Adverse Childhood Experiences Among Adolescents with Autism Spectrum Disorder:

Implications for School-Based Interventions

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Abstract

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An autism spectrum disorder (ASD) diagnosis in childhood comes with inherent vulnerability to adverse experiences. For some, the developmental process of adolescence overwhelms their altered neural system, exacerbating this vulnerability. Adolescence presents an opportunity to mitigate the negative effects of adverse childhood experiences (ACEs) on the developing brain. However, little is known about children who have both ASD and a history of ACEs. This study, first sought to understand the prevalence of ACEs among adolescents with ASD and whether those who have experienced ACEs are placed at further risk for other social and emotional challenges, impacting their transition into adulthood. With adolescents being highly sensitized to their environment, opportunities for intervention in their environments may mitigate the long-term consequences of ACEs. Due to adolescents spending a great deal of their time in school, developing interventions to support those with ASD that can be implemented within the school would be beneficial. Thus, the second aim of this study was to understand how schools can serve as a place for trauma-informed intervention.

The Whole School, Whole Community, Whole Child (WSCC) model served as the conceptual framework for this mixed-methods study. Data from the 2020 National Survey of Children's Health (NSCH) were examined to determine the prevalence of ACEs and further risk for social-emotional issues in adolescents with ASD. Focus groups and semi-structured

interviews were conducted with school personnel in public schools to understand how they respond to typically developing and ASD students who have experienced ACEs.

The findings showed that 60% of adolescents with ASD had experienced ACEs. Additionally, significant associations were found between the experience of ACEs and a diagnosis of anxiety, depression and ADHD. Furthermore, the experience of ACEs was associated with being bullied, however, no significant association was found with their ability to make friends. Great variability exists in the way schools respond to ACEs, if at all, and lack consistency and clarity in their SEL practices. Therefore, there is a need to identify the school climate components that are needed to provide trauma-informed interventions and determine how to scale these interventions. Further, with the heterogeneity of the ASD profile, identifying which factors are associated with this risk will be helpful in providing tailored interventions, specifically in the school environment.

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Dedication

I dedicate this to my late grandmother, Roshan Babul.

Your love, light, and example continue to guide me.

Chapter 1: Introduction

Adverse Childhood Experiences (ACEs) are a serious public health issue. The 1998 Felitti et al. Adverse Childhood Experience Study revealed that two thirds of participants had experienced one ACE and more than one in five had experienced three or more ACEs. The findings also showed that there was a graded dose-response between ACEs and negative health and wellbeing outcomes (Felitti et al., 1998). ACEs have serious life course implications that can impact an individual's physical and mental wellbeing and subsequent quality of life. The eight categories of ACEs include sexual abuse, physical abuse, emotional abuse, household adult mental illness, household substance abuse, domestic violence in the household, incarceration of a household member and parental divorce or separation (Austin et al., 2016). More recently, the broader range of ACEs include gun violence exposure, interaction with the juvenile justice system, frequent peer victimization, parental absence, and migration trauma (Mersky et al., 2017; Franco, 2018; Garrido et al., 2018; Rajan et al., 2019). The impacts of some of these categories of ACEs will be outlined below.

Specifically, at the individual level, ACEs set individuals on a trajectory of negative neurological, cognitive, and emotional development as well as overall health. This, in turn, impedes healthy adjustment in adulthood and adult socioeconomic outcomes due to a disruption in the child's development and cumulative damage over time. For example, victims are at increased risk of substance abuse, drug use, anxiety disorders and depressive disorders which can lead to negative adult socioeconomic outcomes such as early child rearing, low education and financial strain (Henry et al., 2018). Compared to youth who had not experienced trauma, those who were maltreated were twice as likely to have poor educational qualifications and to not be in an educational setting, employment or training at the age of 18 (Jaffe et al., 2018).

For physical abuse specifically, there is a significant association with post-traumatic stress disorder (PTSD) and panic disorder diagnoses (Norman et al., 2012). In addition, for some children with PTSD, the abuse has resulted in disordered psychobiological functioning. The negative experiences they have endured impacted the development of their brain and as a result, the smaller brain size brings about lower IQ (Cohen et al., 2003). While all forms of abuse were associated with an increased likelihood of developing an eating disorder, physical abuse victims were at even greater risk of developing bulimia nervosa in the instances of repeated and severe physical abuse (Norman et al., 2012).

Though child emotional abuse has been less studied than child physical abuse and child sexual abuse, the health risks are almost the same as those victims of child physical abuse and far worse than those who have been neglected (Luken et al., 2021). Even though emotional abuse is often co-occurring with physical or sexual abuse, children who have experienced emotional abuse had 3.37 higher odds of attempted suicide in comparison to those who had not experienced it (Norman et al., 2012). However, all forms of abuse were linked to increased suicide attempts and suicide ideation in comparison to non-maltreated groups (Norman et al., 2012).

Throughout the child victim's development into adulthood, they are also more likely to engage in risky sexual behavior and at significantly higher risk of STIs in comparison to non-abused children. The risk of HIV infection was also twice as common in physical abuse or emotional abuse victims (Wilson, 2008). With respect to chronic disease and lifestyle risk factors, these are also dependent on the type of abuse. For example, there was a significantly increased risk for obesity with victims of the three types of abuse. Physical and emotional abuse were also associated with risk of smoking in adulthood and again, with physical abuse, this depended on the frequency of occurrence (Norman et al., 2012). Finally, research suggests that

there are significant associations between physical abuse and the onset of arthritis, ulcers, and headaches or migraines in adulthood (Romans, 2002).

According to the 2020 National Survey of Children's Health (NSCH), 47 % of adolescents ages 12 to 17 have experienced one or more ACEs (Child and Adolescent Health Measurement Initiative (CAHMI), 2021). With respect to those affected by ACEs, this data confirms the negative impact on adolescents' social, personal and emotional wellbeing and development. What's more, a significantly higher proportion of ACEs were found among adolescents who also have learning (LD) or intellectual disabilities (ID), developmental delays (DD), or psychopathologies such as attention-deficit hyperactivity disorder (ADHD), anxiety or depression (Berg et al., 2019; CAHMI, 2021). Research also confirms that for those who have experienced one or more ACEs during adolescence, there are negative impacts on their level of educational attainment, increased risk of behavioral issues, suicidal ideation, early initiation of pregnancy and sexual activity, among many others, leading to poorer quality of health and wellbeing into adulthood (Soleimanpour, 2017). Among adolescents, those with autism spectrum disorder (ASD) are exposed to more ACEs in comparison to their typically developing (TD) peers (Berg, 2016).

Adolescence is characterized as a developmental period where puberty is driving many changes within an individual. It activates the developmental process consisting of physical and reproductive changes as well as emotional and cognitive changes (Kang et al., 2013). Further, these hormones drive an organizational change in the brain with a great increase in brain plasticity, making adolescents easily influenced by positive and negative behaviors and experiences however, with long lasting implications (Smith et al., 2013). Due to the neurodevelopmental growth that eventually equips adolescents to navigate this period, it is

important to be attentive to what could potentially hinder this process. The impact of ACEs can significantly alter this growth (Schauss et al., 2019). Importantly, how do these ACEs impact adolescents with unique needs, specifically those with neurodevelopmental disabilities? In some, altered neural development from childhood has resulted in delays in coping and self-regulation into adolescence. Furthermore, the inherent neural maturation brought on by puberty may prevent some 30% of adolescents with ASD from acquiring the necessary adaptive behaviors to transition into adulthood (Picci & Scherf, 2015). With poor social abilities characterizing the ASD diagnosis, this increases the risk of exposure to adverse experiences in the form of bullying experienced 3-4 times more in those with ASD in comparison to their typically developing peers (Hoover & Kaufman, 2018). Importantly, along with diversity in presentation of ASD core symptoms, there are co-occurring conditions of psychopathologies, IDs and adaptive behavior challenges, that are often present and variable in those with the diagnosis (Lai et al., 2014; Rylaarsdam & Guemez-Gamboa, 2019). Consequently, the developmental period of adolescence may exacerbate their vulnerabilities to ACEs (Blair & Diamond, 2008; Picci & Scherf, 2015).

While executive function and emotion regulation tend to improve during this time for adolescents with ASD, a gap still remains in comparison to their typically developing (TD) peers (Rosello et al., 2021b), and in some, these areas may decrease or worsen during adolescence (Seltzer et al., 2004; Pugliese et al., 2016; Baker et al., 2021). Moreover, in comparison to their TD peers, co-occurring conditions like anxiety, depression, ADHD, LD, ID, and DD affect a significantly higher proportion of adolescents with ASD (CAHMI, 2021). Berg et al. (2016) reported a significant association between a diagnosis of ASD and trauma due to the inherent vulnerability that comes with the disability. In children ages 3-17, more than 50% of those with an ASD diagnosis were exposed to one or more ACE and 10% experienced four or more.

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Anxiety and mood disorders are most common among adolescents with ASD, with 50-70% of adults with ASD reported to have a lifetime diagnosis of mood disorder and 50% a diagnosis of anxiety (Taylor & Gotham, 2016). The experience of trauma in adolescents with ASD could be one factor that contributes to the emergence of these disorders. With the knowledge that adolescence is already a time of rapid change and growth, this segment of adolescents has unique neural systems that by nature alter the brain development as mentioned above (Boedhoe et al., 2020).

While the ASD-specific vulnerabilities place these children and adolescents at-risk, there are also environmental factors that may make them more susceptible to victimization. Due to the challenging nature of ASD, these include relational adversities such as higher prevalence of parental divorce in comparison to parents of children without disabilities, mental and physical wellbeing of caregivers, and parental aggravation towards their child. (Hartley et al., 2010; Catalano et al., 2018; Ronis et al., 2021). Finally, irrespective of income level, there is a vulnerability to economic stress associated with caring for a child with ASD, nevertheless, those with fewer financial resources are at higher risk of the relational disruptions mentioned above (Kerns et al., 2017).

Covid-19 and ACEs

The 2021 Adolescent Behaviors and Experiences Survey (ABES) (CDC, 2022c) reported 73% of high school students in the United States had experienced at least one ACE during the Covid-19 pandemic. This was associated with poorer mental health and increased suicidal behaviors in comparison to adolescents who had not experienced ACEs (Anderson et al., 2022). This period exacerbated exposure to ACEs such as job loss, food insecurity, mental health of caregivers, emotional abuse, loss of caregivers, and domestic violence (Davis et al., 2020;

Patrick et al., 2020; Srivastav et al., 2021; Anderson et al., 2022). Individuals considered to be vulnerable due to pre-existing psychopathologies, physical disabilities or neurodevelopmental disorders were likely to have been impacted to a greater degree (Mutluer et al., 2020).

In particular, those with ASD, already at heightened risk for comorbid psychopathologies, reported disruptions that directly impacted the two main domains of social and communication deficits as well as restrictive and repetitive behaviors (Oomen et al., 2021). The inability to rely on predictability, routine or structure, brought on by the absence or change in delivery of special education and daily social intervention programs that support the development of coping skills, placed them at-risk for further mental health and behavioral issues (Eshragi et al., 2020; Mutluer et al., 2020). It is known that caregivers of children and adolescents with ASD experience more anxiety, coping stress, depression and other physical health symptoms (Kuhlthau et al., 2014; ten Hoopen et al., 2021). Thus, it appears that the difficulties experienced by their children, in turn negatively impact the caregivers (Yilmaz et al., 2021) and without the usual support of the schools or clinicians, the parental issues were further exacerbated during Covid-19 (Mutluer et al., 2020; Hurwitz et al., 2021).

Trauma-Informed Schools

For the majority of adolescents, the structure of the school environment inherently requires staff to keep track of students, follow-up when necessary, and importantly demonstrate care for their social, emotional, and academic success. The nature of the school as an organization provides multiple measures for assessing a child's wellbeing and as such, an ideal setting for providing evidence-based trauma interventions (Fitzgerald & Cohen, 2012). This kind of structure diminishes as adolescents transition into adulthood. Thus, with ACEs leading to negative life course outcomes into adulthood as discussed above, not only is the school

environment important in prevention efforts, but intervention as well. With the term 'trauma-informed care' derived from the research in the medical and mental health services fields, this approach offers the school an opportunity to set adolescents off on a positive trajectory into adulthood (Thomas et al., 2019). The important features of 'trauma-informed care' outlined by Substance Abuse and Mental Health Services Administration (SAMSHA) are that organizations realize the negative impacts of trauma, recognize and be knowledgeable about signs and symptoms presenting in an individual indicating exposure to trauma, integrating knowledge of trauma in policies and practices, and through these practices, resist re-traumatization (SAMSHA, 2014). Therefore, in the aftermath of trauma exposure, schools are an important protective factor to the extent that they: identify and appropriately respond to trauma, mitigate its impacts, enhance the student's resiliency (Chafouleas et al., 2016).

The Whole School, Whole Community, Whole Child (WSCC) framework developed by Lewallen et al. (2015) will serve as a guide to identify the school climate components that are needed to provide trauma-informed interventions and determine how to scale these interventions. According to this model, a child or adolescent's healthy development is a shared responsibility between schools, health professionals and communities. As will be discussed further in Chapter II, the WSCC framework is derived from the Social-Ecological Theory and has been adapted for holistic school-based health promotion (Barcelona et al., 2022). The objectives of this framework are to improve the child or adolescent's cognitive, physical, social and emotional development (CDC, 2007) with a goal to set them on a trajectory of a positive quality of life.

1.1 Purpose of the Dissertation

Less is known about factors associated with ACEs among individuals who are vulnerable due to their diagnosis of ASD. This study, therefore, aims to understand the prevalence of ACEs

among adolescents with ASD and whether those who have experienced ACEs are placed at further risk for other social and emotional challenges, impacting their transition into adulthood. Further, with the heterogeneity of the ASD profile, identifying which factors are associated with this risk will be helpful in providing tailored interventions. With adolescents being highly sensitized to their environment, opportunities for intervention in these contexts may serve to mitigate the long-term consequences of ACEs. Given the high prevalence of ACEs in adolescents in the general national population (CAHMI, 2020) and subsequent negative life course implications, what impact does the added vulnerability of ACEs have on this subgroup of adolescents? This research topic is informed by empirical research on brain development and contextual influences for adolescents with ASD. More information is needed about how long-term negative effects of ACEs in adolescents with ASD can be mitigated. Due to adolescents spending a great deal of their time in school, developing interventions to support those with ASD that can be implemented within the school would be beneficial, as schools are well-positioned to meet the developmental needs of students (Bilias-Lolis et al., 2017). Thus, a second aim of this study is to understand how schools can serve as a place for trauma-informed intervention and barriers and facilitators to implementation. The study will contribute to how we intervene on ACEs with adolescents with ASD.

Research Questions

1. Among a nationally-representative sample of adolescents, what is the prevalence of ACEs among adolescents with ASD? What is the prevalence of ACEs among those with ASD and co-occurring intellectual disability (ID) or psychopathologies?

2. Among a nationally-representative sample of adolescents with ASD, what is the association between the experience of ACEs and their social context (i.e. bullying and

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their ability to make and maintain friends) and their social emotional wellbeing (i.e.

flourishing and depression)?

3. a. Drawing on qualitative data from a convenience sample of pre-service school staff and
    current staff in public middle and high schools, what are examples of specific resources,
    processes, and practices currently in place in these schools to respond to adolescents who
    have experienced one or more ACEs?

    b. What are examples of the specific resources, processes, and practices in place in public
    middle and high schools to respond *specifically* to adolescents with ASD who have also
    experienced one or more ACEs?

    While this study seeks to understand how school supports can serve as a way to mitigate

the impact of ACEs specifically in adolescents with developmental disabilities, this is an

important period to intervene for all adolescents who may have experienced at least one ACE. As

outlined above, if not addressed right before they enter adulthood, this could be a missed

opportunity to intervene and mitigate the potentially harmful impacts of ACEs on poor health

and learning outcomes among adolescents. Therefore, and in line with the Healthy People 2030

objectives that have identified adolescent health as a high priority public health issue, ACEs -

particularly as they impact adolescent physical and mental health - must be addressed.

Specifically, four objectives outlined in the Healthy People 2030 objectives drive the need for

school-based interventions. These are: "*Increase the proportion of children and adolescents with*

symptoms of trauma who get treatment", "Increase the proportion of trauma-informed early

childcare settings and elementary and secondary schools", "Increase the proportion of children

and adolescents who receive evidence-based preventive mental health interventions in school

and early childhood care and education programs", and "Reduce the number of young adults

(age 18-25 years) who report 3 or more ACEs" (U.S. Department of Health and Human Services, n.d.).. These objectives call for the need for integrated efforts between schools, healthcare providers, families and community programs to ensure that all children and adolescents, with and without disabilities, are provided with the tools to reduce the negative impacts of ACEs. With the integrated efforts of family, community assets and resources as protective factors, resiliency research demonstrates that individuals can overcome adversity and develop a strong sense of wellbeing. (Hamby et al., 2021). This dissertation seeks to contribute to this area of work.

The next chapter of this dissertation presents a review of the ASD diagnosis and how this group may be uniquely impacted by ACEs, followed by a review of what constitutes a trauma-informed school and evidence-informed trauma-informed programs that serve all adolescents and those with ASD, grounded in Social-Ecological Theory and guided by the WSCC framework. Subsequent chapters will outline the methodology and results of the study, concluding with implications for schools in providing trauma-informed care for adolescents with ASD.

Chapter 2: Literature Review

This literature review begins by providing a background of the autism spectrum disorder (ASD) diagnosis, the developmental trajectory into adolescence, and the possible impacts of adverse childhood experiences (ACEs) in this group. The next section will outline the theoretical and conceptual frameworks informing this study - the Social-Ecological Theory and the Whole School, Whole Community, Whole Child Model (WSCC) respectively. Three specific components of the WSCC framework will guide the remainder of the literature review and will explore school climate practices, counseling, psychological and social services, and health education that currently address mental health and trauma-informed practices in schools.

2.1 ACEs and Adolescent Developmental Trajectory – 'Typically Developing' and ASD

Adolescence is characterized as a developmental period when puberty is driving many changes within an individual. It activates the developmental process consisting of physical and reproductive changes as well as emotional and cognitive changes (Kang et al., 2013). Further, these hormones drive an organizational change in the brain with a great increase in brain plasticity, making adolescents easily influenced by positive and negative behaviors and experiences, with long lasting implications (Smith et al., 2013). Due to the neurodevelopmental growth that eventually equips adolescents to navigate this period, it is important to be attentive to what could potentially hinder this process. The impact of ACEs can significantly alter this neurodevelopmental growth (Schauss et al., 2019). From this lens, adolescence presents an opportunity for intervention as it is still a time when brain pathways, particularly in the prefrontal cortex are being made, where the effects of ACEs on developing negative brain pathways can be redirected to more positive neural systems. Importantly, how do these ACEs impact adolescents with unique needs, specifically those with neurodevelopmental disabilities? With the knowledge

that adolescence is already a time of rapid change and growth, this segment of adolescents has unique neural systems that by nature alter the brain development as mentioned above (Boedhoe et al., 2020).

Less is known about the prevalence of ACEs and factors associated with ACEs specifically in populations of adolescents who are vulnerable due to their diagnosis of developmental disability. This tumultuous yet necessary period of development is fraught with internal and external experiences that prepare an individual for adulthood. With respect to adolescents with ASD, in some, due to altered neural development from childhood resulting in delays in coping and self-regulation, this developmental period may exacerbate their vulnerabilities to ACEs (Blair & Diamond, 2008; Picci & Scherf, 2015).

The ASD Diagnosis

As outlined in the DSM-5 (APA, 2013), Autism Spectrum Disorder (ASD) is a neurodevelopmental disorder which is characterized by difficulties in two domains: 1) social-communication and social interaction and 2) restrictive, repetitive patterns of behavior, activities, and interest. The former involves impairments in social-emotional reciprocity, non-verbal communicative behaviors, and the development and maintaining of relationships. The latter comprises four sub-categories, of which a deficit must be present in at least two of them. These are: stereotyped or repetitive speech, motor movement or object use; excessive adherence to routines or ritualized patterns of verbal or nonverbal behavior; highly restricted, fixated interests; hyper- or hypo-reactivity to sensory stimuli.

As a result of these core symptoms presenting across a spectrum, the diagnosis of ASD is unique to each individual, with varying degrees of abilities and challenges (Peterson et al., 2019). The diagnosis can be made as early as two years of age, but many children receive a

diagnosis later in childhood (Lord et al., 2006). These disruptions to neural development, prenatally or in infancy, result in atypical neural organization in the early stages of life. Of significance is how this impacts the frontal lobe areas of the brain which facilitates the development of self-regulation and coping. This is the foundation of everything and a protective resource for vulnerable children. Broadly, self-regulation encompasses an individual's ability to modulate their behavioral or affective responses (Blair & Diamond, 2008) and in children with ASD, there is an impairment in these processes, including emotion regulation and executive function (Hill, 2004). Emotion regulation involves the self-control over affective experiences and expressions and subsequently engaging in effective coping strategies (Calkins & Hill, 2007; Blair & Diamond, 2008; McClelland & Cameron, 2012). Executive function comprises inhibition and inhibitory control, working memory, and cognitive flexibility (Maximo et al., 2014). This includes difficulties in attention focusing, shifting attention, inhibiting prepotent responses, and soothability (Samyn et al., 2011). For children with ASD transitioning into adolescence, deficits in concepts of perspective taking, executive function, and cognitive linguistic processes persist, which can result in more maladaptive coping behaviors such as avoidance, venting, crying, defense, averted eye contact, and suppression (See review Shochet et al., 2016). Furthermore, emotion dysregulation continues to be prevalent in some during adolescence, though variable in its severity (Northrup et al., 2021). For example, in the first ever study of emotion regulation in adolescents with ASD, Mazefsky et al. (2014) found that both typically developing (TD) adolescents and those with ASD demonstrated adaptive and voluntary forms of emotion regulation at the same rates. However, within the ASD group, they noted that these adolescents engaged in involuntary and maladaptive forms at a significantly higher rate. When thinking about adolescents with ASD who have experienced ACEs, understanding that

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self-regulation is an important part of resiliency is paramount (Shochet et al., 2016). Successful

interventions in the area of self-regulation in childhood prepares the individual for taking on

opportunities for learning and mastering new skills throughout their lifespan. Though ASD

symptoms and maladaptive behaviors improve while adolescents are still in high school, these

improvements may slow down once they leave (Taylor & Seltzer, 2010).

Along with diversity in presentation of ASD core symptoms, there are co-occurring

conditions and challenges or non-ASD symptoms that are often present, yet variable in those

with the diagnosis (Rylaarsdam & Guemez-Gamboa, 2019). These are intellectual ability,

ranging from severe intellectual disability (ID), which has been reported in approximately 31.6%

of children (Baio, 2014), to superior intelligence (Grzadzinski et al., 2013), attention-deficit

hyperactivity disorder (ADHD) in 50-70% of children (Rong et al., 2021), and language

impairments in 63% of children (Levy et al., 2010). Additional co-occurring conditions include

adaptive behavior challenges, motor abnormalities, gastrointestinal issues, epilepsy, sleep

disorders, and psychopathology (Lai et al., 2014). Therefore, the heterogeneity of the ASD

profile must be taken into consideration as it relates to the transition into adolescence, in

particular since co-occurring conditions from childhood tend to persist into adolescence

(Simonoff et al., 2013). Thus, some subgroups may be more at-risk of experiencing ACEs and

face challenges in coping.

Adolescence

Characteristic of the developmental period of adolescence with TD individuals is the

surfacing of various social-emotional issues and problem behaviors. The former refers to issues

of emotional wellbeing such as depression and anxiety, whereas the latter comprises risk-taking,

alcohol and substance use, aggression, and violence (Smith et al., 2013). Similarly, these risks

are found as part of the developmental trajectory for adolescents with ASD. In particular, severity of autism symptoms is linked to a high correlation of depression and anxiety symptoms (Mayes et al., 2011). This is particularly concerning for those with ID as this may have an impact on subsequent quality of life. Adults with ASD and ID are at a greater rate of comorbid psychopathology of depression, bipolar disorder, schizophrenia, and anxiety (LuVollo & Matson, 2009). Additionally, Mazefsky et al. (2014) found an association between maladaptive and involuntary emotion regulation and higher ratings of psychopathology.

With this diagnosis come unique challenges that an individual with ASD may face during their lifetime, whether it be the adaptive challenges or interactions with peers. It must be considered that these experiences may bring about more risk for mental health concerns. Approximately 70% of children diagnosed with ASD have a co-occurring mental health disorder, and approximately 40% have two or more that include anxiety, depression, ADHD, among others (APA, 2013). Entering young adulthood, McCauley et al. (2020) found that ADHD, anxiety, and depressive symptoms decreased, remained stable, and peaked respectively, during this developmental transition. Furthermore, higher verbal IQ predicted higher anxiety and depressive symptoms. Those with clinically-elevated levels of anxiety, or anxiety and ADHD combined experience more social difficulties than individuals with ASD alone or ASD and ADHD (McVey et al., 2018).

While youth with ASD access psychiatric services more often than their TD peers, a recent study found an association between emotion regulation impairments and the use of these services (Croen et al., 2006). Youth in community and inpatient psychiatric settings with ASD displayed clinically elevated levels of emotion regulation impairment (Conner et al., 2021). On one hand, research indicates that the trajectory of core ASD symptoms improves during

adolescence into adulthood for some (Seltzer et al., 2004). On the other hand, decades of research also show that approximately 30% experience "pubertal deterioration" for several years with the onset of puberty. This deterioration involves additional neurological complications, increase in social withdrawal and feelings of loneliness, making the transition into adult social roles and functioning overwhelming (See review Picci & Scherf, 2015).

To successfully navigate the social-emotional and behavior problems in typically developing adolescents and those with ASD requires an understanding of what parts of the brain are especially malleable at this time: the reward system, the relationship system, and the regulatory system (Smith et al., 2013). During this developmental period, these systems are sensitized to the adolescent's environment and as such, they are vulnerable to the situations they are exposed to and individuals they interact with. The impact of ACEs, therefore, can significantly alter the neurodevelopmental growth and hinder the developmental process in all adolescents (Schauss et al., 2019). Therefore, one question that arises is: are adolescents with ASD even more vulnerable to impacts of ACEs since the development of these systems within the brain have been disrupted from much earlier on? Based on the evidence of disruptions in early neural development, Picci & Scherf (2015) propose a theoretical perspective called the 'Two-Hit Model of Autism'. The "first-hit" is proposed to alter children's neural development early on, and result in a neural structure that is set to fail as it faces the unavoidable "second-hit" which is adolescence. While meta-cognitive abilities associated with executive function, such as working memory, planning and reflecting, and emotion regulation such as, impulse control and coping strategies, tend to improve during this time for adolescents with ASD, in comparison to their TD peers, a gap still remains (Rosello et al., 2021a), and in some, these areas may decrease

or worsen during adolescence (Seltzer et al., 2004; Pugliese et al., 2016; Baker et al., 2021; Rosello et al., 2021b).

Adolescents with ASD and without an ID make up two-thirds of the population (CAHMI, 2021). This subgroup, regardless of ASD symptom severity, shows differences in social communication abilities including in school settings, executive function, theory of mind, and daily living skills. Notably, those with severely impaired social-communication abilities and behavioral issues, in comparison to adolescents with moderate or low impairment in these areas, exhibit greater difficulty in socialization and daily living skills (Rosello et al., 2021b). A longitudinal study observing adaptive behavior from childhood into adolescence found that these skills remained impaired, but did not decline with age. Further, this same study found an association of executive function deficits in childhood and adaptive impairments later on in adolescence (Pugliese et al., 2016). Looking specifically at daily living skills such as personal hygiene, financial responsibility, meal preparation, and time management, those with higher cognitive abilities showed a larger gap between cognitive ability and daily living skills (Baker et al., 2021). Furthermore, adolescents with ASD and without an ID are less likely to receive services in high school, particularly those related to vocational, occupational or life skills training and instead, only receive instruction academically (Taylor & Henninger, 2015; Laxman et al., 2019).

Another important developmental domain that renders adolescents with ASD more vulnerable in comparison to TD adolescents is peer relationships. Not only are these relationships integral to general wellbeing (Graber et al., 2016), peer relationships are a source of social support when it comes to coping with a traumatic event, serving to mitigate its long-term negative impacts (Bethell et al., 2019; Yearwood et al., 2019). As noted earlier, due to self-

regulation challenges, delays in coping strategy development persist for some with ASD into adolescence (Blair & Diamond, 2008; Picci & Scherf, 2015). Coping, in the form of peer support, may also be challenging for this group. In adolescence, there is a stable negative association between prosocial skills and autistic symptoms (Oerlemans et al., 2018). Based on the social communication and social interaction deficits that form part of the diagnostic criteria for ASD, this inevitably impacts peer relationships, including everything from identifying and making friends to the ability to engage in conversation or read social cues with peers (Rosello et al., 2021b).

In comparison to their TD peers, regardless of ID, adolescents with ASD have fewer real friends as social challenges from childhood persist into adolescence (Anderson et al., 2011; Barendse et al., 2018; Oerlemans et al., 2018). One hypothesis is that, the altered neural development from childhood has resulted in atypical neural processing in the social brain, thereby impacting peer relationship formation and the understanding of peer relationships (Picci & Scherf, 2015). Nevertheless, research also shows variability in the experiences based on the level of one's core ASD and non-ASD related symptoms. When considering this, to varying degrees, these impact perspective-taking, theory of mind, self-awareness, and empathy, which are necessary for maintaining reciprocal relationships in general (DSM-5; APA 2013). Low reciprocity is seen to be a contributor to anxiety and depression in those adolescents with higher IQ; those with lower IQ report poorer peer relationships in general. (Mazurek & Kanne, 2010). Additionally, adolescents who exhibit severe restrictive and repetitive behaviors along with low verbal abilities are also less connected with their peers (Carter et al., 2014; Jones et al., 2017). This group faces challenges when attempting to make friends as exemplified in the elevated rates of bullying and social isolation (Hodgins et al., 2020). These contributors result in difficulty

forming strong and meaningful peer relationships thereby impacting their ability to gain

autonomy from their parents. When considering the involvement of caregivers in a large number

of ACEs depicted in the NSCH 2020 data, who might the adolescent who has experienced ACEs

turn to?

A recent systematic review examining the experiences of peer relationships among

adolescents with autism affirms the challenge in establishing and maintaining peer relationships

and resulting feelings of isolation, yet it also explains how they understand the role of peers,

desire friendship, and ways in which they demonstrate resilience through overcoming challenges

in navigating these relationships (Cresswell et al., 2019). Though consisting of ten studies, the

review showed that most of the adolescents with ASD had friends. In comparison to their TD

peers, they characterized friendship as being focused on shared interests and activities rather than

intimacy or social support. Furthermore, while correctly interpreting social situations is

challenging, with their desire to maintain friendships, many of them ensured their sense of

belongingness by masquerading, observing others behaviors in social situations and emulating

them, to name a few. Though the ASD diagnosis adds complexity to navigating peer

relationships in adolescence, such relationships are important for all adolescents (Carter et al.,

2014).

How do Adolescents with ASD Process Trauma?

Prior to developing screening tools for adolescents with ASD who have experienced

trauma, it would be important to understand how the associated symptoms manifest in this group

(Brenner et al., 2018) and how language, social, and cognitive functioning can influence their

ability to comprehend a traumatic experience (Hoch & Youssef, 2019). Their responses to

trauma may be varied in comparison to the responses in TD peers, therefore, particularly

challenging to recognize (Kerns et al., 2015). Compounding this challenge is a perspective of shared underlying mechanisms in the disorders of ASD and Post-Traumatic Stress Disorder (PTSD) (Haruvi-Lamden et al., 2018). These include similarities in neurological abnormalities, emotion regulation difficulties, problems in autobiographical memories, and cognitive and behavioral challenges (DSM-5; APA, 2013). As a result, practitioners may dis-regard trauma-related symptoms as simply being symptoms associated with ASD. The cognitive traits present in individuals with ASD such as high level of rumination of past events and low cognitive flexibility may heighten the subjective impact of stressful events, contributing to further mental health disorders (Haruvi-Lamdan et al., 2018). However, there are two conflicting theories on the development of trauma symptoms in individuals with ASD. Kerns et al. (2015) state that children and adolescents with ASD, due to difficulties in information processing, language comprehension, emotion-regulation and social isolation, are more prone to the expression of trauma symptoms in comparison to TD individuals. Whereas another theory states that they may be less susceptible to the development of trauma symptoms due to limited ability in accurately interpreting or perceiving traumatic events. This was shown with the example of bullying as a traumatic event, where Hodgins et al. (2020) reported a significantly lower understanding of bullying and subsequent victimization in adolescent males with ASD compared to their TD peers. Participants watched videos involving bullying, both educational and real-life settings, representing three types of bullying: physical, social and taking one's possessions. To understand the subtleties of bullying, the participants were asked whether the behavior in the video was bullying or aggression. This question aimed to assess whether the nuance of the power imbalance that is inherent in bullying was understood in comparison to aggressive behavior.

In an in-patient setting, Brenner et al. (2018) aimed to identify the behavioral manifestations of trauma in youth with ASD. Two groups, composed of those who had experienced abuse and those who had not, were compared. Caregivers reported on their child's experience of physical, emotional or sexual abuse. Their findings showed that in comparison to the youth with ASD who had not experienced abuse, those who had reported significantly more intrusive thoughts, distressing memories, loss of interest, irritability, and lethargy. Furthermore, Mehtar and Mukaddes (2011) also noted more distractibility, appetite disturbances and aggression in those who had experienced trauma. Evidence from a neurobiological standpoint supports the notion of exaggerated or altered stress responses in those with ASD that make them more prone to PTSD. Characteristic of this neurodevelopmental disorder are the overgrowth of frontal lobes and amygdala. In comparison to the volume of the amygdala of their TD peers, a longitudinal study by Seguin et al. (2021) showed an enlargement in the basolateral amygdala (BLA) of adolescents with ASD. With the BLA being responsible for sensory processing, increased activity in this amygdala region may result in altered emotional perception and regulation (Groen et al., 2010). Kerns et al. (2015) therefore, discuss the functional connectivity and structure of the amygdala and prefrontal cortex being similar in those with ASD and PTSD, trauma histories and other trauma-related disorders. In addition, studies of cortisol response to stressors in children between the ages of 6.5 year and 12 years by Corbett et al. (2008) have shown a disruption to the limbic-hypothalamic-pituitary-adrenal axis in those with ASD which may make them more sensitive to stressors. In contrast to behavioral manifestations of trauma in youth with ASD, internalizing of emotions is characteristic of this diagnosis since some cannot verbally express themselves with ease. As such, anyone in a caring role, parents or teachers, may miss any signals that the child is in distress (Adams et al., 2014).

2.2 Theoretical Framework - The Social-Ecological Theory

      The primary theoretical framework informing this study is the Social-Ecological Theory and its application to health and disability outcomes among adolescents. Rooted in psychology, the Social-Ecological theory emphasizes human functioning as an interaction of the individual and their environment (Brisendine et al., 2021). To facilitate health promotion, in 2007, the CDC developed a four-level model with a foundation in Social-Ecological Theory. The first level is the individual or intrapersonal level, which comprises their biology and personal characteristics such as health, age, education and income. The second level is relationships and includes those found in an individual's support system such as friends, family members, teachers, or anyone that influences an individual's behavior and experiences. The third level represents community, which is any environment in which the social relationships mentioned in level two occur, such as the home or school, and understanding the characteristics of these settings. The fourth level refers to societal influences such as cultural and social norms, and health, economic and social policies that either maintain or lessen the inequalities between groups.

      Accordingly, health and disability must be understood as the interaction of an individual's personal and environmental factors, which in turn inform the nature of tailored supports and interventions (Shogren et al., 2018a). As it relates to adolescents with ASD, in order to be able to provide individualized trauma- informed support, understanding the interplay of individual characteristics with the relational, community, and societal levels mentioned above is necessary (Brisendine et al., 2021). For school systems that serve individuals with disabilities, viewing health and disability through the lens of Social-Ecological Theory is their responsibility and allows for the provision of holistic care (Shogren et al., 2018b). Interventions that encompass all four levels, such as integrated efforts of family, friends, teachers, and community,

can serve as protective factors that also enhance resiliency and subsequently help individuals overcome adversity and promote wellbeing and self-determination (CDC, 2007; Hamby et al., 2021). Many such interventions, using a social-ecological approach, have been implemented in school settings to promote behavioral change with the aim of improving student health (Golden & Earp, 2012).

2.3 Conceptual Framework – The Whole School, Whole Community, Whole Child (WSCC)

The primary conceptual framework informing this study's research questions is 'The Whole School, Whole Community, Whole Child Model (WSCC)' developed by Lewallan et al. (2015). The WSCC emphasizes a shared responsibility between schools, health professionals, and communities. This model adapts the four-levels of the Social-Ecological Theory to reflect a school-based perspective with the student at the intrapersonal level (Brisendine et al., 2021). It is systematic in nature and a collaborative approach, recognizing the intrinsic connections between health and learning. The objectives of this model are to improve the child or adolescent's cognitive, physical, social and emotional development (CDC, 2022a) with a goal to set them on a trajectory of a positive quality of life. The child is supported by all aspects of the school environment which in turn, draw on support from the community where needed.

The WSCC model is comprised of five student-centered tenets, two of which provide the foundation for the research questions in this study: "Each student learns in an environment that is physically and emotionally safe for students and adults" and "Each student has access to personalized learning and is supported by qualified, caring adults". In addition, the model has ten components: Physical education and physical activity; Nutrition environment and services; Health education; Social and emotional climate; Physical environment; Health services; Counseling, psychological and social services; Employee wellness; Community involvement;

and Family engagement. While the segments of the model are interdependent in order to provide holistic support to students, of importance in supporting all adolescents and adolescents with ASD who have experienced ACEs, are the components of *Health Education*, *Social and Emotional Climate*, and *Counseling, Psychological and Social Services*. Schools are positioned as an important social and community context and this WSCC framework serves as a guide to identify which aspects of the school climate can provide a basis for interventions.

 Health Education refers to a comprehensive health education curriculum and instruction that provides students with knowledge of topics such as alcohol and other drug use, eating/nutrition, and relevant for this study, mental and emotional health and personal health and wellness. For adolescents with ASD, a focus can be on teaching coping, self-soothing, social-emotional coping and self-regulating as an extension to behavioral interventions they may have received when younger. Simultaneously, the comprehensive health education curriculum is an opportunity to teach typically developing students about neurodiversity. Next, *Social and Emotional School Climate* encompasses the psychosocial aspects of a student's educational experience. This can affect engagement in school activities, relationships with other students, staff, family and community. For adolescents with ASD who have experienced ACEs, being part of a school climate that is trauma-informed, where teachers, school counselors, administration and peers embody this approach, creates that safety and trust which may have been taken away due to trauma. The final component is *Counseling, Psychological, and Social Services* which includes the prevention and intervention support provided in the schools to support the behavioral and social-emotional health of students. These are provided through services that include psychological, psychoeducational, and psychosocial assessments; direct and indirect interventions such as individual and group counseling. This component provided the impetus to

examine and understand the role of school psychologists and what they see as appropriate

interventions and counseling modalities to use when working with this subgroup of adolescents.

2.4 Health Education

Health Education in schools is a course specifically dedicated to a student's wellbeing.

Unfortunately, this course does not always get prioritized in the way Math, Science or ELA do.

Therefore, enough time is not allocated in order for students to acquire the positive health-related

skills and attitudes (Videto & Dake, 2019). Nationwide, secondary schools requiring just one or

two health education courses range from 53% to 100% (CDC, 2020). Further, while the WSCC

asserts health education curricula as being comprehensive, what to address in a health education

class is the prerogative of each school district and what they feel their students need (CDC,

2020). As it relates to adolescents with ASD, 38.9% to 74.9% of schools across the United States

provide lead health education teachers with professional development on teaching students with

physical, medical or cognitive disabilities (CDC, 2020). Taking into consideration the integrated

efforts of all stakeholders involved in a student's wellbeing as proposed by WSCC, the mental

health and personal wellbeing aspects of *Health Education* can permeate through more

established *Social and Emotional School Climate* and *Counseling, Psychological and Social*

Services practices (Birch & Videto, 2015). Of importance for this study is the area of trauma-

informed interventions that involve teaching students about mental health, one aspect of what

makes up a comprehensive health education curriculum, and equipping them with tools to

manage and overcome distressing and traumatic situations. For that reason, the mental health

and personal wellbeing aspects of this component will be discussed in conjunction with the

sections on *Social and Emotional Climate in Schools* and *Counseling, Psychological and Social*

Services, as many of the proposed trauma-informed school climate practices and counseling interventions address mental health and personal wellbeing.

2.5 Social and Emotional Climate in Schools

In this section, we will explore the approaches of trauma-informed schools, multi-tiered systems of support, peer interventions, examples of evidence-informed programming in schools, and the individualized education programme. The impact of each of these approaches towards creating a positive social and emotional climate in schools and why it is often difficult to scale will also be reviewed.

Landscape of Trauma-Informed Programs in Schools

With children and youth facing increasingly more adversity, providing safe environments for them through trauma-informed practices is needed (Thomas et al., 2019). As will be described in this section, many school-based trauma-informed programs exist (Thomas et al., 2019; Stratford et al., 2020). What is unclear in the literature, however, is how widely these programs are implemented across the country and whether these include under-resourced communities. In the cases where some schools have successfully implemented these programs, there are often barriers to implementation that also emerge (Martin et al., 2017). Importantly, a review of trauma-informed programs by Thomas et al. (2019) showed that a clear standard or framework for implementation in schools has not been determined as well as consistent measures of effectiveness. The 2021 Child Trend Reports on State Policies that Support Healthy Schools outlined that 44 states have policies in the Social and Emotional Climate and 43 in the Counseling, Psychological, and Social Services domains of the WSCC. Notably, as it relates to policy changes for professional development in the area of trauma-informed care, between 2017 and 2019, the number of states increased from 9 to 30, either requiring or encouraging schools to

adopt this approach. However, even though professional development resources are being used to train teachers on trauma-informed approaches, how this is translated at each individual school-level in terms of implementation, changed classroom behaviors and improved outcomes for students has not been widely researched (Stratford et al., 2020). The policy changes towards implementing trauma-informed practices in schools are recent. This, along with the uncertainty around what constitutes an effective program for all students, shows a continued need for more research in this area.

Trauma-Informed Schools

The nature of the school environment provides multiple measures for assessing a child's wellbeing and as such, an ideal setting for providing evidence-based trauma interventions (Fitzgerald & Cohen, 2012). In identifying the experience of trauma, teachers and school psychologists can gauge this by observing a drop in academic performance, attendance patterns, behavioral problems and social functioning. Furthermore, schools are located in the communities where families also reside and school personnel are often trusted by families. Therefore, in conjunction with this inherent trust, school-based trauma interventions also remove barriers to accessing treatment such as transportation, lack of insurance, or lack of childcare. In the aftermath of trauma, schools are an important protective factor to the extent that they: identify and appropriately respond to trauma, mitigate its impacts, enhance the student's resiliency (Chafouleas et al., 2016).

Phifer and Hull (2016), outlined three case studies where trauma-informed practices were tested out in schools. What all of these programs learned is that community partnerships, alignment with school goals, and implementation of evidence-based interventions using qualified support staff are all required when it comes to adopting trauma-informed practices. Research

demonstrates that school-based trauma treatments are helpful in treating children and adolescents who have experienced trauma (Fitzgerald & Cohen, 2012). For adolescents with ASD, focusing on the behavioral interventions as well as addressing the emotional component is important. Interventions at the school level that promote affect regulation and school connectedness are encouraged to support the wellbeing of neurotypical adolescents and those with ASD (Shochet et al., 2016). Trauma-informed practices are therefore necessary to not simply help students survive, but to thrive. The National Child Traumatic Stress Network provides extensive training for school personnel and information about screening and incorporating treatments such as TF-CBT in the school setting. Trauma-informed screening in schools ensures that the students that need the support will be identified, recognizing that not all students will be affected in the same way. Nevertheless, in a systematic review of whole-school, trauma-informed approaches, Stratford et al. (2020) observed a lack of empirical evaluation of these approaches and interventions by non-clinical staff. Thus, they recommend that evidence-based programming and guidance is provided to schools to avoid the re-traumatization of students or inadvertently traumatizing students.

Multi-Tiered Systems of Support (MTSS)

The Multi-Tiered System of Support addresses students' needs by the establishment of a positive school culture and tiered levels of social and behavioral support for students. Particularly for students with disabilities, a tiered level approach is seen as effective in delivering behavioral interventions (Sugai & Horner, 2019). The three tiers are as follows: *Tier 1-Universal Interventions, Tier 2 – Targeted Interventions* and *Tier 3 – Intensive Approaches. Tier 1* involves all stakeholders in a school environment, teachers, counselors, students, administration, caregivers and the community, experiencing a positive, supportive and warm

school climate. This is a general ethos that permeates through the school environment. For students who may have additional academic, behavioral or social difficulties, a *Tier 2* approach is also added for groups of students. Finally, *Tier 3* is intensive support provided at the individual level. Notably, Stratford et al. (2020), while reviewing trauma-informed efforts in schools, observed that the role of *Tier 1-Universal Interventions* referred mainly to universal screening that is done. As discussed later in this review, universal screening of students helps to identify students who are at-risk, followed by referral for treatment. Currently, more empirical evidence exists for *Tier 2* and *Tier 3* approaches (Herrenkohl et al., 2019), thus favoring individualized and group-based approaches versus whole-school and classroom-based approaches.

Examples of Ways Schools are Trauma-Informed

A review of school-based programs addressing various outcomes of students with trauma histories by Herrenkohl et al. (2019) organized evidenced-based interventions in the following way: individual and group-based interventions; classroom-based interventions; and school-wide interventions. The first type of intervention was reflected in 47% of the programs which were implemented separately from the academic curriculum. In this case, students were screened, identified and subsequently enrolled in individual or group-based programs. These were led by mental health professionals or school personnel who had extensive training in the intervention type and trauma in general. Classroom-based interventions, making up 13% of programs, are delivered in the classroom with a focus on creating awareness about the prevalence and impact of trauma, developing interaction skills among peers, and creating a sense of trust and compassion among students. Teachers received training on implementing this type of program in the classroom. Finally, school-wide interventions, comprising 33% of the type of intervention, are ones that are multi-tiered with multiple components. These involve psychoeducation, teacher

training and tailored programs for students who have experienced trauma. With the goal of these programs cascading through the entire school system, education and outreach is paramount for engaging parents and healthcare providers in the community. Schools that offer such programs may also provide a separate classroom where students take part in counseling or additional support. While there are many examples of evidence-informed programs, recognizing that feasibility of implementation is unique to each school, the three examples below were selected to describe what can be implemented at the individual, classroom, and school-wide levels, focusing on both prevention and intervention.

Individual and Group-Based Program Example: Support for Students Exposed to Trauma (SSET)

The SSET program is one that has been evaluated with students ages 10-14 (Jaycox et al., 2009), targeting symptoms of PTSD in these children. This program, by nature, while an adaptation of Cognitive Behavioral Interventions for Trauma in Schools (CBITS), was developed for teachers and school counselors for use in a non-clinical setting. Similar to CBITS, the SSET program also includes skill development in social problem-solving, relaxation, and psychoeducation. This program includes lesson plans for teachers with the intention of being delivered in 10 group sessions. Upon completion of this program, students may experience lessened anxiety, withdrawal or isolation, depressed mood, acting out in school, or impulsive or risky behavior (SSET, 2021). The research has not identified whether this program has ever included students with a neurodevelopmental disability, however, as will be discussed later, the CBITS program has been shown to be effective in this group.

Classroom-Based Program Example: The Resilience Classroom Curriculum

Ijadi-Maghsoodi et al. (2017), implemented the Resilience Classroom Curriculum among high school students. The program consists of nine modules that include: skill-building on emotion-regulation; communication; problem-solving; goal setting; and managing stress. These sessions are delivered either weekly or monthly by school-based social workers trained in the curriculum. In order to maintain consistency, voluntary teacher training was also offered. Nevertheless, the social workers delivered the curriculum during class time. The results from pre-post surveys and focus groups among students and social workers showed an improvement in students' empathy and problem-solving, but not in self- awareness or self-efficacy. Notably, the program component of skill-building in self-regulation would be worth exploring for adolescents with ASD. If different than emotional-regulation skills taught in standard behavior intervention for this group, they can be used in tandem or as a reinforcement for those adolescents who participated in behavior intervention programs in childhood.

School-Wide Program Example: Healthy Environments and Response to Trauma in Schools (HEARTS)

HEARTS (Dorado et al., 2016) is an example of a multi-tiered program incorporating school-wide support for all students and a shift in school culture that is more trauma-informed, safe and supportive. It is built around the Response to Intervention (RTI) framework which is a multi-tiered approach based on the public health model developed in the 1990s to ensure continuity of care (Chafouleas et al., 2016). The RTI framework seeks to support vulnerable children with histories of trauma through individual and group-based interventions. As outlined in the above section of MTSS, the HEARTS program is focused on prevention and intervention. *Tier 1* involved training and psychoeducation for teachers and parents on topics such as stress and coping, behavioral supports and trauma informed practices. *Tier 2* focused on skill-building

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for high-risk students, care coordination for intensive interventions required by students impacted by trauma. This tier also involved wellness support for any staff who may have suffered from burnout or secondary trauma. *Tier 3* involved the provision of support for students with more complex needs due to trauma. This includes crisis intervention support, referral to community services, individual, group, and family therapy. This program was implemented for students in Kindergarten through grade 8. The coordinated care team that participated in the training consisted of school social workers, attendance counselors, and special education professionals. With the inclusion of special education professionals, this suggests that students in special needs classes were included as part of the universal, school-wide support and subsequent interventions where needed. Another indication of the inclusion of these students were the consultations that were provided to teachers as it related to a students Individualized Education Plan (IEP). However, the universal *Tier 1* screening also identified whether a student needed an IEP. For school staff, implementation of this program resulted in increased understanding of trauma and trauma-informed practices. The effects of this program on students resulted in increased functioning in school. Finally, for those who were identified as needing intensive *Tier 3* interventions, there was a reduction in trauma-related symptoms.

Peer Interventions

Within the school, peers can also play a role in mitigating the effects of trauma. Graber et al. (2016) looked at how a single close friendship can support psychological resilience of adolescents age 11-17, particularly those in low socioeconomic areas and coming from vulnerable family backgrounds. A positive association between perceived friendship quality and resilience was found. This was shown in adolescents, regardless of whether they came from healthy or unhealthy home environments, where coping strategies may or may not have been

modeled. In order to create a framework for identifying the mechanisms behind this, the researchers developed an Adolescent Friendship and Resilience Model based on the results of this study. This model demonstrates that through a supportive close friendship, resilience is facilitated by the development of a constructive coping style, encouraging effort, using a supportive friendship network and reducing externalized and disengaged coping. What is important to note is that having one close positive peer relationship (other than a romantic partner) in this study had a positive impact on psychological resilience regardless of whether adolescents had modeling of positive coping strategies. When considering the impact of ACEs, this one friendship serves as a protective factor (Mazurek & Kanne, 2010).

Characteristic of the developmental period of adolescents, peer group interactions become more demanding and hold increasing value. While those with ASD also have this orientation towards peers, navigating such relationships can be challenging for some (Shattuck et al., 2011; Carter et al, 2014; Barendse et al., 2018) and as discussed earlier, studies have found that this can be particularly difficult for those with higher levels of ASD core symptoms and lower IQ, as they exhibit fewer prosocial skills resulting in less connection with peers (Mazurek & Kanne, 2010; Shattuck et al., 2011; Jones et al., 2017; Oerlemans et al., 2018). Despite these challenges, all adolescents desire to belong, and while this may look different for those with ASD, peer interaction and support provide a foundation for success in school and thereafter (Carter et al., 2014; Cresswell et al., 2019).

Peer interventions focused at the school level could address the emotional and mental health risk factors as well as the social outcomes of adolescents with ASD (Humphrey & Simes, 2011; Bukowski et al., 2010; Carter et al., 2014). Though findings are mixed on their attunement to peers, such that adolescents with ASD spend more time engaging in solitary activities

(Humphrey & Symes, 2011; Barendse et al., 2018), a study on the influence of peers on prosocial behavior found that the peer context is important for male adolescents with ASD in terms of learning prosocial behaviors (Van Hoorn et al., 2017). Even though adolescents with ASD, with and without ACEs, experience bullying from peers, it has been found that TD adolescents had a positive attitude towards their peers with ASD and initiated social interactions and helped them out in the face of bullying (Humphrey & Simes, 2011; Dillenburger et al., 2017).This suggests that a peer-related intervention could also be helpful in mitigating longer-term consequences, even if the adolescent with ASD may not be able to accurately perceive that they are being supported. A small pilot study of the effectiveness on anti-bullying peer interventions by Sreckovic et al. (2017) implemented in a school setting found that peer networks supported an increase in social interactions among adolescents with ASD and their peer partners. This suggests that peer support could help to mitigate the impact of ACEs experienced outside the school setting or reduce the experience of ACEs within the school setting.

Thus, for adolescents with ASD, friendships and trust can be built one person at a time. When peer interactions do occur, they are one-on-one in a home setting or facilitated by school personnel in that setting (Tierney et al., 2016), however, in comparison to their TD peers, Shattuck et al. (2011) found that half of adolescents with ASD in their study had no or very limited interaction with their peers. School personnel can, therefore, be intentional about providing opportunities for adolescents with ASD to get to know their TD peers in a meaningful way within the school setting. Importantly, the types of peer interventions would need to be nuanced to the unique ASD profile of the adolescent.

Barriers and Facilitators to Adopting Trauma-Informed Programs

Teacher Perceptions of Trauma-Informed Programs

Providing a school team approach to supporting the mental health and wellbeing of students allows for collaboration and consistency for students (Fitzgerald & Cohen, 2012). Therefore, the role of school personnel in identifying, referring and supporting students who have experienced trauma cannot be understated. School personnel that were involved in the peer network pilot study by Sreckovic et al. (2017) aimed at reducing bullying victimization in adolescents with ASD, observed the need for them to interact with their TD peers. Through this peer intervention, school personnel perceived two benefits for students with ASD: their participation in the peer network (i.e. a program in which the student with ASD had extended opportunities for social interactions during non-instructional time with a specific group of TD peers) resulted in other students being nicer to them and that the adolescents with ASD tried out newer activities. In addition, school personnel observed that the students' confidence and happiness level increased. The peer partners also grew from this experience by becoming more empathetic and kinder.

The way in which trauma-informed training is delivered to school personnel is also important. While larger group presentations are useful in disseminating the necessary information, smaller workshops are necessary to ensure school personnel's commitment to trauma-informed programs. This format allows for staff to transparently discuss their reluctance and challenges faced when implementing a new program, as well as their insecurity when it comes to accurately detecting trauma symptoms (Perry & Daniels, 2016). In addition, when it comes to implementing trauma-informed care – which involves mindset, behavior and attitude shifts - school personnel must feel supported by colleagues as well as leadership and administration (Baker et al., 2016).

A study by Baweja et al. (2016) identified four additional factors that influenced teachers' support and implementation of a school-based CBITS program, one-year post program implementation. The first was the teacher's perceived need for a trauma-informed program. Those who saw the need were also relieved that such a targeted program existed and were also able to reframe their view of problem-behaviors. Second, teachers found it challenging to balance missed classroom instructional time with students attending the CBITS sessions. They did see the benefits to students attending the program, however, missing class time also added additional stress on those students who were already at risk of failing a course. A third factor was the quality of communication between teachers and clinicians and administrators regarding program implementation. Teachers found it helpful when clinicians were approachable and clearly communicated student progress and schedule of program participation. However, one significant barrier to communication was maintaining student confidentiality on the part of the clinician. The fourth factor was that teachers wanted more trauma-informed teacher training professional development sessions on a regular basis.

The Role of Parents

Involving parents in trauma-informed or mental health interventions is integral to sustainable improvement in mental health outcomes for all adolescents. However, as it relates to their involvement in school-based programs, a significant barrier to implementing and scaling trauma-informed approaches in this setting is the buy-in and subsequent engagement of parents (Langley et al., 2010; Wood et al., 2015; Martin et al., 2017). Parents express concerns in terms of what is expected of them due to managing responsibilities in the home, requiring childcare, needing to work, or the fear of mandated reporting in sharing the trauma narrative of their children (Reaven et al., 2020; Connors et al., 2021). Additionally, for some adolescents with

ASD, due to the social-communication impairments, parent involvement is also required to report on the impact of the trauma on their child (Wood et al., 2015; Taylor & Gotham, 2016). The risk in obtaining caregiver reports with this group is missing out on the true subjective experience and impact of trauma (Mehtar & Mukkades, 2011). Nevertheless, mental health interventions for adolescents with ASD occurring in clinic settings, that have required parental involvement, have resulted in lower anxiety and increased coping self-efficacy. Translating mental health and trauma-informed programs from community to school settings may have its challenges, as mentioned above. Suggested adaptations to the programs increase the role of school staff, with more variable parental involvement (Drmic et al., 2017). Rigorous evaluation of mental health and trauma-informed program delivery in school-based settings is in its infancy.

The Individualized Education Program (IEP)

Common practice in public schools is the use of the Individualized Education Program (IEP) which is a planning tool and map for services and interventions for any student identified as having a disability to ensure they are involved in the general curriculum. The content and scope of IEPs have evolved from its inception in 1975 through the Education for All Handicapped Children Act (EHCA), which is now called Individuals with Disabilities Education Improvement Act (IDEIA) (Blackwell & Rosetti, 2014). The present-day function of the IEP must also align with the 2001 No Child Left Behind Act (NCLB). This is accomplished by ensuring that IEP content outlines a student's academic needs, behavioral interventions, and concerns (Gartin & Murdick, 2005). Specifically, a student's IEP should include information about current academic and functional performance, annual goals that support in determining which interventions are needed, a plan for how progress will be monitored, detailed information on support and services provided to the student, and a description of how often the student will

participate in general education classrooms (Definition of IEP, 2017). IEPs are developed by and revised yearly by a parent, general classroom teacher, special education teacher, an administrator with the authority to ensure resources are provided, the individual who is specialized in interpreting student test and evaluation results, and where appropriate the student themselves (IEP team, 2017).

When thinking from the perspective of adopting trauma-informed practices in schools, the social-emotional wellbeing of students is as important as their academic progress. For students with ASD who have an IEP, information related to their mental health is included along with individual and group counseling sessions provided. Where appropriate, should a school be equipped to deal with trauma-related issues in its students, future iterations of an IEP may also include content around a student's exposure to trauma. In a feasibility study of incorporating the Facing Your Fears (FYF) clinic-based anxiety intervention program for adolescents with ASD in schools, teachers suggested including FYF treatment goals on a student's IEP, weaving them into the communication goals (Reaven et al., 2020). Examples of treatment goals include increasing awareness of anxiety-provoking situations, learning strategies such as deep breathing, and using positive self- statements indicating they can manage their anxiety. Presently, the CBITS program developed by Jaycox et al. (2012), includes treatment goals on the IEP for students who demonstrate PTSD symptoms. For example, for a student that becomes easily angered through peer victimization, a treatment goal would be for them to demonstrate self-control. This would be achieved through CBITS sessions of relaxation and social problem solving. Both the FYF and CBITS programs are discussed in detail later in this dissertation. As the IEP provides a roadmap for all stakeholders, ensuring that all factors that influence a student's progress are included will be helpful in providing consistent trauma-informed support.

2.6 Counseling, Psychological, and Social Services

This section reviews the status of various screening measures for ACEs in the adolescent population, as well as the use of these measures in school settings. Further, it also discusses the guidance that is provided to implement ACE screening in school while also highlighting some of the challenges and issues that come with screening. What is the best way to screen for ACEs in the TD adolescent population but also in those with ASD? This section also will also review mental health and trauma-informed counseling interventions used in community and school settings for all adolescents and those with ASD.

Screening for Trauma in Schools

Eklund et al. (2018) conducted a systematic review of 18 trauma screening measures developed between 1991 – 2017, for children and adolescents which would be applicable for use in schools. The first aim of their review was to evaluate the effectiveness of the trauma screening measures which included how feasible, practical, and acceptable it would be for use in a school setting. The second aim involved the efficacy of each measure which examined the psychometric properties such as the reliability, validity, and accuracy in identifying youth that demonstrate trauma risk. Importantly, they propose the necessity of screening as research also shows that ACEs do not always predict a negative outcome. Therefore, an individual's experience of ACEs cannot be used to make a prediction about future negative outcomes, as the majority of youth who experience stress or adversity do not present with clinical trauma symptoms (Alisic et al., 2014). Thus, the purpose of screening is to determine whether the student is at-risk and not to provide a diagnosis.

The way in which screening is conducted in schools must also be explored. A study by Bruhn et al. (2014) surveyed 454 schools across the United States. regarding trauma-screening

practices and found 12.6% of schools or districts to have implemented schoolwide emotional or behavioral screening. Of these schools, 2.7% were middle or high schools. Specifically, they looked at use of universal screening measures, where all students within the school are screened as a result of a particular event of concern, as a form of needs analysis (Glover & Albers, 2007) as opposed to targeted screening of a particular group of students exhibiting specific symptoms or risk factors (Eklund et al., 2018). The benefit of universal screening is that it reduces the likelihood of missing a child who may not be overtly exhibiting symptoms of trauma. In the context of adolescents with ASD, it is possible that both universal or a targeted screening approach would work. Given the difficulty in social abilities and peer victimization of children and adolescents with ASD, employing a targeted screening alongside their TD peers displaying certain at-risk symptoms would be helpful. Nevertheless, in a study examining the frequency with which community-based providers - including mental health clinicians, allied health professionals, behavior analysts, and special education teachers - working with those with ASD inquired about trauma, 1% of educators reported screening for trauma, as the focus is generally on teaching rather than mental health (Kerns et al., 2020). Screening rates were notably higher in providers working in community mental health settings, mental health providers, providers who see many youths with ASD yearly, and those who worked with females with ASD. However, 75% of all the providers mentioned above reported difficulty in screening for trauma in youth with ASD and that more training in evidence-based guidelines was needed.

According to Levitt et al. (2007), schools are the ideal setting for implementing trauma screening for two reasons. These include the large number of children and young people in this setting as well as the likelihood of schools actually following-through on providing services for those students identified as at-risk. As such, the screening tools aim to identify students with

both externalizing and internalizing behavioral patterns. Yet, as identified in the survey by Bruhn et al. (2014), a small number of schools nationwide employ trauma screening. Reasons for not screening include: not knowing that such measures exist, budget constraints, lack of support systems for those who could be identified as being at-risk, not wanting to profile or label the students, or concern around parental backlash. In this same study, researchers also identified how these schools monitor emotional or behavioral issues if not through the use of a screening tool. These schools relied on teacher reports, counselor referrals, attendance, tardies, suspensions, or office discipline referrals.

Nevertheless, with the small number of schools implementing trauma screening (Bruhn et al., 2014), few studies exist to determine their effectiveness or efficacy of the screening measures (Eklund & Rossen, 2016). In addition, though Bruhn et al. (2014) identified schools that were screening for trauma, not all of these schools were using screening measures that showed reliability and validity. In their systematic review, Eklund et al. (2018) though they reviewed articles that were published after 2000, the measures that were included were updated in the 1990s. As a result, many of the psychometric properties were outdated, particularly since inclusion criteria for certain diagnoses are continuously being updated. Another finding of the 18 trauma-screening measures they included, 13 of them included self-report rating scales, four being administered through clinician interviews and seven with parent rating scales. Therefore, with the screening age range being 6-18, many of them relied on student self-report. For the purposes of adolescents with ASD, due to their diagnosis being characterized by difficulty in social communication and deficits in understanding and maintaining relationships (APA, 2013), it may be beneficial to examine the appropriateness of the screenings that involve parent ratings as well. On one hand, due to the possible challenges in identifying trauma symptoms in those

with ASD, caregiver reports of trauma are less likely in comparison to children with other mental health disorders (Hoch & Youssef, 2019). On the other hand, research also shows higher rates of exposure to traumatic experiences in those with ASD in comparison to their TD peers (Berg et al., 2016; Taylor & Gotham, 2016). Therefore, to narrow this down further, it would be important to consider more up-to-date screenings measures. An additional concern for adolescents with ASD is whether, for example, those with significant communication delays or IDs can accurately respond to 'Likert-scale ratings', for example in the 'Child & Adolescent Trauma Screen' for children ages 7-17 which also includes a parent rating. This screening addresses intrusions, avoidance, negative alterations in cognitions and mood, hyperarousal, areas of functioning. What must be taken into consideration with the screening tools they reviewed was that there was no data that looked at the sensitivity, specificity or predictive or negative predictive value. As such, these are limited in terms of how they can be implemented in schools.

Screening with Caution

While screening for ACEs has its use, are schools prepared to provide evidence-based intervention if something is identified? Finkelhor (2018) cautions against widespread screening for ACEs in the hospital setting which indicates that we must be cautious when implementing these in schools. While the author identifies many evidence-based interventions for addressing adversities and trauma in children and adolescents, he argues that with these programs not being readily available in most communities, we must proceed with caution. This was shown in the Bruhn et al. (2014) study where schools that had implemented trauma-screening also operated in a behavioral multi-tiered prevention model. This means that if a student was identified as being at-risk, the school had a team that could provide evidence-based decision-making and interventions for these students. While some schools are aware of the prevalence of childhood

stress and adversity, they opt not to implement any screen due to their inability to appropriately respond to an identified need (Eklund & Rossen, 2016).

Furthermore, Finkelhor (2018) proposes whether the current ACE questionnaire is the best method for predicting health risk. Rather, the researcher suggests considering the mediating factors that potentially bring about the health risk in addition to the ACE inventory. While the stress and trauma from ACEs have significant neurobiological and psychological impacts on how an individual responds to stress (Soleimanpour, 2017), other mediating factors that can bring on the future health issues may have to do with poor eating habits, coping behaviors that involve drugs and alcohol, impaired attachment style and negative peer associations. Thus, should the screening be focused on these behaviors as a way to prevent future health risk? Given the research on ACEs leading to these behaviors, screening for these will likely lead to the discovery of ACEs in the individual which may not have been shared at the outset. This is further supported by the very definition of trauma being an individual's response to an adverse event, rather than the event itself (Hertel & Johnson, 2013).

Capturing ACEs

Finkelhor et al. (2013) discovered a stronger correlation between ACEs and mental health outcomes when dimensions such as peer victimization, peer rejection, property victimization, school performance, and community violence exposure were included. As a result, the researchers asserted that there may also be additional adverse childhood events that have yet to be accounted for in a screening. When thinking about the sensitivity and specificity of screening tools for adolescents with ASD, a screening tool would require inclusion of additional ACEs such as bullying. In addition, Hamby et al. (2021) argue that the ACE categories included in the original questionnaire were limited in scope with a large focus on family systems, not taking into

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consideration peer or community violence or racism. To that end, a recent review of studies

aiming to expand ACE categories in screening tools, in addition to those in the original ACE

questionnaire, showed that the inclusion of exposure to community violence, economic hardship

in childhood, bullying, absence or death of a parent or significant other, and discrimination

captured a higher number of individuals who had experienced ACEs. What's more, while a

single ACE can place an individual at-risk for negative life course outcomes, inevitably this

relationship strengthens as the number of ACEs increase (SmithBattle et al, 2022). While there

are even more ACE categories than the ones included in the review, increasing the scope of

categories is vital to proper identification and subsequent mitigation of risk.

Even with the expansion of ACE categories on screening tools, studies call for the

necessity of developing a screening tool high in sensitivity and specificity for children and

adolescents with ASD (Brenner et al. 2018; Hoover, 2015). While current research on trauma

and mental health in those with ASD rely largely on reports from parents, it is important to

capture one's subjective experience of trauma to indeed determine whether it was interpreted as

such (Fuld, 2018). Due to the heterogeneity in individuals presenting with this diagnosis, though

Berg et al. (2016) found that those with ASD experienced twice as many ACEs as their TD

peers, these results are not generalizable. The benefit of parent reports is to relay the experience

for those individuals whose communication abilities are impaired. Nevertheless, they may also

have difficulty expressing their subjective experience to caregivers (Mehtar & Mukaddes, 2011).

Hoover and Kaufman (2018) suggest the screening of ACEs be done at the same time as

the clinical evaluations for ASD. In the case of adolescents with ASD, this screening can be part

of the on-going clinical appointments (Mehtar & Mukaddes, 2011). Consideration must also be

given to the types of screening questions, gathering of information from multiple sources to

accurately capture the experience of trauma in this group, such as caregiver, teachers, or school counselors, and the modality of the screening tool (Hoch & Youssef, 2019). The third consideration mentioned has been explored by Hoover and Romero (2019) in the form of web-based, self-report instruments. In order to account for the variability in functional levels for children and adolescents with ASD, the researchers studied the feasibility, functionality, and psychometric quality of a novel 'Interactive Trauma Scale (ITS)' web-based application prototype with participants ages 8 - 14. Particularly for those with limited communication abilities and who are not responsive to written and spoken English, the ability to self-report traumatic experiences is facilitated by the use of engaging graphics such as cartoon figures and multimodal presentation. Their initial findings suggest that this application improves accuracy of self-report measures, demonstrated by their positive review of the ITS and the range of traumatic experiences that they reported.

Guidelines for Trauma Screening in Schools

By synthesizing the research addressing the necessity of screening for trauma in schools, Eklund and Rossen (2016) developed a proposed set of preliminary guidelines for screening in schools. As discussed earlier, universal screening, also referred to as *Tier 1*, involves the screening of the entire population for example, students, parents, or teachers with respect to a particular area of concern. They recommended the following be taken into consideration: identifying whether to examine internalizing behaviors, trauma symptoms, or sources of adversity or stress; identifying which screening tool to use and costs associated with the selected screening measure; calculating the amount of time for personnel from screening to analysis to the provision of appropriate interventions; identifying who will undergo the screening; obtaining

informed consent from school personnel, adolescents, and parents; and determining the number and timing of providing screening.

In addition to the suggestions mentioned above, as it concerns young or vulnerable students, parental consent for implementing trauma screening, as well as selecting developmentally appropriate screening measures must be explored. With the former, asking children about exposure to trauma is sensitive in nature. While previous research shows that obtaining active parental consent is challenging (Gonzalez et al., 2016), to increase the level of consent, every effort should be made to ensure that parents are aware of the rationale behind the screening, clearly understand the benefits of it, and are assured that the information about their child will be kept confidential (Blodgett, 2012). Considering the appropriateness of the screening measure itself, due to increased reliance on student self-report data, questions must be developmentally appropriate. In addition, the school personnel that is administering the selected screening needs to ensure that students accurately comprehend the questions and make adaptations where necessary (Gonzalez et al., 2016).

With the majority of students having experienced at least one ACE, Eklund and Rossen (2016) recommend the implementation of a preventive *Tier* 1 strategy that focuses on a positive school climate, school safety, trauma-informed, and restorative practices. This approach has the potential to be most sustainable and appropriate when supporting traumatized students since solely implementing *Tier 2* or *Tier 3* intensive supports, which only support 20% of students, are much more resource intensive. Nevertheless, regardless of the tiered-system, continuous follow-up with students who have been identified at-risk is crucial. Further research is required in developing similar guidelines for children and adolescents with neurodevelopmental disorders such as ASD.

Counseling Interventions

Cognitive Behavioral Interventions for Trauma in Schools (CBITS)

With respect to counseling modalities, adaptations of Cognitive Behavior Therapy (CBT) have been developed to mitigate effects of trauma. A program widely used across the United States is one developed by Jaycox et al. (2012), Cognitive Behavioral Interventions for Trauma in Schools (CBITS). It is used to detect children and youth with symptoms of PTSD that may have gone unnoticed by caregivers or teachers. Evaluations of this program undertaken in the school setting have shown evidence for a decrease in students' symptoms of PTSD. Due to this program being developed in partnership with schools and clinical researchers, it has been continuously refined to ensure feasibility and adaptability in the school setting. Additionally, this has also helped the program adapt to school culture and cultural diversity. CBITS is delivered in a weekly group format led by a school psychologist or social worker. Due to the early detection and intervention, the skills and coping strategies instilled will hopefully prevent the onset of additional psychological disorders that may result from exposure to trauma. Therefore, the two aims of the intervention are to reduce the psychological reactions leading to feeling less distressed and to identify resilience factors, such as peers at school and caregivers in the home, coping strategies and cognitive factors. The program itself contains many of the same components as Trauma Focused (TF) -CBT, discussed below, with the difference being that these are delivered in a group of 6 to 8 students. In addition, parent participation is not required, although parent consent is required for screening purposes. Notably, CBITS program developers adapted the program such that non-clinical school personnel such as teachers or counselors without clinical training could be involved in the implementation. This is particularly helpful in schools where funding may limit having a clinical counselor or social worker on staff. In

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considering students with ASD who have experienced trauma, the CBITS has also been adapted for students receiving counseling through their school special education programs. As a result, the goals for CBITS are included in the student's IEP and the sessions are conducted in smaller groups of 3 to 4 students.

Trauma-Focused Cognitive Behavior Therapy (TF-CBT)

Initially developed for children and youth ages 3-18 who had experienced sexual abuse, in 2006, Drs. Anthony Mannarino, Judith Cohen and Esther Deblinger adapted the TF-CBT program to reduce the symptoms of PTSD in children and adolescents who experience complex grief and trauma. This treatment, provided to the non-offending caregiver and child together, does not require a diagnosis of PTSD and is effectively tailored to various developmental levels and cultures. Evidence through multiple randomized control trials applying TF-CBT, addressing various experiences of trauma, have shown this intervention to reduce trauma symptoms, while also reducing the affective, cognitive and behavioral issues that manifest as a result of experiencing trauma (Ramirez de Arellano et al., 2014).

The initial development of TF-CBT was intended for practitioners in a clinical setting (Cohen et al., 2006). However, due to the rigorous testing and efficacy in community settings, Fitzgerald and Cohen (2012) later provided recommendations for school psychologists to implement TF-CBT in this setting to trauma-exposed youth. TF-CBT is comprised of nine components that include: i) Psychoeducation; ii) Parenting Skills; iii) Relaxation Skills; iv) Affective modulation skills; v) Cognitive coping skills; vi) Trauma narration and cognitive processing; vii) In-vivo master of trauma; viii) Conjoint child-caregiver sessions; and ix) Enhancing safety and future developmental trajectory. School psychologists can help children and families to recover by providing education about trauma to school staff as well. When

implementing TF-CBT in schools, it provides the opportunity for teachers, educational assistants and other staff to reinforce healthy coping strategies in a real setting. Fitzgerald and Cohen (2012) also offer additional treatment considerations specifically for the school setting. For children and adolescents who are undertaking their TF-CBT sessions during school hours, it would be important to build in some buffer time before their return to the classroom. Particularly since they are focusing on their traumatic experiences, the buffer gives them time to disengage from the thoughts. In addition, they recommend building in time for engaging in relaxation exercises in order to reduce the child's anxiety before returning to the classroom. The benefits of providing this treatment in the school setting allows for continuous check-in with the students and teachers in between sessions. Furthermore, school psychologists can be the drivers for implementing school screening and ensuring child and family confidentiality. Importantly, the school psychologist readily has access to the child's academic performance, teacher reports, behavioral issues and peer interactions. Oftentimes, if parents are seeking support outside of school, the extent of the issue can be mis-communicated due to parent reports only.

Recently, Lyon et al. (2021) began a large-scale study of TF-CBT implementation in schools, with the goal of providing guidance to maintain program integrity within a school setting. At the same time, a pilot study of TF-CBT implementation in 13 schools in Mid-Atlantic United States beginning in 2017 examined the barriers, facilitators, and outcomes of this intervention in school settings (Connors et al., 2021). In terms of facilitators, the high quality and skills-based nature of the TF-CBT training provided to clinicians created the perception of a hopeful program for students. In addition, clinicians noticed the program met the needs of students. Nevertheless, the reality of the implementation in a school setting may require adjustments to the recommendations by Fitzgerald and Cohen (2012). Of note, this study

highlighted the various responsibilities of clinicians that work in a school setting, that would impact the suggested delivery of TF-CBT. Therefore, in terms of feasibility, clinicians participating in this study recommended that adaptations be made in the program components of caregiver engagement, session length, and setting. For example, particularly for schools that are under-resourced, obtaining a private space as well as materials to be used in the session would be helpful. Furthermore, it was also recommended to reduce the session length in order to ensure students were not missing out on class instruction. Finally, caregiver issues such as failure to provide program consent and low participation rate must also be addressed. The recommendations from this study, along with the current work of Lyon et al. (2021) show promise for developing realistic implementation plans for this intervention that is considered to be the "gold-standard" approach to supporting children and youth who have experienced trauma (Connors et al., 2021).

Adapting TF-CBT to Individuals with ASD

Applying a CBT approach for individuals with ASD requires flexibility, taking the heterogeneity of the symptom presentation into account (Peterson et al., 2019). As is the case with many therapeutic modalities, an individual's progress relies on the active participation of both on their part and that of the clinician's. With CBT in particular, the clinician has the role of an educator, therapist, and coach, while simultaneously relying on the client's description and understanding of what has brought them to seek support and holding them accountable towards their progress (Beck, 1995). Adding to this the complexity of trauma, clinicians are continuously adjusting their delivery to treat the many ways in which individuals are impacted. In considering how TF-CBT could be effective for youth with ASD, Peterson et al. (2019) offer adaptations for clinicians when implementing the program's nine components. These suggestions align with

existing treatment goals for ASD core symptoms and non-ASD symptoms while also targeting

traumatic stress symptoms of adaptive functioning and self-care. Overall, adaptations include:

consideration of developmental, social, and emotional processing levels and language abilities;

appropriate scaffolding and concrete instructions; use of visual aids, activity schedules, and

expectations; use of the social stories strategy, and additional time for teaching and practicing of

skills.

Specific to the components of 'Psychoeducation about Trauma' and 'Parent-Child

Sessions', when teaching about trauma symptoms, physiological cues of emotional states, body

awareness, and risk reduction skills, it is recommended that parents receive training in the

treatment of trauma as well during parent-child sessions. This supports the consistency and

repeated practice required for this group, where recognition of affective states may be

challenging. As it relates to the component of 'Relaxation and Stress Management', creating a

list of all possible triggers and subsequently helping the individual to identify which ones apply

to them will be helpful. Relaxation coping techniques specific to these triggers can then be

taught, with structure and repetition. In addition, coping strategies that are also attuned to

sensory needs for some are helpful. These include water or sand tables, listening to a favorite

song, or a weighted blanket. Other important components of TF-CBT are 'Affect Expression and

Modulation' and 'Cognitive Coping', where individuals with ASD may have difficulty in

recognizing, managing, and expressing their emotions based on their cognitive and language

abilities. It is recommended that more time be spent in these areas prior to moving on to the

components of 'In-Vivo Exposure' or 'Trauma Narration', which can create more intense

feelings. Therefore, taking the time to teach them how to monitor thoughts, followed by teaching

appropriate cognitive coping strategies through the use of visuals and rules is helpful. These

same adaptations can be applied to the component of 'In-Vivo Exposure', while also adding a step-by-step plan for exposure. Specifically, when working within this component of TF-CBT, implementing adapted versions of external rewards, such as the 'Subjective Units of Distress Scale' (SUDS) is important. These scales can be reduced or offer more visual representations, along with providing examples of how different ratings may look and the accompanying internal cues. The 'Trauma Narration' component is one that may be omitted when working with some individuals with ASD. This may be due to the difficulty in recalling events, impaired communication abilities, how trauma is processed, and their developmental level. However, in the cases where it is possible, this can be done by the use of visual aids, creating a story on a device, or drawing pictures with captions to express what happened. Where 'Trauma Narration' has been possible, individuals with ASD need guidance in terms of who it is appropriate to share this information with, leading to the last TF-CBT component, 'Safety'. Therefore, coaching in this area must be explicit in terms of safe and unsafe behaviors and people.

It is important to keep in mind that those with ASD present with comorbidity of a cumulation of adverse life events and psychiatric issues. While Fitzgerald and Cohen (2012) encourage parental involvement in treatment, their experience of providing TF-CBT in schools among TD students has been successful without parental involvement. It is worth considering whether this treatment would work in the school setting for adolescents with ASD or whether the special education teacher assumes the role of the caregiver in this case. Nevertheless, maximizing skill-building requires consistency. Therefore, it is recommended that all caregivers involved in the life of the adolescent with ASD implement and practice these skills (Peterson et al., 2019). Importantly, how can the recommended adaptations to TF-CBT for youth with ASD,

discussed above, be incorporated into a school setting, while taking into account the preliminary

implementation findings by Conners et al. (2021) within this setting?

School-Based Mental Health Program Options for Adolescents With ASD

While, behavioral interventions for children and adolescents with ASD are effective in

improving educational outcomes and life skills, due to the comorbidity of anxiety and depression

in, behavioral interventions are not addressing these mental health disorders (Fuld, 2018). In

general, approximately 20% of children with ASD receive mental health services (Bromley et al.,

2004). Community mental health agencies also do not want to accept clients with ASD who also

have a comorbid behavior or psychiatric disorder as they do not feel equipped to deal with this

(Lake et al., 2014). Results of a study on self-regulation, behavioral and emotional school

engagement, as well as prosocial peer engagement in preschoolers with high-functioning autism

(HFA), average age 54.5 months by Jahromi et al. (2013) suggests, however, that until self-

regulation is mastered, this may hinder the progress of any mental health interventions. The

findings from this study also highlight considerations that need to be made when developing

trauma-informed practices for children and adolescents with ASD in schools. While researchers

found that children with HFA had significant impairment in self-regulation, and decreased

school and peer engagement, executive function was a predictor of emotional and behavioral

school engagement and emotion regulation predicted prosocial peer engagement. It is possible

then, for adolescents with ASD, due to additional changes in brain development of the prefrontal

cortex, an opportunity to continue working on self-regulation still exists. Thus, an appropriate

trauma-informed, school-based intervention could involve the combination of behavioral

interventions, such as applied behavior analysis (ABA) and mental health interventions, such as

TF-CBT.

Components of Existing Behavioral Interventions for Children and Adolescents with ASD

Well validated medical interventions to address the two core symptoms of an ASD diagnosis do not exist. These symptoms are impairments in social interaction and communication and restricted range of behaviors and activities (Dawson & Burner, 2011). A review by Vismara and Rogers (2010) on behavioral interventions showed that comprehensive and targeted behavioral interventions in children with ASD, support the improvement of communication, social skills, and management of problem behaviors. Early intensive behavioral interventions, ABA, targeted early behavioral interventions, and parent-mediated early interventions typically employed for the preschool age. Behavioral interventions for children and adolescents include social skills interventions and behavioral interventions for addressing anxiety and aggressive behavior (Dawson & Burner, 2011).

Social skills interventions focus on developing social skills, interest expansion, face-emotion recognition, interpretation of non-literal language. Interventions reviewed by Dawson and Burner (2011) showed promising results in children and adolescents. They had increased knowledge of social skills, and parent reports of lowered levels of ASD symptoms, withdrawal, and higher levels of social skills. Such interventions also incorporate CBT principles and have resulted in improved executive functioning, facial expression recognition, theory of mind, and problem solving. These programs are administered in clinic and school settings involving teachers, peers and parents.

Behavioral interventions that address anxiety are different for high-functioning individuals with autism and those with intellectual disabilities. With the former, successful interventions in reducing symptoms of anxiety include CBT, together with social skills instruction whereas with the latter, the approach of systematic desensitization is more effective

(Lang et al., 2010). With respect to addressing aggression and other challenging behavior for children between the ages of 3-18, common behavioral interventions include extinction of aggression by replacing it with an alternate behavior and functional communication training, which seeks to teach more appropriate ways of communicating (Brosnan & Healy, 2010). Furthermore, combining pharmacological treatments such as antipsychotic medication, with intensive behavioral interventions are found to be effective in reducing aggressive behavior (Fitzpatrick et al., 2016).

The examples of mental health programs below are ones that have been adapted for adolescents with ASD. Each of these interventions incorporates aspects of CBT. Incorporating CBT in the school setting for TD adolescents has resulted in lowered anxiety symptoms (Herzig-Anderson et al., 2012; Mychailyszyn, 2012). Therefore, implementing the programs below more consistently in school settings for adolescents with ASD may also yield positive results. Recognizing the necessity of reinforcing adaptive behaviors, they incorporate behavioral interventions into the structure of the mental health intervention.

The Resourceful Adolescent Program (RAP)

In an attempt to address the gap in evidence-based prevention and early intervention programs for depression in adolescents with ASD, Shochet et al. (2016) propose an empirical and methodological framework of a multilayered school-based preventative model. It is targeted at schools, parents, and adolescents with ASD with the goal of ensuring a positive life trajectory and mental wellbeing for this group. The school-level intervention in this framework seeks to augment the protective factors of school connectedness and affect regulation in adolescents with ASD. This is done through an adaptation of the evidence-based *Resourceful Adolescent Program (RAP)*, developed by Australian researchers (Shochet et al., 1997). The RAP program consists of three

interventions delivered in group format: The Resourceful Adolescent Program for Adolescents aged 12-15 (RAP-A), the Resourceful Adolescent Program for Parents (RAP-P), and the Resourceful Adolescent Program for Teachers (RAP-T). Adaptations to the program specific to the adolescents with ASD were made to all three intervention levels. RAP-A-ASD (Shochet et al., 2011) refers to adaptations to RAP-A of TD adolescents. Intervention at the adolescent level incorporates a strength-based focus, seeking to prevent depression and improve self-efficacy in high-functioning adolescents with ASD. While RAP-A is delivered in group format and designed to be part of the school's curriculum, RAP-A-ASD is delivered at the individual level over 11 weeks, ensuring that these adolescents are not distracted by additional social demands. RAP-A contains elements of CBT and interpersonal psychotherapy (IPT), that have been shown to reduce depression in adolescents (Rivet-Duval et al., 2011). As such, existing personal strengths are reinforced and skills are developed for self-regulation, understanding social supports, perspective taking, preventing and managing conflict, and healthy interpersonal relationships. In addition, the RAP-A-ASD also incorporates a social story to support in theory of mind deficits as well as computerized sessions in order to increase their engagement. These computerized sessions feature interactive activities and short videos that model behaviors and emotions that are often difficult to distinguish in individuals with ASD.

The RAP-P level intervention integrates components of CBT, Bowen Family Systems Theory and adolescent developmental psychology. Drawing from CBT, RAP-P exposes parents to principles of self-managed change in behaviors and emotions. Within family systems theory, RAP-P introduces parents to the concept of differentiation of self. Individuals who are able to successfully differentiate by way of adolescence can maintain a sense of self as well as a sense of belonging to their families, thereby fostering good mental health and wellbeing. Whereas those

who do not successfully differentiate can become anxious and emotionally reactive, intrapersonally and interpersonally. As a result, they are unable to self-soothe when faced with stress or conflict. Finally, from adolescent developmental psychology, adolescence should feel free to differentiate while also maintaining a sense of closeness to the family. From this lens, parents must also feel soothed rather than anxious that their adolescent is going through the normal stage of differentiation. Therefore, the goal of the RAP-P intervention is to improve attachment and enhance the relationship of adolescence and parents during differentiation. The focus is on enhancing parents' existing strengths, thereby improving their self-regulation, parental self-efficacy and managing their negative emotional overreactions to their adolescents' emotional overreactions. Finally, RAP-P aims to enhance the protective factors in families that include family harmony, growing independence and conflict management. As the RAP seeks to enhance school connectedness in all adolescents, intervening in these ways at the family level can also support this endeavor. While RAP-P is delivered in three workshops between 2-3 hours, RAP-A-ASD is delivered in four workshops, which allows for parents to discuss the challenges they face parenting an adolescent with ASD.

The third intervention level is RAP-T, which is designed to support teachers in imparting the micro-skills that facilitate school connectedness. There are four goals for RAP-T-ASD which include: increasing teacher's awareness of school connectedness as a value for educational outcomes and mental wellbeing; providing an outline of what elements make up school connectedness and strategies for doing so; helping teachers manage their own stress; and providing teachers with resources and strategies to incorporate school connectedness in the teaching curriculum. Of course, this cannot be achieved unless the whole school culture is committed to adopting a more inclusive approach to supporting all students. As a result, while teachers

understand the unique social, behavioral and cognitive characteristics in students with ASD, they do require additional support (Carrington & Harper-Hill, 2015).

Mackay et al. (2017) conducted a mixed-method, pilot randomized control trial of RAP-A-ASD in schools among 6th and 7th grade Australian students. Parent reports showed significant intervention effects of adolescent coping self-efficacy, however there was no effect on depressive symptoms or mental health. Yet, qualitative data from parents, students and teachers showed improvement in self-confidence, social skills and affect regulation. With the RAP being implemented successfully worldwide (Shochet & Ham, 2004), coupled with encouraging findings by Mackay et al. (2017), consideration for implementing the RAP adaptation for adolescents with ASD in schools may be given. This would not only be for the intended program purpose of reducing symptoms of depression, but also by enhancing the protective factors such as school connectedness and affect regulation that mitigate the effects of trauma.

Facing Your Fears (FYF)

While the RAP focuses on reducing depressive symptoms, the *Facing Your Fears (FYF)* (Reaven et al., 2011) program targets anxiety disorders, which are comorbid with a diagnosis of ASD. This evidence-based program is typically based in a clinic setting for youth with ASD. Over the 14-week program, this family-focused CBT group intervention seeks to manage anxiety and emotional dysregulation in children ages 8-14. The program modalities include large groups with the parents and their children, parent/child session or separate groups for parents and children. The FYF program comprises two segments with the first focusing on psychoeducation about anxiety and teaching CBT strategies. The second segment seeks to apply the strategies towards managing strong emotions and using graded exposure to manage anxiety and fear. This segment includes visual support such as worksheets, multiple choice lists, and video modeling.

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Parents are actively involved in the entire program. The number of clinical trials of program efficacy and effectiveness of FYF in clinic settings have demonstrated significant reduction in anxiety for participating teens and children (Reaven et al., 2020).

Researchers identified accessibility as one issue to not obtaining FYF services for many youths in the community and as such, sought out to implement the program in schools. The benefit of providing the intervention in the environment in which the anxiety of adolescents with ASD occurs is that they can immediately apply their new skills which increases the effectiveness of the intervention (Reaven et al., 2020). Three studies in which effectiveness of school-based CBT programs for anxiety for youth with ASD were shown through a reduction of anxiety symptoms in youth. Based on these findings, they developed a study to determine the feasibility and sustainability of implementing FYF in three Colorado public schools. This was done qualitatively by conducting focus groups with parents and teachers to determine how anxiety and emotion dysregulation interferes with the adolescent with ASD's school experience. Subsequently, they would adapt the clinic-based FYF program in the school-setting in areas where students are typically underserved. Results yielded support from parents, school staff and administration along with suggestions for how the program can be best adapted for the school setting. The next step then, is the implementation and evaluation studies of the FYF program in schools. This program presents an opportunity to teach adolescents with ASD coping strategies when faced with anxiety-provoking or traumatic situations within the school setting, particularly since, in comparison to their neurotypical peers, they are more at-risk of experiencing such trauma in school.

Behavioral Interventions for Anxiety in Children with Autism (BIACA)

Specifically, for adolescents with ASD, Wood et al. (2009) developed a CBT based program entitled *Behavioral Interventions for Anxiety in Children with Autism* (BIACA) which they then adapted for early adolescents with ASD and clinical anxiety in 2015. They emphasized distinctions in the types of anxiety symptoms for pre-teens with ASD in comparison to adolescents with ASD. The latter exhibit more social anxiety and the following factors which need to be taken into consideration: puberty, stress from school workload, and social complexity. Participants in their study included adolescents ages 11-15 years with ASD with symptoms of separation anxiety, generalized anxiety disorder, social anxiety disorder, and obsessive-compulsive disorder. The CBT program addressed basic coping skills, exposure, challenging irrational beliefs and behavioral support provided by caregivers in conjunction with ASD-specific treatment components. The treatment as part of this study was conducted at the University or a community autism clinic and involved the family and the adolescent. Clinicians in this study, which consisted of postdoctoral clinical psychology fellows or doctoral students in clinical or educational psychology programs, worked with adolescents and parents individually and together. They found at post-treatment, the CBT group's anxiety symptoms improved on the Pediatric Anxiety Rating Scale (PARS) and parents mentioned that there was a positive treatment effect on symptom severity of autism. Though the program is not conducted in a school setting, the BIACA program also provides additional consultations for teachers and other school personnel for consistency in implementing behavioral support strategies at school.

Conclusion

A review of the literature examining adolescents with ASD highlights their developmental needs and existence of comorbid psychopathologies. For some, the inherent changes in brain development during adolescence may exacerbate vulnerabilities to traumatic

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events, affecting their already delayed ability to cope. The conflation of an ASD diagnosis and

ACEs is uniquely challenging. Therefore, while evidence- based, trauma-informed programs

exist for schools, they are not widely implemented. The school environment can be a supportive

one for all children and adolescents who have experienced ACEs, but those with ASD and poorer

coping skills require modified or additional support.

Chapter 3: Methods

3.1 Study Design and Rationale

The proposed study utilized a mixed-methods approach, with elements of the methodology based on the WSCC framework, as described in Chapter II. In order to understand the prevalence of adverse childhood experiences (ACEs) among adolescents with and without an autism spectrum disorder (ASD) diagnosis in the United States and to be able to thoughtfully identify the best ways in which schools might provide trauma-informed care for this population, the first two research questions examined a national dataset provided by the 2020 National Survey of Children's Health (NSCH). The third research question employed a cross-sectional qualitative approach. This involved a series of interviews and a focus group with school personnel to understand what is known about school-based supports for middle/high school students with ASD who have experienced ACEs. The goal was to understand their perspective on how they currently support adolescents with ASD who have experienced ACEs and what they perceive would be the best way going forward. This chapter will first present the methods for research questions one and two, followed by the methods for research question three.

Research Questions

1. Among a nationally-representative sample of adolescents, what is the prevalence of ACEs among adolescents with ASD? What is the prevalence of ACEs among those with ASD and co-occurring intellectual disability (ID) or psychopathologies?

2. Among a nationally-representative sample of adolescents with ASD, what is the association between the experience of ACEs and their social context (i.e. bullying and their ability to make and maintain friends) and their social emotional wellbeing (i.e. flourishing and depression)?

3. a. Drawing on qualitative data from a convenience sample of pre-service school staff and current staff in public middle and high schools, what are examples of specific resources, processes, and practices currently in place in these schools to respond to adolescents who have experienced one or more ACEs?

b. What are examples of the specific resources, processes, and practices in place in public middle and high schools to respond *specifically* to adolescents with ASD who have also experienced one or more ACEs?

3.2 Methodology for Research Questions One and Two

As the data for the first two research questions are from the 2020 NSCH, a secondary data analysis was conducted. These data stem from a validated survey that collects data yearly from a nationally representative sample of American children between birth to 17 years of age (CAHMI, 2021). More specifically, these items assess over 300 indicators of child and family wellbeing. To participate in the survey, households are randomly selected and invited to participate in the survey by first filling out a preliminary questionnaire to be completed by an adult who is involved with the child's wellbeing and healthcare. Extensive details on this survey's methodology have been documented elsewhere (see: CAHMI, 2021). For this year of data, responses were collected from 42,777 households.

Sample Description

The study drew on participants ages 12-17 years. The sample size of eligible participants in the NSCH data was $N=17,538$ (9,103 males and 8,435 females). Within this group, the researcher was specifically interested in the prevalence of ACEs among adolescents who have a current diagnosis of ASD and how this might further impact their social and emotional wellbeing

and social context, in comparison to their peers with ASD who have not experienced ACEs. Among this sample, there are 619 adolescents (482 male) who met the inclusion criteria.

Measures

To approximate the adolescent's social and emotional wellbeing and social context, survey items from two survey categories from the NSCH were assessed. The "Emotional and Mental Health" category includes the variables of current diagnoses of ASD, attention-deficit hyperactivity disorder (ADHD), intellectual disability (ID), learning disability (LD), developmental delay (DD), anxiety, depression and indicators of flourishing. This last variable was captured by three questions developed by a Technical Expert Panel upon review of positive health indicators which included curiosity and discovery about learning, resilience, and self-regulation. The NSCH categorized responses into three numerical values: 1 "Meets 0-1 flourishing items"; 2 "Meets 2 flourishing items; and 3 "Meets all 3 flourishing items". In the present study, the variable "flourishing" reflected the composite of these three questions, with lower scores indicating more problems with respect to flourishing. Additionally, within this category, to approximate social context, the relevant questions from the 2020 NSCH include items on difficulties in making or keeping friends and bullying. For the purposes of this study, the variable "bullying", while the NSCH presents five frequency options, the responses "weekly" or "daily" were interpreted as having more issues involving bullying. Similarly, responses of "a little" or "a lot of difficulty" as it relates to the variable "making or keeping friends" was interpreted as experiencing more challenges in their social context. The second NSCH survey category, "Family Health and Activities" provided the prevalence of ACEs in adolescents with ASD. In measuring exposure to ACEs, caregivers are asked about the child's exposure to 10 different ACEs. Refer to Table 1 for survey items and responses from NSCH.

Table 1
National Survey of Children's Health - Select Survey Items

Measure	Survey Item	Response Options
Emotional & Mental Health - Social Emotional Wellbeing	Has a doctor or other healthcare provider EVER told you that this child has Autism or Autism Spectrum Disorder (ASD) *Include diagnosis of Asperger's Disorder or Pervasive Developmental Disorder (PDD)?*	"Yes" or "No" ● If "yes" and they currently have the condition, indicate severity: "Mild", "Moderate" or "Severe"
	Has a doctor, other health care provider, or educator EVER told you that this child has developmental delay and/or intellectual disability?	"Yes" or "No" ● If "yes" and they currently have the condition and/or disability, indicate severity: "Mild", "Moderate" or "Severe"
	Has a doctor or other health care provider EVER told you that this child has Attention Deficit Disorder or Attention Deficit/ Hyperactivity Disorder, that is, ADD or ADHD?	"Yes" or "No" ● If "yes" and they currently have the condition, indicate severity: "Mild", "Moderate" or "Severe"
	Has a doctor or other health care provider EVER told you that this child has anxiety problems?	"Yes" or "No" ● If "yes" and they currently have the condition, indicate severity: "Mild", "Moderate" or "Severe"
	Has a doctor or other health care provider EVER told you that this child has depression?	"Yes" or "No" ● If "yes" and they currently have the condition, indicate severity: "Mild", "Moderate" or "Severe"
	Flourishing How often does this child: 1) Show interest and curiosity in learning new things? 2) Work to finish tasks he or she starts? 3) Stay calm and in control when faced with challenges?	"Always", "Usually", "Sometimes" and "Never"
Emotional &	Compared to other children his or her	"No difficulty", "A little

Mental Health - Social Context	age, how much difficulty does this child have making or keeping friends?	difficulty" or "A lot of difficulty"
	During the past 12 months, how often was this child bullied, picked on, or excluded by other children?	"Never (in the past 12 months)", "1-2 times (in the past 12 months)", "1-2 times per week," or "Almost every day"
Family Health & Activities - Adverse Childhood Experiences	The next questions are about events that may have happened during the child's life. These things can happen in any family, but some people may feel uncomfortable with these questions. You may skip any questions you do not want to answer. To the best of your knowledge, has the child ever experienced any of the following? a) parent or guardian divorced or separated b) parent or guardian died c) parent or guardian served time in jail d) child witnessed domestic violence e) was a victim of violence or witnessed violence in neighborhood f) lived with anyone who was mentally ill, suicidal or severely depressed g) lived with anyone who had a problem with alcohol or drugs, and h) treated unfairly due to race/ethnicity i) treated or judged unfairly because of their sexual orientation or gender identity j) hard to get by on family's income - hard to cover basics like food or housing	A-I "Yes" or "No" Options for 'J': "Never", "Rarely", "Somewhat often", "Very often", or "Yes"

Data Analysis Plan

Data were analyzed using IBM SPSS 29.0. To determine the prevalence of ACEs in

adolescents age 12-17 with and without ASD, as well as those with comorbid psychopathologies,

IDs, LDs, or DDs, descriptive analyses were gathered to determine the frequency of ACEs as well as the frequency of the specific type of ACEs. The relationship between ACEs and bullying and difficulty in making or keeping friends was examined with the *Spearman Rho Correlation.* The associations between the experience of ACEs and a current diagnosis of anxiety, depression, ADHD, ID, LD and DD was analyzed using the *Chi-Square Test.* Finally, the difference between the adolescents with ASD, those who had experienced ACEs and those who had not, on flourishing was analyzed using an *Independent Samples T-Test.* On measures of anxiety, depression, ADHD, ID, LD, and DD, where parents skipped the question, these were re-coded into "no" and where there is missing data, these will be removed from the analyses. Next, the parent responses to the ACE questions are categorized into three groups in the NSCH data: "Children with no ACEs", "children with one ACE", and "children with two or more ACEs". While the researcher examined the data across the three levels provided by the NSCH, in the present study, two variables were used to reflect ACEs. One is a categorical variable "Children with no ACEs" and the other categorical variable combined "Children who had experienced one ACE and children who had experienced two or more ACEs." Finally, with the TD adolescent group being significantly larger than the ASD adolescent group, comparison of proportions between groups were made by calculating the z-score using an online proportions calculator (Lowry, 2022).

3.3 Methodology for Research Question Three

Drawing on existing research, the paradigm that guided this research question was pragmatism, as the intent was to learn and generate ideas from practitioners in the field, with respect to what would be practical in-terms of trauma-informed interventions and potential roadblocks and enablers (Creamer, 2016; Collier et al., 2022). Thus, the third research question

used qualitative methods to explore the following topics: availability of trauma support services at school, training for school personnel, implementation of evidence-informed mental health programs, and barriers and facilitators to implementation.

Sample Description

There are currently an estimated 98,000 public K-12 schools in the United States and serving an estimated 49 million children. Data approximate that 30% of children have experienced at least one ACE (National Conference of State Legislatures, 2022) and an estimated 17% of children have a disability (CDC, 2022b). These trends are reflected in data at the district-level as well. For example, during the 2020-2021 school year, 1,094,138 children in K-12 were enrolled in the New York City Department of Education (NYC DOE) school system, with 20.8 % of students having a disability (NYC DOE, 2022) accounting for the majority of children in NYC (United States, Census, 2022). The NYC DOE schools support students with disabilities that require participation in general education classrooms, supplemented where deemed necessary through the IEP process, to additional instruction provided by a Special Education Teacher or related services such as counseling or physical therapy (NYC DOE, 2022). Therefore, inclusion criteria for this part of the study required school personnel from public middle or high schools. A convenience sample of six participants, pre-service staff from a large urban institution of higher education working in public middle or high schools, participated in this study. The intent was to conduct focus groups and interviews with a cross-section of school staff, for example special education teachers, school psychologists, nurses, and principals.

Data Collection Procedure

Rationale

This study sought to better understand which specific trauma-informed practices in schools are needed for adolescents with ASD who also have a history of ACEs and, further, to identify potential barriers and facilitators to implementing these practices. Thus, the study findings will be shared in ways that provide guidance to school administration and personnel working with adolescents who have experienced trauma and specifically, the ways in which this uniquely impacts those with neurodevelopmental disabilities. While it is important to equip current school personnel with trauma-informed training, to ensure more timely intervention, providing this training to pre-service teachers through teacher education curricula would also be helpful. As such, the study findings will be disseminated in ways that can be accessed by researchers, policy-makers, and practitioners in the field.

Given the relatively limited research in this area of study, the third research question was exploratory in nature and required engaging with and collecting input and insights from current school staff. In reviewing methodologies of qualitative research with school staff specifically to explore barriers and facilitators to program implementation, existing research confirmed the value of employing both interviews and focus groups (Reaven et al., 2020; Connors et al., 2021; Collier et al., 2022; Graham et al., 2022). Moreover, prior research also underscored advantages to using both focus groups and interviews as part of one study, so as to allow for a broader spectrum of eligible participants that may otherwise not be able to participate if data were restricted to only one form of collection (Morse, 2009). For example, in the present study, participants were balancing their studies while working or training full-time in schools, along with family and other personal responsibilities, which collectively made the data collection logistics quite challenging. Expanding the data collection format to accommodate participant needs was important. In addition, utilizing both focus groups and interviews was especially

suitable with this particular population and when attempting to conduct school-based research, given that schools are continuing to contend with the effects of COVID-19. Specifically, the enduring effects of the pandemic have placed increased responsibilities on all school staff. These include concerns over their students' academic progress, behavior challenges, and social-emotional wellbeing (Robinson et al., 2022; Ryan et al., 2023). As such, their time and availability are even more limited and, again, both focus groups and interviews were employed. Ultimately, the analyses of the interviews and focus group data were conducted separately and then the themes and primary takeaways compared. As will be described in further detail in the Results, the results from all data sources were aligned, suggesting that it was reasonable for this exploratory aim to utilize both data collection approaches.

This method enabled the researcher to obtain an in-depth understanding from practitioners currently in the field (Crowe et al., 2015). While all school personnel were from public schools, through the sharing of experiences and identification of similarities and differences, the focus group and interview format allowed the researcher to understand at which levels - school, DOE, or government - support will need to be provided for the implementation and scaling of trauma-informed interventions. The researcher's intent was to recruit participants that had interacted with adolescents with ASD in relation to supporting their mental health in the school setting. Additionally, participants that were in leadership capacities in school settings, responsible for overseeing, advocating for and implementing mental health-related policies, were requested to be part of a second focus group or interview. Therefore, program directors from School Psychology, School Counseling, Nursing, Curriculum & Teaching, Leadership, and Intellectual Disability/Autism were asked to share the study recruitment email. After several weeks of recruitment attempts, this yielded three responses. Therefore, to expand the pool of

potential participants, the recruitment was opened up to all students. However, the inclusion

criteria remained that they have previous or current experience working with adolescents with

ASD in public schools. While this generated a total of 12 participants, once the focus group and

interview dates were scheduled, some did not attend or did not respond. Of the 12 participants,

two were in a leadership capacity. Likely due to the nature of their work, communication and

scheduling became difficult. As such, one focus group was conducted with three participants,

one semi-structured interview was conducted with two participants, and another semi-structured

interview was conducted with one participant. Due to the recruitment issues, the researcher was

limited in the number of focus groups and interviews conducted. The focus group was 90

minutes in length and the interviews were 60 minutes. Nevertheless, by collecting the data in this

way, the researcher still gained an understanding of what is practical within a school setting. To

ensure participants provided genuine and thoughtful responses, the researcher created a safe and

comfortable environment to facilitate this type of interaction (Morgan, 2019). The process of

creating this type of environment began prior to the start of the focus group and interviews. To

start, participants only took part in the study if they engaged in the informed consent process.

Refer to Appendix A for the Informed Consent Form. This process outlined the expectations of

the focus group and interviews, the extent to which the researcher would maintain confidentiality

and anonymity of participants, and by sharing examples of questions to be asked (Sim &

Waterfield, 2019). Refer to Appendix B for the protocol. Throughout the discussions, a safe

environment was cultivated by the researcher via validating contributions, ensuring each

participant had enough time to provide their input, and summarizing responses at the end of each

series of questions. Furthermore, during the focus group and interviews, the intent was to

maintain a semi-structured approach for the first three categories of questions and have a less

structured approach for the fourth category to allow for a more open discussion. However, after the first category of questions were asked, more of an open discussion emerged which ended up organically answering the other questions on the interview list. Refer to Table 2 for focus group and semi-structured interview questions.

Through the questions used to guide the focus group and interviews, the aim was to gather information on what is already occurring or not occurring in the school, from school personnel that have differing levels of interaction with adolescents with ASD in their schools. Therefore, the participants included staff in general education teaching, special education teaching, and school psychology. In line with focus group and interview best practices, the groups were small enough so that participants had time to elaborate on their personal experiences and ideas about trauma-informed programming. Malterud et al., (2016) proposed the concept of 'information power' when selecting a small sample size. This is appropriate in a study where the following criteria are met: narrow study aim, the sample possesses knowledge specific to the study aim, application of established theoretical frameworks, strong dialogue among participants and researcher, and in-depth analysis of the discourse. Particularly when looking at barriers and facilitators, school personnel may be more open when in groups with those from other schools. The focus group and interviews were recorded in order to support data analysis.

Setting

The focus group and interviews were held online over Zoom for ease of coordination. In using this platform, participants were asked not to record the session or any information on their end. One ethical constraint of using focus groups or small group interviews is that of confidentiality, not related to the study protocol. While the researcher maintained confidentiality of the participants' information as a part of the study, during the interactions, by the nature of the

discussions, some participants inevitably revealed details about themselves or their place of work. This was, therefore, included in the consent form to participants. The sessions were audio-recorded only and encrypted using Zoom. Additionally, the transcripts of the audio were also provided through Zoom. Prior to the analysis of the data, the transcripts were de-identified.

Recruitment and Informed Consent Procedures

As an initial recruitment strategy, emails were sent to Program Directors of the pre-service School Psychology, School Counseling, Nursing, Curriculum & Teaching, Leadership, and Intellectual Disability/Autism program to be shared with students. The email outlined the purpose of the study, some facts about the negative impacts of ACEs, and intended outcomes of the study. Additionally, recruitment was done by posting an announcement on the student portal and sharing posters. Refer to Appendix C for all recruitment material. Participants who agreed to take part were given an informed consent form that described the confidentiality procedures regarding their personal information and the recording of the focus group or interviews. It was also noted that the recording would be discarded immediately after it had been transcribed. As per the IRB-approved protocol, all participants also received a $10 Starbucks gift card.

Data Analysis

Data were coded and interpreted using a four-step thematic analysis framework proposed by Crowe et al., (2015). This framework lends itself to identifying relationships and themes based on participant responses in order to better understand school-level support needed to be able to provide trauma-informed care to this subgroup of adolescents. All steps of the data analysis process were conducted by the researcher. The lens through which data were coded and interpreted takes into the account the researcher's positionality as a K-12 teacher with specialization in special education and a clinical counselor of adolescents and young people. She

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has an interest in the factors that influence a student's academic, social, emotional and physical wellbeing.

Prior to beginning the analysis for the three sets of qualitative data, the researcher cleaned the data by cross-referencing the transcripts provided by Zoom, alongside the audio recordings and making corrections to the transcripts. In doing this, the researcher simultaneously incorporated the first step of the thematic analysis framework proposed by Crowe et al. (2015). This step involved becoming familiar with the data by reading and re-reading the transcripts. With three sets of data, the initial reading and cleaning of each of the transcripts was done over three consecutive days to allow for adequate reflection for each set of data. Immediately, the researcher observed the many similarities and areas of overlap in the responses among all sets of data. This was followed by generating codes, in relation to the third research question, that emerged from each set of data. At the same time, the researcher made note of any details provided by participants that gave more context to the responses. In total, 35 codes were generated.

Step two required the identification of themes after the main ideas were grouped under specific codes. The codes were first grouped by ideas that were related, which became the topics. This resulted in seven topics and ultimately, three themes, leading to the third step which was naming and defining the themes. Prior to doing so, the researcher went back to the data and notes made during the coding process to ensure that the data supported the proposed themes. Once the themes were finalized, appropriate participant excerpts were selected to illustrate the themes. In adherence with the four-step thematic analysis framework, the themes were named through writing and re-writing. In this way, the themes generated allowed for the development of relationships between them to create a coherent narrative. The themes created through this

process were: (a) variety across practices, processes, and resources; (b) challenges in implementation; and (c) proposed facilitators to adoption of trauma-informed approaches. The final step was to synthesize the data, moving from simply describing the data, to presenting the meaning and relationships that the researcher inferred. To facilitate this process, the researcher reflected on what the findings meant in relation to the research question and examined the contextual factors that have impacted the findings (Crowe et al., 2015).

Table 2
Focus Group and Interview Questions

Category #1 - Trauma Support Services in Schools
- How are current students with and without developmental disabilities being supported from a mental health standpoint?   - What current services support adolescents who have experienced ACEs?   - What current services support adolescents with ASD who have experienced ACEs (school-based or community)?   - Is there a process for identifying adolescents, with and without ASD, who have experienced ACEs (screening)?   - If so, what screening method is used?
Category #2 - Trauma Training for School Personnel and Students
- What type of Trauma training do teachers receive?   - What proportion of special education teachers have training in providing trauma-informed care to adolescents with ASD?   - Would this be the responsibility of the Special Education Teachers and School Psychologists?   - What, if any, trauma-related education is provided to students?   - What do they think they need to be successful in providing care to such adolescents?
Category #3 - Examples of Evidence-Based Programs
Prior to asking questions, present the group with various examples of evidenced- informed programs and base questions on these {TF-CBT and Formal Programs: RAP-A-ASD; Behavioral Interventions for Anxiety in Children with Autism (BIACA); Facing Your Fears (FYF)}   - Are you familiar with any of these interventions?   - According to school personnel, what aspects of an intervention are important?

● Explain the TF-CBT adaptations (addressing the heterogeneity: ASD + ID; ASD + Social communication deficits; ASD + Mental health; ASD +ADHD) proposed by Peterson et al. (2019)
    ○ What would you need to help you/your school to implement this type of program in your school?
    ○ What would get in the way of your ability to implement this type of program in your school?

Category #4 - Barriers and Facilitators
● What do you perceive would be the best way to support the students? ● What are some perceived barriers to being able to provide this support?
Category #5 - Questions for Pre-Service Staff
● What specific courses or training opportunities have been particularly helpful? ● What area(s) do you wish you had more support or training in? ● What has been most surprising in your experience as a pre-service teacher/psychologist?

Chapter 4: Results

This chapter presents the results of this dissertation and to each of the study's three research questions.

4.1 Quantitative Findings – National Survey of Children's Health 2020

Sample Description

We sampled 619 (482 M; 137 F) adolescents between the ages of 12-17 ($M = 14.64$, $SD = 1.674$), all with a current diagnosis of ASD. Race of participants was 83% White; 5.5% Black or African American alone; 0.5% American Indian or Alaska Native alone; 2.6% Asian alone; 0.8% Native Hawaiian and Other Pacific Islander alone; and 7.6% Two or More Races. Within this group, 10.7% identified as Hispanic or Latino Origin, with 89.3% not Hispanic or Latino Origin. Family income based on federal poverty level (FPL) status of participants was 14.2% 0-99% FPL; 18.1% 100-199 FPL; 30.4% 200-399 FPL; and 37.3% 400% FPL or greater.

Prevalence of ACES

Quantitative findings. The 2020 NSCH data on Adverse Childhood Experiences (ACEs) showed that 47% of adolescents between the ages of 12-17 (n=17,539) have experienced one or more ACE. Among this group, 3.1% have a diagnosis of Autism Spectrum Disorder (ASD). Within the entire sample of 619 adolescents between the ages of 12-17 with ASD, 241 did not experience ACEs, 153 (120 M; 33 F) experienced one ACE, and 217 (162 M; 55 F) experienced two or more ACEs. Therefore, 60% of those ages 12-17 with ASD have experienced ACEs, ($M = 1.96$, $SD = 0.866$). Furthermore, among adolescents with ASD, a significantly higher proportion reported experiencing at least one ACE ($n = 370$) in comparison to those who had never experienced at least one ACE ($n = 241$); $z = -7.333$, $p < .0001$. In comparing the prevalence of ACEs between Typically Developing (TD) adolescents and those with an ASD diagnosis, a

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statistically significant association was found; $\chi^2(1, N = 17{,}539) = 46.221$, $p < .001$. With the

TD sample being considerably greater than the ASD sample, we confirmed the association of

having an ASD diagnosis and the experiences of ACEs by comparing the proportion of ACEs

between the ASD group and TD group using an online proportions calculator (Lowry, 2022).

This test confirmed the statistically significant finding; $z = 6.72$, $p < .0001$. Of the ten ACEs that

were included in the survey, the most common one experienced by those with ASD was "Parent

or guardian divorced or separated" at 234 adolescents. This was followed by "Lived with anyone

who was mentally ill, suicidal, or severely depressed" experienced by 135 adolescents and "Hard

to get by on family's income – hard to cover basics like food or housing" affecting 133

adolescents. Further, a moderate, statistically significant negative association was found between

FPL and the number of ACEs; rs (617) =. -307, $p < .001$. No significant findings were found as

it relates to the adolescent's race and the experience of ACEs. Refer to Table 3 for frequency of

all ten ACEs.

We further examined the prevalence of ACEs in adolescents with ASD with co-occurring

psychopathologies and IDs, LDs and DDs. Within this group, 337 have co-occurring anxiety,

155 with co-occurring depression, and 316 with ADD/ADHD, of which 232, 125, and 206 had

experienced one or more ACE respectively. In adolescents with ASD, 104 had an ID, 330 with a

LD, and 339 with a DD, of which 65, 207, and 211 had experienced one or more ACE,

respectively.

Table 3
Frequency of Type of Adverse Childhood Experience

Type of ACE	*N*	Experienced ACE
Parent or guardian divorced or separated	606	234
Parent or guardian died	605	35

Parent or guardian served time in jail	607	59
Child witnessed domestic violence	605	68
Victim/witness of neighborhood violence	605	56
Lived with anyone who was mentally ill, suicidal, or severely depressed	606	135
Lived with anyone who had a problem with alcohol and drugs	606	101
Treated or judged unfairly because of his or her race/ethnic group	606	34
Treated or judged unfairly because of their sexual orientation or gender identity	606	21
Hard to get by on family's income – hard to cover basics like food or housing*	608	133

*Combined responses of those who responded "yes" to "somewhat often and very hard to get by on family income" into "experienced ACE" and combined responses "never or rarely hard to get by on family income" into "did not experience ACE"

Emotional and Mental Health

Quantitative findings. We tested the association between the experience of ACEs and a current diagnosis of anxiety, depression, and ADHD using the *Chi-Square Test.* With respect to all three, a significant association was found among those adolescents with ASD and those who had experienced ACEs; $\chi^2(1, N = 619) = 21.577, p < .001; \chi^2(1, N = 619) = 32.841, p < .001,$ and $\chi^2(1, N = 619) = 5.101, p = .024,$ respectively. This suggests that ACEs pose a risk to a diagnosis of anxiety, depression, and ADHD in adolescents with ASD. Next, severity of each of these diagnoses - mild, moderate or severe – and the number of ACEs experienced were examined to determine whether there was an association. Findings were significant for anxiety only, $\chi^2(2, N = 340) = 10.437, p= .005,$ indicating that in addition to ACEs posing a risk to diagnosis of anxiety, they do have an association with the severity of anxiety. Additionally, we tested the association between the experience of ACEs and a current diagnosis of ID, LD, and DD; there were no significant findings. In relation to their TD peers who had experienced ACEs, a significant difference was found for anxiety, $z = 2.401, p < .0082$ and depression, $z = 1.989, p$

< .0234. These results suggest that ACEs pose a greater risk of anxiety and depression to adolescents with ASD in comparison to their TD peers. Finally, we analyzed the difference between the adolescents with ASD, those who had experienced ACEs and those who had not, on flourishing using an *Independent Samples T-Test.* A statistically significant difference was found, t (612) = 2.642, p=.001, suggesting that ACEs pose further risk on teens with ASD and their abilities to demonstrate curiosity and discovery about learning, resilience, and self-regulation. Those with ASD who had experienced one or more ACE had a lower average flourishing score (*M*=1.525*, SD* =.719) than adolescents with ASD who had not experienced any ACE (*M* = 1.690, *SD* = .807). TD adolescents had higher than average flourishing scores than their peers with ASD (*M*=2.563, *SD* =.707) however, among TD adolescents the average also lowered in those who had experienced ACEs (*M*=2.297, *SD* = .832).

Social Context

Quantitative findings. The relationships between ACEs, bullying, and difficulty in making or keeping friends were examined with the *Spearman Rho Correlation.* There was no significant correlation found between ACEs and the adolescent's ability in making or keeping friends. Of the 619 adolescents with ASD, 35% and 51.7 % reported having "a little difficulty making friends" and "a lot of difficulty making friends" respectively, regardless of having experienced ACEs. For those who had experienced ACEs, 31% reported having "a little difficulty making friends" and 66% of those who had experienced ACEs reported having "a lot of difficulty making friends". While a significant difference was not found within the ASD group as it related to making and keeping friends, in comparison to their TD peers who had also experienced ACEs, a significant difference was found z = 20.93, p < .0001. However, a statistically significant positive correlation was found between ACEs and being bullied, picked

on, or excluded by others, rs (600) = .208, p = .000. This difference was also found in

comparison to their TD peers who had experienced ACEs z = 19.14, $p < .0001$. Refer to Table 4

for the descriptive statistics and evaluation of group associations and differences.

Table 4
Descriptive Statistics and Evaluation of Group Associations and Differences

	N (# of participants with ASD)	No ACEs	One or more ACEs	Evaluation of Group Associations & Differences
Experience of ACEs	619	241 (40 %)	370 (60 %)	$z = -7.333, p < .0001$*
Emotional Wellbeing				
Anxiety	343	105 (31%)	238 (69%)	$\chi^2(1, N = 343) = 21.577, p < .001$*
Depression	155	30 (19%)	125 (81%)	$\chi^2(1, N = 155) = 32.841, p < .001$*
ADHD	319	110 (34%)	209 (66%)	$\chi^2(1, N = 319) = 5.101, p = .024$*
Intellectual Disability	107	39 (36%)	68 (64%)	$\chi^2(1, N = 107) = .294, p = .588$
Learning Disability	337	123 (36%)	214 (64%)	$\chi^2(1, N = 337) = 1.611, p = .204$
Developmental Delay	344	128 (37%)	216 (63%)	$\chi^2(1, N = 344) = .797, p = .372$
Difficulty Flourishing	614	239 (38.9%)	375 (61.1%)	$t (612) = 2.642, p=.004$*
Social Context				
Difficulty Making or Keeping Friends	608	237 (39%)	371 (61%)	$rs (605) = .051, p=.211$
Being Bullied	605	235 (38.8%)	370 (61.1%)	$rs (600) = .208, p=.000$*

Findings are statistically significant at $p < .05$

4.2 Qualitative Findings - Trauma-Informed Practices in Schools

Sample Description

Participants were students from a large urban institution of higher education. These

students were pursuing pre-service programs including School Psychology and Special

Education teaching and a graduate program in International and Comparative Education. Each of

the participants were currently working or training in public middle or high schools, having

experience working with TD and ASD students. Specifically, the focus group included two pre-

service school psychologists and one special education teacher. One of the interview groups included a pre-service school psychology student with previous teaching experience and a current teacher in public schools. The second interview was with a pre-service school psychology student.

Qualitative findings - focus groups and interviews with school staff. Overall, the focus group and interview results showed inconsistency across and within schools as it related to specific resources, processes and practices in place in order to address trauma in both TD and ASD groups. Moreover, in the cases where practices and processes were in place, these were for all students experiencing current mental health or social emotional difficulties, rather than seeking support for having only experienced ACEs. Through a thematic analysis, the results of the focus group and interview transcripts brought about the following themes: (a) variety across practices, processes, and resources; (b) challenges in implementation; and (c) proposed facilitators to adoption of trauma-informed approaches. Refer to Table 3 for coding, categorizing, and theming according to the thematic analysis process (Crowe et al., 2015).

Variety of Practices, Processes, and Resources

In response to the questions about mental health support for all students and trauma-informed support for students, participants described various intake, counseling and referral practices in relation to the former. As it relates to the latter, there was a consensus that trauma was identified only if it came up in an individual or group counseling session. With no formal trauma-informed programs, the majority of schools responded to surface manifestations of behavioral or emotional issues in a variety of ways, either within the school or through community programs.

In the school setting, all participants mentioned that they were equipped with mental health providers. This included school counselors, social workers, or school psychologists that supported students. One practice that was mentioned, used for all students, was an 'Individual Crisis Management Plan' for any student whose behavior escalated more than once. This was then debriefed and refined with all teachers involved with the student and their caregivers. Embedded in this practice was a reflective component where staff were required to consider what could have been done better. Another participant's response to this practice was:

> This would be a really good step in the right direction for my school. Because I know, at my school, when there were situations where there was escalated crisis, we used physical restraint or seclusion. This was traumatic even for the educators, but we had no time to debrief.

This participant further shared that Special Education teachers were often asked to be proxy mental health providers if students were having emotional difficulties. In another example, wherever a particular issue came up that could not be handled by the supports provided in the school, referrals to a community clinic were made, as one school psychology student explained:

> The primary focus is like, functioning in the school, and I can't control what goes on in their home or in their life outside the home. So, we're like, ok, this is outside of the school bubble. We've got to get you somewhere that is going to be able to tackle that.

Though not all of the schools where participants worked had specific programs for adolescents with ASD, the practices that were discussed specifically for this subgroup were to determine what would be included in the IEP. For example, if a placement was being determined for a student, a 'Social History Form' was used. This comprehensive form collects details about the student from caregivers where they can outline their child's interpersonal relationships, social emotional issues, and behavioral issues, to name a few. Knowing this, the school can prepare accordingly. As one participant explained, "It has to be mandated on their IEP to even get mental

health services through the school." Finally, a participant working in a high school mentioned that students requiring extra support would review their academic and social emotional support needs with their Special Education Teacher.

Challenges in Implementation

A common sentiment among participants was that having programs and processes in place is one thing, however, certain barriers arise in terms of the effectiveness of their implementation. There were four topics associated with this theme: (a) fidelity and consistency; (b) the role of administration; (c) overwhelm with workload; and (d) tailoring support for students with developmental disabilities.

Fidelity and consistency. While the majority of participants' schools had SEL programs, these were not consistently implemented. Additionally, the staff training for these programs were usually done over one professional development session. As a result of this, the issue of fidelity also emerged:

> It's kind of like 'boom, you're all trained!' it's done. But, is it actually being implemented the way it's supposed to be? I think it's very important to test if they're running something correctly. Because learning something is way different from running something. I think, once you're in the shoes of actually implementing something, it is a way different experience. Once you take a PD, you are expected to implement it without any follow-up.

Inconsistencies between schools also arose in the approach towards mental health or behavior issues. Some participants mentioned having a short-lived focus on mental health and SEL when students first returned to school during COVID-19. However, the notion of the lasting effects of trauma seem to be forgotten. For example, a participant shared differences between two schools where they have worked. In one, taking the effects of COVID -19 into consideration, focus on mental health was part of the school ethos, which was reflected in the learning environment and staff attitudes. Therefore, all staff were trained in how to approach students

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from this lens. Further, since students with ASD were part of the general education classroom, these teachers also received training in working with students with special education needs. The classroom environment included 'calm-down' pillows for students to support their mental wellbeing and subsequently, facilitate their ability to focus. The opposite approach is being used in the school the participant is currently in, particularly for students who have an IEP, "Meanwhile, like the school where I'm at now, that's not the focus and it's more punitive. I think we had 3 or 4 kids suspended this week, all of them had IEPs." This approach, in and of itself, can often lead to social and emotional issues.

The role of administration. Participants consistently mentioned administration when asked about the provision of trauma-informed care or mental health supports. These depended on the priorities set out by administration. Some placed importance on emotional wellbeing, whereas others focused on academics and graduation rates. As such, trauma-related education was not prioritized for staff or students, "There isn't like a formal process, or a coherent or cohesive school culture where they tell us what everyone does, this is how you all respond in the same way to these like different crises."

In discussing the approach towards students with ASD, participants mentioned a disconnect between the IEP teams and administration in terms of how to approach a student when exhibiting difficult behavior. While the former would demonstrate more patience and empathy, cornerstones of a trauma-informed approach, the latter would consider the behavior a disruption and adopt a more punitive and reactionary approach:

> But we should not look at sending a student to a different placement as our first approach. Like you want to know that you've tried everything, and speaking with my supervisor, she definitely takes that approach. So, we have this student currently that should never have escalated to the level that they are now. It could definitely have been dealt with in a different way, whereas now they go into escalated mode everyday, with so much staff putting their energies into them.

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The need for administration to understand additional barriers faced by those with ASD in a compassionate and patient manner was highlighted as a concern, "This kid has developmental delays and you are creating a vibe in the classroom that this kid is not wanted." Instead, trying to understand why this student may be escalating in the first place should be the first step. Importantly, using this type of approach could be exacerbating trauma from home or elsewhere within the school environment. Connected with this is the reality of school generally being a difficult place for some students:

> In a previous place, this student was escorted out by security. And so, school in general has been a really hard place for them to just exist in, because that was just a traumatic experience. I think he was restrained, then pulled out.

Overwhelm with workload. All but one participant emphasized how overwhelmed school staff are. This had a direct impact on program implementation and the types of interventions being used. Even if staff receive training in a particular program, there often isn't enough time in the school day to effectively implement the strategies or even reflect on whether it is the correct strategy. Especially when teachers have received the training, they are often trying to balance the implementation with lesson planning.

 Additionally, all of the participants' schools were staffed with multiple counselors and psychologists, however, they were struggling to keep-up. When asked about practices in place for trauma-screening, one participant explained a potential dilemma:

> I think a lot of is that too many students might be identified, and then you don't have the school support to address that. But now that they've been identified, it's just like, 'you need to be able to help them.' Is it ethical? It is a part of the school's duty to be able to do that.

The lack of time and stretching of resources also led to more reactive approaches, rather than thinking through what is best for the student. One participant was part of the 'Crisis

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Intervention Team', but was not supportive of the restraint and seclusion methods as a first

response:

> I feel like my administration, when we did have some of those students who required
> extra emotional support and they were having an escalated outburst, the administrators
> first response was to send like the crisis team. We were trained on de-escalation, but the
> focus was on restraint and seclusion. I didn't get the sense that it was for the student, but
> more to make a point to the IEP team that this student needs one-on-one support all the
> time and to minimize their disruptions. But this stopped me from seeing other students on
> my caseload.

Participants explained that the more frequently used reactive approaches were the opposite of

what they consider to be trauma-informed, "Restraints should be the last resort. This can be

traumatic for the kids and for the educators."

Tailoring supports for students with developmental disabilities. Only one of the

participants discussed receiving training in a more empathetic and trauma-informed approach.

This was through a prevention and intervention program called 'Therapeutic Crisis Intervention

for Schools (TCIS).' The program goals are: creating a safe, caring and supportive environment;

proactively preventing crisis from occurring; de-escalating a student in crisis; effectively and

safely managing acute crisis; reduce the risk of harm to students and staff if physical intervention

is necessary; and improve student's coping strategies when faced with stressful situations. The

administration and all staff received training in this approach:

> There was an administrator at the training, and it was absolutely amazing. You could
> actually see the understanding that they gained…the special education teachers, the
> teacher aids, like how they changed from the first day to the last day (of training) and
> their approach to being more empathetic towards the students. They're truly trying to
> understand where the underlying basis of it all could be.

The concern mentioned with this approach, however, was that there was no guidance on how to

adjust this for students with developmental disabilities. It becomes challenging to address trauma

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in those who struggle with speech or are non-verbal. Conversely, there are also the students who are verbal yet are not aware of what is appropriate to share socially.

When participants were then shown components of clinic-based, evidence-informed mental health programs for adolescents with ASD, such as RAP-A-ASD, BIACA, or FYF, though not aware of these programs, they expressed familiarity with the components in their daily work. Some of these include 'psychoeducation', 'basic coping skills', 'perspective-taking', 'healthy interpersonal relationships', and 'skill development in self-regulation.' Furthermore, the components of these mental health programs are embedded into TF-CBT and its suggested adaptations for the ASD group. Therefore, guidelines on how to adapt this trauma-informed approach for adolescents with ASD were presented. Nevertheless, while participants were glad to learn of these formal programs and corresponding guidelines for students with ASD, they offered two additional suggestions thought to be more realistic in the school setting. Though fidelity of TF-CBT, for example, states that program components are to be done in order, the first suggestion was to allow for some flexibility with the tools:

> The one thing I think would be a barrier is the trauma narrative. This would need to be done in a very strategic way within a school. Because if you ask them to share a deeply traumatic thing first period, and then second period they are in algebra, it's kind of hard to open them up and then shut them back up. They'll talk in group and then come back two periods later and they're like "So I said something in group, and I'm still thinking about it." So, I have to be cognizant of where the students are during the day.

The second suggestion was offered in light of training and time concerns. Rather than inconsistently implementing a new program, consideration could be given to bolstering components of existing programs that could still have the same effects of a trauma-informed program. For example, a participant discussed a Life-Skills training program they facilitate with adolescents and young adults with ASD in which learning to develop peer relationships is a core

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component. Understanding that having a support system to cope with trauma is beneficial, it is more feasible to spend additional time learning about how one can ask friends for help in the face of difficulty.

Proposed Facilitators to Adoption of Trauma-Informed Practices

While the focus group and interview discussions shed light on the various challenges and current barriers to implementing trauma-informed programs, within these conversations, participants were also asked about what they would need in order to work with this approach. Three topics emerged in relation to this theme: (a) streamline trauma-informed training; (b) supporting all staff working with students with developmental disabilities; and (c) enhancing communication and collaboration.

Streamline trauma-informed training. With the exception of one participant that received TCIS training, others had not received any formal training in trauma-related programs. Further, participants expressed a need for this as they were often teaching themselves while on the job:

> There is so much reactionary education, but I need to know these things ahead of time. I have to go out on my own, professional conferences for a lot of risk assessment and trauma-focused things, because that's something I need to know about.

Since there is no guidance provided, participants would research various strategies on their own time based on their observations and interactions with students on a particular day, as expressed by one participant that, "…everyone just gets thrown in there and the expectation is that because I'm a Special Education teacher, I can just deal with the crisis a student is experiencing." Specific mention was made to the fact that, in their own research, it was difficult to find trauma-informed approaches that also differentiated for students with ASD.

Though the demands on everyone's time is a reality in the school setting, participants agreed that trauma-informed training must be done by everyone in the school. This starts at the administration level, "…unless it's coming from the admin level, how many people are actually going to show up?" Thus, the buy-in from administrators is necessary and it makes a difference as it has a trickle-down effect towards all staff, students, and families. As it related to working with all students, a participant expressed, "I think it's ironic that we teach school psychologists more about interventions, when it's usually the teacher that does the implementation of it." This comment emphasizes the need for all staff to receive formal trauma-informed training, to ensure consistent support for all students. In discussing students with ASD specifically, participants noted the role of paraprofessionals and how they are often overlooked. Typically for professional development sessions, they are not included, but in the case of providing a trauma-informed approach, their role is crucial.

Support for all staff working with students with developmental disabilities. Though participants mentioned the difficulty in finding differentiated trauma-informed instruction or intervention for students with ASD, they discussed that understanding the needs of this group would be helpful for all staff as a good foundation. For example, while it needs to be a collaborative effort among school psychologists and teachers, realistically, this rarely occurs. The student typically spends most of their day with the general education teacher. However, as one participant explained, "They are often at a loss as to how to support them and at their wits end…many have been trying their best, but do not have the tools." Therefore, if there is an expectation set from the beginning, to make general education teachers aware of how emotions may manifest in some challenging behaviors, they are better prepared. One way to address this is through pre-service teacher education and school psychology programs. From one participant's

experience, they received little to no support in preparing as a general education teacher when it came to working with students with developmental disabilities, "There is a lot to be said about the unique needs of each student, and not a one-size fits all approach." School psychology participants also highlighted the need for instruction on how to apply counseling interventions for students with ASD and other developmental disabilities.

Enhancing communication and collaboration. With no formal trauma training or screening in place for ACEs, these were issues that staff would need to figure out through their daily interactions with students. There is no indication on the IEP of exposure to ACEs, rather its contents are focused on classroom behavioral and emotional difficulties. One participant stated:

> There's nothing that goes on the IEP about that stuff, and it's just like by word of mouth, like with the team that's working with those students. I work closely with the family, so I know all this stuff that's going on. But it could be that a kid goes from one grade to the next and it wasn't communicated to the teacher that this could be a trigger for this kid. So, it's very hard that there is no screening done.

Therefore, a process in place that promotes consistency in communication between teachers, counselors, and school psychologists must be developed in order to best support students. As emphasized with the trauma-informed training, without the support of administration, the importance of helping students who have experienced ACEs will not be actualized. A collaborative culture, between administration, mental health teams, teachers and paraprofessionals is needed, "It has to be a part of school culture enforced by admin, and then implemented with fidelity by all different service providers at school." A final suggestion from a participant was the need to involve students in the communication. Since they are the ones who may be dealing with the effects of trauma, giving them the space to voice their needs would also be beneficial for staff and contribute to the whole-school culture of trauma-informed care.

Summary

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Results from the first part of the study show that all adolescents who have experienced ACEs are negatively impacted socially and emotionally. However, those with ASD are even more so, leading to detrimental life course outcomes. Therefore, tailored support for this group needs to be provided. With adolescents spending a great deal of time in school, the feasibility of providing trauma-informed care in this environment was explored through the focus group and interviews with school staff for the second part of the study. In terms of support provided in the school setting, results indicate mental health practices and processes exist, though inconsistently implemented. The three themes that emerged were: (a) variety across practices, processes, and resources; (b) challenges in implementation; and (c) proposed facilitators to adoption of trauma-informed approaches. Importantly, as trauma-informed care was not widely discussed as a practice in schools, a possible gap in knowledge exists of the high prevalence rate of ACEs in adolescents with ASD. Therefore, while schools are an appropriate place to support these students, the schools themselves require support in order to do this.

Table 5

Focus Group and Interview Codes, Topics, and Themes

Code	Topic	Theme
Mental health		Variety of practices, processes, and resources.
Individual counseling		
Student intake		
Referral to community clinics		
Crisis intervention		
Inconsistent implementation	Fidelity and consistency	Challenges in implementation

Short professional development		
Disregarding effects of COVID-19		
Punitive approach		
School ethos		
Priorities for students and staff	The role of administration	
Lack of cohesion		
Understanding students with ASD		
School staff are over-worked	Overwhelm with workload	
Multiple demands on staff time		
Impact on program implementation		
Reactivity versus proactivity		
Not supportive of reactive methods		
Therapeutic crisis intervention	Tailoring supports for students with developmental disabilities	
Differentiating for students with ASD		
Adjustments to existing mental health programs		
Need for flexibility in school setting		
Include trauma-informed approach in current programs		

No formal trauma-informed training	Streamline trauma-informed training	Proposed facilitators to adoption of trauma-informed practices
Self-taught strategies		
Preparation and guidance		
Whole-school training		
Needs of students with ASD	Support for all staff working with students with developmental disabilities	
Rarely work together		
Students in general education		
Pre-service programs		
IEP	Enhancing communication and collaboration	
Exposure to ACEs		
Communication among all staff		
Including students' voices		

Chapter 5: Discussion

This chapter will discuss the study's main findings, strengths and limitations, implications for future practice and implications for future research.

Main Conclusions

Approximately 50% of adolescents in the United States have experienced at least one ACE. With the experience of ACEs having detrimental life course outcomes for adolescents, the first part of this study aimed to identify whether those with ASD, who are already inherently vulnerable due to the diagnosis, were put at further risk for other social and emotional challenges as a result of experiencing ACEs. At the same time, the second part of this study sought to understand how schools can serve as a place for providing trauma-informed care and identify barriers and facilitators to implementation of such programs. Though approximately 50% of adolescents between the ages of 12-17 have experienced ACEs, the results of this study indicate that 60% of those with ASD had experienced ACEs. While adolescents are negatively impacted by ACEs, in comparison to their TD peers, the proportion of those within the ASD subgroup is even more so. Schools have a variety of mental health and SEL- related practices, processes, and resources in place, yet these are inconsistently implemented. Further, trauma-informed care is not prioritized, suggesting a gap in awareness of the high prevalence rates of ACEs in all adolescents and in particular, those with ASD. Finally, even within current mental health and SEL programs, a need exists for training staff in adapting these programs when working with students with ASD.

In general, adolescents with ASD are more affected by anxiety, depression, ADHD, LD, DD, and ID in comparison to their TD peers with these diagnoses. Overall, the results indicated that over 60% of adolescents with ASD had experienced ACEs; having the diagnosis may place

them more at-risk of experiencing ACEs in comparison to their TD peers (Berg et al., 2016). In line with existing research comparing exposure to ACEs in ASD and TD families (Hartley et al., 2010; Kerns et al., 2017; Catalano et al., 2018; Ronis et al., 2021), the ACEs most frequently experienced in the ASD group were divorce of parent or guardian, mental illness or drug and alcohol problems of anyone in their household, and difficulty getting by on the family's income. Looking further at income, though an ASD diagnosis often places a financial burden on families from higher and lower income brackets, within the lower income group, a moderate association was found where frequency of ACEs was greater in the lower income ASD families.

The study findings demonstrate several areas of concern as it relates to the impact of ACEs. The experience of ACEs lowered their score on flourishing which measured their abilities to demonstrate curiosity and discovery about learning, resilience, and self-regulation. In general, adolescents with ASD have lower than average flourishing scores than their TD peers. The results of the study, therefore, demonstrate how ACEs may place them at further risk of experiencing negative life course outcomes. With the heterogeneity of the ASD profile, the researcher sought to identify which factors were associated with this risk, as this would be helpful in providing tailored interventions, specifically in the school environment. Within the ASD sample, in the areas of emotional and mental health, significant associations were found between the experiences of ACEs and a co-occurring diagnosis of anxiety, depression, and ADHD in comparison to their ASD peers who had not experienced ACEs. Further, as it relates to the severity of each of these diagnoses, results show that ACEs are related to the severity of anxiety only. These results indicate that ACEs may contribute to or exacerbate emotional dysregulation and mental health symptoms in those with an ASD diagnosis (Mazefsky et al., 2013). Therefore, as 70% of individuals with ASD have a co-occurring mental health diagnosis

(APA, 2013), it is worth examining whether the directionality of the co-occurring mental health diagnoses with the experiences of ACEs could be interdependent (Kerns et al., 2015).

As it relates to the ASD group with co-occurring neurodevelopmental disorders of ID, DD, and LD, no significant association was found between those who had experienced ACEs and those who had not. However, children and adolescents with ASD and ID are vulnerable to more frequent exposure to traumatic events, in comparison to their TD peers (Kildahl et al., 2019). These findings, therefore, provide additional support for the necessity of adapting trauma screening tools to the core deficits in communication, expression and understanding of emotion (Hoover & Romero, 2019), to assess for the presence of trauma symptoms. Survey responses were provided by caregivers and as such, the experience of trauma may have been under-reported. Furthermore, the experience of a traumatic event may also not have been communicated to caregivers due to the understanding of whether the event was in fact traumatic. In the current sample, 10% of those with ASD had both an ID and anxiety and 3.8% had both ID and depression. These findings, coupled with the knowledge that those without an ID make-up two- thirds of the ASD sample, shows the need for nuanced trauma-screening tools to the heterogeneity found in the ASD population.

What follows after identifying trauma symptoms or learning of a traumatic event is how an individual copes and availability of social supports. Self-regulation challenges that persist into adolescence for some with ASD hinders the development of individual coping strategies. Social support through peer relationships are another source of coping; such relationships are difficult to establish for this group due to social interaction or communication deficits (Rosello et al., 2021b). In this study, the social context of adolescents with ASD was approximated by examining the variables of being bullied, picked on or excluded by others and the ability to make

and keep friends, and whether this was related to exposure to ACEs. Children and adolescents with ASD are bullied 3-4 times more than their TD peers (Hoover & Kaufman, 2018) and similarly in this study, while significant associations were found between ACEs and frequency of being bullied for both TD and ASD groups, the latter was proportionately higher. Within the ASD group, the experience of ACEs further increased the risk of adolescents experiencing bullying, being picked on or excluded by others, more so than those with ASD who had not experienced ACEs. As it relates to making and keeping friends, no significant associations were found with the experience of ACEs within the ASD group. This is likely due to the difficulty that they already have in establishing friendships, regardless of the experience of ACEs. However, though the results showed a significant association between ACEs and the ability of making and keeping friends in the TD group, the ASD group was still proportionately more affected in comparison. These findings suggest that ACEs further enhance the risk of isolation from peers in the ASD group, limiting the coping supports available to them. Though not captured in the NSCH survey question as a possible ACE, peers are often the source of trauma in the form of bullying (Hoover & Kaufman, 2018).

Findings from this first part of this study build on existing research indicating that adolescents with ASD who have experienced ACEs are at further risk of experiencing social and emotional issues and have limited coping resources, severely impacting their quality of life. Given this knowledge, with adolescents spending the majority of their time in the school environment, it would be important to understand whether schools are providing trauma-informed supports to these students. Therefore, the second aim of this study was to learn what mental health and trauma-related practices are currently being implemented in school settings and barriers and facilitators towards implementing these. Results from the focus group and

interviews provided insight into the variability of practices in place, the absence of trauma-informed practices, and the need for more training in supporting the social-emotional wellbeing of students with ASD. While it would be important to bridge the gap between what the NSCH data show regarding the prevalence of ACEs among all adolescents and particular knowledge of how those with ASD may be uniquely impacted and how schools are addressing this, discussions with school staff highlight why this is challenging.

The general consensus among all study participants was that a trauma-informed approach needed to be part of the school ethos and all were in favor of adopting this approach. This would have to first be prioritized by the administration, whose attitude and messaging of providing a trauma-informed approach to students would permeate through the different stakeholders of the school. This would then have a ripple effect in how administration, staff, students, and families interact with and respond to each other. Students are part of the school community and participants emphasized the need for them to have their input in this process as well. Thus, rather than relying on interventions, this would require a shift to a more preventative lens. From this standpoint, implementation of evidence-based, trauma-informed practices starts with a shared understanding of the issue to be resolved (Chafouleas et al., 2016), in this case, prevalence and impact of ACEs and requires pro-active planning to ensure integrity (Drmic et al., 2017), which, as will be discussed later, is often difficult due to other constraints. Further, successful implementation also requires on-going support after staff have been trained. Done in the form of consultation with other mental health professionals, this consistent support can reduce internalizing and externalizing behaviors in all students (Eiraldi et al., 2016; Connors et al., 2021). This is in contrast to what participants of this study shared about their experiences. Based on what they observed in a student's behavior, participants would research different types of

interventions themselves, not really knowing whether it was done correctly. However, this was done as a reactionary measure, which was consistent with how participants' schools responded to emotional or behavioral issues. As a result, more punitive approaches, such as suspension, were adopted. The school environment then becomes an additional source of trauma, adding to the ACEs that some students may have already experienced.

Taking a proactive, trauma-informed approach allows for more thoughtful consideration to a student's emotional or behavioral distress. Especially when considering students with ASD, participants called on administration to take a step back and question why a student may be acting in this way. In particular for this group, due to the heterogeneity in the ASD phenotype, the support for each student will be different. If trauma-informed care were a priority, time would be given to develop the individualized supports. However, the realities of the school setting, as discussed in the focus group and interviews, make it challenging to adopt this approach. The idea of taking a proactive approach is especially important in the current climate of COVID-19. Alarmingly, some participants mentioned that in the first year of students returning to school, more practices were put in place to support the mental wellbeing of students. However, they also mentioned this as being short-lived, almost as though the traumatic effects of COVID-19 on the students had been forgotten. In 2021, 73% of high school students in the United States experienced at least one ACE during the pandemic (ABES, 2021). Individuals considered to be vulnerable due to pre-existing psychopathologies, physical disabilities or neurodevelopmental disorders were likely to have been affected to a greater degree (Mutluer et al., 2020).

While all of the schools in our sample were staffed with social workers, school psychologists, and counselors, there often was not enough time to see all students who required

support. This was particularly the case in schools where only students who were mandated for counseling services could access this resource. In the situations for adolescents with ASD, this needed to be mandated on their IEP. An ethical dilemma then arises on the topic of screening for ACEs. Typically, this is considered to be a proactive approach to supporting students. However, as one participant shared, they know that the prevalence of ACEs will be high once they screen the students. Given the current strain on the counseling resources, how would the current school structure support these students? To address this issue, participants re-iterated the importance of ensuring general education teachers were trained, at minimum, in the current mental health or SEL approaches of the school and, in understanding and responding to the needs of students with ASD. These students spend most of their time in the general education classroom, with teachers receiving little to no support on how to address any emotional or behavioral distress. This aligns with a study examining middle and high school teacher perceptions of schoolwide positive behavior supports. Researchers found that middle and high school teachers receive less training in how to support all students socially and emotionally. As the students become older, there is also a tendency for teachers to make them more responsible for their own behavior (Feuerborn et al., 2016).

The issues of overwhelm due to competing priorities in a school setting also result in programs not being implemented with fidelity or consistency. Training in mental health and SEL programs are brief and do not allow time for proper implementation and subsequent reflection. In the case of general education teachers, even if they are trained in some of the interventions, their time outside of the classroom must also go towards lesson planning. Ultimately, these barriers impact the ability to scale any program, including trauma-informed approaches. Rather than implementing a new trauma-informed program, discovering how to merge trauma-informed

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approaches into existing practices might be more feasible. For example, when discussing students with ASD, participants were shown components of evidence-based mental health programs such as FYF, RAP-A-ASD and TF-CBT. They expressed familiarity with many of their components as part of their current toolkit. These programs were successful in reducing anxiety symptoms and increasing coping self-efficacy, however they were achieved in a clinical setting and with the involvement of caregivers. Though psychologists and counselors also work in schools, their roles within this setting are multi-faceted. As was mentioned by one of the participants who was a special education teacher, staff often take on additional roles that are out of the scope of what they are initially brought on to do. Therefore, using a blueprint such as School Wide Positive Behavior Interventions and Supports, helps to align trauma-informed approaches to practices already in place (Chafouleas et al., 2016).

Data from the 2020 NSCH show that exposure to ACEs is proportionately higher in adolescents with ASD in comparison to their TD peers, and while staff may not be aware of these prevalence rates, participants in the focus group and interviews emphasized the need for differentiated mental health interventions for this group of students. The researcher acquired an understanding of how practices, processes, and resources are currently implemented in schools to support students with exposure to trauma, with a specific focus on those with ASD. Results of the study shed light on the climate and context across a sample of public schools, signaling a necessity for thoughtful and pragmatic support for everyone in the school environment when responding to trauma.

5.1 Implications for Practice

The following section will discuss the results of this study as it relates practice implications in providing trauma-informed care to adolescents with ASD in the school setting.

These implications are based on the student-centered approach guided by the WSCC framework where, through collaboration between the school and the community, the child is healthy, safe, engaged, supported, and challenged. Additionally, these practice implications align with the Healthy People 2030 objectives that have identified ACEs and their impact on adolescent mental and physical health as a high priority public health issue. Given the high prevalence rates of ACEs in adolescents with ASD and associated negative social and emotional outcomes, investing in school-based, trauma-informed support for this group would be helpful. Therefore, four implications for practice are proposed: (a) prioritizing proactive school-based trauma-informed care for students with ASD; (b) promoting the involvement of peers; (c) strengthening community partnerships; and (d) including mental health and trauma-informed practice in pre-service teacher, school counselor or psychologist curricula.

Prioritizing Proactive School-Based Trauma-Informed Care for Students with ASD

Organizations and policy makers determine which practices to put in place based on what the data of their stakeholders show (Chafouleas et al., 2015). The analyses of the 2020 NSCH data highlight the high prevalence of ACEs among all adolescents, and in particular for those with ASD. Furthermore, the data illustrate how the latter are uniquely impacted by ACEs. In light of these results, it would be important to consider the types of practices that could mitigate the long-term consequences of adolescents with ASD who have also experienced ACEs, that would be different to their TD peers who have experienced ACEs. Trauma-informed interventions focused at the school level could address the emotional and mental health risk factors as well as the social context risk factors in this study. As discussed with study participants, the role of administration in making trauma-informed care and the social-emotional wellbeing of the students a priority is paramount. This speaks to a school climate that a) values

the mental and physical health of all those that are part of a school community and b) subsequently adopts practices that are aimed at prevention of negative life course outcomes. Prioritizing trauma-informed care for those with ASD for those in low-income, under-resourced schools must also be considered. As outlined earlier, students with ASD whose caregivers have fewer financial resources are more susceptible to relational adversities and victimization (Kerns et al., 2017). In these areas, schools serve as the main point of access to services, due to being under-served by community resources (Reaven et al., 2020).

The foundation in prioritizing trauma-informed care for the ASD group is to understand their behavioral and emotional needs. Rather than addressing these in reactive and punitive ways, a more trauma-informed approach demonstrating an understanding of the heterogeneity of the ASD phenotype is more helpful. A student's personal characteristics, autism severity, and intellectual ability influences how they respond to traumatic events (Wood et al., 2015). Simultaneously understanding an individual's personal resilience factors is also helpful when it comes to providing tailored support. While the data show high prevalence of ACEs in this group, it is difficult to know how many of these adolescents have been negatively impacted. Exposure to trauma does not automatically lead to negative outcomes (Alisic et al., 2014).

Next, as reflected in the WSCC framework, the need for integration and communication among all staff that work with adolescents with ASD would be beneficial rather than continuing to work in silos. For example, while the special education teacher works on the behavioral interventions, the school psychologist or counselor can simultaneously address the emotional components of trauma, without having either of them fall through. Finally, considering the feasibility issue with screening for trauma, another way to approach this would be to set aside time weekly for all staff to discuss any concerns they have observed among particular students.

In schools, students are monitored; teachers and staff can identify any behavioral changes as traumatized children and adolescents may show changes in academic performance, attendance, and behavioral patterns (Cohen & Fitzgerald, 2012).

Promoting the Involvement of Peers

Consistently mentioned during the focus group and interviews was the limited capacity of staff to support the needs of all students and feeling overwhelmed with the daily duties within the school. Clearly, the school environment is an ideal setting to support students with exposure to trauma, as they spend much of their time there. Additionally, as mentioned above, it serves as a place of trauma-informed care in areas that do not have access to community resources. In a school with a trauma-informed ethos, an inherent source of support within the school system is peers. While staff play a role, how can peers become involved in providing support for each other? Developmentally, the peer network is critical for identity formation. Socially and emotionally, positive friendships are a source of coping in the face of trauma and contribute to psychological wellbeing (Bethell et al., 2019; Yearwood et al., 2019).

For some adolescents with ASD, social anxiety and distress due to feelings of loneliness are common (Bellini, 2006; Locke et al., 2010) whereas for others, they report having at least one best friend (O'Connor et al., 2022). With good quality friendships, in the same way that it has for their TD peers, these relationships serve as protective factors against depressive symptoms. However, the same study by O'Connor et al., (2022) also found that while the ASD participants had one best friend, they often reported not experiencing the positive features of a friendship such as companionship and support. The findings of the present study show how ACEs place adolescents with ASD at further risk for anxiety, depression, ADHD and peer victimization. Therefore, leveraging the peer group in the school environment as part of a

trauma-informed approach is beneficial. Dillenburger et al., (2017) found that young people had a positive attitude towards their peers with ASD and were willing to help them out in the face of bullying. At the same time, it is also worthwhile teaching students with ASD skills on how to develop and maintain friendships (Rodda & Estes, 2018). In line with a trauma-informed ethos, a first step would be to educate all students about ACEs, trauma, and possible negative life course outcomes. Additionally, in the same way that all school staff were recommended to understand the needs of those with ASD, the same can be taught to TD students. Finally, many of the evidence-based mental health programs for those with ASD have reported reduced anxiety symptoms, increased self-confidence and coping self-efficacy. However, these have been done in clinical settings and with parent involvement. The challenges of translating this into the school setting are the competing priorities of clinicians within this environment and the difficulty for parents to be involved during work hours. Further, there are also issues with follow-through in treatment plans in the home setting, or the fear of stigma if parents are to come to school as part of the treatment (Reaven et al., 2020). Therefore, recognizing the importance of the peer group, adding a training for peers to be part of the treatment is essential.

Strengthening Community Partnerships

The study findings indicate a need for supporting adolescents with ASD who have experienced ACEs. However, data from the focus group and interviews show that staff and resources within the school setting are overwhelmed. Depending on the school, the scope of a teacher's role, for example, may vary. For example, beyond the classroom, they are responsible for leading extracurricular activities or planning field trips, bringing the issue of time to the forefront (Connors et al., 2021). In alignment with the WSCC framework, if incorporating programs in the schools are not feasible, perhaps working on building relationships with

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community centers or clinics that offer trauma-informed support would be a step in the right direction. Additionally, investing in trauma-informed services provided in the community may help serve those in under-resourced areas and as such, provide timely response to any trauma symptoms. With most of the success of mental health programs with ASD group being successful in clinics, these settings are often not accessible for those high-risk or low-income adolescents (Drmic et al., 2017).

In addition to the issue of staff being overwhelmed, the other dilemma highlighted had to do with screening. If staff did screen for ACEs, knowing that in the current context, they do not have time to adequately support all students, what would they do if screening uncovered a high number of students with ACEs? To support with this, building relationships with community healthcare providers would be beneficial. First, they could support with determining a process for identifying those students with and without ASD who have experienced ACEs and subsequently assess who needs intervention. Though trauma screening tools exist, rarely are these used in school settings (Bruhn et al., 2014) and if they are, it is done by staff with very little training, compromising the integrity of the screening (von der Embse et al., 2018). Second, as it relates to students with ASD, having their primary care provider join during the IEP meetings would be helpful. This is under the assumption that a trauma assessment has been done, given that exposure to trauma is not included on an IEP, the primary care provider could provide insight on this. Therefore, having a partnership with community mental health providers and primary care physicians, specializing in trauma-informed care, could relieve that burden on school staff and reduce the gap in any services provided between the school and community setting. This also ensures that the student is supported holistically.

Including Mental Health and Trauma-Informed Practice in Pre-Service Teacher, School

Counselor or Psychologist Curricula

Given the number of adolescents in the United States who have experienced ACEs, pre-service teacher, school counselor or school psychologist programs must offer training in evidence-informed, mental health or trauma-informed care programs. For teachers, this is especially the case for those who go on to work in schools that are not well resourced with school psychologists or counselors. Teachers and school counselors play a critical role in the development of resiliency in the students they work with (von der Embse et al., 2018). In teacher education programs in the United States, mental health certification standards vary and do not delineate specific skills that general education teachers need to acquire (Brown et al., 2019). Five states require teacher training in trauma-informed pedagogy (Reddig & VanLone, 2022). As it relates to special education teacher training, 22 states require training in pre-service programs (Reddig & VanLone, 2022). Hunter et al. (2021) further emphasize that trauma-informed training for these educators will enhance their ability to provide equitable services to students with exceptionalities. Literature regarding pre-service trauma-informed training for school counselors and psychologists is scant. However, a study by Wells (2022) found that the majority of school counselors did not feel their programs prepared them to address this.

Therefore, rather than asking teachers, school counselors and school psychologists to take part in professional development courses while they are already working, providing it as a core component of their pre-service curriculum gives them time to internalize the skills required to support students, before they enter the school in a professional capacity. For example, pre-service students in Australia who participated in a 6-week initial teacher education module in

relation to managing behavior of students who had experienced complex trauma felt prepared and supported two years into teaching professionally (L'Estrange & Howard, 2022).

Though, it is still important to equip current school personnel with trauma-informed training, as highlighted in the focus group and interviews, the way in which staff are currently trained is through brief professional development sessions. The competing priorities of the school day make it challenging to implement these programs with integrity. Therefore, integrating a trauma-informed approach into the behavior management courses typically found in teacher education programs (Hunter et al., 2021) or creating a course on child and adolescent mental health, trauma, and providing trauma-informed care as part of the teacher education or pre-service school psychology or school counselor curricula is critical.

5.2 Limitations

Limitations inherent to this dissertation must be acknowledged. The first limitation is regarding the intended sample for the qualitative part of the study. The original intent was to conduct two focus groups with a cross-section of administration and staff from the New York City Department of Education (NYC DOE) District 75 schools. These schools were selected as part of the inclusion criteria as they provide specialized instructional support for students with high needs. These include students with ASD, cognitive delays, and emotional disabilities. However, as documented extensively in the Methods, even after obtaining IRB approval from the NYC DOE, the recruitment of participants proved to be challenging. Within the five boroughs of New York, 50 schools met the inclusion criteria, with only four responding with an intent to participate. It is evident that school staff are contending with so many competing priorities and many schools continue to be under-resourced and understaffed as they continue to navigate the challenges of COVID-19 and the many needs of their students. The focus group and

interview samples were not representative of all the schools in the United States, therefore, school-based, trauma-informed supports in other geographical regions may be different. Despite this, the researcher was able to collect qualitative data and use these rich data to respond to the third research aim. Future work should consider these challenges when seeking to pursue school-based qualitative work.

Another limitation was in relation to the national data set. The first two research questions utilized data provided by the 2020 National Survey of Children's Health, which is considered both a strength and limitation to this study. With the former, the data gave a profile of adolescents with ASD across the United States including the prevalence of ACEs among this group. Additionally, while their TD peers were also negatively affected by ACEs, the data showed that those with ASD may be even more risk of psychopathologies such as anxiety and depression. However, the use of the national data set does have several limitations that warrant caution when interpreting the data. First, the data are cross-sectional. Therefore, as it relates to ACEs, it is difficult to say when these were experienced by the adolescent, as the question only asks whether they have experienced any of the 10 ACEs, without asking when they were exposed. Furthermore, an ACE that is commonly experienced by those with ASD is bullying and peer victimization. While this was not included as one of the 10 ACEs in the survey, it was asked as a separate question. It is possible, then, that if this were included as an ACE in the survey, the prevalence rate of ACEs in this group would be higher.

Related to the occurrence of ACEs in this group, as noted by Berg et al. (2016), it is difficult to determine the directionality of whether the co-occurring psychopathologies are intrinsic to the ASD diagnosis, whether these occurred due to exposure to ACEs, or whether the nature of the diagnosis makes them more vulnerable to experiencing trauma. Due to the

phenotypic heterogeneity for adolescents with ASD (Wood et al., 2015), this would be important

to take into consideration to determine what other individual factors could be contributing to the

impact of ACEs, such as individual coping strategies, communication skills, or level of

comprehension.

Another limitation to using this data is the absence of self-report. Responses to the survey

questions were provided by parents, which has an inherent bias. Though it is often the case for

children and adolescents with ASD with social-communication impairments that parents are

speaking on their behalf, it is uncertain whether this actually captures the true experience of the

adolescent (Fuld, 2018). Thus, for the social-emotional and social context measures, it would

also be helpful to hear additional perspectives from teachers and school counselors, and from the

adolescent themselves to get more of a comprehensive understanding of the issue and the impact

it may be having, thereby minimizing bias. Therefore, we need to be cautious about the

generalizability of the findings. Nevertheless, the significant findings of the impact of ACEs on

an adolescent with ASD's social and emotional wellbeing and social context with use of the

NSCH data provides impetus for researching this area of concern further.

5.3 Implications for Future Research

To build on the findings of this study, there are several areas through which future

research can support the provision of trauma-informed care in schools. The first is empirical

investigations for school-based, trauma-informed approaches generally and for students with

ASD. Many of the programs discussed in this dissertation have been empirically evaluated in

clinic settings for both TD and ASD groups. Various trauma-informed approaches exist that can

be implemented in the school setting. However, research on successful implementation and

student outcomes is in its early stages (Overstreet & Chafouleas, 2016; Drmic et al., 2017). In

regards to the implementation science framework, this study assumed a level of knowledge about ACEs among staff with the questions addressing trauma and ACEs interchangeably. Therefore, presenting a clear definition of what constitutes an ACE and its distinction from trauma, prior to discussing the implementation of trauma-informed care in schools, would set a foundation for a standardized evaluation. Program outcome evaluations require more specificity on what objectives are trying to be achieved. Areas such as delineating the learning outcomes of students, understanding how these practices actually work in the daily operations of the school setting, evaluation measurements of training for school personnel and subsequent delivery of trauma-informed interventions are needed (Cook & Newman, 2014; Eiraldi et al., 2016; Stratford et al., 2020).

An issue that may be delaying the empirical evaluations of school-based trauma-informed and mental health programs is that of scaling the implementation of these programs in schools. Data from this study show a high prevalence of ACEs in all adolescents, yet, schools are not equipped to consistently provide appropriate interventions. Many programs exist, however, it may not be feasible to implement them with their suggested structure. Therefore, for the evidence-based interventions that were successful in the clinic setting, perhaps there are certain components of these programs that would still be helpful in terms of supporting with coping and building resiliency in the face of trauma. Future research can look at which of these components are most helpful and fairly easy to scale. As discussed in the implications of the study, including the peer group as part of the intervention might facilitate the scaling of interventions.

Adopting trauma-informed approaches could serve as a preventative measure while simultaneously prioritizing interventions to support with coping in the face of trauma. In terms of the preventative measures, identification of Positive Childhood Experiences (PCEs) that serve as

protective factors to mitigate the negative effects of trauma through enhancing one's resiliency would be beneficial for those with ASD. Such resilience factors - such as positive relationships with adults, positive coping skills, or connection to the broader community - have been shown to mitigate the effects of trauma in the TD population (Crouch et al., 2019; Racine et al., 2020; Keane & Evans, 2022), however, are less understood in those with ASD (Kaboski et al., 2017; Heselton, 2021). In relation to prioritizing interventions, careful consideration needs to be given to appropriate screening and assessment of trauma, particularly in students with ASD. Such tools need to be adapted to meet their developmental needs and account for how they have processed the trauma. Trauma symptoms of aggression, difficulty concentrating, relational difficulties, or regression may be taken as being a part of the ASD diagnosis, therefore screening tools that are more sensitive and specific enough to parse these out would be beneficial. With this comes the need for a screening instrument that is valid and reliable for this group. Due to the heterogeneity of the ASD profile, this may prove challenging, particularly since the differentiation of trauma-informed and mental health practices for those with ASD are in its infancy.

Further, recent studies have highlighted sex differences in the onset and life course trajectory of ASD symptoms and psychopathologies (de Giambattista et al., 2021; Napolitano et al., 2022; Horwitz et al., 2023), contributing to the need for further research on the sensitivity and specificity of screening tools and subsequent interventions. For example, in relation to the ASD core symptoms, females exhibit higher social motivation and capacity for friendships and fewer repetitive and externalizing behaviors. As it relates to co-occurring psychopathologies, females experience higher rates of anxiety, depression or eating disorders (Hull et al., 2020; Lai et al., 2020). Together with these areas of future research, the high prevalence of ACEs in this

group calls for immediate exploration of ways by which school staff can identify and determine what supports, if any, are needed.

5.4 Conclusion

Findings from this study show the need for tailored, trauma-informed interventions for adolescents with ASD. In comparison to their TD peers, those with ASD have experienced significantly more ACEs. While 70% of those with ASD have a co-morbid psychopathology, and 40% have two or more (APA, 2013), experiencing ACEs places them at further risk of social and emotional difficulties. With adolescents spending most of their time in the school setting, this is an ideal location for providing trauma-informed care. Focus group and interviews with school staff resulted in a call for schools to adopt a trauma-informed ethos however, staff require more support. Specific implications for schools are rooted in the WSCC framework and emphasize the prioritization of proactive school-based trauma-informed care for students with ASD, the promotion of peer involvement, the strengthening of community partnerships, and the inclusion of mental health and trauma-informed practice in teacher education curricula. Further research in this area will need to include the empirical investigations of trauma-informed programs in school-based settings, the identification of elements within existing trauma-informed programs that are more feasible to scale in this setting, and the development of a trauma screening instrument with sensitivity and specificity to the needs of adolescents with ASD.

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Appendix A: Informed Consent Form

INFORMED CONSENT FORPRE-SERVICE AND SCHOOL PERSONNEL (PRINCIPALS, SPECIAL EDUCATION TEACHERS, SCHOOL PSYCHOLOGISTS AND SCHOOL NURSES)

Protocol Title: Adverse Childhood Experiences Among Adolescents with Autism Spectrum Disorder: Implications for School- Based Interventions
Principal Researcher: Zahra Ladhani, EDD Candidate, Teachers College
917-687-6641, zl2818@tc.columbia.edu

INTRODUCTION
You are invited to participate in this research study called "Adverse Childhood Experiences Among Adolescents with Autism Spectrum Disorder: Implications for School- Based Interventions." You may qualify to take part in this research study because you are a school principal or school nurse, and a pre-service special education teacher or school psychologist in a NYC middle school or high school who interacts with adolescents with Autism Spectrum Disorder (ASD). Participants from different public schools will participate and it will take approximately 60 minutes of your time to complete.

WHY IS THIS STUDY BEING DONE?
We are doing this study to understand the prevalence of Adverse Childhood Experiences (ACEs) among adolescents with ASD and whether those who have experienced ACEs are placed at further risk for other social and emotional challenges, impacting their transition into adulthood. Furthermore, we would like to understand what is known about school-based supports for middle/high school students with developmental disabilities who have experienced ACEs and what support schools need to serve as a place for trauma-informed intervention.

WHAT WILL I BE ASKED TO DO IF I AGREE TO TAKE PART IN THIS STUDY?
If you decide to participate, the primary researcher will ask that you participate in a focus group session or interview with colleagues from various NYC middle or high schools.

You will be asked four topics of questions including availability of trauma support services at school, training for school personnel, implementation of evidence-informed mental health programs (such as those drawing on the principles of Trauma-Focused Cognitive Behavioral Therapy), and barriers and facilitators to implementation.

The focus group and interviews will be recorded and will take place on Zoom at a time that is convenient for all participants. Everyone will be asked not to discuss what is being spoken about

outside of the group but it is impossible to guarantee complete confidentiality. This focus group session will take approximately 60 minutes.

WHAT POSSIBLE RISKS OR DISCOMFORTS CAN I EXPECT FROM TAKING PART IN THIS STUDY?

This is a minimal risk study. You may feel uncomfortable responding to questions about trauma or mental health experiences of your students, in learning about the prevalence of ACEs of adolescents from the NSCH data, or in discussing trauma-informed supports/or lack thereof in their school settings. You can stop participating in the study at any time without penalty. You might feel concerned that things you say might get back to your supervisor. Your information will be kept confidential.

Note that participants will know your identity and the primary researcher cannot guarantee that others in these groups will respect the confidentiality of the group. The primary researcher is taking precautions to keep your information confidential and prevent anyone from discovering or guessing your identity once the study results are available.

WHAT POSSIBLE BENEFITS CAN I EXPECT FROM TAKING PART IN THIS STUDY?

There is no direct benefit to you for participating in this study. Participation may benefit schools to better understand the impact of ACEs on adolescents with ASD and how they can mitigate long-term negative consequences by providing trauma-informed care.

WILL I BE PAID FOR BEING IN THIS STUDY? Participants will receive a 10$ Starbucks gift card for taking part in the study.

WHEN IS THE STUDY OVER? CAN I LEAVE THE STUDY BEFORE IT ENDS? The study is over when you have completed the focus group session. However, you can leave the study at any time even if you have not finished.

PROTECTION OF YOUR CONFIDENTIALITY

The primary researcher will keep all written materials locked in a desk drawer in a locked office. Any electronic or digital information (including audio recordings) will be stored on a computer that is password protected. What is on the video recording will be written down and the audio recording will then be destroyed. There will be no record of your name or other personal information.

For quality assurance, the study team, the study sponsor and/or members of the Teachers College Institutional Review Board (IRB) may review the data collected from you as part of this study. Otherwise, all information obtained from your participation in this study will be held strictly confidential and will be disclosed only with your permission or as required by U.S. or State law.

HOW WILL THE RESULTS BE USED?

The results of this study will be published in journals and presented at academic conferences. Your identity will be removed from any data you provide before publication or use for

educational purposes. Your name or any identifying information about you will not be published. This study is being conducted as part of the dissertation of the primary researcher.

CONSENT FOR AUDIO RECORDING:
Video recording is part of this research study; this also includes having your camera off if you wish. You can choose whether to give permission to be recorded. If you decide that you don't wish to be recorded, **you will not be able to participate** in this research study.

_____I give my consent to be recorded
_____
                                                              Signature

_____I **do not** consent to be recorded
_____
                                                              Signature

WHO MAY VIEW MY PARTICIPATION IN THIS STUDY

___I consent to allow written, audio-recorded materials viewed at an educational setting or at a conference outside of Teachers College, Columbia University
_____
_____
                                                              Signature

___I **do not** consent to allow written, audio-recorded materials viewed outside of Teachers College, Columbia University
_____
_____
                                                              Signature

CONSENT FOR FUTURE CONTACT

The primary researcher may wish to contact you in the future. Please initial below to indicate whether or not you give permission for future contact.

The researcher may contact me in the future for other research opportunities:
          Yes _____   No_____
                    Initial   Initial

The researcher may contact me in the future for information relating to this current study:
          Yes _____   No_____
                    Initial   Initial

WHO CAN ANSWER MY QUESTIONS ABOUT THIS STUDY?

If you have any questions about taking part in this research study, you should contact the primary researcher, Zahra Ladhani, at 917-687-6641 or at zl2818@tc.columbia.edu . You can also contact the faculty advisor, Dr. Sonali Rajan at 212-678-3458.

If you have questions or concerns about your rights as a research subject, you should contact the Institutional Review Board (IRB) (the human research ethics committee) at 212-678-4105 or email IRB@tc.edu or you can write to the IRB at Teachers College, Columbia University, 525 W. 120th Street, New York, NY 10027, Box 151. The IRB is the committee that oversees human research protection for Teachers College, Columbia University.

PARTICIPANT'S RIGHTS

- I have read the Informed Consent Form and have been offered the opportunity to discuss the form with the researcher.
- I have had ample opportunity to ask questions about the purposes, procedures, risks and benefits regarding this research study.
- I understand that my participation is voluntary. I may refuse to participate or withdraw participation at any time without penalty to future employment.
- The researcher may withdraw me from the research at the researcher's professional discretion.
- If, during the course of the study, significant new information that has been developed becomes available which may relate to my willingness to continue my participation, the researcher will provide this information to me.
- Any information derived from the research study that personally identifies me will not be voluntarily released or disclosed without my separate consent, except as specifically required by law.
- Identifiers may be removed from the data. De-identified data may be used for future research studies, or distributed to another researcher for future research without additional informed consent from you (the research participant or the research participant's representative).
- I should receive a copy of the Informed Consent Form document.

My signature means that I agree to participate in this study:

Print name: _____
Date: _____

Signature:
_____

Appendix B: Focus Group and Interview Protocol

<u>Focus Group and Interview Protocol</u>

The focus groups and Interviews will be conducted by the primary researcher.
Introduction:

1. Participants will be thanked for giving their time and consent to participate in the study.
2. Primary researcher will introduce themselves.
3. Explain the study topic and the reasoning behind the focus groups.

Roles of Moderator/Participant:

1. The moderator (primary researchers) has a set of questions covering five topics which will be asked over 90 minutes.
2. The moderator will ensure that all the topics get covered but will spend most of the time listening.
3. The moderator is available to answer any questions after the sessions.
4. The participants should feel comfortable sharing their own thoughts and experiences while also allowing everyone to participate in a balanced way.

Ground Rules:

1. Everyone who has been asked to participate in these sessions is encouraged to participate; everyone's input is valuable to the study.
2. Demonstrate respect by ensuring all participants have a chance to speak.
3. When there are differing opinions or disagreements, these are to be expressed respectfully.
4. A participant can leave at any time if they feel uncomfortable with any of the questions.

Recording Procedure:

The Zoom focus groups and interviews will be audio recorded. This is to ensure accurate representation of what has been said during the sessions. Once the recording has been transcribed, the audio recording and any identifying information will be discarded.

Confidentiality:

1. Comments made during the session will be kept confidential by the primary researcher.
2. Identifying information will not be included in published results of the study.
3. Inform participants that confidentiality cannot be guaranteed in this setting*

a. Participant identity will be known to other participants in the focus groups or interviews; researcher cannot guarantee that others in the group will respect the confidentiality of the group.
b. Participants will be asked to respect each other's privacy and keep all comments made during the sessions confidential and not discuss what happened during the sessions outside the meeting.

This will also be outlined in the consent form that participants fill out prior to participating

Adapted from 'Basic and Advanced Focus Groups', David L. Morgan

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Focus Group and Interview Questions:

Begin by briefly sharing analysis of data from 2020 NSCH to provide some context.

Category #1 - Trauma Support Services in Schools
- How are current students with and without developmental disabilities being supported from a mental health standpoint?   - What current services support adolescents who have experienced ACEs?   - What current services support adolescents with ASD who have experienced ACEs (school-based or community)?   - Is there a process for identifying adolescents, with and without ASD, who have experienced ACEs (screening)?   - If so, what screening method is used?
Category #2 - Trauma Training for School Personnel and Students
- What type of Trauma training do teachers receive?   - What proportion of special education teachers have training in providing trauma-informed care to adolescents with ASD?   - Would this be the responsibility of the Special Education Teachers and School Psychologists/Counsellors?   - What, if any, trauma-related education is provided to students?   - What do you think you need to be successful in providing care to such adolescents?
Category #3 - Examples of Evidence-Based Programs
Prior to asking questions, present the group with various examples of evidenced- informed programs and base questions on these {TF-CBT and Formal Programs: RAP-A-ASD; Behavioral Interventions for Anxiety in Children with Autism (BIACA); Facing Your Fears (FYF)}

- Are you familiar with any of these interventions?   - According to you (school personnel), what aspects of an intervention are important?   - Explain the TF-CBT adaptations (addressing the heterogeneity: ASD + ID; ASD + Social communication deficits; ASD + Mental health; ASD +ADHD) proposed by Peterson et al. (2019)   - What would you need to help you/your school to implement this type of program in your school?   - What would get in the way of your ability to implement this type of program in your school?

Category #4 - Barriers and Facilitators
- What do you perceive would be the best way to support the students?   - What are some perceived barriers to being able to provide this support?
Category #5 - Questions for Pre-Service Staff
- What specific courses or training opportunities have been particularly helpful?   - What area(s) do you wish you had more support or training in?   - What has been most surprising in your experience as a pre-service teacher/psychologist?

Appendix C: Recruitment Material

Recruitment Email

Dear [Insert Program Director's Name]

I hope you are doing well and staying safe.

To briefly introduce myself -- my name is Zahra Ladhani and I am a Doctoral Candidate here at Teachers College, under the supervision of my faculty advisor Dr. Sonali Rajan. My dissertation topic is "Adverse Childhood Experiences Among Adolescents with ASD: Implications for School-Based Interventions." **And I am writing to ask for your support in recruiting students from the [Insert Program Name Here] for participation in a dissertation study**.

Preliminary results from this study indicate that 47% of adolescents in the United States have experienced one or more ACE. For those with ASD, there is an inherent vulnerability to trauma, with some experiencing a higher number of cumulative ACEs in comparison to their typically developing peers. ACEs can result in negative life course implications, impacting one's physical and emotional wellbeing across their lifespan. With adolescence being a crucial developmental period coupled with schools being inherently well-positioned to support the developmental needs of students, the second part of this study will explore current school-based supports available to support adolescents, with and without developmental disabilities, who have experienced trauma. I am very grateful to be embarking on this work, and most importantly, to be partnering with school personnel across a range of training levels and that have differing levels of interaction with adolescents with ASD in their schools with middle and high school aged students.

The total time commitment for each student would be 60-90 minutes and would involve me conducting one focus group or interviews with students in the [Insert Program Name] who also work with students with ASD. This focus group would take place over Zoom at a time that is convenient for all participants.

I would appreciate your support in identifying eligible students within the [Insert Program Name] also working or training in NYC public schools to participate in this study which is slated to begin in February 2023.

I am available to talk through these details at any point if that would be helpful. And again, thank you so much for your consideration of this!

Sincerely,

Zahra Ladhani
Doctoral Candidate, Health Education
Teachers College, Columbia University
Email: Zl2818@tc.columbia.edu

myTC Portal Message

Heading:

Recruiting TC students training or currently working in public schools to participate in a dissertation study!

Body:

Teachers College IRB #23-006

Are you currently training or working as a school principal, nurse, psychologist, counselor, teacher or special education teacher? Then you are eligible to participate in a dissertation study exploring Adverse Childhood Experiences (ACEs) in adolescents with Autism Spectrum Disorder (ASD). This study is slated to begin in February 2023.
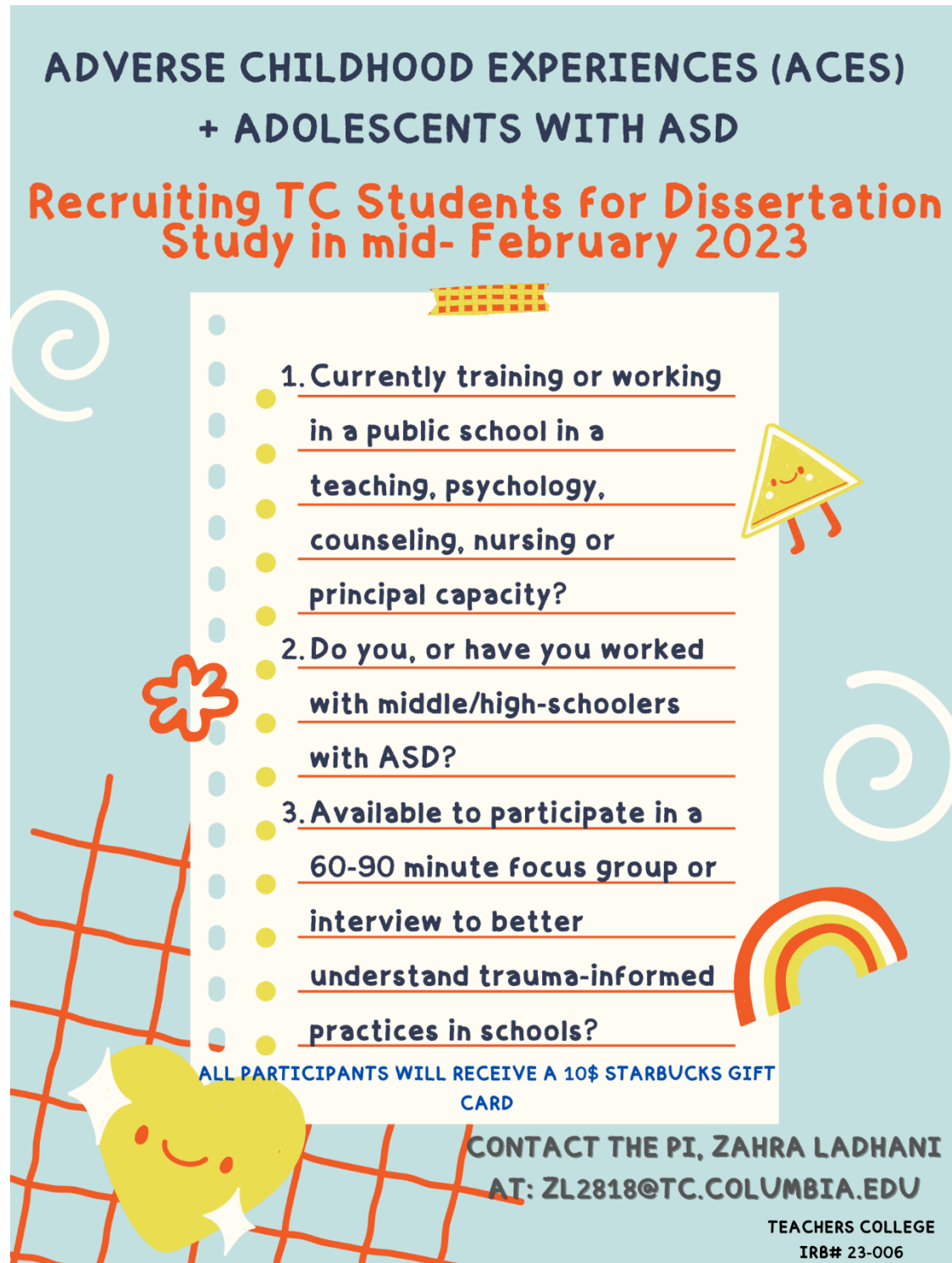
Your total time commitment for this study would be 60-90 minutes and would involve participation in a focus group or interviews with current or pre-service school staff working with students with ASD. These would take place over Zoom at a time that is suitable for all participants. The focus group and interview questions will cover topics, including availability of trauma support services at school, training for school personnel, implementation of evidence-informed mental health programs (such as those drawing on the principles of Trauma-Focused Cognitive Behavioral Therapy), and barriers and facilitators to implementation.

I am available to talk through these details at any point if that would be helpful and also happy to answer any questions. I can be reached at zl2818@tc.columbia.edu

Thank you so much for your consideration and please do not hesitate to share this opportunity with your classmates!

Recruitment Poster