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Mental Health and the Potential Effect on Student Achievement in Ninth Grade Students in Arkansas

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MENTAL HEALTH AND THE POTENTIAL EFFECT ON STUDENT ACHIEVEMENT IN NINTH GRADE STUDENTS IN ARKANSAS

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Abstract

MENTAL HEALTH AND THE POTENTIAL EFFECT ON STUDENT ACHIEVEMENT IN NINTH GRADE STUDENTS IN ARKANSAS

In the State of Arkansas students, grades three through ten, take the ACT Aspire in order to provide a measure of student academic achievement to school districts and the Arkansas Division of Elementary and Secondary Education. These scores are also used to determine school grades that are released each year and may determine student placement in remediation programs. The purpose of this quantitative study was to determine the relationship, if any, between student achievement and mental health in ninth grade students in the State of Arkansas. The findings reveal that students who receive mental health services score at a lower level on the ACT Aspire ELA and Math Exams.

Keywords: Academic Achievement, Mental Health, Whole Child, Achievement Gap

Table of Contents

Page

List of Tables

Page

List of Figures

Page

Chapter I: Introduction

Mental health awareness and a whole child approach to student success in public education have been brought to the forefront of society in recent years (Slade & Griffith, 2013). Addressing these issues that arise due to poor mental health of students has become an increasingly difficult task for educators (Morone et al., 2001). Students are struggling at a much higher rate with mental health issues than ever before in our nation's history, and it is important that schools promote their social and emotional health (Barry et al., 2017). It has become imperative that public schools identify the prevalent issues affecting students' mental health and address them so that students can experience greater success in academics, extra-curricular activities, and their personal lives outside of school (Dowdy et al., 2010).

There are many reasons for gaps in student achievement, but mental health levels may be causing the largest gap between high achieving and low achieving students (Brannlund et al., 2017). A gap in student achievement may exist between students who have a high level of mental health and those who have a lower level of mental health (Slade & Griffith, 2013). It is important for schools to identify if and why this gap exists and find ways to decrease the size of the gap (Dowdy et al., 2010). Schools will need access to mental health data and mental health professionals to properly address this gap (Kramer et al., 2006).

There has been a strong push in education to address the needs of the "whole child" (Slade & Griffith, 2013). There must be continued financial support from the states and the state departments of education to ensure that the mental health needs of our students are being met (Cullen et al., 2015). To properly address the needs of so many

students who are now experiencing mental health issues and the lower levels of student achievement that may result, it is imperative that states continue to increase the amount of money they are providing school districts to move towards closing the achievement gap that may be caused by poor mental health (Cullen et al., 2015). Some states are providing more resources than others to school districts to assist with providing for the mental health needs of their students (Cullen et al., 2015). This study will also add to the body of research to help determine if it is beneficial for the federal government to continue to study the implications of mental health on student achievement and provide more financial assistance to school districts so that they can better serve the needs of the "whole child".

Background of the Study

With the rise in mental health issues in the world today, it is important to understand the different factors that can impact mental health (Wang & Sheikh-Khalil, 2014). To develop an understanding of the root causes of poor mental health, it is important to address them early on and perhaps make a positive impact on those who might otherwise suffer throughout a lengthy time frame in their life (Brannlund et al., 2017). Poor mental health also leads to other health issues like poor nutrition, crowded and unsanitary living conditions, and inadequate medical care (Adler et al., 1994).

Students are dealing with an ever-increasing number of factors that negatively affect their mental health. From the influx of social media to the pandemic experience in 2020 and possibly beyond, the challenges faced by the kids in our classrooms continue to mount. This study will attempt to determine if a relationship exists between the mental

health issues of freshmen students and their academic achievement using data from three Arkansas school districts.

Research shows that gearing education to meet the needs of the whole child has a much greater impact on their success when they leave the public-school system (Slade & Griffith, 2013). It is important to address all of the needs that may arise during their time in a K-12 educational setting to ensure their opportunity to succeed later in life is maximized (Slade & Griffith, 2013). While physical health is of great importance, recent studies show that socio-emotional health can have just as great an impact on student success as physical health. (Barry et al., 2017).

Many support programs in school districts today have been designed to provide academic remediation and intervention for struggling learners. This study will attempt to determine if a relationship exists between the mental health issues of freshmen students and their academic achievement.

Problem Statement

In recent studies, achievement gaps have been identified among students and the causes may result from a variety of issues (Hung et al., 2020). One of those issues that may cause an achievement gap is the difference in mental health levels of students (Brannlund et al., 2017). Schools should be identifying the large gaps in achievement in their schools and addressing the root of the problem (Hung et al., 2020). There are mental health providers that work closely with schools, but there may be more room for growth in the relationship between these two groups (Kramer et al., 2006). There are privacy laws such as the Family Educational Rights and Privacy Act (FERPA) and the Health Insurance Portability and Accountability Act (HIPAA) that school employees and

counseling agencies must be aware of; these laws, while meant to be protective, often make it difficult for mental health providers and schools to share information that might result in more beneficial services for the student (Kramer et al., 2006). Legislators in some states are studying the perceptions of mental health services and how they affect an individual's use of those services (Richardson et al., 2013). It is imperative that laws are shaped to benefit the needs of the students while still providing the necessary level of protection (Cullen et al., 2015). It is also important that those same legislators provide adequate funding for schools to provide the services that are beneficial to the students in their public schools that struggle with mental health issues (Cullen et al., 2015). The problems associated with mental health have become increasingly difficult for schools to deal with, and there must be continued communication and partnership between district administration, service providers, and legislators so that students can be provided the adequate care needed to address their mental health level and the adverse effect it may have on the student's achievement levels (Kramer et al., 2006).

Purpose of the Study

The purpose of this study is to determine if high school freshmen students who received mental health services in school scored significantly differently on the ACT Aspire Math and English exams than students who did not receive those services. The researcher used data from three Arkansas school districts to determine the relationship between mental health issues and achievement levels of high school freshmen in Arkansas.

There is considerable research on the achievement gap. There is also substantial research on the increasing number of students who deal with mental health issues (Hung

et al., 2020). There is very little research on the relationship between mental health and student achievement in public school students in Arkansas. This study will attempt to identify the impact, if any, that mental health issues have on student achievement and provide data for schools to utilize when making decisions regarding the mental health of students in our state.

Research Questions

The student populations that were examined in this study attended three public school districts in Arkansas during their freshmen year of high school. The schools participating in this study were located in three different geographical regions of the state, Northeast Arkansas, South Arkansas, and Central Arkansas. Student ACT Aspire data was analyzed to determine if students who received services for mental health issues differed from those who did not receive services. The research questions used for this study are as follows:

- RQ1: Is there a significant difference in ACT Aspire scores between students who received mental health services and those who did not?
    - $H_0$1: There is no significant difference in ACT Aspire scores between students who received mental health services and those who did not.
- RQ2: Is there a significant difference in ACT Aspire scores between students who received mental health services and those who did not, based on gender, ethnicity, or socio-economic status?
    - $H_0$2: There is no significant difference in ACT Aspire scores between students who received mental health services and those who did not, considering the factor of gender.

- H_o3: There is no significant difference in ACT Aspire scores between students who received mental health services and those who did not, considering the factor of ethnicity.
- H_o4: There is no significant difference in ACT Aspire scores between students who received mental health services and those who did not, considering the factor of free or reduced lunch status.

Theoretical Foundation

Maslow's Hierarchy of Needs is a well-established theory that addresses how needs fulfillment affects the motivation of a human being and hinders them from advancing from one stage to the next (McLeod, 2007). Before a person can advance from one stage to the next, they must have reached a certain level of fulfillment in their current stage (McLeod, 2007). The "needs" outlined in Maslow's hierarchy are leveled. Level 1 consists of physiological needs such as food, water, warmth, and rest; level 2 consists of safety-security needs such as shelter and protection; level 3 needs are belongingness needs such as casual friendships and intimate relationships; level 4 needs are esteem needs such as prestige and feeling of accomplishment; and level 5 needs are self-actualization needs such as creative activity and achieving one's full potential (McLeod, 2007).

Maslow believed that human beings have similar desires/needs (Zalenski & Raspa, 2006). He arranged this needs in pyramid form (see figure 1) and described them as being arranged in a hierarchy of prepotency. Simply put, the first level of needs is the most important, and an individual cannot move to the next level until those needs are

met. This would imply that most people in society have needs that are never fully satisfied.

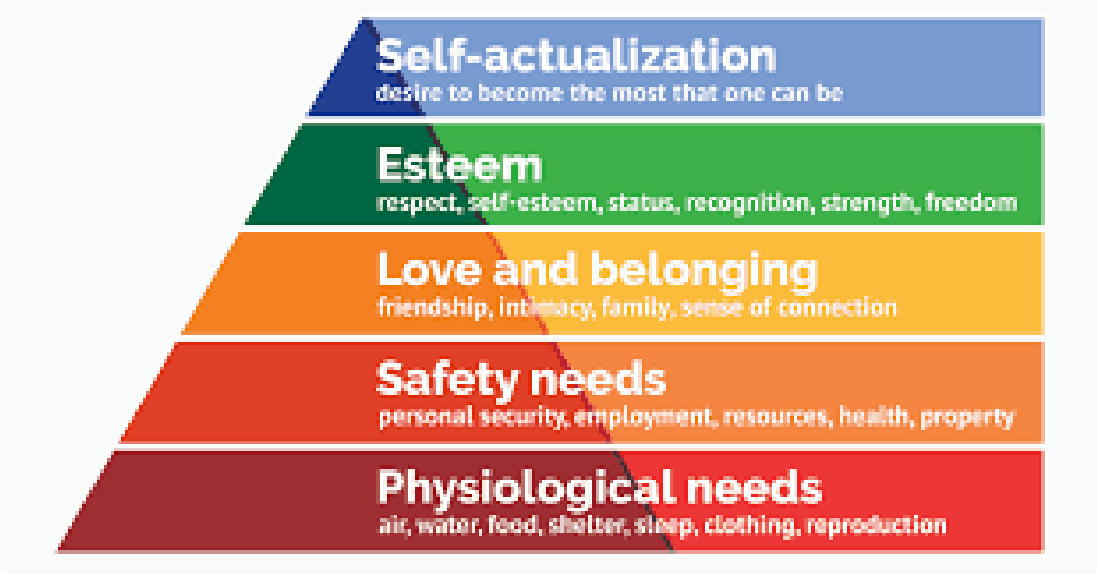

Figure 1. This figure demonstrates Maslow's hierarchy of needs (McLeod, 2007).

Maslow's theory in the educational context would imply that student's achievement levels go hand in hand with their mental and emotional states. For one to achieve at a high level, one must first have their physiological, safety, and love/belonging needs met. However, satisfaction of a need can sometimes become familiar or even boring. When this occurs, Maslow states that "growth takes place when the next step forward is subjectively more delightful, more joyous, more intrinsically satisfying than the previous gratification with which we have become familiar" (Maslow, 1999).

In some studies, it has been found that there is a correlation between mental health and educational achievement (Brannlund et al., 2017). Students must be given the proper resources to support and advance their mental health levels so they can achieve academically at a higher level (Brannlund et al., 2017).

Definition of Key Terms

In this study, the researcher used the following definitions to describe terms listed below:

Academic Achievement: The performance on various types of tests (usually standardized tests) and amount of skills and knowledge a student may learn in a given time frame (Hawley et al., 1984).

Mental Health: emotional, psychological, and social well-being (MentalHealth.Gov).

Whole Child: All physical, mental, emotional, and academic needs of the student (Noddings, 2005).

Achievement Gap: When one group of students outperforms another group of students and there is a disparity in standardized test scores (Ladson-Billings, 2006)

Scope and Delimitations

The purpose of this study is to determine if high school freshmen who received mental health services in school scored significantly differently on the ACT Aspire math and English exams than students who did not receive those services. The researcher focused on diagnosed mental health issues that were being treated by outside counseling agencies or the school counselor. The study took place in three regions of the state in three different districts. These districts were selected so that multiple sized districts were involved in the study.

All schools in this study utilize the ACT Aspire for accountability testing and are required by the Every Student Succeeds Act to give the test, including the math and English language arts sections of the exam, near the end of each school year.

Limitations

The data gathered for this study consisted of a small sample size and did not include data from schools in some regions of the state. There are more than 200 school districts in the state of Arkansas, and this study gathered data from only three of those districts.

The achievement data gathered for this study only included the scores from the ACT Aspire math and English exams and did not reflect the achievement level of the students on the other assessments that may have been given to them during the course of the school year. Some students who scored poorly on the Aspire exam may have scored well in one of the other assessments and vice versa.

Significance of the Study

The study of the relationship between mental health and student achievement is important because research shows that student success in high school has a direct relationship with s student's success after they conclude their secondary experience (Spengler et al., 2018). Students who are successful in high school have a greater chance at success in college, and data shows there is increased earning potential for students who are successful in high school and college over their lifetime (Spengler et al., 2018). There is little research regarding the relationship between achievement and the mental health of high school freshmen in the state of Arkansas. This study is designed to provide more data regarding that relationship in that specific population. The findings of this study will be useful in designing and implementing a remediation program that targets the academic achievement level of students through socio-emotional supports instead of curriculum and instruction support.

Chapter Summary

A student's mental health level may have an impact on their achievement level. The level of success in school can be used as a predictor of success later on in life (Spengler et al., 2018). Students deal with a variety of mental health issues as they navigate through their educational experience (Dowdy et al., 2010). States and schools should be very responsive to students' mental health needs and take an active role in addressing those needs to affect their achievement levels in a positive way (Morone et al., 2001). The literature review in the next chapter will investigate student academic achievement, factors that affect academic achievement, achievement gaps in education, the potential causes of those achievement gaps, mental health, the role that mental health plays in the existence of the achievement gap, and how schools and states work to address mental health issues through a variety of programs.

Chapter II: Literature Review

Introduction

The purpose of this study is to determine if high school freshmen students in four Arkansas school districts who received mental health services in school scored significantly differently on the ACT Aspire math and Reading exams than students who did not receive those services. The review of the literature discusses student achievement, including the importance of academic achievement, the role and history of standardized testing in education. It will also describe the family and school factors that affect academic achievement and the achievement gap as well as potential influences on the achievement gap such as race, poverty, and gender.

The review of the literature will also elaborate on the definition of mental health, how it impacts people across their lifespan, and the different factors affecting mental health including genetics and social circumstances. Mental health in schools will also be discussed in the literature review with an emphasis on school based mental health services and privacy laws. The literature review will also detail the possible relationship between mental health and student achievement. Studies show that mental health services can play a role in student success. (Weist, et al., 2006). Research indicates that there is still a significant gap between the number of students who may need mental health services and the number of students who are actually provided with some type of services, school based or otherwise, to address their social-emotional needs. (Weist, 1997). There is very little research regarding the relationship between the academic achievement levels and the mental health levels of high school freshmen in the state of

Arkansas. This study is designed to provide more data regarding that relationship in that specific population.

Student Academic Achievement

Academic achievement often refers to content-area achievement as measured on standardized tests (Lindholm-Leary, et al., 2006). This section will define academic achievement, describe its importance, discuss standardized testing and federal law regarding accountability, the factors that affect achievement, and the achievement gap in public schools.

Definition and Importance

Academic achievement is a broad reference to the literacy, math, science, social science, and thinking skills and competencies that allow a student to succeed in school and in society (Lindholm-Leary, et al., 2006). This section will outline the definition and importance of academic achievement. Due to the difficulty of assessing these forms of achievement, most researchers rely on a narrower definition that is largely limited to outcomes on standardized testing (Lindholm-Leary, et al., 2006). A 2002 study found that there are significant differences between the self-esteem possessed by successful and unsuccessful students in the seventh grade (Alves-Martins, et al., 2002). It was also found that students with high levels of academic achievement attribute more importance to school related areas and have a more favorable attitude towards school (Alves-Martins et al., 2002). In a comparison to familial resources, personality, socioeconomic factors, and educational achievement, it has been demonstrated that poor academic achievement dominates the other three factors in predicting the dropout rate of students (Lam, 2014). Academic achievement has also been found to correlate with romantic relationships

(Giordano, et al., 2008). Successful students tend to select similar partners even though it involves social influence processes as well (Giordano et al., 2008).

Academic achievement in high school may be a predictor of students' success in future educational endeavors, relationships, career, and finances (Arnold, 1995). Another study of medical school students, conducted over a ten-year period, found that students with a low level of anxiety and a high level of academic achievement were subject to lower levels of professional stress and were less vulnerable to burnout (Walkiewicz, et al., 2012).

Standardized Tests

A variety of methods are used to determine the academic achievement levels of students in secondary public schools (Archbald & Newmann, 1988). Testing is a systematic means of collecting information (Phelps, 2005). Tests are a very familiar part of classroom instruction (Zucker, 2003). Standardized tests are the most common means of assessment to provide comparable student achievement data across classrooms and school districts (Zucker, 2003). This section will review the definition of standardized tests and their uses as well as a brief history of the legislation that led to standardized testing.

Definition of standardized tests and uses. Standardized tests are useful for many purposes, including but not limited to, which students are eligible for graduation and scholarships, certifications for job skills or licensure, and even who will be offered a position among qualified job applicants (Phelps, 2005). In many cases, standardized tests assume that the test takers have an equal ability and opportunity to learn the subject matter being tested (Phelps, 2005). Standardized testing also plays a key role in the

federal accountability legislation that has changed throughout the last few administrations (Phelps, 2005). Test results are used to hold school districts accountable for raising student academic achievement and identifying schools in need of improvement (Zucker, 2003). Standardized tests may also provide a solution to the challenges posed by accountability laws for public schools (Zucker, 2003).

A brief history. This section will review federal law regarding standardized testing including a brief look at the Elementary and Secondary Education Act (ESEA), No Child Left Behind (NCLB), and the Every Student Succeeds Act (ESSA). With President Lyndon Johnson's support for federal aid to education, the ESEA was passed in 1965 (Jeffrey, 1978). The ESEA was intended to reform education policies to positively impact students in poverty but was unable to make the education of disadvantaged students a top priority for the local school districts (Kantor, 1991). President Johnson's support of federal aid to schools rested on the belief that schools were effective agents of upward mobility for students in poverty (Jeffrey, 1978). The ESEA provided federal funding mechanisms to public school districts, but it was later federal legislation that required states to develop or adopt challenging content, demand proficiency standards, and require rigorous assessments (Yell, 2013). The Improving American's School Act of 1994 required Title I schools to meet adequate yearly progress (AYP) and schools that failed to do so had to develop corrective action plans (Yell, 2013).

The NCLB Act is a well-known piece of legislation that compelled states to design school accountability systems based on annual student assessments (Dee & Jacob, 2011). NCLB expands federal regulation that was outlined in the ESEA in 1965, and reflects an evolution of the federal role rather than a radical redefinition (McDonnell,

2009). Congress reauthorized ESEA as NCLB in 2001 (Robelen, 2005). Results of a 2011 study indicate a statistically significant increase in the average math performance of fourth graders as well as evidence of improvements in eighth grade math achievement, particularly among traditionally low achieving groups and at the lower percentiles (Dee & Jacob, 2011). While some data exists that may suggest NCLB has improved public education, the federal legislation has also led to a focus on testing rather than investing, disincentives for improved learning, a narrowing of the curriculum, and punished the neediest schools and students (Darling-Hammond, et al., 2007)

On December 10, 2015, President Barack Obama signed the ESSA (Sharp, 2016). It is one major similarity to its predecessor, NCLB, was that states still had to submit accountability plans to the Educational Department that included utilizing standardized test for displaying the proficiency of their students in multiple content areas (Plans, 2015). Although standardized testing has its flaws, it has benefits outside of measuring student achievement such as helping districts determine the effectiveness of their schools and helping teachers more closely examine and align curriculum to state standards (Duncan, et al., 2011). ESSA is the latest reauthorization of the ESEA and allows significant leeway in a wide range of areas (Plans, 2015). One of those areas was selection of standardized testing and in 2015, Arkansas chose the ACT Aspire as their tool of standardized testing.

Factors that Affect Student Academic Achievement

Student achievement is affected by several factors including school expenditure amounts, educational resources that are used, and family factors (Archibald, 2006). Research also suggests that shared and instructionally focused leadership are

complementary approaches for improving schools and positively impacting the factor that affect student achievement levels (Louis et al., 2010). Student achievement can be affected by a variety of factors (Barnett & Lamy 2013). The factor that potentially affects student achievement that is the focal point of this study is mental health. In a study published in the Journal of Adolescent Health, path analyses showed that the status of a country's or state's adolescent emotional well-being is a strong predictor of its educational achievement and that emotional well-being mediates the relationship between poverty and educational achievement (Sznitman, et al., 2011). According to a study published in the Educational Psychologist, there are four critical social-emotional components that influence achievement and performance (Becker & Luthar, 2010).

Parental involvement has been found to improve academic and emotional functioning among adolescents. (Wang & Sheikh-Khalil, 2014). In a 2013 study published in the Educational Review, the results indicated that the relationship between parental involvement and academic achievement was positive regardless of a definition of parental involvement or measure of achievement. The findings revealed further that the relationship was the strongest if parental involvement was defined as "parental expectations for academic achievement of their children" (Wilder, 2014). The following sections discuss family factors that affect student achievement, school factors that affect student achievement, and achievement gaps in public education.

Family factors that affect student achievement. Research indicates that the family is a critical contributor to student achievement from adolescence through high school, and efforts to improve student outcomes are much more effective when the family is involved (Henderson & Berla, 1994). A review of research findings identified several

family and home environmental factors that affect student achievement: Parent education, family income, and family structure (Christenson, et al., 1992). Each of these family factors will be discussed in the following sections in detail.

Parental education. Well-educated parents are most likely to consider the quality of local schools when selecting a neighborhood in which to live and more likely to pay attention to the quality of their children's teachers once they enter school (Egalite, 2016). There is a large correlation between the education levels of parents and their children (Bjorklund & Salvanes, 2011). In most studies, parental education has been identified as the single strongest correlate of children's success in school, the number of years they attend school, and their success later in life (Egalite, 2016). A 2011 study found that socioeconomic status and parents education had a significant effect on students' overall academic achievement as well as on math and English scores in ninth grade (Farooq, et al., 2011).

Family income. Parents with greater financial resources can choose to live in more affluent neighborhoods where good schools are more likely to be found (Egalite, 2016). "In predicting levels of student achievement, family incomes continue to be reliable indicators" (Taylor, 2005, p. 53). Students who live in poverty are more likely to underachieve than their peers from middle and high-income households (Taylor, 2005). Students with a high and average socioeconomic status exhibit a better quality of performance than the students with a low level of socioeconomic status (Farooq et al., 2011). Affluent parents can use their resources to ensure that their children have access to a full range of extracurricular activities at school and in the community (Egalite, 2016). Socioeconomic status is a significant predictor of a student's performance at school

(Farooq et al., 2011). However, it was found that the occupation of the parent had no significant effect on academic achievement (Farooq et al., 2011).

Family structure. Analyses have included measures of family background, or structure, and have found them to be a significant explanation of achievement differences in students (Hanusheck, 2016). Estimates say that 56% of fathers, in the case of non-marital births, will be living away from their child by his or her third birthday (Egalite, 2016). Reports say that one- to two-year olds who live with two married parents are read, on average, 8.5 times per week while their peers living with a single parent is read to 5.7 times per week (Egalite, 2016) The negative effect of single-parent families is partly explained by the relatively low socioeconomic status of those students (Pong, 1997). However, a study from 2001 showed that children who are secure and have a high-quality attachment to their mother had higher scores than their insecurely attached peers on communication, cognitive engagement, and mastery motivation. (Moss & St-Laurent, 2001).

School factors that affect student academic achievement. A study from 2001 examined whether students in various groups differed in attachment and engagement/achievement and whether school factors were determined to be important (Johnson, et al., 2001). The study found that racial-ethnic composition of schools may sometimes be an important factor in student's attachment but not engagement/achievement. (Johnson et al., 2001). This section will review school factors that affect student academic achievement such as teacher involvement, available support services, and school leadership.

Teacher involvement. Research has shown that students who like school have higher academic achievement, fewer disciplinary issues, do not struggle as much with absenteeism, and have a much higher graduation rate than students who dislike school. (Hallinan, 2008). This implies that one way to improve academic outcomes for students is to increase their attraction and attachment to school. Teachers play a critical role in determining the level of attachment that students have to school. (Hallinan, 2008). Hallinan's study found that students who perceive that their teachers care about them, respect them, and praise them are more apt to like school than are those who do not, but that teachers' expectations for students' achievement have a negligible effect on whether students like school or do not like school. (Hallinan, 2008). The effect of schools and teachers on student motivation also gives us insight into student achievement levels. (Seifert, 2004). Schools and the teachers that work in them play essential roles in the development of students from not only an educational perspective but also on their curiosity and motivation to learn, their social-emotional skills, and civic identities. (Roeser et al., 2009).

Teachers are considered well placed to play a critical role in helping students with mental health concerns and academic achievement (Mazzer & Rickwood, 2015). In Mazzer's study, the goal was to investigate teachers' perceived role breadth and self-efficacy in supporting students' mental health. The study found that teachers viewed supporting mental health as part of their role, although they felt it was important to work within a well-coordinated pastoral care system. (Mazzer & Rickwood, 2015). Teachers also felt like they receive very little in their pre-service teacher education programs to prepare them for dealing with the issue of supporting student mental health. (Graham et

al., 2011). Teachers values and beliefs in relation to children's mental health are integral to their confidence and ability to support the students social and emotional needs. (Graham et al., 2011).

Available support services. In a study of 292 teachers in five school districts, teachers reported viewing school psychologists as having the primary role in delivering mental health services. They believed that the teachers' primary responsibility from a mental health service perspective was to implement classroom behavioral interventions. (Reinke et al., 2011). Further, in a 2018 article in the Journal of Mental Health, a study was reviewed to identify students likely to attend peer support and evaluate the acceptability and impact of the intervention. The study concluded that structured peer support for depression may have benefits in improving student mental well-being. (Byrom, 2018).

People with serious mental illness report benefits from interacting with peers online including, but not limited to, sharing personal stories and strategies for coping, challenge stigmas, and provide hope for each other (Naslund et al., 2016). Social media was also found to provide access to interventions for mental well-being. (Naslund et al., 2016).

School leadership. Some studies show the effect of school leadership on student achievement. Leadership behaviors were not associated directly with student achievement but did have a direct effect on school climate and teacher's job satisfaction which both directly impact student achievement (Dutta & Sahney, 2016). In another study it was found that leadership can have a profound effect on the achievement of students in their schools (Marzano et al., 2001). In a later study involving Marzano, findings suggested

that when district leaders are carrying out their leadership responsibilities effectively, student achievement across the district is positively affected (Waters & Marzano, 2006).

Achievement Gaps in Public Education

This review of the literature has revolved around student achievement and this is the fourth major topic in that category. There are many explanations for the achievement gaps that we see in public education today and that we have seen in the past. An achievement gap is when one group of students outperforms another group of students, and there is a disparity in their standardized test scores (Ladson-Billings, 2006). Although data shows some reasons may have more significance than others, scholars have offered a variety of explanations for the existence of the gap including race, socioeconomic status, and gender (Ladson-Billings, 2006). It is imperative that educators search for an explanation for achievement gaps so they can be addressed through curriculum, instruction, and/or services and supports. There are practices that can allow schools to narrow the achievement gap, but according to a 2005 study, the gap has far more to do with social and economic factors that schools cannot control. (Evans, 2005). This section will review factors that may create gaps in student achievement including, race, poverty, and gender.

Race. Even when socio-economic status is comparable, African-Americans, Native Americans, Latinos, and immigrants for whom English is not a first language lag behind English-speaking, native born, white students (Berlak, 2005). Drop-out rates, number of students who take advanced placement exams, number of students enrolled in top academic class, and the number of students admitted to secondary schools, colleges, graduate and professional programs all indicate that an achievement gap exists between

the previously mentioned groups (Berlak, 2005) Another study from 2001 examined whether students of different racial-ethnic groups varied in attachment and engagement and whether they were important factors. The study found that racial-ethnic composition of schools is an important factor in student's attachment but not engagement. (Johnson et al., 2001). In a study of black and white primary school children, a substantial disparity existed for academic achievement in science. (Bacharach, Baumeister, & Furr, 2003). In another study from 2019, the researchers argued that the fundamental cause of the achievement gap is structural racism that privileges White Americans and disadvantages non-white Americans. (Merolla & Jackson, 2019).

In an Educational Testing Service report from 2010, it was noted that progress has been made in addressing the Black-White Achievement Gap at different periods in our history. (Barton & Coley, 2010). However, that progress often is halted and the work to identify the reasons for the stoppage must begin again.

Poverty. The child poverty rate in the United States is higher than for most industrialized countries (Keegan-Eamon, 2002). The National School Lunch Act was signed by President Harry Turman in 1946 and President Lyndon Johnson continued the war on poverty by establishing the Head Start Program in 1965 (Keegan-Eamon, 2002). There have been other provisions to level the educational playing field for public school students. In the case of San Antonio School District v. Rodriguez, the Supreme Court noted that education is not a right guaranteed by the Constitution and ruled that the teaching of basic, minimal skills might be the school's system's constitutional obligation. (San Antonio School District v. Rodriguez, 1973). Poverty levels often provide another potential reason for the achievement gap that we see in public schools. (Lacour &

Tissington, 2011). In an article by Lacour & Tissington in Academic Journals, they concluded that poverty directly affects academic achievement due to the lack of resources available for student success. (Lacour & Tissington, 2011). Historically, low-income students as a group have performed at a lower level than high-income students in many of the areas that are used to measure academic success. (Reardon, 2013). These areas include standardized tests, grades, graduation rate, and college enrollment. (Reardon, 2013). There are some findings that indicate opportunities to identify innovative practices and policies that ensure success among students from low social-economic backgrounds. (Olson, 2015). Developing a strong sense of self, preparation and experience with a college curriculum, and developing coping strategies to help avoid negative outcomes were found to be opportunities that suggested greater academic success could be had by students from low socio-economic backgrounds. (Olson, 2015). Not only do studies show that poverty has a negative effect on achievement in schools, they also show that students who are living in poverty are also more likely to be retained, suspended, and expelled from school. (Wood, 2003). Family incomes continue to be reliable indicators in predicting student achievement levels. (Taylor, 2005). In a 2005 study by Jane Hannaway, she does provide some ray of hope regarding poverty and its impact on student achievement. The literature in her study suggests that urban districts can reduce the gap by hiring and retaining better and more highly qualified teachers. (Hannaway, 2005).

In her 2007 article, Anne West argues that income level and accessibility of material resources play a highly significant role in student achievement (West, 2007). In a study published in the Research in Business and Economics Journal, it was found that

better schools raise reading and math scores for the average student in a low performing school by about twelve percent (Borg, Borg, & Stranahan, 2012). It was also found that schools in the same district do not see much difference in state and local funding, although funding was about eighteen percent higher per student in the high poverty schools due to extra federal funding (Borg et al., 2012). Although high-poverty schools often received more funding per student, other resources (such as teachers with advanced degrees, strong parent-teacher organizations, and consistency in administration) were not as plentiful in those high poverty schools (Borg et al., 2012).

Gender. Not only are there indicators that race and poverty play a role in the achievement gap that exists in public schools, it has also been found that boys also generally underperform relative to girls in schools throughout the industrialized world. (Legewie & DiPrete, 2012). In this study, the authors argue that school environment channels conceptions of masculinity in peer culture that foster anti-school attitudes and behaviors for boys. (Legewie & DiPrete, 2012). In one Florida study however, it was found that boys benefited more than girls from cumulative exposure to higher quality schools, so the research shows that achievement gaps due to gender can be addressed. (Autor et al., 2016). Boys' inability to perform at the same level as the opposite gender in school coupled with a tendency for them to more disproportionally disrupt the classroom has sparked much debate (Legewie & DiPrete, 2012). The gender gap is viewed by some as a biological issue while others say schools are to blame for de-masculinizing the learning environment and then negatively evaluating boys for not fitting into that environment as well as girls (Legewie & DiPrete, 2012).

Mental Health

Mental health is another important part of understanding the things that can act as barriers or as a booster to high achievement levels for students (Keyes, 2010). In a 1995 study, a diagnosis of the presence of mental health was described as flourishing, and the absence of mental health was characterized as languishing (Keyes, 2010). Mental health has become an ever-increasing problem in our world and contributes to about 14% of the global burden of disease (Prince et al., 2007). Estimates of the contribution of mental health to disease have drawn attention to the importance of mental disorders for public health (citation). But because mental and physical disorders are stressed as separate contributors to disability and mortality, mental health has been somewhat alienated from global and local mainstream efforts to improve health and increase socio-economic status (Prince et al., 2007). Due to the lack of mainstream efforts, health services are not provided to people with mental disorders at the same level as health services are provided to people with physical health issues (Prince et al., 2007). Students who are not provided the proper mental health services may not always achieve at the same level as students who are provided the proper level of services (Keyes, 2010). In this section, the review will cover how mental health is affects us throughout our lifespan, different factors that affect our mental health levels, and how mental health is often addressed in public schools.

According to a 2005 report from the World Health Organization, there has been some movement in the right direction by countries around the globe to implement mental health policies and mental health legislation (World Health Organization [WHO], 2005). The report notes that the trend was more marked in the African and American regions

(WHO, 2005). The African regions reported an 8.4% increase in the countries with mental health legislation and a 7.1% increase in the countries in the American regions with mental health legislation (WHO, 2005). Continued efforts should be made to implement mental health improvement strategies for students in order to provide an opportunity for increased student achievement (Weist & Christodulu, 2000).

Mental Health Across the Lifespan

Older individuals are less likely to be seen and treated for mental health disorders (German et al., 1985). As people age, they are less and less likely to be seen by their primary care physician or a specialist for mental health care (German et al., 1985). The current pandemic may also have exacerbated the mental health issues that are faced by the elderly (Girdhar et al., 2020). Social isolation and loneliness are particularly problematic in old age due to various reasons such as: decreasing functional limitations, economic and social resources, the death of spouse and relatives, changes in family structures and mobility. Lockdown adds more reasons to this list including: inactivity, repeated exposure to disturbing news related to the pandemic, reminiscences of previous traumatic events, the interactional problem within family members, and the lack of opportunity to share their worries. (German et al., 1985).

In a 2010 study on the presence of mental health and the absence of mental health published in the American Journal of Orthopsychiatry, the findings suggested the importance of positive mental health in future research on adolescent development (Keyes, 2010). Emotional health is one of the most serious concerns for today's adolescents (Nooney, 2005). Suicide rates for youth in America have increased considerably over the last few decades (Cutler et al., 2001).

Although the view of adolescence has evolved to be characterized in more positive terms as a developmental state, defining mental for this age group remains a difficult task (Compas & Millstein, 1993). The two primary dimensions of positive mental health in adolescence involves the development of skills to protect oneself from stress and the development of skills to involve oneself in personally meaningful activities (Compas & Millstein, 1993).

In a 2016 study, it was found that teens are concerned about many health issues including fitness, sexual activity, drugs, hygiene, mental health and stress (Wartella et al., 2016). Although teens are concerned about many health issues, including mental health, and fifteen to twenty five percent of children and adolescents suffer from some type of mental health disorder, studies indicate that fifty to eighty percent of this population do not receive mental health care (Post et al., 1998).

Factors that Affect Mental Health

Mental disorders occur in persons of all genders, ages, and backgrounds. No one person or group is immune to mental health disorders (Kuruvilla & Jacob, 2007). The risk of dealing with mental health issues is higher among those living in poverty, without work, homeless, or the poorly educated (Kuruvilla & Jacob, 2007). This section will review factors that affect mental health, including social circumstances and genetic or biological factors.

Socio-economic circumstances. Lack of opportunity, reduced accessibility to resources, and a greater likelihood of experiencing difficult events are all a result of poverty (Kuruvilla & Jacob, 2007). The distress resulting from those situations may result in low mood and sadness, frustration, or even deeper feelings of discontent (Kuruvilla &

Jacob, 2007). Results of a study from 2000 suggest that the financial circumstances of a student may have an adverse impact on their physical and mental health (Roberts et al., 2000).

Genetic/biological factors. At one point it was thought that abnormal levels of one or more neurotransmitters could satisfactorily explain depression or schizophrenia (Hyman, 2000). It is no longer believed that a single gene can cause mental disorders (Hyman, 2000). Those thoughts have been replaced by the concept of genetic complexity in which multiple genes act along with non-genetic factors to produce a risk of mental disorders (Hyman, 2000). In a study of mood and behavior, it was found that there is a tendency for seasonal changes, especially seasonality of the winter type, largely due to a biological disposition. This study implies that due to biological factors, mental health is impacted by change in weather or seasons (Madden et al., 1996).

Mental Health in Schools

Promoting healthy development, well-being, and a values-based life are keys to preventing psychosocial and mental health problems. Mental health practitioners in schools who are most associated with mental health concerns are realizing that changes are needed and are afoot (Adelman & Taylor, 2006). There is a view related to mental health in schools that calls for expanded services to enhance strategic collaborations and develop comprehensive approaches that will involve full integration of mental health concerns into a school's efforts to provide students with learning supports (Adelman & Taylor, 2006). This view indicates that mental health concerns and the school's mission often overlap because the school cannot achieve its mission for students without addressing each factor that interferes with progress (Adelman & Taylor, 2006). This

section will describe school based mental health services, including individual plans and programs, collaborative plans and programs, as well as privacy laws.

School based mental health services. Unfortunately, there are not many schools that possess a satisfactory amount of resources to get the systematic and evidence-based data that they need to identify all of the mental health needs of all their students and then monitor them as well as they would like to monitor their mental health needs. (Short & Strein, 2007) Identifying and monitoring mental health is an important step in addressing the goal that we have in the state of Arkansas of improving the "whole child". The results derived from utilizing mental health services to support learning in schools show that there were improvements in the students' behavior. (Dowdy et al., 2010).

More than 20% of children and adolescents have mental health problems (Committee on School Health, 2004). Dr. David Satcher, MD, PHD, in the official journal of the American Academy of Pediatrics stated, "The burden of suffering experienced by children with mental health needs and their families has created a health crisis in this country" (Committee on School Health, 2004, p. 1839).

School based mental health programs to address that crisis can be placed into three tiers, (Committee on School Health, 2004). The first tier is an array of preventive programs and services. All children should be targeted with these programs and services. The second tier is a more targeted approach designed to assist students who have one or more identified mental health needs but are still functional enough to successfully engage in school activities. The third tier targets the smallest population of students and addresses the needs of children with severe mental health diagnoses and symptoms. In their work, Preventing Mental Disorders in School-Age Children: A Review of the

Effectiveness of Prevention Programs, Dr. Mark Greenberg, Dr. Celene Domitrovich, and Brian Bumbarger outline the importance of a preventive focus in children's mental health. (Greenberg et al., 1999).

Although there has been progress made in providing mental health services to the kids who need them, there is still a large gap between the kids who need services and how many of them are actually provided services. (Weist, 1997). Mental health services are often fragmented and uncoordinated. (Weist, 1997). One of the largest obstacles to providing school mental health services is the development and sustainment of funding. (Evans et al., 2003). Funding opportunities also vary from state to state, city to city, further complicating the ability of school based mental health programs to provide the support and services needed to ensure student success. (Evans et al., 2003).

According to research, the mental health needs of students continue to be "largely unmet" (Flaherty et al., 1996). Even more recent work, such as the book "The Scandalous Neglect of Children's Mental Health: What Schools Can Do" by James Kauffman and Jean Marie Badar reveals that most students who struggle with significant emotional issues get little or no help at all (Kauffman & Badar, 2018). It may be beneficial for nonprofessionals who play important roles in the lives of children to also play a part in the care of their mental health (Weist & Christodulu, 2000).

In a study from 1992, there were seven components important to the success of the programs. Collaborative planning, ownership by the school, the principal's role, case manager, shared resources, a gradual phase-in, and training and staff development. (Dolan, 1992).

Achieving the goals of schools when expanding mental health programs requires "going outside the box, and the school building" (Weist et al., 2006). Developing partnerships between schools, community agencies, and parents is mutually beneficial. Schools get increased support through additional staff and added financial support. Community programs are able to reach kids whom they might otherwise never be able to reach (Weist et al., 2006).

Increasing school mental health programs, the staff, and making additional partnerships seem to provide advantages based on early evidence. These advantages include increased access, improved outreach, and increased staff productivity (Weist et al., 1999). However, despite the apparent benefits, implementing these programs comes with additional challenges that must be overcome. Collaboration of that kind might not be something that all of the parties are used to and it must be maintained by upholding their equality as partners. Each stakeholder must let go of the traditional "top-down" hierarchy often seen in the management of mental health programs (Weist et al., 2006).

Collaboration between school and community employed professional is critical to the success of the mental health programs in our schools. (Weist et al., 2012). Programs can be jeopardized by ineffective collaboration between professionals. Planning remains an integral part of promoting teamwork, building effective coordination mechanisms, and promoting resource enhancements. (Weist et al., 2012).

Individual programs for students. In 2002, a Presidential Freedom Commission on Mental Health was established to analyze the state of the country's mental health system (Stephan et al., 2007). One of the recommendations of that commission was to develop an individualized plan of care for every child with a serious emotional

disturbance (Stephan et al., 2007). While this is an admirable goal, many individual programs or plans that are developed for the benefit of a student who is struggling with mental health issues, are done in isolation by the individual who is creating those plans. Individuals who are of importance to the student must also be involved in the creation of the plan in order to see a greater chance of success (Weist & Christodulu, 2000).

Collaborative programs. A treatment approach with a greater opportunity for success might be a collaborative approach that involved the student, their mental health counselor, and also a teacher and/or a family member (Weist & Christodulu, 2000). In a recent study of school social workers utilizing the Professional Learning Community (PLC) model, it was shown that those social workers felt collaboration gave the time to "pause and reflect on ways to improve their practice" which may improve the level of success seen by their students. (Brake & Kelly, 2019).

Available evidence regarding school based mental health services suggest that these programs are often planned and implemented in a less than satisfactory way. There is little coordination for integration and continuity with like programs or other school/community-based programs. (Adelman & Taylor, 1993). By conducting a collaborative effort to address the socio-emotional needs of students and utilizing collaborative intervention techniques, teams can offer support for addressing the most complex socio-emotional needs that our students struggle with. (Diaz, 2013).

As schools collaborate with their partners in education to address the mental health needs of students and to improve school based mental health practices, they must move to embrace a community science perspective, which develops and researches community-centered models that enable communities to use evidence-based interventions

more effectively and efficiently. (Weist, 2005). This collaboration is needed based on the general sense that well-meaning teachers do not have the time, training, or resources to identify mental health issues that students are dealing with and help to find solutions (Weist, 2005). Research indicates that collaborative efforts among professionals, paraprofessionals, and nonprofessional staff may be required to meet the growing need for children's mental health services (Weist & Christodulu, 2000).

Mental health can be an additional barrier to learning. Schools and systems of education around the country are beginning to join forces with community health and mental health systems, families, and stakeholders to remove this barrier (Weist et al., 2006). There are a variety of goals that schools associate with expanding mental health programs. These goals include improving attendance and achievement, optimizing health and mental health of students, and improving their overall quality of life (Weist, et al., 2006).

Complex problems have grown in number in recent years. (Barnett et al., 1992). In the last three decades there has been an increase in dropout rate, teen pregnancy, substance abuse, learning disabilities, and behavior problems, (Barnett et al., 1992). One collaborative approach, the Community-Oriented Primary Care (COPC) process, provides a way to coordinate energy and resources of primary care practitioners, school districts, and other community agencies. (Barnett et al., & Levine, 1992). The ability of schools to collaborate and provide a wide array of mental health supports to students in need may play an impactful role in student achievement, (Weist et al., 2006).

Privacy laws. The incorrect interpretation of privacy laws often inhibit collaboration between stakeholders that impact schools and student achievement levels

(Davoren, 2007). Over the past few years, adolescents have gained opportunities to receive confidential health care services, including mental health services. Concerns about their privacy can prevent students from seeking care. In a large nationally represented survey, a third of students reported that the reason they did not seek care was that they did not want their parents to know about the issue (English & Ford, 2004). It is also worth noting that misunderstanding of privacy laws can also keep providers from collaborating to provide an integrated care system. Under the Health Insurance Portability and Accountability Act (HIPAA), there are only two types of clinical care information that cannot be shared between a patient's care providers without explicit consent: substance abuse treatment records and written psychotherapy notes (Hilt, 2014).

The Family Educational Rights and Privacy Act (FERPA) is designed to safeguard student privacy and make their educational records freely accessible to them (Elliott et al., 2014). Before FERPA, parents and students had little access to educational records even though they were readily available to outside authorities without parental or student consent (Elliott et al., 2014). There are still misunderstandings about the application of FERPA that impede communication that could save the life of a student who is a threat to themselves or others (Davoren, 2007). It is important that schools and mental health providers work together to provide the proper mental health services to students while navigating privacy laws properly (Weist et al., 2012).

Mental Health and Student Achievement

This section of the literature review will look at mental health and how it relates to student achievement. In a 2017 study, it was found that there was a negative relationship between mental health problems and educational outcomes (Brannlund et al.,

2017). Poor mental health during childhood has a negative correlation with educational achievement (Brannlund et al., 2017). The drop-out rate in schools is a problem all over the world (Sagatun et al., 2014). In a 2015 study, it was suggested that externalizing problems may impair educational attainment world (Sagatun et al., 2014). A reduction of those problems that can be addressed with the provision of mental health services, may improve educational attainment and possibly reduce the drop-out rate and negate some of the adverse consequences later on in the students' life (Sagatun et al., 2014). As studies have found that there may be a strong link between educational success and success as an adult in your career, personal life, and your finances, more resources may be needed to support children who struggle with mental health issues while they are in school (Brannlund et al., 2017).

Previous research suggests that gains in positive mental health are associated with stronger academic achievement (O'Connor et al., 2019). In a study conducted by the Center for Development & Learning, it was suggested that retention may have a negative impact on student mental health and that several intervention strategies prior to retention may be more positively impactful on student mental health and promote a greater chance for long-term academic success in students (Anderson et al., 2002). More recently, O'Connor et al. (2019) state the research suggests that gains in positive mental health are associated with stronger academic achievement. The intent of this study is to investigate whether there is a relationship between student academic achievement and their participation in mental health services. Specifically, the purpose is to determine if high school freshmen students who received mental health services in school scored

significantly differently on the ACT Aspire Math and English exams than students who did not receive those services.

Research Questions and Hypotheses

- RQ1: Is there a significant difference in ACT Aspire scores between students who received mental health services and those who did not?
    - H_o1: There is no significant difference in ACT Aspire scores between students who received mental health services and those who did not.
- RQ2: Is there a significant difference in ACT Aspire scores between students who received mental health services and those who did not, based on gender, ethnicity, or socio-economic status?
    - H_o2: There is no significant difference in ACT Aspire scores between students who received mental health services and those who did not, considering the factor of gender.
    - H_o3: There is no significant difference in ACT Aspire scores between students who received mental health services and those who did not, considering the factor of ethnicity.
    - H_o4: There is no significant difference in ACT Aspire scores between students who received mental health services and those who did not, considering the factor of free or reduced lunch status.

Theoretical Perspective

The hierarchy of needs outlined by Maslow lays out his theory of how fulfillment can motivate people to move from one stage of life to the next (McLeod, 2007). In Maslow's theory, a person must reach fulfillment in one stage before they can move to

and work towards fulfillment in the next stage. The needs that Maslow researched were leveled and fell into several categories. Those categories were physiological, safety-security, belongingness, esteem, and self-actualization.

The pyramid that Maslow designed to explain the needs of human beings made it easy for people to understand the level of importance of each category and how they impact the category above and below. Analyzing Maslow's hierarchy of needs provides insight on how important it is to achieve fulfillment in one area of your life before moving on to another. It is also a good visual to describe the importance of meeting a child's social-emotional needs before attempting to move them forward academically.

In the context of educational achievement, students must feel safe, loved, and a sense of belonging before their educational needs can be met. If students do struggle academically because of mental health issues that are barriers to learning, it is important for schools to play a part in meeting the mental health needs of those students so they can succeed academically.

Summary

The literature review paints a broad picture of student achievement, describes standardized testing, and lays out the factors that affect student achievement and the resulting gap created by those factors. There is also a review of literature that discusses mental health and the perception of it in society and how our mental health is impacted and how it impacts us throughout our lives. There are a variety of factors that impact our mental health. Genetics, social circumstances, and our environment all have an impact on our mental health levels as we age. Schools work in a variety of ways and with a diverse array of programs to attempt to impact the mental health levels of students and thereby

increase student achievement levels. There is a variety of school programs and procedures that help identify and treat students with mental health issues. These programs have long-term implications for those students and their families as they attempt to be successful academically and throughout their lives.

The collaboration between schools, families, and outside programs presents an opportunity for a greater level of success with struggling students than just one of these factors alone. Collaboration can be difficult to achieve at times due to logistical and financial roadblocks. All sides must prioritize to achieve collaboration for the good of the student.

School faculty and staff must work closely with mental health providers to ensure that student's needs are being met properly. It may be necessary for some districts to increase the number of staff members who are district employees to meet the mental health needs of their student body.

Achievement gaps that arise in public education create unique challenges for schools. Districts must continue to research the reasons for those gaps and implement partnerships and programs to close those gaps. A variety of potential causes have been studied that may lay the groundwork for addressing the achievement gap in public schools. There are indications that the race of a student may play a role in any existing achievement gap. Racial inequality is a widely discussed issue in our society and as a factor in the achievement gap it is important that we continue to study the data to ensure student needs are being met no matter their race or ethnicity.

Studies also show that poverty may create a gap in achievement. Students who come from lower socio-economic households tend to score lower on standardized

achievement tests than students who come from more affluent backgrounds. Students from more impoverished backgrounds do not usually have the same level of resources to achieve success academically as those who are from wealthier households.

There are four critical social and emotional components that influence student achievement. Studies show it can be vital to student success for a child to have a strong and positive attachment to their school. Teacher support is also a key to strengthening the attachment that a student may have to school and academic success. Teachers play a crucial role in a student's academic achievement and their mental health level.

Peer to peer interactions also lend themselves to affecting the mental health of students. Peers can provide negative or positive interactions that may impact the other students. Teachers play a critical role in monitoring peer to peer interactions to ensure the experiences are positive.

Chapter III: Research Methodology

This chapter outlines the methodology that are used for this study. The purpose of this study is to determine if high school freshmen students who received mental health services in school scored significantly differently on the ACT Aspire exams than students who did not receive those services.

Research Questions and Hypotheses

The research questions for this study are as follows:

1. Is there a significant difference in ACT Aspire Math and English scores between students who received mental health services and those who did not?
2. Is there a significant difference in ACT Aspire Math and English scores between students who received mental health services and those who did not, based on gender, ethnicity, or socio-economic status?

The hypotheses for the study include:

$H_0$1: There is no significant difference in ACT Aspire scores between students who received mental health services and those who did not.

$H_0$2: There is no significant difference in ACT Aspire scores between students who received mental health services and those who did not, considering the factor of gender.

$H_0$3: There is no significant difference in ACT Aspire scores between students who received mental health services and those who did not, considering the factor of ethnicity.

$H_0$4: There is no significant difference in ACT Aspire scores between students who received mental health services and those who did not, considering the factor of free or reduced lunch status.

Research Design

This was a quantitative, non-experimental study to determine if high school freshmen students who received mental health services in school score significantly differently on the ACT Aspire exams than students who did not receive those services. Specifically, this study will analyze the freshmen student scores on the ACT Aspire exams taken at four high schools in Arkansas during the 2019 administration. Non-experimental designs allow the researcher to evaluate the variables without intervention (Radhakrishnan, 2013).

Participants

The participants in this study will be the 2019 freshman class of four high schools in various regions of Arkansas. These schools include two schools Northeast Arkansas and one in Central Arkansas. The students in these schools took the ACT Aspire exams in April 2019. Only archived data will be used in this study. No contact with students will be involved.

Context of the Study

One of the districts is a rural district located in Northeast Arkansas with a population of 2,612 residents (Arkansas Hometown Locator, 2019). The median household income is $33,649 and the median home value is $80,806 (Arkansas Hometown Locator, 2019). The high school houses grade 7-12 with 229 students attending. The participants for this study include approximately 40 students from the ninth-grade cohort.

Another district is a rural district located in Northeast Arkansas with a population of 28,525 residents (Arkansas Hometown Locator, 2019). The median household income

is $44,585 and the median home value is $123,335 (Arkansas Hometown Locator, 2019) houses grades 9-12 with 901 students attending. The participants for this study include approximately 232 students from the ninth-grade cohort.

The third district is a rural district located in central Arkansas with a population of 479 residents (Arkansas Hometown Locator, 2019). The median household income is $50,307 and the median home value is $86,702 (Arkansas Hometown Locator, 2019). The high school houses grade 7-12 with 382 students attending. The participants for this study include approximately 71 students from the ninth-grade cohort.

Data Collection

The data collected for this study will be April 2019 archived ACT Aspire data for math and English, student demographic data (gender, ethnicity, and free/reduced lunch status), and mental health services data from each of the respective districts. After obtaining approval from the Arkansas Tech University (ATU) Institutional Review Board (IRB) in the spring of 2021 for this project, superintendents from the three districts will be contacted via email to explain the study and obtain permission to use their districts' data. Once the approval to utilize the data from the three schools is obtained, the researcher will contact the individual responsible for the ACT Aspire data for each district to obtain individual test results for all 2019 freshmen students. The data will be uploaded into an Excel spreadsheet containing student names. Next, the spreadsheet will be sent to the school counselor who will insert four columns in the spreadsheet and input student demographic data consisting of gender, ethnicity, and eligibility for free/reduced-price meals. This data will be obtained from eSchool, a database required by the state to house student demographic information, contact information, class grades, etc. Next, the

counselor will also enter a one to indicate the student has received services for a mental health diagnosis. Finally, the counselor will delete the column containing the student names and any other information so that no identifying information will be available to the researcher. The counselor will email the Excel file to the researcher. If the data is not received by the researcher within ten (10) days of the request, a follow-up email will be sent to the individuals reminding them of the importance of the study and encouraging them to fulfil the request. Another email will be sent if the information is not received within fifteen (15) days of the initial request.

Instrument

The data to be used in this study will be the ACT Aspire. The Aspire measures what students learned from grades three through ten in the subjects of math, Science, and literacy and provides a detailed report of the standards that the students have mastered and those with which they continue to struggle. Each student takes the English, reading, writing, math and science tests. The scores are used by the State to measure student growth and is a variable in the formula that determines the school scores for accountability that is outlined in the Every Student Succeeds Act. (Plans, 2015).

Arkansas law requires that all public-school students shall participate in a statewide program of educational assessments per Ark. Code Ann. §§ 6-15-419, 6-15-433, 6-15-2009. The Arkansas State Board of Education adopted the ACT Aspire summative assessment. The ACT Aspire is used to assess all Arkansas public school students in grades 3-10 unless they qualify for the alternate DLM assessment. Each student participates in English, reading, writing, math and science tests.

Data Analysis

The data will be analyzed using the Statistical Package for the Social Sciences (SPSS). The .05 level will be used in the determination of statistical significance. Results will be recorded in narrative and tabular form. Descriptive statistics will be computed and each of the four hypotheses will be analyzed using an independent t-test.

Hypothesis 1 states there is no significant difference in ACT Aspire scores between students who received mental health services and those who did not. The dependent variable (DV) will be the ACT Aspire score in math and English while the independent variable (IV) will be mental health services (yes/no). An independent t-test will be computed to determine if a significant difference exists in the scores between the two groups, those who received mental health services and those who did not.

Hypothesis 2 states there is no significant difference in ACT Aspire scores between students who received mental health services and those who did not, considering the factor of gender. The DV will be the ACT Aspire score in math and English while the IV will be mental health services (yes/no). Data for males will be analyzed using an independent t-test to determine if a significant difference exists in the scores between the two groups, those who received mental health services and those who did not. Data for females will be also analyzed using the independent t-test.

Hypothesis 3 states there is no significant difference in ACT Aspire scores between students who received mental health services and those who did not, considering the factor of ethnicity. The DV will be the ACT Aspire score in math and English while the IV will be mental health services (yes/no). Data for white students will be analyzed using an independent t-test to determine if a significant difference exists in the scores

between the two groups, those who received mental health services and those who did not. Data for black students, Hispanic students, and those identifying as Other will be also analyzed using the independent t-test.

Hypothesis 4 states there is no significant difference in ACT Aspire scores between students who received mental health services and those who did not, considering the factor of free or reduced-price status. The DV will be the ACT Aspire score in math and English while the IV will be mental health services (yes/no). Data for free or reduced-price status will be analyzed using an independent t-test to determine if a significant difference exists in the scores between the two groups, those who received mental health services and those who did not. Data for full-pay meal status will be also analyzed using the independent t-test.

Effect size will be computed using η^2. Effect size, in a nutshell, is a value which allows one to see how much the independent variable (IV) has affected the dependent variable (DV). In other words, it looks at how much variance in the DV was a result of the IV. Using Cohen's (1988) guidelines, an effect size of 0.01 is considered small, 0.059 is considered medium, and 0.138 is considered large. So, if the computed $\eta^2 = 0.45$, one can assume the effect size is very large. It also means that 45% of the change in the DV can be accounted for by the IV. Calculating η^2 effect size for independent t-tests is accomplished by dividing t-squared by the total of t-squared and the degrees of freedom $[t^2/ (t^2 + df)]$.

Ethical Considerations

This research study will be conducted with the utmost legal regard considering state reporting procedures, school district information, and individual student

achievement data. The intent of this study is to determine if high school freshmen students who received mental health services in school scored significantly differently on the ACT Aspire exams than students who did not receive those services. All participating administrators and staff within the school districts will be informed of the research design and purpose through written correspondence prior to the start of the study. Participation is voluntary for school districts, and districts may withdraw from the study at any time; further, the researcher will never have access to identifiable student information. The risk associated with this study is considered minimal due to the generalization of the study.

Summary

The purpose of this quantitative study was to determine if high school freshmen students who received mental health services in school scored significantly differently on the ACT Aspire math and English exams than students who did not receive those services. The methodology and instruments that will be used to conduct this study were outlined in this chapter. This chapter also described the design, sampling, and data collection process. Three high schools in Arkansas will participate in this study. The data was collected from the ninth-grade class of 2019 from three different regions of the state of Arkansas. The study will add to the body of research on the impact of mental health on student achievement.

Chapter IV: Results

The purpose of this study was to determine if high school freshmen students who received mental health services in school scored significantly differently on the ACT Aspire Math and English exams than students who did not receive those services. The researcher used the following questions to guide this study:

1. Is there a significant difference in ACT Aspire scores between students who received mental health services and those who did not?
2. Is there a significant difference in ACT Aspire scores between students who received mental health services and those who did not based on gender, ethnicity, or socio-economic status?

Upon IRB approval, the researcher contacted the superintendent of each school district and asked for permission to contact the building administrators and freshmen counselor's in the high school. Once approval was obtained, the data collection tool was shared with the proper person on each campus. The data collection tool was filled, all identifying information was removed, and the file was sent back to the researcher.

Description of the Sample

The population that was targeted for this study was the ninth-grade students in three public high schools in the state of Arkansas. Two schools from which data was collected were in the Northeast region of the state, while the third school data was in the Central region of the state. One of the districts is a rural district located in Northeast Arkansas with a population of 2,612 residents (Arkansas Hometown Locator, 2019). The high school houses grade 7-12 with 229 students attending. The participants for this study include approximately 40 students from the ninth-grade cohort. Another district is a rural

district located in Northeast Arkansas with a population of 28,525 residents (Arkansas Hometown Locator, 2019). The high school houses grade 9-12 with 901 students attending. The participants for this study include approximately 232 students from the ninth-grade cohort. The third district is a rural district located in central Arkansas with a population of 479 residents (Arkansas Hometown Locator, 2019). The high school houses grade 7-12 with 382 students attending. The participants for this study include approximately 71 students from the ninth-grade cohort.

Across the three schools, the data represented 288 students who were freshmen in their high schools in the 2018-2019 school year. Of those 288 students, 138 (48%) were male and 150 (52%) were female. Two-hundred and forty-one of the participants were in the free/reduced lunch category (84%). Forty-six of the participants (16%) were in the paid lunch category. The sample included 257 Caucasian students, 21 African-American students, 4 Hispanic students and 4 Asian students. Only one student in the minority population in the sample was receiving services. Two-hundred and thirty-five of the Caucasian students were not receiving services, while twenty-two in that demographic were receiving services. The average ACT Aspire ELA and Math scores among the population sampled were 425.1 and 423.5, respectively. The range for ACT Aspire ELA and Math in the population sampled was 440-406 and 443-408, respectively.

Findings

This section outlines the analysis of the data and findings for the research questions in this particular study. The first question asked if there was a difference in ACT Aspire scores based on mental health services received, or not received, by freshmen students in Arkansas public schools. The second question asked if there was a

difference in ACT Aspire scores based on mental health services received, or not received, by freshmen students in Arkansas public schools through the lens of gender, ethnicity, and socio-economic status.

Research Question 1

The first research question in the study was: *Is there a significant difference in ACT Aspire scores between students who received mental health services and those who did not?* The purpose of this research question was to identify whether or not students who received mental health services scored at a lower or higher level on the ACT Aspire Math and English exams than those students who did not receive mental health services. The hypotheses associated with this research question were:

- $H_0$1: There is no significant difference in ACT Aspire scores between students who received mental health services and those who did not.
- H_A1: There is a significant difference in ACT Aspire scores between students who received mental health services and those who did not.

To test $H_0$1 for ELA, an independent t-test was computed using the Aspire score as the dependent variable (ELA) and mental health services received/not received as the independent variable to determine if a significant difference exists in the scores between the two groups (those who received mental health services and those who did not). The t-test is widely used for a variety of tests and is a very common test to determine if there is a significant statistical difference between two groups (Knapp, 2013).

Comparing ELA scores. In order to compare the ACT Aspire ELA scores between 9th-grade students who received mental health services with those who did not, an independent t-test was conducted. Equality of variances was assumed based on

Levene's test, $F(1, 285) = .107$, $p = .74$. The results indicate that students who did not receive mental health services ($M = 425.4$, $SD = 7.70$, $N = 264$) scored significantly higher on the ELA exam than those who received services ($M = 421.9$, $SD = 7.28$, $N = 23$), $t(285) = 2.10$, $p = .037$. Table 1 presents a summary of the findings.

Table 1

ELA Scores for Students Not Receiving/Receiving Mental Health Services

	t-test for Equality of Means						
	t	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
						Lower	Upper
ELA Scores	2.101	285	.037	3.50	1.66	.22	6.78

Comparing math scores. In order to compare the ACT Aspire Math scores between 9th-grade students who received mental health services with those who did not, an independent t-test was conducted. Equality of variances was not assumed based on Levene's test, $F(1, 31) = 6.82$, $p = .009$. The results indicate that students who did not receive mental health services ($M = 423.8$, $SD = 8.03$, N=264) scored significantly higher on the math exam than those who received services ($M = 420.1$, $SD = 5.49$, N=23), $t(30.86) = 2.96$, $p = .006$. Table 2 presents a summary of the findings.

Table 2

Math Scores for Students Not Receiving/Receiving Mental Health Services

	t-test for Equality of Means						
	t	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
						Lower	Upper
Math Scores	2.964	30.856	.006	3.69	1.24	1.15	6.24

Research question one summary. In this study, students who did not receive mental health services had statistically significantly higher scores on both the ELA and Math portions of the ACT Aspire exams than those students who did receive mental health services. Because the calculated p value was less than .05, the null hypothesis was rejected, and the alternative hypothesis was assumed to be true.

Research Question 2

The second research question was: *Is there a significant difference in ACT Aspire scores between students who received mental health services and those who did not, based on gender, ethnicity, or socio-economic status?* The purpose of this question was to determine the differences between ACT Aspire English and Math exam scores when examined through the lenses of gender, ethnicity, or socio-economic status. The hypotheses associated with this research question were:

- $H_0$2: There is no significant difference in ACT Aspire scores between students who received mental health services and those who did not, considering the factor of gender.
- H_A2: There is a significant difference in ACT Aspire scores between students who received mental health services and those who did not, considering the factor of gender.
- $H_0$3: There is no significant difference in ACT Aspire scores between students who received mental health services and those who did not, considering the factor of ethnicity.
- H_A3: There is a significant difference in ACT Aspire scores between students who received mental health services and those who did not, considering the factor of ethnicity.
- $H_0$4: There is no significant difference in ACT Aspire scores between students who received mental health services and those who did not, considering the factor of free or reduced lunch status.
- H_A4: There is a significant difference in ACT Aspire scores between students who received mental health services and those who did not, considering the factor of free or reduced lunch status.

To test the hypotheses associated with the second research question, independent t-tests were computed using the Aspire score (ELA and Math) as a dependent variable. The independent variable for each test was whether or not mental health services were received to determine if a significant difference exists in the scores between different demographic groups. The t-test is widely used for a variety of tests and is a very common

test to determine if there is a significant statistical difference between two groups (Knapp, 2013). The analysis of each hypothesis is detailed below.

Hypothesis 2. Hypothesis 2 stated: *There is no significant difference in ACT Aspire scores between students who received mental health services and those who did not, considering the factor of gender.* To test the hypothesis, independent t-tests were computed using the Aspire scores of male students (ELA or Math) as the dependent variable and mental health services received/not received as the independent variable to determine if a significant difference exists in the scores of males who received mental health services and those who did not. The test was repeated using only the female data.

Comparing math scores. The results indicate that while male students who did not receive mental health services (M = 423.9, SD = 8.68, N = 132) scored higher on the math exam than those who received services (M = 419.2, SD = 5.93, N = 5), they did not score significantly higher, $t(135) = 1.69$, $p = .196$. Table 3 presents a summary of the findings.

Table 3

Math Scores for Male Students Not Receiving/Receiving Mental Health Services

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Math Scores (Males)	Equal variances assumed	1.688	.196	1.201	135	.232	4.70	3.92	-3.04	12.46

The results indicate that while female students who did not receive mental health services (M = 423.7, SD = 7.35, N = 132) scored higher on the math exam than those who received services (M = 420.3, SD = 5.52, N = 18), they did not score significantly higher, $t(148) = 1.848$, $p = .067$. Table 4 presents a summary of the findings.

Table 4

Math Scores for Female Students Not Receiving/Receiving Mental Health Services

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Math Scores (Females)	Equal variances assumed	3.772	.054	1.848	148	.067	3.32	1.80	-.23	6.88

Comparing ELA scores. In order to compare the ACT Aspire ELA scores between 9th-grade male students who received mental health services with those who did not, an independent t-test was conducted. Equality of variances was assumed based on Levene's test, $F(1, 1.35) = 3.480$, $p = .06$. The results indicate that male students who did not receive mental health services ($M = 423.69$, $SD = 8.20$, N=132) scored significantly higher on the ELA exam than those who received services ($M = 416.2$, $SD = 4.32$, N=5), $t(1.35) = 2.205$, $p = .045$. Table 5 presents a summary of the findings.

Table 5

ELA scores for Male Students Not Receiving/Receiving Mental Health Services

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
ELA Scores (Males)	Equal variances assumed	3.480	.064	2.025	1.35	.045	7.48	3.69	.17	14.80

In order to compare the ACT Aspire ELA scores between 9th-grade female students who received mental health services with those who did not, an independent t-test was conducted. Equality of variances was assumed based on Levene's test, $F(1, 148) = .269$, $p = .61$. The results indicate that female students who did not receive mental health services ($M = 427.1$, $SD = 6.78$, N=132) scored significantly higher on the ELA exam than those who received services ($M = 423.4$, $SD = 7.22$, N=18), $t(148) = 2.103$, $p = .037$. Table 6 presents a summary of the findings.

Table 6

ELA Scores for Female Students Not Receiving/Receiving Mental Health Services

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
ELA Scores (Females)	Equal variances assumed	.269	.605	2.103	148	.037	3.60	1.71	.21	7.00

Hypothesis 3. Hypothesis 3 stated: *There is no significant difference in ACT Aspire scores between students who received mental health services and those who did not, considering ethnicity.* To test H3, four independent t-tests were computed using the Aspire score as the dependent variable (ELA and math) and mental health services received/not received as the independent variable to determine if a significant difference existed in the scores between the different ethnicities represented in the sample (Caucasian and African American). Data was also collected for Asian and Hispanic students, but no students in that demographic were receiving services. The t-test is widely used for a variety of tests and is a very common test to determine if there is a significant statistical difference between two groups (Knapp, 2013).

Comparing ELA scores. In order to compare the ACT Aspire ELA scores between 9th-grade Caucasian students who received mental health services with those who did not, an independent t-test was conducted. See Table 7. The results indicate that Caucasian students who did not receive mental health services (M = 426.1, SD = 7.31, N=235) scored significantly higher on the ELA exam than those who received services (M = 422.4, SD = 7.05, N=22), $F(1, 255) = .027$, $p = .87$. Table 7 presents a summary of the findings.

Table 7

ELA Scores for Caucasian Students Not Receiving/Receiving Mental Health Services

		Levene's Test for Equality of Variances		t-test for Equality of Means					
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference
									Lower	Upper
ELA Scores (Caucasian)	Equal variances assumed	.027	.870	2.307	255	.022	3.75	1.62	.54	6.95

The results of the t-test for African-American ELA scores presented a limited sample size. Only one African-American student in the sample was receiving services and was not enough data for a valid analysis.

Comparing math scores. In order to compare the ACT Aspire Math scores between 9th-grade Caucasian students who received mental health services with those

who did not, an independent t-test was conducted. The results indicate that Caucasian students who did not receive mental health services (M = 424.3, SD = 7.92, N=235) scored significantly higher on the Math exam than those who received services (M = 420.1, SD = 5.62, N=22), $t(29.4) = 3.207$, $p = .003$. Table 8 presents a summary of the findings.

Table 8

Math Scores for Caucasian Students Not Receiving/Receiving Mental Health Services

	Mental Health Services	N	Mean	Std. Deviation	Std. Error Mean
Math Scores (Caucasian)	Not Receiving	235	424.2766	7.92190	.51677
	Receiving	22	420.0909	5.62231	1.19868

		Levene's Test for Equality of Variances		t-test for Equality of Means					
								95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Math Scores (Caucasian)	Equal variances assumed	5.074	.025	3.207	29.44	.003	4.18569	1.72977	.77923	7.59215

Only one African-American student in the sample was receiving services; therefore, no statistical test was performed.

Hypothesis 4. Hypothesis 4 stated: *There is no significant difference in ACT Aspire scores between students who received mental health services and those who did not, considering socio-economic status.* To test H4, four independent t-tests were computed using the Aspire score as the dependent variable (ELA and math) and mental health services received/not received as the independent variable to determine if a significant difference existed in the scores between students in the sample who did and did not receive free/reduced lunch. The t-test is widely used for a variety of tests and is a very common test to determine if there is a significant statistical difference between two groups (Knapp, 2013).

Comparing ELA scores. In order to compare the ACT Aspire ELA scores between 9th-grade Free/Reduced Lunch students who received mental health services with those who did not, an independent t-test was conducted. Equality of variances was assumed based on Levene's test, $F(1, 239) = .068$, $p = .79$. The results indicate that students who received free/reduced lunch but did not receive mental health services (M = 426.0, SD = 7.66, N=222) scored significantly higher on the ELA exam than those who received services (M = 421.2, SD = 7.57, N=19), $F(1, 239) = .068$, $p = .79$. Table 9 presents a summary of the results.

Table 9

ELA Scores for Free/Reduced Lunch Students Not Receiving/Receiving Mental Health Services

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
ELA Scores (Free/Reduced Lunch)	Equal variances assumed	.068	.794	2.632	239	.009	4.81200	1.82828	1.21040	8.41359

In order to compare the ACT Aspire ELA scores between 9th-grade Paid Lunch students who received mental health services with those who did not, an independent t-test was conducted. The test was found not to be statistically significant [$t(44) = -.844$, $p = .403$]; see Table 10. The results indicate that students who did not receive free/reduced lunch and also did not receive mental health services ($M = 421.9$, $SD = 7.06$, N=42) did not score significantly higher on the ELA exam than those who received services ($M = 425.0$, $SD = 5.42$, N=4), [t(44)=-.844, p=.403. Table 10 presents a summary of the results.

Table 10

ELA Scores for Paid Lunch Students Not Receiving/Receiving Mental Health Services

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
ELA Scores (Paid)	Equal variances assumed	.716	.402	-.844	44	.403	-3.07143	3.63969	-10.40673	4.26388

Comparing math scores. In order to compare the ACT Aspire Math scores between 9th-grade Free/Reduced Lunch students who received mental health services with those who did not, an independent t-test was conducted. Equality of variances was not assumed based on Levene's test $F(1, 239) = 7.384$, $p = .01$. The results indicate that students who received free/reduced lunch but did not receive mental health services (M = 424.1, SD = 8.24, N=222) scored significantly higher on the ELA exam than those who received services (M = 419.9, SD = 5.55, N=19)), [$t(25.4) = 3.037$, $p = .005$]. Table 11 presents a summary of the results.

Table 11

Math Scores for Free/Reduced Lunch Students Not Receiving/Receiving Mental Health Services

		Levene's Test for Equality of Variances		t-test for Equality of Means					
		F	Sig.	t	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference
									Lower Upper
Math Scores (Free/Reduced Lunch)	Equal variances assumed			3.037	25.368	.005	4.21337	1.38748	1.35789 7.06885

In order to compare the ACT Aspire Math scores between 9th-grade Paid Lunch students who received mental health services with those who did not, an independent t-test was conducted. The results indicate that students who did not receive free/reduced lunch and also did not receive mental health services (M = 422.1, SD = 6.61, N=42) did not score significantly higher on the Math exam than those who received services (M = 421.0, SD = 7.94, N=4)), [$t(44) = .312$, $p = .757$]. Table 12 presents a summary of the results.

Table 12

Math Scores for Paid Students Not Receiving/Receiving Mental Health Services

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Math Scores (Paid)	Equal variances assumed	.254	.616	.312	44	.757	1.07143	3.43563	-5.85264	7.99550

Research question 2 summary. There were three hypotheses that were tested with the data for the second research question. $H_0$2 stated: *There is no significant difference in ACT Aspire scores between students who received mental health services and those who did not, considering the factor of gender.* However, there was a significant difference in the ELA scores of males and females who were receiving services and those who were not receiving services so $H_0$2 was rejected and the alternative hypothesis was assumed to be true.

$H_0$3 stated: *There is no significant difference in ACT Aspire scores between students who received mental health services and those who did not, considering ethnicity.* The data analysis found a statistically significant difference in the ELA and Math scores of Caucasian students so $H_0$3 was rejected and the alternative hypothesis was assumed to be true.

Hypothesis 4 stated: *There is no significant difference in ACT Aspire scores between students who received mental health services and those who did not, considering socio-economic status.* There was a statistically significant difference in the ELA and Math scores of students who were designated as "free/reduced lunch" so $H_0$4 was rejected, and the alternative hypothesis was assumed to be true.

Chapter Summary

This chapter presented the findings of the quantitative study. The researcher gathered data to present in response to the two research questions and the four hypotheses outlined in the study to determine if there was a significant statistical difference on ACT Aspire Math and ELA exam scores between students who received/did not receive mental health services. The data was collected from three schools in two different regions in the state and then analyzed using an independent t-test to determine the statistical significance. Research question one stated: *Is there a significant difference in ACT Aspire scores between students who received mental health services and those who did not?* The results suggest that there is a significant difference between the students in the sample who received services and did not receive services. Research question two stated: *Is there a significant difference in ACT Aspire scores between students who received mental health services and those who did not, based on gender, ethnicity, or socio-economic status?* Further analysis revealed a statistically significant difference existed between the ELA scores of students who received mental health services compared with those who did not regardless of gender or ethnicity, and for those who were in the lower socioeconomic status category. In each case, students who received mental health services scored lower than those who did not receive services. The exception involved

higher socioeconomic status students who received mental health services. They scored higher that those who did not, but not significantly higher. There were only four students in the category who received services.

A further analysis of the math scores revealed that no significant difference existed with male nor female students who received services and those who did not, or with students in the higher socioeconomic category. However, there was a significant difference when Caucasian student data and lower socioeconomic student data were analyzed. In all cases, mean scores of students who received mental health services were lower than those of students who did not receive services.

Data was collected for African-American, Hispanic, and Asian students, but only one African-American student was receiving services and no Hispanic or Asian students were receiving services. The only analysis that revealed no statistically significant difference in either the ELA or Math scores were those of students who were designated as “paid lunch” students.

Chapter V: Conclusion

The purpose of this study was to determine if high school freshmen students who received mental health services in Arkansas public schools scored significantly differently on the ACT Aspire Math and English exams than students who did not receive those services. The reason for this study was to determine if students who experienced a higher level of mental health score at a significantly higher level on the ACT Aspire Math and English exams than students who have a lower level of mental health. The researcher wanted to examine the relationship between mental health level and ACT Aspire scores for freshmen students in three Arkansas public schools, interpret the data, and use the data to inform educational leaders around the state and the nation about the importance of mental health support for all students. This chapter provides a summary of the research findings, implications for practice, and recommendations for future research. The following questions guided this study:

1. Is there a significant difference in ACT Aspire scores between students who received mental health services and those who did not?
2. Is there a significant difference in ACT Aspire scores between students who received mental health services and those who did not based on gender, ethnicity, or socio-economic status?

Summary of Findings

The intent of this study was to determine if high school freshmen students who received mental health services in school scored significantly differently on the ACT Aspire Math and English exams than students who did not receive those services. The first research question asked if there was a significant difference in ACT Aspire scores

between students who received mental health services and those who did not. The researcher found by analyzing the data, that there was a significant difference between the Math scores of students who received mental health services compared with those who did not receive services. The same was true for the ELA scores.

The second research question asked if there was a significant difference in ACT Aspire scores between students who received mental health services and those who did not based on gender, ethnicity, or socio-economic status. The researcher found that no statistically significant difference existed between the Math scores of male students who received mental health services and those who did not. Likewise, no statistically significant difference between the Math scores of female students who received mental health services and those who did not. No statistically significant difference existed between the ELA scores of male students who received mental health services and those who did not nor between the ELA scores of female students who received mental health services and those who did not.

However, a statistically significant difference did exist between both the ELA and Math scores of Caucasian students who received mental health services and those who did not and between both the ELA and Math scores of free/reduced lunch students who received mental health services and those who did not. The researcher also found that the relationship between the ELA and Math scores of paid lunch students who received mental health services and those who did not was not statistically significant.

Discussion

There are implications that mental health has an impact on student achievement. The results of the study suggest that students who struggle with some type of mental

health issue and are receiving services score at a much lower level on the ACT Aspire ELA and Math Exams than students who are not receiving services. As discussed in chapter two of this study, adolescent's emotional well-being is a strong predictor of educational achievement (Sznitman et al., 2011).

In this study it was found that there was no statistically significant difference between the males who received/did not receive services on ACT Aspire Math scores, nor was there a statistically significant difference between females who received/did not receive services on ACT Aspire Math scores. However, there was a statistically significant difference between males who received/did not receive services on ACT Aspire ELA scores. There was also a statistically significant difference between females who received/did not receive services on ACT Aspire ELA scores.

Socio-economic status also may be a primary factor in student achievement levels. The data analyzed in this study shows that students who are designated as "free/reduced lunch" students score significantly lower on the ACT Aspire ELA and Math Exams than students who were designated as "paid lunch". Research indicates that family income level is a critical contributor to student achievement through high school (Henderson & Berla, 1994). Parents with greater financial resources can choose to live in more affluent neighborhoods where good schools are more likely to be found (Egalite, 2016). Studies also indicate that students with an average or higher than average socioeconomic status exhibit a better quality of performance than the students with a low level of socioeconomic status (Farooq et al., 2011). The data from this research shows that students who are from a higher level of socioeconomic status will perform with no statistically significant difference in ACT Aspire ELA and Math exam scores regardless

of whether or not they receive mental health services. This study reinforces what has been found in other studies and indicates that students from a higher socioeconomic status perform academically at a higher level than students from a lower socioeconomic status.

Overall Sample of Students Receiving Mental Health Services

In this study, when the data was calculated for the entire group, the sample group of students showed a statistically significant difference in ELA and Math scores between those students who did receive mental health services and those who did not receive mental health services. The sample included male and female students, Caucasian and minority students, as well as students who were below the average on the socio-economic scale and those who were above average on the socio-economic scale. The study suggests that mental health levels may be an indicator of student academic achievement. This suggestion was also found throughout portions of the literature review (Sznitman et al., 2011). Students who did not receive mental health services are assumed to have a higher level of mental health and those students performed better on the ACT Aspire Math and ELA exams than the students who were receiving services.

Socio-Economic Level and Academic Performance

This study found that students classified as “free/reduced lunch” who were receiving services scored lower on the ACT Aspire ELA and Math Exams than students who were classified as “free/reduced lunch” students and were not receiving services. However, students classified as “paid lunch” that were receiving services showed no statistically significant differences in ELA or Math scores than those students classified as “paid lunch” that were not receiving services. This data suggests that socio-economic

status may be more of a factor in a student's achievement level than the student's mental health level.

Gender and Academic Performance

When the ACT Aspire scores for Math were analyzed, there was no statistically significant difference between the scores of Males who were receiving/not receiving services. There was also no statistically significant difference between the Math scores of Females who were receiving/not receiving services. However, there was a significant difference in the ELA scores of both Males and Females who were receiving services when compared with students of the same gender who were not receiving services. This could indicate that students who struggle emotionally and may not be able to properly express their emotions or communicate well with others, may also struggle with communication and language generally speaking. Being unable to put your thoughts into words may have an impact on a student's mental health but may also impact their ability to perform on an exam that measures English Language Arts.

Implications for Practice

There are several areas where practices could be improved based on the findings of the data in this study. Arkansas might improve its academic achievement levels by implementing statewide programs that provide resources and support for students who struggle with mental health issues. School administrators could develop building-wide mental health programs and supports in partnership with their local mental health providers to take a pre-emptive and pro-active approach in addressing the mental health needs of their students thereby positively impacting the academic achievement levels of the students in their school. School Boards may want to begin reviewing the processes

and procedures that are utilized in their districts to identify students in their districts who may struggle with mental health issues and work together with school administrators to develop programs and resources to address the growing need for mental health support of the students in their districts.

The State of Arkansas

The findings from this study support the idea that mental health level has a significant impact on student achievement. These findings could have an impact on education in our State. The implications from this study could motivate educational leaders in Arkansas to develop programs for treatment and prevention of mental health issues to improve student academic achievement and to work closely with mental health providers who are already working in the schools to make sure the mental health needs of the students in our state are being met. This study indicates the need for a program with a broad scope that can be implemented by State Agencies to effect broad change in the statewide achievement levels of our students and potentially raise those levels in poor performing districts. Programs of that scope and scale require lots of planning and dollars to properly plan, build, and implement. The Bureau of Legislative Research could review mental health programs that are implemented in schools statewide in other states across the country to provide an idea of the expense and effort it would take to design such a program.

K-12 Administrators

The goal for all educators should be to address the needs of the whole child. District and Building Leaders should take a pro-active approach in identifying the mental health needs of students and providing the help, support, and resources that are needed to

improve the student's mental health levels. Students who score at a below average level on Aspire Assessments may also be struggling with mental health issues. Finding the individual students who may benefit from mental health supports could improve the overall academic success level of the school. Implementing a school/district wide mental health support program might also improve the mental health levels of the students in the building and increase the academic achievement levels as well.

School Boards

School boards have several priorities. They are to hire a Superintendent as needed to lead the day-to-day operations of the school. They are to oversee the district finances by approving the annual budget, approving large expenditures, and reviewing the district finances regularly. They are also to set policy as needed and ensure that the school is providing the proper support and resources to its staff and students to maximize academic achievement. One way that a school board could move the achievement needle is to make sure that the mental health needs of their students are being met. Conversations between Superintendents and School Boards about mental health programs and processes in the district are rare. School boards may find it beneficial to take a more active role in addressing the mental health needs of the students in their district. This may include attending trainings related to mental health support for students, reviewing potential programs for implementation in their district, and finding ways to address the mental health needs of their faculty and staff.

Implications for Future Research

The data collected in this study revealed some important findings, 1) a higher level of mental health results in a higher level of student academic achievement, 2) socio-

economic status may play a more important part in the academic success of students than mental health level, and 3) the gender of students only impacted the academic achievement level of students on ELA exam. There are however, additional findings that need to be made in the area of mental health and student achievement. This section will outline some opportunities for additional research that may be valuable in the future.

Replicate the Study

School districts with similar demographics as the schools utilized in this study could benefit from conducting this same study in their schools. It may be a great tool for them to determine if they should more deeply address the topic of mental health in their schools. If there is a significant relationship between mental health and student achievement in your school, it would be beneficial for schools to develop their own programs to improve mental health and student achievement.

Broaden the Scope

This study only covered a small portion of students in our state. Future studies could be done that covered a larger group of students from the non-white demographic represented in the study in our state or study more demographic groups than this particular study. For example, it could be beneficial for a statewide study by the Arkansas Division of Elementary and Secondary Education that followed the design of this study but included all students in the state, 3rd through 10th grade. Another potential study could include English Second Language students, Alternative Educational Environment students, etc. as well as a larger sample size of the demographic groups included in this study (gender, ethnicity, and socio-economic level). If I were to perform this study again,

I would attempt to include a larger sample size, include schools from every region and every classification (school size) in the state, and also multiple grade levels

Chapter Summary

This chapter outlines the conclusions drawn from the data put forth in chapter four. The findings show that students who receive mental health services perform at a lower level on ACT Aspire ELA and Math Exams than students who do not receive mental health services. Students of a lower socioeconomic status who were receiving services performed at a lower level on the ACT Aspire ELA and Math Exams than students from a lower socioeconomic status that were not receiving services. Students who were from the higher end of the socioeconomic spectrum did not show any statistically significant differences in test scores based on services received/not received. Male and Female students did not perform at a statistically significant level on ACT Aspire Math Exams when examined through the lens of mental health services received/not received. However, both genders did perform at a lower level on ACT Aspire Exams when examined through the lens of mental health services received/not received.

Mental health level may have an impact on student achievement levels. However, the data in this study shows that it may not have as large an impact as socioeconomic level. While gender does have some impact on student achievement, in this study it had a greater impact on ELA scores.

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APPENDIX: A

To: School Superintendent

The purpose of this letter is to seek permission regarding data collection for my dissertation involving a study of the potential relationship between mental health and student achievement in high school freshmen in Arkansas. My hope is that you will allow me to collect the following pieces of information for each student who took the ACT Aspire as freshmen in your school in the Spring of 2019.

- Gender
- Ethnicity
- Lunch Status (Free/Reduced/Paid)
- 2019 ACT Aspire Score for Math and 2019 ACT Aspire Score for ELA
- Receiving Mental Health Services (y/n)

Rest assured that no identifiable information will be collected. Upon your approval, I will submit an excel document with your 9th grade counselor. I am attaching a copy of that excel document for you to review. The counselor will input the information into the excel document and then return it to me. I look forward to hearing from you soon.

Luke Lovins

Superintendent

Bay School District

APPENDIX: B

To: School Counselor

The purpose of this letter is to collect data for my dissertation involving a study of the potential relationship between mental health and student achievement in high school freshmen in Arkansas. Your Superintendent has provided approval for me to collect the following pieces of information for each student who took the ACT Aspire as freshmen in your school in the Spring of 2019.

- Gender
- Ethnicity
- Lunch Status (Free/Reduced/Paid)
- 2019 ACT Aspire Score for Math and 2019 ACT Aspire Score for ELA
- Receiving Mental Health Services (y/n)

Rest assured that no identifiable information will be collected. I am attaching a copy of an excel document for you to compile the information. Input the student names into the first column and share it with your local counseling partner. Have them check yes or no regarding services received. Once it is returned to you, please input the additional information requested. When the document has been completed, delete the student names so that no identifiable information is included and return it to me as an email attachment. I look forward to hearing from you soon.

Luke Lovins

Superintendent
Bay School District

APPENDIX: C

Student	Gender (M/F)	Ethnicity	Free/Reduced or No	ACT Aspire ELA Score	ACT Aspire Math Score	Receiving Mental Health Services (Y/N)
1						
2						
3						
4						
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