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Why Are We Really Suspending this Student? The Relationship Between Adverse Childhood Experiences, ADHD, and High School Suspension Rates

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ABSTRACT

The aim of this study was to determine the relationship among high school suspension rates, scores received on the Adverse Childhood Experiences (ACEs) measurement, and a self-reported diagnosis of Attention-Deficit/Hyperactivity Disorder (ADHD). Seven-hundred and fifty high school participants completed the ACE measurement and self-reported whether they had ever been diagnosed with ADHD. Each participant's answers were compared with their respective high school discipline record. This study's findings suggest that having a combination of ACEs and ADHD increases a student's chances for being removed from school for misbehavior.

Keywords: Adverse Childhood Experience (ACE), Trauma, Suspension, Out-of-School Suspension (OSS), In-School Suspension (ISS), Trauma-Sensitive School, Attention-Deficit/Hyperactivity Disorder (ADHD)

Suspending students, whether out-of-school suspension (OSS) or in-school suspension (ISS), is an all-too-common school disciplinary practice for student misbehavior, particularly at the secondary educational level (Butler et al., 2012; Camacho & Krezmien, 2019; Losen et al., 2015). Over a third of students in the United States are removed from school at least once during their K–12 enrollment, with Black students being

disproportionately overrepresented in those statistics (Fabelo et al., 2011; Owens & McLanahan, 2020; Shollenberger, 2015). Numerous studies support the notion that race or disability status are predictors of school suspension (Camacho & Krezmien, 2019; Krezmien et al., 2017; Sullivan et al., 2013, Vincent et al., 2012; Wright et al., 2014). School suspension correlates with negative effects such as lost instructional time, lower test scores, and increased odds of dropping out of school (Chu & Ready, 2018; Noltemeyer et al., 2015). Long-term suspended students are less likely to earn a high school diploma or a college degree and more likely to be arrested or given probation (Rosenbaum, 2018). While race and disability status have regrettably proven to be predictors of school suspension, this study explores whether additional factors outside of a student's control—namely, childhood trauma and Attention-Deficit/Hyperactivity Disorder—may predict school suspension.

According to the Center for Disease Control and Prevention (2016), Adverse Childhood Experiences, or ACEs, are made up of emotional, physical, and sexual trauma in the form of abuse, household challenges such as domestic violence, substance use or mental illness of a parent, divorce or separation of parents, a member of the household having spent time in prison, and emotional and physical neglect during the first 18 years of life. These forms of lived trauma experienced by children can have a significant effect on their school performance. ACEs are directly correlated with school misbehavior, lower grades, and increased absences from school (Blodgett & Lanigan, 2018; Jimenez et al., 2016; Stempel et al., 2017). Additionally, children who have experienced multiple ACEs have a greater likelihood of repeating a grade in school as compared to children who have no history of ACEs (Bethell et al., 2014; Crouch et al., 2019).

Chronic childhood trauma can impair learning later in one's adolescent years (The National Child Traumatic Stress Network, 2008). It can negatively affect a student's attention, memory, and cognition capabilities, as well as their ability to focus, organize, and process information. These effects can impact the ability to problem solve and result in extreme feelings of frustration and anxiety, difficulty concentrating, hyperactivity, and inattentiveness. Some of the short-term and long-term effects that are associated with chronic childhood trauma often mimic characteristics that are common with a diagnosis of ADHD.

Attention-Deficit/Hyperactivity Disorder, or ADHD, is a neurobiological disorder that is prevalent in young children and adolescents (Fuller-Thomson & Lewis, 2015). ADHD has three subtypes that describe the symptoms associated with the disorder: predominately inattentive, predominately hyperactive/impulsive, and a combination of these two categories (2015). In the United States, 6.4 million children ages 4–17 have a diagnosis of ADHD (Holland & Riley, 2014). As such, school personnel play an important role in helping to identify children who may display characteristics of ADHD but have not yet been diagnosed.

There is an abundance of research linking ADHD to childhood trauma (Ertan et al., 2012; Fuller-Thomson, et al., 2014; Fuller-Thomson & Lewis, 2015; Isaksson, et al., 2013; Sugimoto et al., 2015). Fuller-Thomson & Lewis (2015) found that adolescents with a history of physical or sexual abuse, and/or witnessing violence in the home, have increased odds of being diagnosed with ADHD. Even when controlling for age, sex, and race, the odds of an individual being diagnosed with ADHD is six times greater for those

who experienced childhood physical abuse as compared to their peers who were not abused (Fuller-Thomson et al., 2014).

In the K–12 setting, teachers, administrators, and school staff work with many school-age children who have experienced trauma. As such, it is important for these educators to understand the effects this trauma can have on students. If students with traumatic backgrounds are receiving more suspensions than their peers who do not have traumatic backgrounds, perhaps the behaviors leading to punishment are related to their traumatic experiences. If so, then it is vital that those teachers and administrators involved with issuing disciplinary measures are informed on how trauma can effect student behavior. Additionally, many school-age children receive diagnoses of ADHD due to behaviors they display in school. However, as is discussed in this study, the characteristics of ADHD and the characteristics of prolonged trauma can look very similar, and many of the symptoms overlap (Sanderud et al., 2016). Therefore, it is important for schools to understand when students are suffering from trauma as opposed to dealing with ADHD. These two presenting issues are approached quite differently with regard to school supports and strategies (SAMHSA, 2015).

As previously shared, there exists evidence suggesting a relationship between ADHD and childhood trauma, and there is also evidence suggesting that students who experience trauma, as well as students who suffer from ADHD, are more likely to receive a disciplinary referral for their behavior in school. However, there is a gap in the literature regarding whether ADHD, in combination with ACEs, leads to a greater probability of a student being suspended from school than if the student did not have the added risk factor of ADHD. Therefore, this study sought to examine the relationship between trauma in the form of adverse childhood experiences (ACEs) and two variables: high school suspension rates and self-reported diagnosis of Attention-Deficit/Hyperactivity Disorder (ADHD). The purpose was to determine if ACE scores, when combined with a self-reported ADHD diagnosis, were linked to higher suspension rates among high school students. The ACE measurement (Felitti et al., 1998) was given to high school students, along with a demographic questionnaire in which they self-reported if they had ever been diagnosed with ADHD. This data was collected through an online survey; the results were compared to the students' disciplinary data.

This study and the results are significant for the training and professional development of school personnel who work with adolescents. Teachers, school counselors, administrators, and other school personnel are often faced with challenging behaviors from students. This study shows the importance of understanding the impact that trauma can have on the behavior of students and, if mishandled or misunderstood, how that trauma can lead to the unnecessary suspension of students.

LITERATURE REVIEW

Adverse Childhood Experiences

Felitti et al. (1998), in conjunction with the Centers for Disease Control (CDC), conducted the ACE study at Kaiser Permanente's San Diego Health Appraisal Clinic. This study connected health outcomes to categories of trauma that occurred during childhood, or adverse childhood experiences (ACEs), by comparing adult participants'

health outcomes to their self-reported exposure to seven different ACEs. Over half (52%) of the participants reported being exposed to one or more forms of trauma; experiencing one ACE significantly increased the likelihood of experiencing another. Most significantly, ACE scores and negative health outcomes directly correlated (Felitti et al., 1998). ACE scores are calculated through a questionnaire consisting of 10 yes-or-no questions that each correspond with a form of adverse childhood experience. A yes response equals 1 point toward the sum total of responses in the affirmative, a no response equals 0 points. A 10 is the highest score possible on the ACE questionnaire. In addition to health outcomes, a school-age child's ACE score can be a predictor of academic performance (Blodgett and Lanigan, 2018; Moore et al., 2014). More specifically, students with an ACE score of four or higher were 6.9 times more likely to have school behavioral problems than students with no known ACES, 4.9 times more likely to have attendance issues, and 3.4 times more likely to experience academic failure (2018). Approximately 30% of adolescents ages 12–17 in the United States have experienced two or more ACEs and, as such, are 2.67 times more likely to have to repeat a grade in school as compared to those children who had no history of ACEs (Bethell et al., 2014).

Youth who have been exposed to trauma often exhibit signs of physical and emotional distress, including headaches, stomachaches, uncontrollable emotions, impulsivity, extreme responses to reminders of their ACEs, and over- or under-reacting to physical touch, loud sounds, and/or sudden movements (The National Child Traumatic Stress Network, 2008). Individuals who have experienced ACEs and ongoing trauma tend to live in a state of heightened emotional arousal, causing their brain to frequently activate the "fight or flight" response system during non-threatening scenarios. Consequently, because of the trauma-induced brain changes, adolescents fail to use coping skills, as they cannot yet distinguish between the realistic safety and the immediacy of a perceived threat, which hinders their healing process (Murray et al., 2013). When these intense emotions—and procedural memories that accompany them—become chronic, the emotions that were meant to protect oneself can become destructive (Levine, 2015).

In contrast to the fight response, some adolescents may engage in avoidance behaviors as a coping mechanism to deal with their trauma, with this avoidance behavior typically being directed toward the school and resulting in a poor engagement and attendance (Baker et al., 2003). Sleep disturbances are also a trauma-associated symptom (Wamser-Nanney & Chesher, 2018). Sleep disturbances can include being afraid of falling asleep and having nightmares once asleep. Students may come to school and fall asleep in class due to these sleep disturbances. This behavior may be mistaken for misbehavior by the teacher and result in the student receiving a disciplinary consequence, such as suspension.

The field of neurobiology suggests that trauma can cause permanent brain dysfunction, leading to poor health and quality of life (Anda et al., 2005). Chemical functions of the brain that regulate anxiety and mood, among other things—in the amygdala, nucleus accumbens, hippocampus, and prefrontal cortex—are interrupted by, and can even malfunction due to, unwanted stress and trauma occurring during the neural development period in childhood (Anda et al., 2005). Individuals who have experienced chronic stress tend to spend more time with the limbic area of their brain activated than

their prefrontal cortex, causing the limbic area to become more developed (Souers & Hall, 2016). These changes to the brain that directly stem from experiencing trauma during childhood can have long-term effects, such as an increased sensitivity to loss, likelihood of developing anxiety or depression, poor health outcomes, difficulty with relationships, avoidance behavior, and psychic numbing, which causes the adolescent to withdraw from their emotions and relationships (Felitti et al., 1998; Baker et al., 2003). These problem behaviors and deficits in functioning have the potential to lead to disciplinary consequences for adolescents in the school setting.

Adverse Childhood Experiences and Attention-Deficit/Hyperactivity Disorder

Several studies have found that individuals with a history of physical or sexual abuse or witnessing violence in the home have a much greater likelihood of receiving a high score on ADHD screenings or an ADHD diagnosis (Ertan et al., 2012; Fuller-Thomson et al., 2014; Fuller-Thomson & Lewis, 2015; Siguimoto et al., 2015). Since childhood trauma is such a strong indicator of future ADHD symptoms, it is important to focus on the history of the child and the underlying factors behind their symptomology (Sanderud et al., 2016). This is not to say that childhood trauma directly causes ADHD, but rather it increases the likelihood that one will exhibit characteristics that are consistent with those of an ADHD diagnosis.

Many symptoms of ADHD closely resemble or overlap with those of chronic childhood trauma (Siegfried et al., 2016). See Figure 1. This similarity in symptoms may lead to an increase in referrals for school-age children for ADHD testing, when instead the cause of the exhibited symptoms are the effects of trauma. Therefore, upon testing a child or adolescent for ADHD, it would be helpful to administer a trauma-informed assessment as well. If symptoms that are perceived to be caused by ADHD are actually due to repressed traumatic memories, then the treatment would be vastly different (Sanderud et al., 2016). In order to decrease potential misdiagnoses of ADHD, attention must be paid to the similarities between ADHD symptomology and childhood trauma.

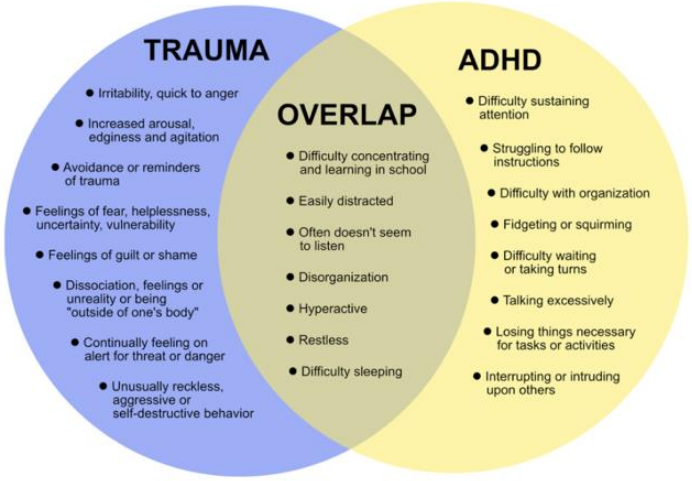

Figure 1: Symptoms of Trauma, of ADHD, and Overlapping Symptoms (Siegfried, & Blackshear, 2016)

The following research questions guided this study:

1) Is there a difference in high school suspension rates between those with a self-reported diagnosis of ADHD and those with no diagnosis?
2) What is the relationship between childhood trauma and suspension rates among high school students?
3) Does a model incorporating both self-reported ADHD diagnosis and ACE measurement scores significantly predict high school suspension rates among high school students more accurately than a model of ACE measurement scores alone?
4) Is there a relationship between the scores of the ACE measurement and self-reported diagnosis of ADHD among high school students?

This study utilized a non-experimental, correlational research design. A hierarchical multiple regression was employed to investigate a model of a self-reported ADHD diagnosis in combination with ACEs in relation to high school suspension rates. A web-based survey was used to collect data from the participants.

Population and Sampling

All students (1,640) from one high school in the southeastern region of the United States were recruited for participation in this study. Informed consent was obtained from students and their parent or guardian. Institutional review board approval was obtained, as well as permission from the high school administration and the corresponding school

district. When it came time to begin data collection, student participants were emailed the instruments and asked to complete them. Participants were provided a chance to be one of three students to receive an incentive valued at $25. Participants ranged in age from 14 to 19 years old.

Participants

Of the 1,640 students at the school, 750 participated in this study. Of the participants, 26.9% (n=202) were in 9th grade, 30.1% (n=226) were in 10th grade, 28.5% (n=214) were in 11th grade, and 14.4% (n=108) were in 12th grade. The participants ranged in age from 14 to 19 years old: 5.47% (n=41) were 14 years old, 28.93% (n=217) were 15 years old, 30.8% (n=231) were 16 years old, 23.07% (n=173) were 17 years old, 11.07% (n=83) were 18 years old, and the remaining 0.66% (n=5) were 19 years old. Of these participants, 70% (n=525) identified as Caucasian/White, 13.7% (n=103) as African American/Black, 7.2% (n=54) as Hispanic/Latino, 3.5% (n=26) as Biracial, 2.4% (n=18) as Asian/Asian American, 1.3% (n=10) as "Other," 0.7% (n=5) as Asian or Pacific Islander, and 0.4% (n=3) as Native American/American Indian; 0.8% (n=6) preferred not to state their race.

Instrumentation

In order to obtain ACE scores, researchers used the ACE measure. The ACE questionnaire was derived from the questionnaire used in the original ACE study conducted by Felitti et al. (1998) and included 10 questions about childhood experiences categorized into three forms of trauma: abuse, neglect, and household challenges. For each question to which the participants answered "yes," they received one point. Their total number of points at the end of the measurement constituted their ACE score. To introduce the questions, the following phrase was listed at the top of the questionnaire: "While you were growing up during the first 18 years of life…" (Felitti et al., 1998, p. 247). The ACE questionnaire was later studied by Zanotti et al. (2018) to determine its test-retest reliability in a sample of college athletes (N=141), with a one-year interval between administrations of the tool. Their findings indicated a modest test-retest coefficient, $r = .71$, $p < .001$.

A demographic questionnaire was also emailed to each participant. This asked for each participant's student identification (ID) number, a unique number assigned to all students upon initial enrollment in the school system. Participants were also asked their age, grade, and ethnicity, and if they had ever received a diagnosis of ADHD/ADD from a medical professional and if they were currently, or had ever been, on any medication for ADHD/ADD. Of the population sampled, 72.9% (n=547) reported that they did not have ADHD, 18.5% (n=139) reported that they did have ADHD, 7.3% (n=55) indicated that they were not sure, and 1.2% (n=9) said "Other." Data collected from students who indicated they were unsure if they had ever received a diagnosis of ADHD were excluded from the study. Secondary administrative data was pulled from the student information system database, an electronic repository for the safe keeping of data for school administrators, which includes, but is not limited to, demographic information,

disciplinary data, class schedules, grades, and attendance. Using student ID numbers, disciplinary data was collected from the student information system database for each participant and compared to their ACE score and questionnaire answers. If a participant did not provide their student ID number in the questionnaire, their data could not be used for this study.

Variables

The variables examined in this study were that of high school suspension rates, ACE scores, and presence of a self-reported ADHD diagnosis. High school suspension rates were determined by accessing an existing student information system database. ACE scores were measured using the ACE questionnaire (Felitti et al., 1998). ADHD diagnosis was determined by asking each participant to self-report whether they were aware of ever having received a professional diagnosis of ADHD.

The predicted variables of this study differed for each research question and the statistical measurements that were run. For the first, second, and third research questions, the predicted variable was high school suspension rate. For the fourth research question, the predicted variable was the diagnosis of ADHD. Self-report was used to determine if the participants had ever received a diagnosis of ADHD. Participants were asked to report this information on their demographic questionnaire. High school suspension rates were collected from the student information system database.

The predictor variables of this study differed for each research question. For the first research question, the predictor variable was the self-reported diagnosis of ADHD. For the second and fourth questions, the predictor variable was ACE scores. For the third question, the predictor variables were self-reported ADHD diagnosis and ACE scores. The ACE scores were collected by distributing the ACE questionnaire to each participant.

Statistical Analyses

For the first research question, an independent samples t-test was used to understand if suspension rates differ for high school students with a self-reported diagnosis of ADHD as compared to those without the diagnosis. For the second research question, a Spearman's rank-order correlation was run to assess if ACE scores were significantly related to suspension rates among high school students. For the third research question, a multiple linear regression was used to determine if incorporating ACE scores and self-reported ADHD diagnoses into the same model would significantly predict suspension rates among high school students as compared to a model of ACE scores alone. For the fourth research question, a binomial logistical regression was used to determine the relationship between ACE scores and a self-reported ADHD diagnosis among high school students.

RESULTS

To address this study's first research question, an independent samples t-test with equal variances not assumed was run. This method was chosen due to the assumption of homogeneity of variances being violated, as assessed by Levene's test for equality of

variances ($p < .001$). Suspension rates were higher for those with a self-reported ADHD diagnosis (M = 3.83, SD = 6.92) than those without (M = 2.02, SD = 4.08), which was a statistically significant difference, M = 1.80, 95% CI [0.60, 3.01], t(163.09) = 2.95, p = .004 .

For this study's second research question, a Spearman's rank-order correlation was run to assess the relationship between ACE scores and the rate of suspensions among students. Preliminary analysis showed the relationship to be monotonic, as assessed by visual inspection of a scatterplot. There was a statistically significant, small positive correlation between ACE scores and rate of suspensions, $r_s(750) = .231$, $p < .00$. Therefore, this hypothesis was supported. A Spearman's rank-order correlation was used due to the skewed data and the outliers that were present in the sample.

A multiple linear regression was run to determine if the model incorporating both ACE scores and self-reported ADHD diagnosis significantly predicts suspension rates among high school students more so than a model of ACE scores alone. The original model of ACE scores alone (Table 1, Model 1) was statistically significant, $R^2 = .02$, $F(1, 669) = 10.72$, $p = .001$. The addition of the ADHD diagnosis to the ACE scores in the prediction of suspension rates (Table 1, Model 2) led to a statistically significant increase in R^2 of .03, $F(2, 668) = 14.38$, $p < .001$, adjusted $R^2 = .04$. Both predictors were statistically significant in the final model, with the ADHD diagnosis recording a higher beta value (beta = -.16, p < .001) than the ACE scores alone (beta = .09, p = .02).

Table 1: Hierarchical Multiple Regression

		Model Summary			Change Statistics		
Model	R	R^2	Adjusted R^2	Std. Error of the Estimate	R^2 Change	F Change	df1
1	0.126[a]	.016	.014	2.852	.016	10.716	1
2	0.203[b]	.041	.038	2.817	.026	17.773	1

Model Summary			
Model	df2	Sig. F Change	Change Statistic
1	669	.001	
2	668	.000	.006

Note: a) Predictors (Constant), ACE Score; b) Predictors (Constant), ACE Score, ADHDDigRecode; c) Predicted Variable: Total Referrals in 1819

ANOVA[a]						
Model		SS	df	Mean Square	F	*p*
1	Regression	87.179	1	87.179	10.716	.001[b]
	Residual	5442.6	669	8.135		

	Total	5529.8	670			
2	Regression	228.24	2	114.12	14.438	.000[c]
	Residual	5301.6	668	7.936		
	Total	5529.8	670			

Note: a) Dependent Variable: Total Referrals in 1819; b) Predictors: (Constant), ACE SCORE; c) Predictors: (Constant), ACE SCORE, ADHDDiagRecode

Coefficients [a]

		Unstandardized Coefficients		Standard Coefficients		
Model		B	Std. Error	B	t	*p*
1	(Constant)	1.595	0.135		11.833	0.000
	ACE Score	0.21	0.064	0.126	3.274	0.001
2	(Constant)	3.785	0.536		7.058	0.000
	ACE Score	0.147	0.065	0.88	2.256	0.024
	ADHDDDiagRecode	-1.175	0.279	-0.164	-4.216	0.000

A binomial logistic regression was performed to ascertain if ACE scores would predict a diagnosis of ADHD among high school students. Linearity of the continuous variables with respect to the logit of the predictor variable was assessed via the Box-Tidwell (1962) procedure. Based on this assessment, the continuous predictor variable was found to be linearly related to the logit of the predicted variable. The logistic regression model was statistically significant, $x^2(1) = 33.27$, $p < .001$. The model also explained 7.5% (Nagelkerke R^2) of the variance in ADHD diagnosis and correctly classified 80.2% of cases. The odds ratio of 1.34 indicates that respondents with higher ACE scores were more likely to report an ADHD diagnosis.

DISCUSSION

The findings of this study indicate that as ACE scores increase, so do suspension rates. Additionally, if a student is diagnosed with ADHD and has also been exposed to ACEs, that student is more likely to have a higher suspension rate than that of a student who has ACEs without a diagnosis of ADHD. It seems that students who are presenting with childhood trauma symptoms and ADHD symptoms experience an even higher rate of disciplinary referrals in school. Finally, results of this study indicate that the higher a student's ACE score, the more likely they were to have a diagnosis of ADHD.

The findings of this study are significant because they provide evidence of a link between trauma and negative student behaviors in schools. American School Counselor Association (ASCA) authored an article entitled "The School Counselor and Trauma-Informed Practice" (2016), in which they discuss the school counselor's role in working with students who have a trauma background. One of the most important roles of the school counselor is to be able to identify those students who may have a high ACE score

or be negatively impacted by trauma in their lives. The ASCA article states that school counselors should be able to recognize trauma symptoms displayed by students; avoid any practice that may cause the student to be re-traumatized; promote safe and nurturing relationships between students and staff, faculty, counselors, administrators, and other students; and help to create a positive and safe community within the school building so that all students feel safe when they come to school.

In light of the results of this study, schools should be mindful of what students with trauma have experienced when disciplinary options for misbehaviors are being considered. It is important for the school to take into account if a student is acting out due to trauma occurring in the home or past trauma that has, perhaps, resurfaced. At times, the teacher or school counselor may be familiar with a student, their background, and any trauma experienced and, with this information, be able to more readily recognize trauma symptoms. However, this is conditional upon the teacher or school staff member being trained to recognize trauma. It is pertinent that these professionals advocate accordingly on behalf of that student so that appropriate strategies and supports are provided, rather than a severe consequence—such as school removal in the form of suspension. Ensuring the fair treatment of all students, while considering potentially mitigating factors such as their trauma histories, may help to establish the feeling of safety in school for these students (Crosby et al., 2018).

Universal screening for ACEs is one way to search for those students who may be more at-risk for trauma-related issues that may interfere with their success at school. There are only a few schools who have implemented a screening process for trauma-related behavioral concerns (Bruhn et al., 2014). This may be due to concerns such as obtaining consent for screening or a lack of knowledge, time, or resources available to provide an effective and fair screening process to all students (Eklund et al., 2018).

Today, schools may find that many of their students are being exposed to additional trauma due to the COVID-19 pandemic. Students are spending more time in their homes with their parents or caregivers, which in some cases could be the main source of their trauma exposure (Evans et al., 2020). Students may have parents or guardians who have lost their job and are experiencing financial hardships due to the pandemic, potentially causing extra stress on the student. Students may face losing a loved one due to COVID-19 or experiencing illness themselves, as well as confusion and fear due to the state of society, with its many restrictions and mask mandates. With more students now engaging in virtual education from their homes, it is more difficult to determine who may be experiencing active abuse or trauma. However, when school faculty and staff are able to connect with students both in person and virtually, it is more important than ever to look for signs of trauma and the after-effects that students may be experiencing from trauma that has surfaced due to the pandemic.

Finally, schools should carefully consider the importance of communicating with parents and guardians regarding trauma and the effects that it has on students at school. Many parents are often unaware that their child would be considered to have a trauma history, and far too often they have little knowledge of what to do once they receive that information. Providing educational materials and answering any questions that parents may have cannot only help the parents to become more involved in the child's life, but it can also help to end a generational cycle of childhood trauma. If parents can intervene and prevent their children from being victims of childhood trauma, these adolescents may

be less likely to perpetuate the cycle with their own children. All of the aforementioned should be considered in the context of the parent or guardian being the potential source of the trauma for the student.

It should be noted that screening and early identification of trauma in children remains a significant public health need (Dube, 2018; Oral et al., 2016). In 2020, the California Department of Health Care Services (DHCS) implemented the nation's first statewide approach to screening patients for ACEs (Trauma Screenings and Trauma-Informed Care Provider Trainings, 2020). Kerker et al. (2016) found that only 4% of all pediatricians screen for ACEs, while 32% do not ask their patients about any ACE. Additionally, less than 11% of pediatricians are very or somewhat familiar with the original ACE study. Therefore, when presented with symptoms that appear similar to that of ADHD, if there is no trauma assessment such as the ACE questionnaire administered, the result may be a diagnosis of and prescription for medication for ADHD. The problem with this outcome is that, while the medication may help to treat some symptoms such as difficulty paying attention, hyperactivity, and being easily distracted, it is not treating the root of the problem, which is the trauma that occurred during the individual's childhood or may still be occurring when the doctor treats them for ADHD.

Limitations of the Study

This study yielded a large sample size, with over 700 viable participants from whom the researcher collected data. While this large sample size is considered a strength of the study, the fact that all participants attended the same high school is a limitation. Many of these students live within the same community and are of the same demographic makeup. Additionally, the researchers relied on participant self-report to obtain ADHD diagnosis information. Therefore, some of the potential participants for this study had to be excluded given that they could not be sure whether they had ever received an ADHD diagnosis from a medical professional. With regards to the ADHD diagnosis, not considering co-occurring diagnoses and misdiagnoses of each participant is also a limitation of this study. For students who have co-occurring diagnoses, they can be affected in vastly different ways from those with only an ADHD diagnosis.

Another limitation of this study involves using the ACE assessment. Although the ACE assessment used in this study is derived from the original ACE assessment, it can be said that the assessment leaves off important traumatic experiences that may affect an individual in the same way in which the experiences on the ACE assessment affect the individual. For instance, being a victim of bullying, experiencing the loss of a loved one, or losing one's home to a natural disaster are all extremely traumatic events that may be experienced in different ways by different individuals. Therefore, it is important to note that just because a student or individual may score low on the ACE assessment does not mean they have not experienced any trauma in their lifetime.

Recommendations for Future Research

Future research should be conducted to determine if the combination of ACEs and ADHD influence any other aspects of education, such as attendance rates, grade retention, standardized test scores, and graduation rates. It is the researchers' recommendation that

any future research regarding ADHD diagnosis secure a more accurate account of the diagnosis. A suggested approach would be to receive permission to examine a sample population from a local school district who possess Section 504 or Individualized Education Plans (IEPs) for which the formal diagnosis is ADHD.

Additional research regarding the combination of ACEs and ADHD and its effect on suspension rates could be conducted in order to obtain a more holistic view of the wide range of student experiences and backgrounds. A possible means to achieve such a study would be to replicate this study, using the same hypothesis, but with a sample from a larger and more diverse group of schools, rather than just a single school. Racial and gender demographic data should be included as well, to determine the extent to which demographics may play a role in high school suspension rates relative to ACE scores and ADHD diagnoses. Finally, tremendous insight could be gained from a simple survey of medical professionals on their current use of trauma assessment as part of their routine practice on students presenting with symptoms consistent with ADHD. Responses may be helpful in aiding medical schools, centers, and hospitals in understanding the scope of usage of trauma assessments and which specialties, regions, and populations are most underutilizing this resource.

CONCLUSION

If school personnel continue to use the same practices with students they have always used, yet expect to see a decrease in disciplinary referrals, they will quickly become frustrated. Therefore, as part of their professional growth and development, school personnel—teachers, school counselors, administrators, and other staff—need to receive training in trauma-sensitive practices and implement them with fidelity schoolwide in order to decrease the missed instructional time resulting from suspension for what may be trauma-related behavior. Trauma-sensitive practices are beneficial for educators in building rapport with students with ACEs and ADHD, who are most at risk. Instead of trying to label exactly who these students are, trauma-sensitive schools operate from the stance that all students have been affected by trauma, and they therefore use trauma-sensitive approaches throughout the school consistently with all students.

An integrated system of care that includes collaboration between physicians and educators—medical practices and schools—could create a common language and understanding about screening, symptoms, school processes and dynamics, and trauma-sensitive practices. Cross-disciplinary training regarding ACEs, ADHD, and other shared areas of concern could only be beneficial to their shared patients/students, and ultimately society would be all the better for it.

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