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The Impact of Standardized Testing on the Mental Health of Teachers, Parents, and Students

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THE IMPACT OF STANDARDIZED TESTING ON THE MENTAL HEALTH OF TEACHERS, PARENTS, AND STUDENTS

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Abstract

Standardized testing has a negative impact on the mental well-being of teachers, families, and students. The anxiety around standardized testing impacts the teachers as they feel responsible for student performance, leading to a decline in mental health. Due to this anxiety, teachers are using tactics like fear appeals and conditional support to control student success. Families feel the threat of these consequences as low student performance impacts the social stigma of the school's neighborhood. Families exert pressure on students by trying to control the student's thoughts and environment, believing it will lead to academic success. When students perform under pressure, their standardized test scores may not be an accurate representation of their knowledge and their mental health has been damaged. Teachers, families, and students can try various strategies, like deep breathing and setting mastery goals, to improve the cycle of anxiety.

Table of Contents

CHAPTER I: INTRODUCTION

Standardized Testing Definition

High-stakes standardized testing has an impact on public school education and the individuals involved in the education system. Standardized testing is an accountability measure as "all students answer the same questions under the same conditions and are scored in the same manner" (Cankoy & Tut, 2005, p. 1). The adoption of high-stakes standardized testing is a response to Common Core legislation and is used as a way to measure educational learning (Wood et al., 2016). Standardized testing holds teachers, family members, and students accountable for the academic success of the students.

In this age of standardized testing, there are rewards and consequences in place as part of the accountability measures. The consequences for low performance on standardized tests have a direct impact on teachers, family members, and the students themselves (Assaf, 2006). Under the No Child Left Behind Act, passed by President George Bush in 2002, schools were "required to satisfy a series of academic performance targets in order to achieve Adequate Yearly Progress" (Bogin & Nguyen-Hoang, 2014, p. 1). If a school does not meet the necessary academic performance targets, the schools are deemed as "needing improvement" (Bogin & Nguyen-Hoang, 2014). These ratings are publicly announced at the end of the school year, with schools receiving criticism for low performance (Mitani, 2018). Research has also shown that property values decrease when a local school does not meet their academic performance targets (Bogin & Nguyen-Hoang, 2014). These consequences directly impact the teachers, families, and students who are a part of the public school system.

When faced with standardized tests, teachers may feel stress due to the academic performance targets, and communities may feel defeated by property values, which impacts the

students taking the exams, and beginning a vicious cycle. There are many factors that influence a student's performance on standardized tests. Morosanova et al. (2020) explain that "examination performance is highly influenced by the motivation to achieve, goal setting, self-esteem, level of aspiration, self-efficacy, self-confidence, engagement, and self-concept" (p. 2). When students are lacking in these traits, they perform poorly on standardized tests, and then teachers and families feel the impact of the low performance due to the accountability measures. When teachers and families feel this pressure, they exert more pressure on their students to perform well, which further decreases these traits that are crucial for positive exam performance.

Test Anxiety

For decades, organizations like the World Health Organization have advocated for mental health screeners to be used in schools to identify students who may need mental and wellness support. The American Pediatrics Association also advocates for routine screenings to be done as early as elementary school (Guzman et al., 2011). In their study, Guzman et al. (2011), took an in-depth look at these screenings to see if there is a correlation to low academic performance on standardized tests. Guzman et al. (2011) looked at mental health screeners students took in first grade during 2002 and examined those scores with their fourth-grade achievement test scores in 2005. The students who participated in the study were a part of the Skills for Life Program, which focused on social-emotional skills after having been identified as needing mental wellness support (Guzman et al., 2011, p. 3). The researchers found that the "results from this study demonstrate that being identified with a mental health problem in the first grade on a broadband teacher, parent or combined screen predicted significantly poorer performance 3 years later on routinely given standardized achievement tests" (Guzman et al., 2011, p. 8).

Furthermore, Borelli et al. (2015) researched the impact of parental overcontrol on the anxiety of families and students. The researchers note that "anxiety disorders are the most common form of psychiatric illness among school-aged children" (Borelli et al., 2015, p. 1). The prevalence of anxiety disorders in elementary students is why organizations like the World Health Organization and the American Pediatrics Association believe anxious students need to be identified early in order to receive the necessary support. Borelli et al. (2015) also found "children with anxious parents are two times more likely to develop an anxiety disorder than children with healthy parents" (p. 2). Test anxiety does not simply impact the student but also impacts adults directly involved in the accountability measures of the tests, namely teachers and parents.

Test anxiety has many different components that overall impact the mental health of teachers, families, and students. Boehme et al. (2017) describe how test anxiety is psychological, physical, or behavioral reactions to worry cognitions related to potential failure in achievement situations. This multidimensional construct of test anxiety means teachers, families, and students may experience test anxiety in different ways as they may experience one dimension of anxiety or multiple. Ringeisen and Raufelder (2015) describe these constructs in more detail. The psychological component of test anxiety involves feeling worried about performance and consequences for poor performance exams. The physical component of test anxiety may include feeling physically ill from the pressure of the exam and may also include an increased heart rate. Finally, the behavioral component to test anxiety includes distracting behaviors that are considered off-task given the exam (Ringeisen & Raufelder, 2015, p. 1). It is important to note that behavioral reactions to test anxiety can also increase the abundance of task-relevant behavior as the student is hyper-focused on the exam in an effort to perform well (Segool et al., 2013). All

three of these components of test anxiety, the psychological, physical, and behavioral, lead to an increased sense of worry or doubt within the impacted individual, impacting their cognitive function. Test anxiety may be felt before an exam, during the exam, or after the exam depending on which dimension of test anxiety the impacted person is feeling.

Students may feel the different components of test anxiety but will not report feelings of anxiety unless it manifests into a physical symptom. Skybo and Buck (2007) researched the impact stress and coping strategies have on test-taking students. In their study, the researchers found that "children are unlikely to report emotional symptoms such as sad or afraid until they manifest into a physical symptom such as a stomachache" (Skybo & Buck, 2007, p. 7). Teachers and family members need to be aware of how test anxiety manifests itself not only within students but also within themselves. The mental screeners proposed by the World Health Organization and the American Pediatrics Association, for example, could help impacted individuals, specifically elementary students, recognize their feelings of anxiety before it manifests into a physical symptom.

Segool et al. (2013) researched these three components of test anxiety in children in upper elementary school and found that teachers and students alike felt more pressure when faced with a standardized test than with a classroom exam, illustrating that standardized tests have an impact on teachers, families, and students more than a typical classroom exam a teacher may give at an end of a unit, for example.

Impact of Standardized Tests on Mental Health

The impact of standardized testing is far-reaching as it not only impacts the test-taker, but also the adults who depend on a positive performance. This paper will examine the impact standardized testing has on the mental health of teachers, parents, and students in grades three

through five, explaining the cycle of anxiety that persists when a student does not perform well on a standardized exam. Each group, teachers, family members, and students will be analyzed to see what impact, if any, the accountability measures with standardized exams have on the well-being of their mental health. Specifically, the consequences of low performance on standardized exams will be discussed rather than the rewards offered for meeting academic performance goals.

When analyzing the mental health of teachers and family members, the response mechanism to stress will be discussed. With students, however, not only will the response mechanism be discussed, but how teachers and families perpetuate the cycle of anxiety by their response mechanisms impacting the students. Suggestions will also be offered to students, as they are faced with the immediate threat of taking the exam, which will help calm the anxieties they may be facing.

Furthermore, we will also look at the positive performance that can result from having some test anxiety. The impact of test anxiety can lead to a negative or positive performance on an exam, but will still have a negative impact on the mental health of students, regardless of exam performance.

Guiding Question

Standardized test-taking has taken a hold of public school systems and has a large impact on those involved within the educational system. Standardized tests are used as an accountability measure for teachers, family members, and students. These accountability measures are dependent on academic performance, leading to anxiety amongst teachers, family members, and students. Text anxiety is multidimensional and therefore may not be felt the same way amongst the impacted individuals. This paper will examine the impact standardized testing has on the

mental health of teachers, parents, and students while offering suggestions to students for recognizing and dealing with their anxiety.

CHAPTER II: LITERATURE REVIEW

Research Process

When researching for various articles, EBSCO MegaFile, Education Journals, and Academic Search Premier were used. The search focused on research that was published between 2002 and 2021 because standardized testing was implemented in the public school education system with the passing of Common Core legislation by President George Bush in 2002 (Bogin & Nguyen-Hoang, 2014, p. 1). Keywords used when searching were "test anxiety," "anxiety," "standardized testing," "standardized testing and anxiety," "standardized testing and stress," "teacher and stress," "teacher and test anxiety," "teacher and standardized testing," "communities and stress," "communities and test anxiety," "communities and standardized testing," "elementary students and test anxiety," "elementary students and stress," "elementary and standardized testing." This chapter will review the literature found on the impact of standardized testing on the mental health of teachers, family members, and students, including coping strategies for students when faced with a standardized exam.

Teacher Response

Teachers are faced with educating their students while dealing with stressors, like standardized testing. Segool et al. (2013) analyzed student responses to high-stakes testing. The researchers had 335 students in grades three through five complete two assessments about their levels of anxiety after a national standardized test and a typical classroom exam. Grades three through five were chosen for this study as mandated standardized testing begins in third grade in the United States. The majority of the children were White, followed by Latino and Black, and all lived in a Midwestern state. Students measured their levels of anxiety using the *Children's Test Anxiety Scale* and the *Behavior Assessment Scale for Children, Second Edition*. With both

of these scales, children self-report their levels of anxiety. The two scales were administered two weeks after students took state-mandated standardized tests. One month later, the scales were readministered two weeks after students took a classroom exam. The researchers found that "students reported significantly more test anxiety in relation to the high-stakes NCLB assessment than to classroom tests" (Segool et al., 2013, p. 7). The researchers also analyzed teacher anxiety given standardized testing and classroom testing by asking questions related to their beliefs on student performance using a 4 point Likert scale. The researchers found that teachers were more concerned and unsure of student performance on standardized exams than on classroom exams. (Segool et al., 2013). Teachers know what is on the unit exams they create, but will not know the exact information on standardized tests, leading to an increase in stress and anxiety.

Why do teachers feel this level of stress when faced with standardized tests, besides not knowing the exact information on the exam? With the passing of Common Core legislation, schools need to make Adequate Yearly Progress or be deemed as "needing improvement" (Bogin & Nguyen-Hoang, 2014, p. 1). These accountability measures place stress on the teachers as the consequences for not achieving academic performance goals are burdensome. Holloway and Brass (2018) compare teachers' perspectives of standardized testing over time by analyzing a study that conducted interviews with teachers about their perspectives after the passage of No Child Left Behind in 2001 with another study that analyzed teacher perspectives after the passage of Race to the Top during the Obama administration. The researchers found that when standardized testing was being introduced in the public school system, teachers found it to be "intrusions on their autonomy, professionalism, and practice" (Holloway & Brass, 2018, p. 1). Over time, teachers began to accept these accountability measures as measurements of their skill and how they knew themselves as educators, illustrating a broken system between teachers and

accountability measures where teachers are measuring their worth with standardized test performance of students (Holloway & Brass, 2018). In a study conducted by Bausell and Glazier (2018), the researchers analyzed transcripts from quarterly teacher discussion groups over the course of six years, from 2009 to 2015. The discussion groups were created with the aim of supporting recent graduates in their first to fifth years of service. The discussions were four hours long and included teachers PreK-12 grade, though the researchers only analyzed the discussions of the 51 elementary teachers. The teachers graduated from the same university, but the location of employment varied greatly from rural to urban elementary schools. At the beginning of the discussion groups, the elementary teachers discussed best practices while spending time analyzing the best ways to meet student needs. (Bausell & Glazier, 2018). Unfortunately, as standardized testing began to become more a part of the public school system, the educators' discussions shifted from being focused on student needs to instead focus on accountability measures used to measure teacher effectiveness through Standard 6 (Bausell & Glazier, 2018). Standard 6 is one example of an accountability measure a state is using to judge teacher performance. Teachers are judging their skill and craft on student performance on standardized tests, lending itself to a stressful work environment.

One way the stress teachers are feeling manifests itself in the classroom is by teachers underestimating and overestimating students. Urhahne et al. (2011) analyzed how teachers view students in their classrooms. In this study, the participants included 14 female elementary teachers who teach mathematics to 235 elementary students in Germany. In fourth grade in Germany, students take a standardized exam that covers the material taught in mathematics over the course of fourth grade. Teachers were asked questions about their beliefs around student performance and test anxiety perceived to be felt by the students during the exam. After the

standardized exam, the students completed the *Ulm Motivational Test Battery* that measured their test anxiety and academic self-concept. The researchers found that more often than not, teachers underestimate student performance rather than overestimate even though the test performance is the same for the underestimated and overestimated student groups (Urhahne et al., 2011). Zhou and Urhahne (2013) further researched the impact of teacher judgment on student academic self-concept by analyzing the mathematical beliefs of 144 German and 272 Chinese fourth graders. Zhou and Urhahne (2013) also asked the mathematical teachers to rate their beliefs on student performance and academic self-concept. A year later, students were again asked about their mathematical beliefs. Zhou and Urhahne (2013) found teacher judgments have a direct and lasting impact on student performance and their academic self-concept, correlating with the earlier study completed by Urhahne et al (2011). Furthermore, Urhahne et al. (2011) also found that teachers have a difficult time analyzing student personality traits. This finding agrees with the research from Holloway and Brass (2018) and Bausell and Glazier (2018) that teachers have moved away from being able to recognize and acknowledge the whole student past their perceived academic abilities. Teachers may underestimate or overestimate students due to race, gender, or socio-economic class. In a study completed by Wasserberg (2017), African American students were interviewed to analyze their feelings around high-stakes testing. The study is rooted in stereotype threat, which "refers to a situation in which a member of a group fears that his or her performance will be judged according to an existing negative performance stereotype" (Wasserberg, 2017, p. 3). The participants in the study were attending an urban elementary school in Florida. Ninety percent of the students qualified for free and reduced lunch. The participants were four high-achieving fourth-grade students. The school where the study was conducted has never made Adequate Yearly Progress and has adopted a test preparation

curriculum in response. The focus group with the four students was conducted at six points throughout the school year. The interviewer was a white male who was a school community member. The focus groups occurred in the classroom while the other students were away from the classroom. The focus groups were recorded, and the researcher went through the transcripts of the recorded discussions and coded passages that referenced stereotypes and test performance. Wasserberg (2017) found that African American students feel they are being perceived as academically inferior and must prove to others, specifically teachers, that they are academically capable of success. Teachers underestimate or overestimate their students' abilities due to race, gender, or socio-economic class because teachers feel pressure for positive performance goals, not taking the time to know and understand the whole student and their needs.

Another tactic a teacher feeling stress from standardized testing might use is fear appeals. Putwain and Best (2011) analyzed the use of fear appeals in a primary classroom in the United Kingdom. In this study on the use of fear appeals, upper elementary students in years three through six took a mathematics exam at the end of a low threat and a high threat week. The researchers selected ten students from each year who were average in ability to analyze. A low threat week is when the students were only reminded once during the lesson that there would be an exam at the end of the week. During a high threat week, the students were reminded three times during the lesson that there would be an exam at the end of the week, and the teachers would use a script such as “hard work was required to avoid failure” (Putwain & Best, 2011, p. 2). At the end of the high threat week, the students reported more test anxiety than during the low threat week but did not perform lower on the exams. The controlling statements used by teachers lowered student engagement and as a result, the students feel disinterested in the task at hand (Putwain & Best, 2011). No measure of anxiety was given to the students before the study, and

the students self-reported their anxious feelings using the *Children's Test Anxiety Questionnaire*. When teachers feel pressure in the classroom, they feel the need to use controlling statements to increase the motivation of students, when it really lowers the mental health of the students.

In addition to fear appeals, teachers under pressure may offer conditional support to students. Hascoet et al. (2018) researched the impact of conditional support on 524 elementary students, aged nine to ten years old. Hascoet et al. (2018) describe conditional support as when students "only feel loved and encouraged for their ability to meet others' standards" (p. 3). On the other hand, students who receive unconditional support feel encouraged and supported regardless of any mistakes or errors they may make. Teachers display attitudes of conditional support when they say "You will make me proud if you do well on the exam." In other words, teachers are deciding the value of their relationship with the student based on the student's performance on an exam. Hascoet et al. (2018) explain that these statements of conditional support lead students to believe that mistakes will be reprimanded, so the students push themselves to not make any mistakes so as not to disappoint the teacher. Teachers may believe that conditional statements of support will motivate students to work hard on their exams when in reality it ends up damaging the mental health of the student.

Another tactic teachers may use in the classroom when faced with the consequences of poor performance on standardized tests is teaching learning algorithms instead of engaging the students in authentic learning. In a study done by Cankoy and Tut (2005), mathematical performance test results were analyzed of 1,006 fourth grade students from teachers who focused on algorithms with teachers who used a constructivist approach when learning mathematical concepts. Cankoy and Tut (2005) found that when the students were given real-world story problems on a standardized exam, students who were taught algorithms were not able to apply

the algorithms to the problems. In this study, Cankoy and Tut (2005) randomly selected 28 schools in North Cyprus. In the selected schools, preservice elementary teachers were trained to perform observations in the fourth-grade classrooms to determine the percentage of time spent on learning test-taking strategies. The preservice teachers coded every 1 minute over the course of a 40 minute period for a total of six hours to determine how instructional time was being spent. The researchers created a standardized multiple-choice mathematics exam to give to the fourth graders. The exam included a variety of problems from routine and nonroutine number problems, routine and non-routine operations, and routine and nonroutine story problems. The test was analyzed by thirteen teachers and five officials from the Ministry of Education for accuracy. The students were given one hour to complete the exam. The results of the mathematics exam were compared with teachers who spent more time teaching test strategies with teachers who took more time teaching mathematics in abstract ways. Cankoy and Tut (2005) found that spending more time on test-taking strategies did not improve student success on nonroutine story problems as students were unsure of how to apply the test-taking skills they learned to a real-world story problem. Furthermore, in a study done by Assaf (2006), the researcher was originally going to analyze how a reading teacher used authentic methods, like book discussion groups, to increase the reading ability of her students. Assaf (2006) found, however, that even though teachers understood the limitations of teaching to the test, educators still found it necessary to spend time teaching explicit strategies for the exams. Solely teaching algorithms and explicit test-taking strategies do not engage the learner in authentic learning and do not lend themselves to success when faced with real-world problems. Teachers know the limitations of teaching to the test, but still, find these explicit test-taking strategies necessary for students to succeed on high-stakes exams. Many educators feel they have no choice but to teach

routine thinking skills in order to avoid negative consequences that come with poor performance on standardized exams.

Using the tactics described above like fear appeals, conditional support, and teaching explicit strategies will ultimately lead to teacher burnout. It is estimated that upwards of fifty percent of teachers leave the profession within the first five years due to stress (Stauffer & Mason, 2013). Stauffer and Mason (2013) researched why teachers leave the profession by conducting interviews with 64 teachers on the topic of stress. 64 teachers from six different schools in a major metropolitan area were included in the study. 36 of the teachers were from high-priority schools where there was a high population of students in poverty and a high population of English speakers of other languages. 28 teachers were from non-high-priority schools. During this study, the teacher participants were asked to write a paragraph detailing the stressors they feel as a teacher. The data analysts worked together to code the themes within the responses. The researchers found out of the 64 teachers interviewed, ninety-one percent of the teachers attributed stress to political and educational structures (Stauffer & Mason, 2013, p. 8). More specifically, a teacher in an interview explained that "there is a feeling that teaching the students to take the test well is all important" (Stauffer & Mason, 2013, p. 10). Furthermore, Szigeti et al. (2017) described why teachers may feel burnout and depressive symptoms. In this study, Szigeti et al. (2017) used the *Maslach Burnout Inventory-Education Survey*, which the researchers translated into Hungarian, to measure teacher burnout. The questionnaire had 22 items that consisted of emotional exhaustion, depersonalization, and personal accomplishment, with each item having a seven-point response scale. 211 teachers in Budapest completed the survey using paper and pencil. The study does not explain how the teachers became aware of the study and why they opted to participate in the study. Szigeti et al. (2017) explain how "burnout is

a psychological response to chronic, work-related stress, characterized by emotional exhaustion, depersonalization, and feeling of low personal accomplishment" (Szigeti et al., 2017, p. 1). Stauffer and Mason (2013) and Szigeti et al. (2017) explain how teachers, feeling pressure from the consequences of standardized tests, are more likely to experience stress, which leads to burnout, depressive symptoms, and potentially even leaving the profession.

Community Response

Not only do teachers feel pressure from standardized testing, but communities and families feel the pressure of standardized testing as well. This anxiety felt by communities transfers to the students in the community. Emory et al. (2008) analyzed the impact of neighborhood social processes on academic achievement in elementary schools over the course of two years. Emory et al. (2008) used data from The Hispanic Paradox Project and the Houston Independent School District. The Hispanic Paradox Project is funded by the Texas Department of Health and collects data on neighborhood social processes through interviews. The researchers focused on seven urban neighborhoods in the Houston area, where interviews were conducted with 1,235 community members. The researchers used the academic achievement data provided by Houston Independent School District for 1,830 third graders. The researchers found that in neighborhoods where there are high expectations for academic achievement, there was a higher achievement rate in mathematics and reading (Emory et al., 2008). On the other hand, "neighborhoods with high levels of fear of retaliation had lower reading pass rates" (Emory et al., 2008, p. 8). Communities know the importance of standardized testing in today's educational system while also feeling the negative impact standardized testing has on the mental health of students and families. This inverse relationship explains the power neighborhood communities have in the academic achievement of their students.

With the passing of Common Core legislation, schools must make Adequate Yearly Process, or be deemed as "needing improvement" (Bogin & Nguyen-Hoang, 2014, p. 1). This information is then made public and has a direct impact on communities and families through property values. Bogin and Nguyen-Hoang (2014) analyzed the decrease in property values when a local school does not achieve their academic performance targets. For this study, Bogin and Nguyen-Hoang (2014) used data from Charlotte-Mecklenburg Schools in North Carolina and adopted "a highly parameterized hedonic model with a series of neighborhood-by-calendar year fixed effects, and a battery of housing structural features, key test score measures, attributes of student body in schools, and tax rates" (p. 16). Bogin and Nguyen-Hoang's (2014) findings suggest that properties decrease by six percent when a school does not make Adequate Yearly Progress. This decrease, however, is not necessarily due to the poor test scores on standardized exams, but the social stigma that surrounds a school that is deemed as "needing improvement" (Bogin and Nguyen-Hoang, 2014). Schools deemed as "needing improvement" directly impact the communities due to the social stigma surrounding schools who do not meet academic performance targets.

Familial Response

Families are smaller versions of the community that surrounds itself. The values of the community have a direct impact on the value of the families. Boehme et al. (2017) examine the impact of familial values on math with a student's test anxiety. This study consisted of 356 German mothers and their fifth-grade children. In German schools, students experience four years of elementary school, and then five to nine years of secondary school, depending on academic achievement. The students completed two questionnaires at school, during the first and seventh week of fifth grade. The questionnaires included items from *Marsh's Self-Description*

Questionnaire to measure academic self-concept in mathematics, the *Test Anxiety Inventory*, and interest in mathematics using a Likert scale. The students also took home a questionnaire for parents to complete. The parent questionnaire asked the parents to rate their family's interest in mathematics using the scale developed in the Project for the Analysis of Learning and Achievement in Mathematics. In families that highly value math, test anxiety on math standardized tests increased and "was associated with students' lower control cognitions (academic self-concept) and higher value cognitions (interest in math)" (Boehme et al., 2017, p. 5). This anxiety was only partly mediated by a student's sense of self-concept and interest (Boehme et al., 2017). Boehme et al. (2017) conclude that students with families who place a high value on math will have an increase in test anxiety. This finding correlates with the research conducted by Emory et al. (2008) that students who live in neighborhoods with high expectations for academic achievement experience higher success rates in mathematics and reading. The family is a smaller version of the larger community and its values directly impact the students.

Furthermore, Peleg-Popko and Klingman (2002) researched the correlation between family environment and test anxiety. In this study, the participants included 152 sixth graders and their parents, for a total of 456 respondents. The students are non-religious, middle-class Israelis who live in northern Israel. It was required that both biological parents live in the household in order to participate in the study. Data were collected from parents using the *Family Environment Scale*. Two parallel questionnaires were given, asking parents to examine the actual situation in the home versus the desirable home situation. Data was collected from students using the *Test Anxiety Inventory*. University students administered the questionnaires to students in the classrooms and to families in their homes. Spouses were not able to communicate with each other when completing the questionnaires. The researchers found that families tend to be closer

and more flexible when solving problems if the parent-adolescent communication is secure and a habit in the home (Peleg-Popko & Klingman, 2002). On the other hand, poor communication within the family, specifically between the parent and adolescent, leads to test anxiety (Peleg-Popko & Klingman, 2002).

The family values and family environment has a direct impact on the level of test anxiety felt by a student. Family values, and how these values are communicated within the family, will lead parents in the family to take action that they may believe is helping their child, but is only causing further harm. An example of such action is parental overcontrol. Ringeisen and Raufelder (2015) researched the effect of parental overcontrol on German students' level of test anxiety. The data were collected from 124 secondary students at 22 secondary schools in the city of Brandenberg. In this study, the students completed the *German Test Anxiety Inventory* to measure the components of worry, interference, confidence, and emotionality within test anxiety. The students also completed the *Zurich Questionnaire of Educational Behavior* for the mother and father, using a 4 point Likert scale to rate the educational support given by mothers and fathers (Ringeisen & Raufelder, 2015). Parents have an impact on a student's level of anxiety as parents are an important social group for students and can impact the state of their emotions, academics, and general well-being (Ringeisen & Raufelder, 2015). The researchers found that for males and females, maternal pressure led to an increase in test anxiety due to lower confidence (Ringeisen & Raufelder, 2015). Parental pressure can look like setting high academic expectations, pushing students to work hard at school, and having consequences if expectations are not met (Ringeisen & Raufelder, 2015). Students who feel pressure from their parents experience an increase in anxiety as they want to please their parents with their academic performance (Ringeisen & Raufelder, 2015). When a family values something, such as math, this

interest can exert pressure on the students, especially when the parents are criticizing performance. Families are exerting this pressure because as Emory et al. (2008) and Bogin and Ngyuen-Hoang (2014) explain, standardized testing has a direct impact on communities and the families living within the communities. Parents are trying to control the system of standardized testing as much as they can by exerting control over the test-takers, their students.

Another example of families taking action to exert values over the students by using parental overcontrol is explained by Borelli et al. (2015). The participants in the study included 119 families who were proficient in English with at least one child between the ages of nine and ten years old, with the parents having been married or cohabitating for at least three years. The families were diverse in ethnicity and socioeconomic status. For this study, the families attended the laboratory for two sessions to complete questionnaire-based assessments. The assessments were identical for each session. The assessment was the *Symptom-Checklist-90 Revised*, which assesses a variety of psychiatric symptoms participants felt in the last week, like "feeling scared for no reason" or a racing heart (Borelli et al., 2015). Parents also reported overcontrol using the *USC Parental Overcontrol Scale*, which included items like "I expect my child to tell me everything he or she did when away from home" (Borelli et al., 2015). Children completed the *Stait-Trait Anxiety Inventory for Children* to measure how often they feel anxious, along with the *Children's Coping Strategies Checklist-Revision 1* to measure how often they cope using various strategies. The researchers found that parental overcontrol suppresses the child's autonomy and increases anxiety as children are unable to cope with new situations (Borelli et al., 2015). When a parent is exerting overcontrol, children are not able to learn coping skills and solve new problems due to parents trying to control the environment around the child. (Borelli et. al., 2015). The parents are trying to make sure the child does not face any obstacles or fear in the

environment. When the child is faced with a new task, the child becomes fearful and anxiety is increased. Borelli et al. (2015) goes on to explain that anxiety problems are then stuck in a negative reinforcement cycle as students are fearful of anxious situations and will avoid the new situation or environment, perpetuating this anxious cycle (Borelli et al., 2015). Parents who are exerting overcontrol, trying to control their student's environment, thoughts, and feelings, will ultimately increase the anxiety of the student. A parent who is anxious about standardized exams will only increase the test anxiety of the student when exerting overcontrol. In the system of standardized exams, there is very little the parents can control except potentially the environment, thoughts, and feelings of the student.

On the other hand, some parents may not be concerned or anxious about test scores, knowing that they can provide other learning opportunities for their children outside of the public school system. In a study conducted by Kimelberg (2014), 32 middle-class mothers of school-aged children were interviewed between 2009 and 2010. Advertisements were placed in three online discussion boards looking for applicants for the study. The only requirements to be a participant were to live in the Boston area, have at least one school-aged child, and have at least seriously considered enrolling their child in Boston Public Schools. These boards are frequented by middle to upper-class mothers, so even though socioeconomic status was not mentioned as a requirement, all of the participants were middle to the upper class (Kimelberg, 2014).

The interviews conducted with the mothers were between sixty to ninety minutes. Each interviewer used the same list of questions. Through analyzing the interviews, Kimelberg (2014) found that many mothers were not concerned with the low scores Boston Public Schools has received on stated standardized tests, feeling that as a family, they could provide any missing educational opportunities for their student. Instead of looking primarily at test scores, the

participants found the school environment to be of utmost importance. These middle to upper-class mothers had the privilege of not being too concerned with test scores given the various opportunities they could provide for their children. In this study conducted by Kimelberg (2014), fathers were not included in the interviews, which influences the generalizability of the impact of the whole family on school choice when looking at standardized test scores.

Student Response

In a study done by Segool et al. (2013), the researchers examined not only heightened test anxiety in teachers, as explained above but also in the students. Using the *Children's Test Anxiety Scale* and then the *Behavior Assessment Scale for Children, Second Edition*, the researchers found students feel more anxiety with standardized exams than with classroom exams. This higher level of anxiety felt by students with standardized exams is partly due to the tactics used by anxious teachers and communities.

Anxiety Stems

One tactic that teachers use when feeling anxious with standardized exams is fear appeals. While teachers use fear appeals to exhibit the importance of standardized exams, it decreases the mental health of the students (Putwain & Best, 2011). As Putwain and Best explain, the students experience an increase in test anxiety out of fear of disappointing the teachers who frequently remind the students of the importance of the exam throughout the week. The students who experienced the low-threat week and the high-threat week, however, performed about the same on the exams. The anxiety felt by the students actually led to less off-task behaviors, illustrating that some level of anxiety can be productive when looking at standardized exam scores. Even with the presence of fewer off-task behaviors, the students self-reported higher levels of anxiety.

Anxiety for students also stems from the feeling of being underestimated by the teacher. As explained above, in the studies done by Urhahne et al. (2011) and Zhou and Urhahne (2013), teachers will underestimate or overestimate students based on perceived judgments and biases. Lohbeck et al. (2016) further explain how underestimation by teachers impacts the self-concept of students. In this study, 192 German fourth-graders in Lower Saxony completed the *German Self-Description Questionnaire 1* to measure self-concept and the *Anxiety Questionnaire for Students* to measure the level of anxiety felt by the students. During the study, trained university students read aloud the questionnaires to students during a 45-minute class session. The researchers found that if students perceived themselves to be good students, or had a high academic self-concept, the students showed more interest in school subjects (Lohbeck et al., 2016). Furthermore, students with a lower academic self-concept experienced more test anxiety at school. The study completed by Lohbeck et al. (2016) correlates with the research done by Wasserberg (2017) where students feel stereotype threat, in which they need to prove their academic abilities because teachers may have biases due to race, socio-economic status, etc. When teachers negatively impact a student's academic self-concept by placing perceived judgments on the student's academic ability, the students feel a higher level of test anxiety.

Anxiety for students can also stem from conditional support and parental overcontrol exhibited by teachers and families. As Hascoet et al. (2018) explain in their study on conditional support, teachers use conditional support to motivate students, when really conditional support leads to an increase in anxiety due to students feeling the need to pressure themselves to perform well. The same is true when parents exhibit overcontrol of a student's environment, as explained in the study done by Ringeisen and Raufelder (2015). Verhoeven et al. (2012) explain how parental overcontrol leads to an increase in student test anxiety. 585 Dutch children between the

ages of 8 and 18 and their parents participated in the studies. The survey the families completed was the *Screen for Child Anxiety Related Disorders-71*, which measures 71 symptoms of anxiety. The families also completed the *Rearing Behavior Questionnaire* and the *Mother-Father-Peer Inventory*. The study does not say how these questionnaires were delivered to families. Verhoeven et al. (2012) found a correlation between maternal and parental overcontrol and the levels of student anxiety. Maternal overcontrol seemed to have more of an impact than paternal overcontrol in elementary-aged children. More specifically, students who are displaying questionable behavior receive less autonomy and more overcontrol, increasing their anxiety when given unknown situations or environments.

Before Performance

Before the student takes the standardized exams, there are things the students, teachers, and parents should keep in mind in order to best support social-emotional regulation. The first thing to keep in mind is that students experiencing anxiety typically will not report anxiety until it manifests into a physical symptom. In a study by Skybo and Buck (2007), the participants included 53 fourth graders at an elementary school in Southwestern Ohio from 2003 through 2004. The students were pulled into small groups with two researchers and completed the *Proficiency Test Stress Visual Analog Scale*, including sources of stress, stress symptoms, and coping strategies over the course of 10-15 minutes, four times a year. Skybo and Buck (2007) found that students who identified situations as stressful at the beginning of the year became more accustomed to the stressful situation, and their anxiety decreased. Furthermore, the research shows that students may not report their anxiety until they feel a physical symptom, like an upset stomach. This is important for students, teachers, and parents to keep in mind that anxiety may be a problem for a student before the onset of physical symptoms. Understanding

and knowing coping strategies can help a student manage anxiety before the manifestation of physical symptoms. In a study done by Roos et al. (2021), physiological symptoms of test anxiety were examined. Roos et al. (2021) performed a literature search over the relationship between self-reported test anxiety and physiological arousal. Studies were only included if it was peer-reviewed, occurred in an academic setting, and included measures of physiological arousal. Roos et al.'s (2021) findings correlate with the findings by Skybo and Buck (2007) that test anxiety is typically self-reported when there is some type of physiological arousal. The relationship between test anxiety and physiological symptoms was most significant during the test itself.

Furthermore, before a standardized exam, students, teachers, and parents need to understand that interest does not impact anxiety. As Lohbeck et al. (2016) explain in the study over academic self-concept, interest, and anxiety, when a student has a low academic self-concept, the student has a higher rate of test anxiety. Test anxiety, however, is not impacted by student interest. A student may be interested in a subject, but that does not mediate the test anxiety the student may feel. The student may feel more anxiety when interested in a subject because they want to perform well given the high expectations of teachers and parents.

Having a high emotional intelligence also does not impact test anxiety. In a study by Matthews et al. (2006), emotional intelligence and task-induced stress was analyzed. There were 200 participants divided into one of four task conditions. Each task condition varied on stress level, from reading magazines to attempting to solve working memory tests. The task conditions lasted 15 minutes, while the whole test session lasted 90 minutes. First, in the test session, the participants completed the *Mayer-Salovey-Caruso Emotional Intelligence Test*, followed by the *NEO Five-Factor Inventory*. These questionnaires measured the level of emotional intelligence

of each participant prior to the tasks. Then, the participants were relocated to a laboratory where they completed the *Dundee Stress State Questionnaire* to measure their current stress state. Participants were then divided into various task conditions, with the control group reading magazines. After the task condition, the participants completed the *Dundee Stress State Questionnaire* once again (Matthews et al., 2006). The researchers found that participants with a high level of emotional intelligence still felt the stress of difficult task conditions. Participants with a lower emotional intelligence were worried during task conditions and tended to avoid the task itself. Regardless of a high or low level of emotional intelligence, stress, and anxiety still impacts students. It is important to note, however, that students with higher emotional intelligence are better able to use more productive coping strategies when faced with stress, unlike students who have a low emotional intelligence as they may avoid the task altogether.

Impact on Performance

Anxiety has a varying impact on test performance. Putwain and Best (2011) analyzed the use of fear appeals in the classroom, as described above. In their findings, the researchers found that at the end of a high-threat week, where teachers used fear appeals frequently throughout the lesson, that the students experienced more worrisome thoughts and performed worse on an age-appropriate exam, but the students did not exhibit more off-task behaviors. Morosanova et al. (2020) researched the relationship between self-regulation and test anxiety in children. The participants included 231 students in Russia State schools. To measure conscious self-regulation, the students completed the *Self-Regulation Profile of Learning Activity Questionnaire* which includes 67 statements on planning, modeling, programming, results evaluation, flexibility, independence, reliability, responsibility, social desirability, and the level of self-regulation. Students use a 4 point scale on the questionnaire to rate their responses. To measure test anxiety,

the researchers used the *Test Anxiety Inventory*, which includes 20 statements on how students experience anxiety before, during, and after exams. Finally, to measure math achievement, the researchers used the results from the Unified State Exam in mathematics. The researchers found that girls typically experience more test anxiety than boys, making boys' exams scores more reliable. Similar to the results from Putwain and Best (2011), the researchers found that students with high anxiety tend to have lower academic performance. Interestingly, Morosanova et al. (2020) found that students with a medium level of test anxiety experienced more academic success on the mathematics exam. While high anxiety has a negative impact on test performance, the findings from Morosanova et al. (2020) show that a medium level of anxiety is productive. This could be due to students wanting to perform well, so they exhibit less off-task behaviors as Putwain and Best (2011) describe.

Furthermore, in a study by Metallidou and Vlachou (2007), the relationship between motivational beliefs and academic performance was analyzed. The participants in this study included 263 5th and 6th graders from 13 public primary schools in Central Greece. There were 133 girls and 130 boys, while the participants came from different socio-economic backgrounds. The students were asked to complete the *Motivated Strategies for Learning Questionnaire*. This questionnaire includes 44 items that measure self-efficacy, intrinsic value, test anxiety, cognitive strategy use, and self-regulation strategies. Participants responded to the 44 items using a 7 point Likert scale. The 13 teachers included in the study were asked to rank their student's success in Greek language and mathematics using a 20 point scale. A 20 point scale was used in the study to provide the researchers with more in-depth data than a 5 point scale could provide. The students completed the questionnaire in class, which took about 45 minutes, in the presence of a researcher. After the students completed the questionnaire, the teachers rated the student's skills

in Greek language and mathematics using the 20 point scale. This research was conducted during the second semester of the school year. Metallidou and Vlachou (2007) found that self-efficacy was the strongest predictor of performance and cognitive and regulatory strategy use. The researchers also found that the lower the anxiety felt by a student, the higher level of cognitive strategies the student used during an exam. On the contrary, the higher level of anxiety, the less use of cognitive strategies.

In addition, Wood et al. (2016) examined test anxiety during a reading comprehension exam. The participants included 425 students who were in third through seventh grade in Florida during the 2010-2011 school year. The students completed the *Children's Test Anxiety Scale*, which was mailed to their homes. The scale included 30 items involving thoughts, off-task behaviors, and autonomic reactions, which the students measured using a 4 point Likert scale. The items involving thoughts include worry and irrelevant thoughts. Off-task behaviors include behaviors that are not relevant to the task. Autonomic reactions include physiological responses to exams, like an upset stomach. The researchers also used the Florida Comprehensive Achievement Test to analyze student's academic performance in reading. Similar to the findings from Metallidou and Vlachou (2007), Wood et al. (2016) found that students with higher levels of anxiety performed poorly on the standardized test measuring reading comprehension; however, students with a medium level of anxiety performed the best.

Students who experience high levels of anxiety will experience lower academic performance due to the lack of cognitive strategies being used during the exam. On the other hand, students with a medium level of anxiety experience academic success on exams. Some anxiety can be beneficial to performance, but still has a negative impact on mental health.

Another factor that impacts performance on standardized tests, rather than just test anxiety, is the mental health of the student. Guzman et al. (2011) analyze the impact mental health has on students taking standardized exams. In this study, the participants included first-grade students who were participating in the Skills for Life program in 2002. The Skills for Life program is a school-based mental health intervention program in Chile. It is offered by the National Board of School Aid and Scholarships in Chile. This National Board began by providing opportunities for students with the goal of reducing the number of school dropouts. The programs provide meals, dental, vision, and hearing aid. Over the 1990s, the programs began offering mental health programs for their students as well. The Skills for Life programs involve promoting, targeting, prevention, and intervention. This program is available for schools in Chile that are deemed high-risk by the World Health Organization. Being classified as high-risk takes into account family income, maternal education, and other factors. The Skills for Life program involves mental health promotion activities for all school members, interventions for students deemed at risk, and outside referrals for students who are at the highest risk. All students complete a broadband screener for mental health problems in first grade. Then, students who are deemed at risk from the screener are then referred to a 15 session intervention program within the school. Guzman et al. (2011) researched to see if the mental health of students in first grade impacts their achievement scores when in fourth grade.

The participants were in first grade in 2002 and in fourth grade in 2005. Data to measure the student's academic performance comes from the standardized exams required of students in Chile in fourth, eighth, and tenth grade. These standardized exams include math, science, and language. Each exam includes 41-50 questions. These academic scores were looked at in conjunction with the scores from the mental health screener the students completed in first grade.

The researchers were able to match 11,185 students with their scores from the mental health screener in first grade with their fourth-grade achievement scores. The researchers found that students who were identified with a mental health problem in first grade scored significantly poorer on the fourth-grade achievement test compared to peers. Mental health was the second most powerful predictor of academic achievement, behind teacher's judgments of students.

As discussed above, teachers have an impact on their students. The findings from Guzman et al. (2011) correlate with the findings from Urhahne et al. (2011), Zhou and Urhahne (2013), and Wasserberg (2017) that teacher judgments have a significant impact on student's test anxiety and academic performance.

Guzman et al.'s (2011) findings suggest that mental health has a significant impact on standardized test performance and illustrates the importance of teaching mental wellness to students. A limitation of the study is it is unknown how the Skills for Life program impacted the mental health of participants of the program once the program was complete.

Test anxiety has a differing impact on student performance on standardized exams. As analyzed above, students who experience high levels of anxiety perform lower on exams compared to students with a medium level of anxiety. Furthermore, students who are identified as needing mental health support have been shown to perform lower on academic standardized tests as well. Strategies teachers, parents, and students use to have a critical impact on student's levels of anxiety and mental wellness, specifically surrounding standardized exams.

Student Support

There are various strategies students can use to support their mental health when taking standardized exams. Standardized exams can impact students in the form of test anxiety. When students are anxious, their cognition levels are lower, ultimately impacting their performance on

standardized tests. It is in the best interest of teachers and parents to teach children how to overcome anxiety when faced with a standardized exam. The strategies discussed have been proven useful in reducing the impact anxiety has on test-anxious students.

Social Support. Zeidner et al. (2016) researched the various coping strategies students use in stressful situations. The participants in this study included Jewish students enrolled in 14 different classes. The emotional intelligence of the students was assessed using the *Mayer-Salvoy-Caruso EI Test*, which has 141 items that assess emotion perception, using emotion to understand thought, understanding emotion, and regulation of emotion. A student's verbal ability was assessed using the *Wechsler Intelligence Scale for Children*. Social skill and support were measured by the *Interpersonal Social Evaluation List*, the *Social Support Questionnaire*, and the *Social Skills Rating Systems*. These instruments to measure social skill and support ask the students to determine if they have support systems, and how satisfied the students are with the support given. A student's coping skills were measured using *COPE*. Finally, a student's subjective well-being and affect were measured using the *Satisfaction with Life Scale and ABS*, which has the students measure which feelings they feel most often. Given the many measures used in this study, the researchers assessed the students during two sessions in the regular classroom. During the first session, the students completed the measures of emotional intelligence and verbal ability. During the second session, the students completed the remaining scales. The sessions were four months apart.

Zeidner et al. (2016) found that social support played a larger role in the overall well-being of a student than coping mechanisms. Interestingly, the researchers found that ineffective coping can lead to more stress felt by the student. Coping with stressors does not lead to better overall life satisfaction. Social engagement, however, seems to be critical for overall well-being.

Educators and parents play a critical role in the lives of the students given the amount of time spent together. Adults in the lives of students can encourage social support, especially during stressful situations, rather than providing coping strategies. Coping strategies may lead to more distress as students may be unaware of how to accurately use it.

Mindful Coloring. Coloring is a simple activity that has been shown to have a profound impact on the mental well-being of students. In a study by Carsley and Heath (2019), the researchers analyzed the impact mindful coloring has on test-anxious students. The researchers describe mindfulness as either experiencing mindfulness at a specific moment in time or experiencing mindfulness day-to-day. Mindful coloring involves combining art materials with mindful meditation. An example of mindful coloring would be the structured coloring of mandalas. Structured mandalas provide a format within the physical mandala while giving students freedom on how to fill in the mandala. Unlike mindful coloring, some students may feel anxiety when given blank paper to color as there is not a structure.

The participants in this study were 154 students in fourth through sixth grade in Montreal, Canada. The students are from middle to upper-class families that speak English. The school, however, is a French immersion school where students in grades fourth through sixth receive 50 percent of their instruction in French. The participants completed the *State-Trait Anxiety Inventory for Children* to measure the levels of anxiety the children were feeling in the moment. The inventory only takes about five to ten minutes for the students to complete. Another measure used in this study was the *Mindful Attention Awareness Scale*. This scale was used to measure the participant's current level of mindfulness. The students also completed the *Child and Adolescent Mindfulness Measure*, which measures self-reported mindfulness that focuses on present moment awareness.

In this study, students were either given a blank sheet of paper or a structured mandala. Before students began coloring, the researchers told the students that their parents would receive their spelling test scores once the day was finished. This was used to elicit test anxiety in the students. Before the participants began coloring, they were administered the *State-Trait Anxiety Inventory for Children and the Mindful Attention Awareness Scale*. The students were given 15 minutes to color, either on blank paper or a structured mandala, and then completed the two scales once again. Students then completed a spelling test, after which they completed the *Child and Adolescent Mindfulness Measure*.

The researchers found that students experienced lower test anxiety regardless if the students were free drawing or using a structured mandala. Interestingly, the students who experience mindfulness day-to-day did not report an increase in mindfulness after the coloring activities. The students who typically experience mindfulness in a moment here or there reported the greatest increase in mindfulness after the coloring activity.

In looking to lower anxiety, teachers and parents can give students either a mindful coloring activity or let the students free draw before a stressful situation. Allowing students opportunities to experience mindfulness before a test will lower the test anxiety of the students as they are more mindful of their feelings.

Mastery Goals. Another way students can combat test anxiety is by setting achievement goals. In a study by Zhang et al. (2016), the impact of goal setting on student achievement was analyzed. In this study, the researchers define mastery goals as focusing on learning and achievement, whereas performance goals focus on competence compared to others. The participants in this study were 4,387 grade-four students in Germany from 253 elementary schools. The study was conducted on two days during April 2007. On the first day, the students

completed math and science standardized tests. On the second day, the students completed a national education standards test, a cognitive ability test, and a questionnaire that measured students' achievement goals. The math and science standardized tests completed by students involved 96 multiple-choice items and 83 short answer items. Eighty-four percent of these tasks showed curricular validity. These national education standards tests included reading, writing, listening, and speaking tasks. To measure intrinsic motivation, the students completed a questionnaire that measured curiosity and joy of learning. Academic self-concept was assessed using the *Self Description Questionnaire*. Test anxiety was measured using the *Test Anxiety Inventory*, with participants responding using a 4 point Likert scale. To measure achievement goals, the researchers used the *Patterns of Adaptive Learning Scales and Motivational Orientation Scale*.

Zhang et al. (2016) found that performance goals, where students are setting goals in relation to others, increases the anxiety felt by the student. Mastery goals, however, help students adopt a growth mindset in regards to their learning.

Teachers and parents should focus on setting mastery goals with students rather than performance goals. Mastery goals encourage the students to grow intellectually without the competition of performance goals. Comparing students with each other will only create more anxiety within the students. When approaching standardized tests, teachers and parents should stay away from motivating students to compete with one another. Instead, teachers and parents should teach a growth mindset in regards to testing.

Furthermore, Thomas et al. (2019) analyzed the impact of personality factors on test anxiety. These personality factors impact how students view mastery and performance goals. There were 481 participants in this study, who all attended a public university in the Midwestern

United States. To measure cognitive test anxiety, the *Cognitive Test Anxiety Scale* was used. This scale determines how test anxiety impacts the preparation, performance, and reflection phases of a testing cycle using a 4 point Likert scale. The characteristics of the students' personalities were determined using the *Big Five Inventory*. Using a 5 point Likert scale, participants determine how well the statements describe their personalities. The *MSLQ-COL* and *MSLQ-SE* were used to measure how much control the participants have in certain academic situations. Finally, the *MSLQ-IG* and *MSLQ-TV* were also used to measure how students engage with academic tasks.

Thomas et al. (2019) found that when students view stressful academic situations as a challenge, the students were more engaged with the academic tasks. With goal setting, as Zhang et al. (2016) described, students will feel anxiety with performance goals as they are comparing themselves to peers. With mastery goals, however, students view stressful academic situations more like a challenge. Thomas et al. (2019) goes on to explain "explicit training regarding how to set effective goals paired with efforts to support skill development may be useful in reducing the discrepancy between learners' perceived ability and desired academic outcomes and increasing expectations for success" (p. 12).

Deep Breathing. Khng (2017) researched the impact deep breathing has on test anxiety. Khng (2017) describes deep breathing as taking slow deep breaths using the diaphragm. While hurried, shallow breathing is associated with anxiety, deep breathing is associated with a state of relaxation. This study included 154 fifth-grade students from four elementary schools. To measure trait test anxiety, two measures were used. The first measure was the *Test Anxiety Inventory*. This inventory asks participants to rate how they experience 20 symptoms of anxiety. The other scale used to measure trait test anxiety was the *Cognitive Test Anxiety Scale*. This

scale has participants determine how they think, feel, or act when taking tests. Both of these measures to determine trait test anxiety use a 4 point Likert scale.

To measure state test anxiety, the *STAIC-S* was used, asking participants to select one of three choices that best represents how they feel in the current moment. A timed math computational test was created to measure test performance. The addition and subtraction subtests included 48 problems at a 60 second time limit. The multiplication subtests contained 20 problems within a 30 second time limit. To assess participants' thoughts, the *Children's Cognitive Assessment Questionnaire* was used. This questionnaire asks participants to rate each thought item during a test. The thought items include positive self-evaluations, negative self-evaluations, on-task thoughts, off-task thoughts, and coping thoughts.

Participants were assessed in their schools. During the first session, participants completed the *Test Anxiety Inventory* and the *Cognitive Test Anxiety Scale* in their classrooms. This first session took around 30 minutes. During the second session, the intervention and control groups were tested in separate classrooms. An examiner was in each classroom and an identical script was used with the intervention and control groups.

To elicit test anxiety, the participants were told they were going to be tested on their math and attention skills. The students were told to complete as many problems as they can within the time allotted. After each math subtest, a buzzer was used to signal the end of time. In between the math subtests, there were times scheduled to allow for a quick break. The intervention group learned and worked on deep breathing with the help of the research assistants. The control group did not have a structured rest break.

Khng (2017) found that taking deep breaths before a test reduced anxiety in the students and enhanced their performance. When students feel reduced anxiety, they are better able to use

cognition strategies. Furthermore, students self-reported fewer feelings of anxiety. Parents and teachers can teach and encourage students to take deep breaths before a high-stakes exam to lower test anxiety. Deep breathing is not disruptive and involves minimal resources.

Social support, mindful coloring, mastery goals, and deep breathing have been shown to decrease the test anxiety felt by students when faced with high-stakes exams. These strategies could also be used by teachers and parents when faced with anxiety. Teachers and parents need to be aware of their own anxious feelings and how it impacts the student. By being aware of their own feelings of anxiety, the adults can provide better social support to the students. It is better to offer social support before a stressful situation as coping strategies are not as effective if the student does not feel supported. By promoting mindful coloring, the adults are encouraging students to enter a state of mindfulness that ultimately lowers anxiety by allowing the students to engage with an activity that is not considered stressful. Mastery goals allow students to adopt a growth mindset instead of worrying about competing with peers. Standardized tests often compare students to one another, so having a mastery goal instead of a performance goal will provide the student with an internal challenge. Deep breathing is a simple activity that has a large impact on students as it helps them enter a state of mindfulness.

These strategies must be taught to students; they will not be naturally learned. Students need to learn how to lean on support structures, use mindful drawings, set mastery goals, and deep breathing. If these strategies are not taught but still expected, it may increase the anxiety felt by the student. Teachers and parents need to be aware of these strategies to support their students. These strategies will provide a more accurate score on standardized assessments. When students are anxious during an exam, the teachers and parents do not receive an accurate

understanding of what the students know academically. Reducing test anxiety will allow for more accurate educational decisions.

CHAPTER III: DISCUSSION AND CONCLUSION

Summary

Standardized testing has a large impact on the mental health of teachers, parents, and students. Teachers feel pressure on standardized tests due to the consequences that come with being deemed as a school "needing improvement" (Bogin & Nguyen-Hoang, 2014; Stauffer & Mason, 2013). Teachers, feeling the stress of standardized tests, begin to make choices that exert more pressure on the students to perform well. Some of the tactics used by teachers are underestimating students, using fear appeals, providing conditional support, and teaching test-taking algorithms (Cankoy & Tut, 2005; Hascoet et al., 2018; Putwain & Best, 2011; Urhahne et al., 2011; Zhou & Urhahne, 2013). Teachers rely on these tactics because some teachers are concerned solely with a student's academic performance, rather than the mental health of the student. Teachers may think they are doing the right thing by motivating students to study for standardized tests (Assaf, 2006). Students may study harder when these tactics are used, however, studies show that academic performance is lower and the mental health of the students is damaged along with the mental health of the teacher (Bausell & Glazier, 2018; Holloway & Brass, 2018; Mitani, 2018; Szigeti et al., 2017).

Parents feel the stress of standardized testing in a multitude of ways. When a school is deemed as "needing improvement," property values decrease by six percent (Bogin & Nguyen-Hoang, 2014). Schools deemed as "needing improvement" are often attached with a social stigma. Some parents may not be concerned with their child's academic performance on a standardized test, believing they can provide appropriate opportunities outside of school for learning (Boehme et al., 2017; Kimelberg, 2014). Parents, on the other hand, are more concerned with the social stigma that comes with sending their children to a school that is deemed as

"needing improvement" (Emory et al., 2008). The United States government publicizes how well schools do on standardized tests each year, adding to the social stigma. This stress felt by parents can lead to the parents exerting overcontrol on their children, which increases the anxiety felt by the children. When parents are exerting control, they are trying to control the thoughts, feelings, and environment of their children (Borelli et al., 2016; Peleg-Popko & Klingman, 2002; Ringeisen & Raufelder, 2015). While parents may believe they are protecting their children, they are not preparing their children to deal with new and stressful situations, like standardized testing, in a healthy way (Verhoeven et al., 2012).

Students feel the brunt of these measures teachers and parents use to guarantee proper academic performance on standardized tests. Students will not report anxious feelings until it manifests as a physical symptom (Skybo & Buck, 2007). Students may not know their feelings are induced by anxiety as they may not have learned specific terms for their thoughts and feelings (Guzman et al., 2011; Zeidner et al., 2016). Furthermore, students feeling anxious will often not use cognitive strategies, impacting their performance on standardized tests (Galla & Wood, 2012; Lohbeck et al., 2016; Morosanova, 2020; Roos et al., 2021; Segool et al., 2013). Students may feel anxious on a high-stakes exam regardless of their level of interest in the subject (Matthews et al., 2006; Metallidou & Vlachou, 2007; Wasserberg, 2017; Wood et al., 2016). There are many strategies teachers, parents, and students can use when dealing with anxiety within themselves or with test-anxious students. These strategies include activities that will increase mindfulness like mindful coloring and deep breathing (Carsley & Heath, 2019; Khng, 2017; Thomas & Cassady, 2019). Some strategies, like social support, are an important reminder to teachers and parents to offer support to students instead of using some of the degrading tactics, like conditional support (Zhang, 2016). Standardized testing has an impact on

the mental health of teachers, parents, and students. Using the strategies shared will help lessen anxiety.

Professional Application

The research analyzed shows that national standardized tests have an impact on the mental health of students. Nationwide legislation should be passed that will provide mental support with accountability measures put in place by the country. A support strategy could be modeling the Skills for Life program used in Chile (Guzman et al., 2011). The World Health Organization suggests screening children for mental health problems beginning in first grade. The sooner these children can be identified, the sooner the children can receive support.

Knowing that children typically do not report feelings of anxiety until it manifests into a physical symptom is important for teachers and parents to keep in mind (Skybo & Buck, 2007). Knowing this, classroom teachers should adopt strategies that decrease feelings of anxiety, like mindful coloring and deep breathing. These strategies will lower feelings of anxiety in students and will give a more accurate measure of a student's academic progress. Furthermore, teachers and parents can talk about anxiety and mental health to students, explaining that mental health is just as important as physical health. As discussed above, standardized test scores are used to make many decisions for a child's future. If a student is feeling anxious during a test, cognition levels are lowered, and the score will not be an accurate picture of the student's knowledge.

I teach fifth-grade students, aged ten to eleven years old. In 5th grade in Minnesota, students take three standardized exams required by the state of Minnesota. These three tests are centered around science, reading, and math standards and are taken in the spring. I will help contribute to a positive school community by involving the families in the testing process by writing encouraging notes to students and being supportive throughout the testing process.

Furthermore, throughout the year I will teach students how to use mindful activities like drawing and deep breathing to ease test anxiety. I will share this information with colleagues so our school will have a common language around testing. My school district uses a social-emotional curriculum that teaches the students the importance of mindfulness; however, this curriculum is being replaced next school year. I will advocate for a curriculum that teaches the students the importance of having a growth mindset and using mindful activities to ease any anxiety that may occur around the testing season. I will also advocate for a curriculum that gives tips to families on how to deal with anxiety within the home, knowing that familial pressure centered around testing begins with test anxious consequences and can lead to an increase in anxious feelings within the student.

Teachers, parents, and students need to understand the importance of mental health. The smallest steps and strategies, like deep breathing before an exam, can drastically reduce feelings of anxiety. Mental health strategies should be taught and supported within schools for the benefit of the whole school community. As described above, not just the students taking the exams struggle with test anxiety.

Limitations of the Research

The research used in this literature review was conducted between 2002 and 2021. Research before 2002 was not included as this was the year the No Child Left Behind Act was passed in the United States. There were standardized exams before 2002, but not country-wide accountability measures. The accountability measures have changed the way teachers educate their students. As Bausell and Glazier (2018) noted, with the passing of Common Core legislation, teachers' discussions have changed from analyzing and meeting student needs to feel more anxious due to various accountability measures.

The research pool was limited in the sense that many studies analyzed for the literature review included students from outside of the United States. There was not enough research found on the impact of standardized testing solely on American students. Because of this, studies are included with participants who are not American. Other countries do have students complete standardized exams, like Germany and Russia, for example, but America enforces some of the strictest accountability measures for student performance on these exams.

Implications for Future Research

Given what was analyzed for this literature review, more research needs to be conducted on the impact of standardized testing on educators who are not directly involved in the classroom. Consequences for not making Adequate Yearly Progress impact more people than simply the classroom teachers. I did not find information on how accountability measures impact the larger school community who are not directly involved in the classroom, like guidance counselors, music or physical education teachers, etc. These people are members of the larger school community and will feel the negative effects of consequences for not making academic performance goals. Furthermore, more research should also be done on how the whole school community can encourage its test-taking students. Guidance counselors, music and physical education teachers can all adopt a mental wellness attitude and teach strategies that will help students in all domains, even standardized exams.

More research also needs to be conducted on the future of standardized tests. The research clearly shows that there is a negative impact on the mental health of teachers, parents, and students. Due to this negative impact, what are some other options of accountability measures? There should be research done to see what, if any, measures can be used to hold teachers, parents, and students accountable to the academic performance of the school

community that does not increase feelings of anxiety, like with standardized exams. Are there measures that the whole school community and government could agree on to restore the relationship between school community members and government officials?

Another question I had when reviewing the research is how standardized testing continues to impact students once they leave the public education system. Little research has been done to see if there is a lasting impact of standardized testing on the mental health of students. Do the feelings of test anxiety that manifested itself during standardized exams continue into a child's adult life? Does test anxiety impact performance goals in the workplace, for example? Understanding the impact of anxiety on student's adult lives could create a sense of urgency for putting in place mental wellness support for students within the school and community. Providing mental wellness to support students at a young age will help erase the stigma around mental wellness support and could lead to healthier and more productive lives for students and adults.

Conclusion

In this literature review, the impact standardized testing has on the mental health of teachers, parents, and students was analyzed. Standardized testing has been shown to increase the anxiety not only felt by the students, but also by the teachers and parents. Those who are feeling anxious due to standardized exams may use tactics that will deteriorate their own mental health and the mental health of others. Strategies that increase mindfulness, like mindful coloring and deep breathing, can be used to offset the feelings of anxiety. Standardized tests are not a true accountability measure if the anxiety of the test-taker is impacting their cognitive levels, and therefore, impacting their performance on the standardized tests. More research needs to be done

in regards to the impact of standardized tests on the larger school community and how test anxiety may translate into a student's adult life.

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