior was due to their disability. This paper has given me insight into trauma or adverse childhood events and the effects it has on the development of an individual. Along with the better knowledge on trauma and its effects on the development, I have begun to wonder about the diagnosis of ASD and believe some are misdiagnosed. I want to be better at working at the behavior and seeing it as communication of present or past trauma.

Conclusion

The importance of understanding individuals with ASD and their characteristics to better understand them as individuals, to provide the best support we can. The unique characteristics of individuals with ASD that have been exposed to trauma are difficult to determine. With more surge of trauma at an early age and the overshadowing of characteristics between trauma and ASD it will be difficult to determine where an individual is demonstrating ASD characteristics or PTSD characteristics. Due to

“diagnostic overshadowing” between PTSD and ASD, it can be difficult to diagnose individuals with ASD with PTSD (Stack et al., 2018). Research shows the need for a strong form of evaluating, screening, preventing and treating to better serve individuals that have been exposed to trauma. This could reduce the lack of social and emotional development.

References

Abram, K., Washburn, J., Teplin, L., Emanuel, K., Romero, E., & McClelland, G. (2007, October). Posttraumatic stress disorder and psychiatric comorbidity among detained youths. Retrieved from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2818309/

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Washington, DC: Publisher.

Baudino, L. M. (2010). Autism spectrum disorder: A case of misdiagnosis. *American Journal of Dance Therapy*, *32*(2), 113–129. doi /10.1007/s10465-010-9095-x

Berg, K. L., Acharya, K., Shiu, C.-S., & Msall, M. E. (2017). Delayed diagnosis and treatment among children with autism who experience adversity. *Journal of Autism and Developmental Disorders*, *48*(1), 45–54. doi 10.1007/s10803-017-3294.

Berg, K. L., Shiu, C.-S., Acharya, K., Stolbach, B. C., & Msall, M. E. (2016). Disparities in adversity among children with autism spectrum disorder: A population-based study. *Developmental Medicine & Child Neurology*, *58*(11), 1124–1131. doi 10.1111/dmcn.13161

Brenner, J., Pan, Z., Mazefsky, C., Smith, K. A., & Gabriels, R. (2017). Behavioral symptoms of reported abuse in children and adolescents with autism spectrum disorder in inpatient settings. *Journal of Autism and Developmental Disorders*, *48*(11), 3727–3735. https://doi.org/10.1007/s10803-017-3183-4

Carrigan, N., & Allez, K. (2016). Cognitive behaviour therapy for post-traumatic stress disorder in a person with an autism spectrum condition and intellectual disability: A case study. *Journal of Applied Research in Intellectual Disabilities*, *30*(2), 326–335. https://doi.org/10.1111/jar.12243

Condon, E. M., Holland, M. L., Slade, A., Redeker, N. S., Mayes, L. C., & Sadler, L. S. (2019). Maternal adverse childhood experiences, family strengths, and chronic stress in children. *Nursing Research*, *68*(3), 189–199. https://doi.org/10.1097/nnr.0000000000000349

Cprek, S. E., Williamson, L. H., McDaniel, H., Brase, R., & Williams, C. M. (2019). Adverse childhood experiences (ACEs) and risk of childhood delays in children ages 1–5. *Child and Adolescent Social Work Journal*, *37*(1), 15–24. https://doi.org/10.1007/s10560-019-00622-x

D'Andrea, W., Ford, J., Stolbach, B., Spinazzola, J., & van der Kolk, B. A. (2012). Understanding interpersonal trauma in children: Why we need a developmentally appropriate trauma diagnosis. *American Journal of Orthopsychiatry*, *82*(2), 187–200. https://doi.org/10.1111/j.1939-0025.2012.01154.x

Delahooke, M. (2019). *Beyond behaviors: Using brain science and compassion to solve children's behavioral challenges*. Eau Claire, WI: PESI Publishing & Media.

Fuld, S. (2018). Autism spectrum disorder: The impact of stressful and traumatic life events and implications for clinical practice. *Clinical Social Work Journal*, *46*(3), 210–219. https://doi.org/10.1007/s10615-018-0649-6

Gong, J., Wang, Y., Lui, S. S. Y., Cheung, E. F. C., & Chan, R. C. K. (2017). Childhood trauma is not a confounder of the overlap between autistic and schizotypal traits: A study in a non-clinical adult sample. *Psychiatry Research*, *257*, 111–117. https://doi.org/10.1016/j.psychres.2017.07.035

Haruvi-Lamdan, N., Horesh, D., Zohar, S., Kraus, M., & Golan, O. (2020). Autism Spectrum Disorder and Post-Traumatic Stress Disorder: An unexplored co-occurrence of conditions. *Autism*, *24*(4), 884–898. https://doi.org/10.1177/1362361320912143

Hoch, J. D., & Youssef, A. M. (2019a). Predictors of trauma exposure and trauma diagnoses for children with autism and developmental disorders served in a community mental health clinic. *Journal of Autism and Developmental Disorders*, *50*(2), 634–649. https://doi.org/10.1007/s10803-019-04331-3

Hoover, D. W. (2015). The effects of psychological trauma on children with Autism Spectrum Disorders: A research review. *Review Journal of Autism and Developmental Disorders*, *2*(3), 287–299. https://doi.org/10.1007/s40489-015-0052-y

Hoover, D. W., & Kaufman, J. (2018). Adverse childhood experiences in children with autism spectrum disorder. *Current Opinion in Psychiatry*, *31*(2), 128–132. https://doi.org/10.1097/yco.0000000000000390

Hoover, D. W., & Romero, E. M. G. (2019). The interactive trauma scale: A web-based measure for children with autism. *Journal of Autism and Developmental Disorders*, *49*(4), 1686–1692. https://doi.org/10.1007/s10803-018-03864-3

Kerns, C. M., Newschaffer, C. J., & Berkowitz, S. J. (2015). Traumatic childhood events and autism spectrum disorder. *Journal of Autism and Developmental Disorders*, *45*(11), 3475–3486. https://doi.org/10.1007/s10803-015-2392-y

Kerns, C. M., Newschaffer, C. J., Berkowitz, S., & Lee, B. K. (2017). Brief report: examining the association of autism and adverse childhood experiences in the national survey of children's health: The important role of income and co-occurring mental health conditions. *Journal of Autism and Developmental*

Levi, S. (2017). Measuring change in psychotherapeutic work with a traumatized child on the autistic spectrum. *Journal of Child Psychotherapy*, *43*(3), 330–352. https://doi.org/10.1080/0075417x.2017.1350736

Lew, D., & Xian, H. (2019). Identifying distinct latent classes of adverse childhood experiences among US children and their telationship with childhood internalizing disorders. *Child Psychiatry & Human Development*, *50*(4), 668–680. https://doi.org/10.1007/s10578-019-00871-y

Mehtar, M., & Mukaddes, N. M. (2011). Posttraumatic stress disorder in individuals with diagnosis of Autistic Spectrum Disorders. *Research in Autism Spectrum Disorders*, *5*(1), 539–546. https://doi.org/10.1016/j.rasd.2010.06.020

McGillivray, J. A., & Evert, H. T. (2014). exploring the effect of gender and age on stress and emotional distress in adults with autism spectrum disorder. *Focus on Autism and Other Developmental Disabilities*, *33*(1), 55–64. https://doi.org/10.1177/1088357614549317

Rigles, B. (2016). The relationship between adverse childhood events, resiliency and health among children with Autism. *Journal of Autism and Developmental Disorders*, *47*(1), 187–202. https://doi.org/10.1007/s10803-016-2905-3

Roberts, Y. H., Ferguson, M., & Crusto, C. A. (2012). Exposure to traumatic events and health-related quality of life in preschool-aged children. *Quality of Life Research*, *22*(8), 2159–2168. https://doi.org/10.1007/s11136-012-0330-4

Robinson, A. (2018). Emotion-Focused therapy for autism spectrum disorder: A case conceptualization model for trauma-related experiences. *Journal of Contemporary Psychotherapy*, *48*(3), 133–143. https://doi.org/10.1007/s10879-018-9383-1

Rose, C. A., Simpson, C. G., & Moss, A. (2015). The bullying dynamic prevalence of involvement among a large-scale sample of middle and high school youth with and without disabilities. *Psychology in the Schools*, *52*(5), 515–531. https://doi.org/10.1002/pits.21840

Rumball, F., Happé, F., & Grey, N. (2020). experience of trauma and PTSD symptoms in autistic adults: Risk of PTSD development following DSM -5 and Non-DSM -5 traumatic life events. *Autism Research*, 1–11. https://doi.org/10.1002/aur.2306The Effects of Psychological Trauma on Children with Autism Spectrum Disorder

Stack, A., & Lucyshyn, J. (2018). Autism spectrum disorder and the experience of traumatic events: Review of the current literature to inform modifications to a treatment model for children with autism. *Journal of Autism and Developmental Disorders*, *49*(4), 1613–1625. https://doi.org/10.1007/s10803-018-3854-9

Taylor, J. L., & Gotham, K. O. (2016). Cumulative life events, traumatic experiences, and psychiatric symptomatology in transition-aged youth with autism spectrum

disorder. *Journal of Neurodevelopmental Disorders*, *8*(1), 1–11. https://doi.org/10.1186/s11689-016-9160-y

Warrier, V., & Baron-Cohen, S. (2019). Childhood trauma, life-time self-harm, and suicidal behavior and ideation are associated with polygenic scores for autism. *Molecular Psychiatry*, 1–15. https://doi.org/10.1038/s41380-019-0550-x

White, S. W., & Roberson-Nay, R. (2009). Anxiety, social deficits, and loneliness in youth with Autism Spectrum Disorders. *Journal of Autism and Developmental Disorders*, *39*(7), 1006–1013. https://doi.org/10.1007/s10803-009-0713-8

Wright, P., Esq. (2020, January 06). The history of special education law. Retrieved from https://www.wrightslaw.com/law/art/history.spec.ed.law.htm

The History of Autism. (2020). Retrieved from https://www.masters-in-special-education.com/history-of-autism/