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The Association Between Participation in Extracurricular Activities and Adolescent Mental Health

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APPROVAL FOR SUCCESSFUL DEFENSE

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Abstract

A growing number of adolescents are affected by depression, anxiety, and suicide each year, with females experiencing higher rates than males. Meanwhile, the demand for students' time is increasing, and many participate in more extracurricular activities. This study will help answer the questions, "to what extent does participation in school-sponsored extracurricular activities impact an adolescent's mental health?", "to what extent does this impact vary by the type of activity?", and "to what extent do these outcomes vary by gender?" While other studies have considered each of these variables, none look closely at all three (participation, gender, and type of activity) and their association with mental health.

This dissertation uses publicly available secondary quantitative data from a 2018 study by Monitoring the Future, published through the Inter-University Consortium for Political and Social Research (ICPSR). This study pulls from 12th-grade students' four self-reported Likert statements (scored from 1-5) about life satisfaction, combined to create a composite score for depression. Students were also asked their level of involvement in six different extracurricular activities categories (newspaper and yearbook, academic clubs, athletics, student government, performing arts, and other activities). Multiple covariates are used, including parent education as a proxy for SES, race, parental involvement, students' academic performance, whether they enjoy school, their weekly hours at a part-time job, and how much time they volunteer and engage in sports or exercise outside of school.

Findings suggest that the results vary by both activity and gender; however, this study's limitations prevent causal claims from being made. School districts are encouraged to continue promoting extracurricular activities, specifically ones that promote positive mental health.

Future studies on this topic should be conducted to improve these findings, guided by the limitations and suggestions for future research outlined in this study.

Dedication & Acknowledgements

This dissertation is dedicated to my loving and supportive family, who have been there every step of the way: my mom, Joanne, dad, Nick, and brother, Kevin. I am fortunate to have an amazing family who is always there for me and does what they can to make me happy. I'd like them to know I love them and appreciate everything. I would be remiss not to include my Aunt Carol, who frequently checked in on my progress and is always great to talk with.

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CHAPTER 1: INTRODUCTION

Context of the Problem

Student activities account for one to three percent of a school district's budget, on average, and can have significant positive outcomes relative to their cost (National Federation of State High School Associations, 2015). Many districts face the difficult decision to scale back spending due to cuts in state and local funding (Filsinger, 2012; Leachman & Figueroa, 2019). Many factors have taken a toll on school budgets, including the reduction of "stimulus" money from the federal government, health care costs on the rise for school districts, teacher contracts requiring raises, voters hesitant to pass the local budget, and some housing areas becoming more depressed and lowering property taxes (Farkas et al., 2012). Districts find themselves trying to do more with less, which leads to a need to cut back.

In Virginia, one of the nation's largest school districts, Fairfax County Public Schools, determined they would save $11 million by eliminating all school sports and limiting student activities (Balingit, 2015). Parents sued when a district in Santa Barbara, California, decided to implement a $25 fee for each activity (Taylor, 2009) to cope with funding shortfalls. The case went to the California Supreme Court, which determined it was a violation of California's free school guarantee. Taylor cautioned school districts to be careful about making changes to student activities. The importance of extracurricular activities should not be underestimated. These activities can positively influence young adults (Fredricks & Eccles, 2005; Fredricks et al., 2002).

Administrators should consider how many students are involved in programs before making decisions to reduce or eliminate them (Adeyemo, 2010). The Afterschool Alliance (2014) reported that over 10 million youth participate in afterschool programs such as athletics,

homework help, and school clubs. Their survey projected that over twice that number would participate if more programs were available. According to the National Survey of American Families, 81% of youth aged 6 to 11 participated in a club, sport, or lesson after school, whereas 83% of adolescents aged 12 to 17 participated in these types of activities (Ehrle & Moore, 1999). On average, students participate in 2-3 school-sponsored activities per week (Fredricks, 2012) and commit roughly five hours of their time each week (Fredricks, 2012; Mahoney et al., 2006). The research also shows that 3-6% of students who participate spend over 20+ hours per week in multiple activities (Mahoney et al., 2006).

Gilman et al. (2004) compared individuals in unstructured activities (playing video games, watching tv) to participating in structured after-school extracurricular activities and found adverse outcomes for students in unstructured activities, but multiple positive results for those involved in extracurricular activities. These included stronger social skills, development of their own identity, and greater self-efficacy. Fredricks and Eccles (2006) concluded similar findings when they followed students in grades 7-12 across three years. They found that not only did participation improve social skills through a positive peer context, but they also found a higher academic adjustment. Activities can offer social/emotional, cognitive, and physical benefits, and the more positive attributes a program has, the greater the benefit can be.

In 2012, Walt Whitman High School in Maryland offered nearly 90 clubs and over 25 sports, along with multiple choirs. According to Kronholz (2012), the Walt Whitman students who participated in a school-sponsored activity were 97% more likely to go to college when they stayed involved for two or more years. Guilmette et al. (2019) found a connection between involvement in extracurricular activities and "positive outcomes." They identified a positive

relationship between prior and current participation in self-regulating goals, which has led to higher achievement and emotional well-being (Guilmette et al., 2019).

Organized high school extracurricular activities allow students to develop skills, explore opportunities, and develop relationships with peers and adults in a safe learning environment (Forgeard & Benson, 2017; Vandell et al., 2015). Research shows that students' involvement in extracurricular activities can have a meaningful influence on their mental health and emotional well-being (Palen & Coatsworth, 2007). Mahoney et al. (2002) concluded that the students reported a lower level of depression for participants in structured extracurricular activities than students who did not participate. The current literature suggests that participation in various types of extracurricular activities can lead to multiple outcomes. Eccles and Gootman (2002) stated that a single program could not accomplish all of this independently. They stressed that multiple and diverse opportunities are needed to support adolescent development.

Ultimately, it is a school leader's job to make appropriate decisions that facilitate the learning process, including identifying students' needs and the necessary learning environment (Klose, 2008). The decisions an administrator makes can significantly impact the school climate, and they can positively influence student outcomes through these decisions (Cleveland et al., 2011). School administrators can develop a culture of learning through intentional and purposeful actions, including fostering collaborative activities both in and out of the classroom (Fisher et al., 2012). Block (2012) emphasized that while cuts continue to increase, decision-making officials do not truly understand the impact and how detrimental these cuts will be. According to Adayemo (2010), not only should administrators support and fund extracurricular activities, but they should make time during the day for students to participate as well.

Problem Statement

Over the years, many studies have aimed to identify the impact on adolescents of participation in extracurricular activities. Some studies have looked at the effect on GPA, others on attendance, and more recent research has been shifting to mental health and emotional well-being. Certain studies have categorized impacts by type of activity, and many have included gender. Still, none have looked at how involvement is associated with mental health while considering the potential difference between the type of activities and identifying possible gender differences.

According to the Center for Disease Control (CDC), in 2016, the trends of prevalence of suicide-related behavior in high school adolescents showed that considerations for suicide, having a suicide plan, and attempting suicide all increased from 1991 to 2015. A large-scale study by Mojtabai et al. (2016) looked at 300,000 individuals; approximately half were 12-17 years old, and the other half were 18-25. They concluded that major depressive episodes increased for both groups from 2005 to 2014. A different study concluded one in five adolescents has a psychiatric disorder, and the rate increases as the child gets older (Costello et al., 2011). These disorders include panic, depression, agoraphobia, substance use, ADHD, and separation anxiety disorder. It is especially concerning for females who have a greater risk of developing anxiety or mood disorders throughout their life (Rossler, 2016). The World Health Organization (WHO) reported in 2008 that depression is the third most common cause of disability for people under 59 years old and that depression is 50% higher for females, who exhibit higher rates of anxiety compared to males. Depression is the leading cause of disease for women ages 15-44 in all income levels across all countries.

With these numbers on the rise, it is essential to consider whether participating in extracurricular activities helps individuals or adds stress. The fear is that being over-scheduled in activities can lead to stress and negative mental health symptoms (Leonard et al., 2015). While extracurricular activities have demonstrated positive outcomes for adolescents' well-being, some studies show inconclusive results. Feldman and Matjasko (2005) concluded there is little research on the relationship between involvement and well-being, and the findings have been mixed. They stressed that larger and more representative samples are needed. Farb and Matjasko (2012) found mixed results after studying the relationship between extracurricular involvement and psychological adjustment; they stated that it is necessary to look more specifically at the type of activities to draw accurate conclusions. Broh (2002) found inconclusive results surveying the literature on the outcome of involvement in extracurricular activities. Broh deduced that not all forms of involvement lead to the same type of results, creating a need to determine the outcome of different types of activities before making policy and funding decisions.

Purpose of the Study

The purpose of this study is to determine how involvement in extracurricular activities is associated with a high school student's mental health and whether different activities lead to different outcomes. The outcomes for males and females are also compared. Ultimately, the goal is to identify the extent to which different school-sponsored clubs, athletics, and activities are associated with a student's mental health to help inform administrators and policymakers regarding supporting and funding these activities.

Significance of the Study

Reed (2014) argued that the demand for students' time has become more significant in today's society under the idea that "more is better." According to Reed, students can become over-involved, which can cause additional stress. Melman et al. (2007) argued that more time participating in structured activities could lead to higher anxiety levels in adolescents. While their study did not find an increase in depression for students who were very involved, the possibility still exists. This study aims to determine whether extracurricular activities can have a meaningful impact on students in a non-academic setting and identify possible associations between participation and mental health. More specifically, this study breaks activities into categories to see if any type of activity or difference in gender changes the possible outcome.

Research on mental health shows that while depression is the third most common cause of disability on average, it is the leading cause of disease for women aged 15-44 years. Since the rate of depression is 50% higher for females than males and females have higher rates of anxiety (WHO, 2008), this study aims to identify whether there is a difference in outcome between males and females who participate. The goal is to identify possible differences to allow administrators and school officials to make more specific and meaningful decisions. Moreover, findings from this study may result in recommendations for policy and practice to improve extracurricular activities and students' well-being. These findings may help further inform adolescents and parents regarding decisions about involvement.

Framework

John Dewey emphasized the need for student-centered learning, which has led to the model we have in schools today. Dewey recognized that students need to engage in meaningful

learning experiences, not just memorize and recite content (Pieratt, 2010). Piaget emphasized that these learning experiences are different for each student, that each student has unique needs when it comes to learning, and that multiple learning experiences are necessary. These learning modalities include listening, reading, experiencing, and exploring (Slavin, 2006). Astin's (1999) Theory of Involvement stresses that learning cannot just occur in the classroom; instead, these meaningful experiences extend to after-school programs. He explained the amount of learning that occurs is directly connected to how much time and engagement the student has with that activity. Astin's framework guides this study.

Design

This study utilizes secondary data from a 2018 survey by Monitoring the Future, published through the Inter-university Consortium for Political and Social Research (ICPSR). It was conducted by the Institute for Social Research at the University of Michigan in 2018 and funded by the United States Department of Health and Human Services, the National Institutes of Health, and the National Institute on Drug Abuse. This study randomly surveyed 2,424 12th-grade students in the United States on their behaviors, values, lifestyles, drug use, and more (Miech et al., 2018). From this data, the study uses multiple statements about life satisfaction (on a Likert scale from 1-5) to create a composite score for depression (dependent variable). Students were also asked whether they participated in six categories of school-sponsored activities (newspaper and yearbook, athletics, academic clubs, music/performing arts, student government, and other activities), rating their involvement from 1-5. The extracurricular activities are used as the independent variables. Nine series of linear regressions are utilized in this study. The first identifies possible associations between general involvement in activities

(all six categories combined into one composite score) and each participant's composite score for depression. The second set of regressions looks at each of the six activities and the composite depressive score. The models for these sets of regressions include gender and several grouped covariates, adding one group of covariates at a time to see its impact on the regression. The remaining series considers the interaction between gender and participation for each of the respective activities.

Research Questions

1. To what extent does participation in school-sponsored extracurricular activities impact an adolescent's mental health?
    a. To what extent does this impact vary by activity?
    b. To what extent does this impact vary by gender?

Hypotheses:

Hypothesis for Research Question 1

Participation in extracurricular activities will result in a positive association between general participation and the composite score for depression.

Hypothesis for Research Question 1a

The resulting association for composite depressive score will vary depending on the type of extracurricular activity.

Hypothesis for Research Question 1b

Females who participate in extracurricular activities will have a higher depressive score than males since research shows they are more likely to have depression and anxiety (WHO, 2008).

Definition of Terms

Adolescent: Any individual between the ages of 10 and 19 (Csikszentmihalyi, 2019)

Anxiety: Feeling worried and anxious, leading to difficulty concentrating, remembering, and sleeping. This is classified as mild and severe (WHO, 2018)

Archive weight: An archive weight, or sample weight, is utilized when there is sample bias from oversampling within a population. A sample weight adjusts the resulting data to account for this bias (National Longitudinal Surveys, 1997)

Breadth: The number of different activities a student is involved in; diversity of involvement (Bohnert et al., 2010)

Depression: A feeling of persistent sadness, loss of interest, and motivation in daily activities. This sadness can lead to difficulty functioning during everyday life. Episodes are classified as mild, moderate, and severe (WHO, 2018)

Duration: Dedication to activities in general or a particular activity over time; "consistency" (Bohnert et al., 2010)

Emotional well-being: Also equated with mental health. This is the emotional positivity toward life and the ability to handle the challenges that go with it (Stewart-Brown, 1998)

Engagement: The extent to which a student engaged or participated in each activity (Bohnert et al., 2010)

Extracurricular activity: Any club, activity, or sport that meets outside of the school day, offered by the school district (Shulruf, 2010; Cadwallader et al., 2002)

Health: a combination of physical, mental, and social well-being. Health is not just defined by an absence of disease, sickness, or injury (WHO, 2001)

Intensity: The time spent in each respective activity; "dosage" (Bohnert et al., 2010)

Mental health: a combination of psychological, emotional, and social well-being that represents how a person acts, thinks, and feels (US Department of Health and Human Services, 2020b)

Subjective well-being: Also known as happiness. This is a combination of positive and negative affect (feelings), which includes life satisfaction (Diener et al., 2009)

Structured activities: A school or organization based (and sponsored) activity that includes sports, clubs, music programs, and other after school activities (Marsh & Kleitman, 2002)

Unstructured activities: Activities that take place during an individual's leisure time, which includes hanging out with friends, watching tv, and playing games at home (Marsh & Kleitman, 2002)

Well-being: An individual's perception of how their lives are going, which includes a holistic view of health, combining mental and physical health (CDC, 2018)

Conclusion

In Chapter 1, a general background was provided, showing that students frequently participate in extracurricular activities, which leads to a multitude of different outcomes, including a potential impact on mental health. It is essential for administrators and policymakers

to understand and recognize these impacts, specifically how each type of activity may lead to a different outcome, to inform their decision-making regarding funding and writing policies. The subsequent chapters will explain the context and application of this study in greater depth. Chapter 2 will review the literature on this topic, Chapter 3 will explain the methodology of the study, Chapter 4 will present the analysis and findings, and Chapter 5 will draw conclusions.

CHAPTER 2: LITERATURE REVIEW

Overview

Adolescence is a critical period of development where health and well-being can influence the lifelong path of an individual's health (Blum et al., 2017). During this time, adolescents get involved in many extracurricular activities, leading to many different outcomes (Dearman, 2017; Gifford et al., 2011; Gutman & Schoon, 2013; Reed, 2014). While early educators were skeptical that extracurricular involvement led to meaningful outcomes (Marsh & Kleitman, 2002), research today shows adolescents gain in several areas that include improved academics (Dick, 2010; Knifsend & Graham, 2012; Sitkowski, 2008), better school attendance (Wilkins, 2008), gaining life and social skills (Barber et al., 2005; Fredricks & Eccles, 2008), higher graduation rates (Wilson, 2009), lower risk of substance use (Barber et al., 2001; Bohnert & Garber, 2007; Fredricks & Eccles, 2006), better self-perceptions (Durlak et al., 2010), stronger relationships with peers and adults (Bohnert et al., 2007; Logan & Scarborough, 2008), and potentially improved mental health (Randall et al., 2016), among others.

Research has shown that suicide, depression, and anxiety are on the rise for adolescents and that these figures are higher for females than males (CDC, 2018). While personality (Cloninger, 2012), happiness (Lyubomirsky, 2005), ability to set and achieve goals (Guilmette et al., 2019), and genetics can potentially influence an adolescent's mental health (Lykken, 1999), the environment they are in has a significant impact as well. Students need to be engaged in supportive environments that provide opportunities for physical, social, cognitive, and psychological development (Eid, 2008).

According to the CDC (2020), schools provide students with a significant opportunity to develop socially and emotionally through staff and fellow students' psychological and emotional

support. The CDC emphasized schools offer essential services for social and emotional learning (SEL) and that anxiety and depression may increase when students do not have routine and structure in their lives. Herrman et al. (2005) explained that students need to engage in these social and emotional learning opportunities to develop positive mental health skills. Positive mental health is fostered in supportive environments, offers social opportunity and individual growth, which can be achieved through educational and group activities, along with civic engagement (Herrman et al., 2005).

Feldman and Matjasko (2005) completed a multi-study analysis of many factors and outcomes from participation. They found that the literature is still sparse for well-being and psychological adjustment and that findings have led to mixed results. Lerner et al. (2005) also concluded similar findings for psychological adjustment, stating that there is no strong correlation between a youth's involvement and positive adjustment; however, they also hypothesize that this correlation may become more prominent as students age. Farb and Matjasko (2012) studied the relationship between extracurricular involvement and psychological adjustment and found it led to mixed results because the context and type of activity matter.

This study looks at how extracurricular activities' involvement is associated with mental health by looking at a composite depressive score from students' self-reported statements. The type of activity students are involved in and their gender may influence the outcome and are considered as well.

This chapter will review the literature pertaining to this research study. An in-depth overview of mental health, extracurricular activities, and the impact of gender will be covered. The sections are organized as follows: (1) overview of mental health and depression, (2) statistics of mental health and suicide, (3) depression vs. teen angst, (4) factors that influence

mental health, (5) history of extracurricular activities, (6) the general impact of extracurricular activities, (7) influence of extracurricular activities on mental health, (8) how the type of extracurricular activities influences the outcome, (9) how the type of activity impacts mental health, (10) the differences by gender for participation, and (11) a summary.

Overview of Mental Health and Depression

Over the last 20 years, mental health and depression have become more common, causing researchers to look more closely at the impact of extracurricular activities on students' mental health and well-being. This research study dives deeper into this area, but first, a background on mental health and well-being needs to be established.

The World Health Organization (WHO) defined a person's health as not just the absence of sickness, injury, or disease, but also including their physical, mental, and social well-being (2001). A person's well-being considers their overall health, including both their mental and physical health (US Department of Health & Human Services, 2020). Well-being results from positive experiences and is a measure of how people perceive their lives are going. Research shows people who have a higher well-being exhibit healthy behaviors, live longer, are less likely to have mental and physical illnesses, are more productive, and are more socially connected (CDC, 2018).

However, mental health does not include physical health but instead focuses on psychological, emotional, and social well-being. Mental health is not just the absence of a mental illness; it is also an ability to live a productive life while coping with and handling stress (CDC, 2018). Mental health also influences how a person thinks, feels, and acts. To maintain positive mental health, researchers stress people should socialize, maintain a positive attitude, be

active, help others, develop coping skills, and sleep well. Someone who has more negative mental health may display feelings of hopelessness, turn to drugs and alcohol, have a reduced diet, feel more extreme negative emotions, be more combative, have low energy, be unable to handle daily life tasks, and in more extreme cases have feelings of self-harm (US Department of Health and Human Services, 2020b).

Two notable mental health disorders are anxiety and depression. Anxiety is when individuals feel anxious and worried, making it difficult for them to remember, concentrate, and sleep. Anxiety is categorized by episodes: mild, moderate, or severe. While an individual with mild anxiety tires easily, they can perform daily activities. An individual with moderate anxiety will exhibit mild symptoms but will also have difficulty going through their daily activities. A severe anxiety disorder is when a person loses the enjoyment of living and contemplates suicide. Major depressive disorder (MDD) is a common disorder for children and adults that can lead to suicidal ideation and actions (Brent & Birmaher, 2002). A major depressive disorder is when an individual feels constant sadness and is not interested in daily activities. A depressive episode may include difficulty sleeping, low concentration, and thoughts of self-harm. Depression is also classified as mild, moderate, and severe. In a mild episode, individuals experience many depressive symptoms but can get through daily activities with extra effort. With a moderate episode, the person struggles in their day-to-day life and occasionally thinks about self-harm. In a severe depressive episode, the person may lose touch with reality, and the situation becomes life-threatening (WHO, 2018).

Statistics of Mental Health and Suicide

In recent years, mental health illnesses, including depression and anxiety, have been on the rise. According to The Lancet (2019), depression ranks fourth among leading causes for disease and injury for individuals between 10 and 24 years old, behind self-harm (third), headache disorders (second), and road-related incidents (first). A 2011 study concluded that one in five adolescents has a psychiatric disorder and that the rate increases as they age. These disorders include panic attacks, depression, agoraphobia (fear of large crowds), ADHD, and substance use. During the adolescent period, individuals develop internalizing disorders such as depression and anxiety (Costello et al., 2011; Kessler et al., 2007). Kessler et al. (2005) also reported that about half of mental disorders start during the mid-teens, and three-quarters develop by the time the individual reaches their mid-20s. For adolescents with mental disorders, 28.8% were anxiety disorders, 24.8% were impulse control disorders, 20.8% were mood disorders, and 14.6% were substance use (Kessler et al., 2005).

In 2016, Mojtabi et al. studied approximately 175,000 adolescents 12-17 years old and 175,000 adults aged 18-25. They reported that major depressive episodes increased from 8.7% in 2005 to 11.3% in 2014 for adolescents and 8.8% to 9.6% for the adult group. These increases led to more hospitalizations and medication prescriptions for mental health (Mojtabi et al., 2016). Hunt and Eisenberg (2010) shared similar findings in a study of college students compared to non-college students. They reported that regardless of school status, mental health disorders were increasing in both number and severity.

Curtin et al. (2016) also found that from 1999 to 2014, the suicide rate increased from 10.5 to 13 per 100,000 people. These numbers were higher after 2006 and significantly higher for females ages 10-14. In 2016, the CDC reported that considerations for suicide, having a plan

about suicide, attempted suicide, and surviving suicide with medical attention all generally increased from 1991 to 2015, with a stretch of decrease during 2009. The exception was having a plan for suicide, which decreased from 18.6 per 100,000 people until 2009, then increased to 14.6 (CDC, 2016). Suicide is the second leading cause of death for individuals between 10-14, 15-24, and 25-34 years old (CDC, 2018).

While these numbers are on the rise, some authors argue that attention to mental health has increased, which has led to more diagnoses and a greater willingness for insurance companies to cover prescription medications (Costello et al., 2006). Gunnell, Kidger, and Elvidge (2018) reported significant increases and posited that the cause of these statistics is uncertain. They cannot be sure whether adolescents are opening up more, diagnoses are more common, or the numbers have genuinely gone up. According to Keyes et al. (2019), there is insufficient research in this area, and as technology and health rapidly change, so may the influence of depressive symptoms. More recent data is needed in this area. While this study cannot diagnose or label an adolescent as depressed, the resulting data may further shed light on this topic and the prevalence of students who self-report depressive symptoms.

Depression vs. Teen Angst

Until the early 2000s, it was not believed that adolescents' brains had developed enough for a chemical imbalance leading to depression to occur, and therefore it often went undiagnosed. Since depression was not readily accepted for adults during this time, it was primarily undiagnosed in adolescents and children. Koplewicz argued that the chemical imbalance in adolescents is equivalent to adults and that roughly ten million adolescents could be diagnosed with psychiatric disorders if taken to a doctor. Instead, many parents see it as "just a phase" and

do not get their kids evaluated. Koplewicz stressed that when people have physical ailments, they do not brush them off, and neither should parents with children who have mental disorders (Koplewicz, 2002).

As children grow up and begin to display symptoms of depression, many go unnoticed or are attributed to "teen angst." These depressive symptoms include playing video games for long hours, sending hundreds of text messages, not sleeping well, and not getting enough exercise each day. Too often, teenagers feel their only escape from their feelings is suicide and do not recognize ways to seek help. School systems can play an integral role in suicide prevention through programs and identifying at-risk students (Onieal, 2017).

Depression may be stigmatized, with adolescents' symptoms perceived as 'teenage angst,' and individuals simply need to 'pull themselves together.' Adolescents reported that their parents do not recognize the severity of their symptoms and give advice to 'cheer up,' 'stop being lazy,' or 'push through the phase.' The adolescents who have experienced these responses shared that it often only makes them feel worse when their parents brush it off. In these instances, parents do not allow their children to be more open about how they are feeling, preventing diagnosis and worsening symptoms. As a result, teenagers often try to avoid the stigma associated with depression and second guess sharing how they feel with others. It is crucial to normalize depression as a severe disease to encourage acceptance (Issakainen, 2014).

Factors that Influence Mental Health

The following section will outline the different factors that influence mental health, including personality, ability to set and regulate goals, genetics, and the role of the environment.

Personality

Cloninger (2011) studied the impact of individuals' personalities on their well-being. He found that personality explained half of the variance in happiness and one-third of the variation in wellness and concluded that social, physical, and emotional well-being are connected and dependent on each other. He also explained that different combinations of character traits impact how people perceive their happiness and wellness (Cloninger, 2011). In a later study, Cloninger (2012) found that individuals with the same personality traits can experience different health outcomes, while individuals who are different can have similar outcomes. He stressed that more empirical research is necessary to determine what promotes healthy personality development and well-being (Cloninger, 2012).

Happiness, also known as subjective well-being, is a combination of variables that include positive and negative feelings and life satisfaction. Diener et al. (2009) found that happy people are more successful in many aspects of life. They tested multiple models that showed happiness not only precedes success; it is often associated with it. Lyubomirsky et al. concluded that positive affect (happiness) is integral to overall well-being, and it is one of the main goals in human life (2005).

Gilman and Huebner (2006) studied high school students using the Students Life Satisfaction Scale (SLSS). Based on the resulting scores, students were split into three tiers: low (20%), middle (50%), and high (20%). The results showed that students in the high group had no psychological symptoms, whereas 7% of the average group reported clinical symptoms. In comparison, 42% of the low group reported symptoms. They concluded that students with higher life satisfaction found mental health benefits compared to the groups reporting lower levels of satisfaction. These findings were similar for Barker et al. (2016), who explained that

people who experience a higher level of positive affect tend to have more favorable outcomes, even with stretches of negative affect. Having a higher positive affect leads to an ability to regulate emotions and improve emotional capacity into adulthood.

Steel et al. (2008) conducted a study measuring productivity and life satisfaction while looking at personality traits. Their results showed that the gap between personality traits and well-being was four times greater than the previous meta-analysis. They concluded that there is a lot more to determining well-being than merely looking at personality (Steel et al., 2008).

Goal Setting

Humans play an active role in shaping their lives through goal setting, long-term goals, and disengaging with them when they are no longer achievable (Heckhause et al., 2010). Haase et al. (2013) conducted a study focusing on how individuals regulated their goals, looking at the impact on their happiness and ability to live a healthy life. They found that people who can regulate their goals improved their well-being as they got older. Wrosch et al. (2013) conducted a similar study and found that students who can disengage from unachievable goals are more likely to decrease negative aspects of well-being and ultimately improve their lives. They concluded that people with positive well-being are associated with an ability to re-engage with goals, but it is not a predictor of psychological disorders.

Guilmette et al. (2019) corroborated these findings and suggested that individuals involved in extracurricular activities tended to persevere better through challenges, which impacted students' positive affect, leading to improved academics and happiness. Disengaging from unachievable goals helps decrease negative well-being. Graham et al. (2002) found a similar association, concluding that setting goals was a predictor of emotion for adolescents who

participated in sports. Denault and Poulin (2009) recognized the potential relationship between involvement in activities and goal setting, recommending future research in this area.

Genetics vs. Environment

Depression and anxiety are both influenced by genetics and have an impact on subjective well-being (happiness). A study by Lykken (1999) on monozygotic and dizygotic twins determined some of the variability in happiness can be explained by genetics; however, it is important to note the family environment may play a role and influence the twins' well-being. Nes et al. (2002) also studied twins using the Subjective Well-being Questionnaire (SWB) to determine the genetic impact compared to environmental factors. They concluded that genetics were a substantial influence on resulting well-being but also noted environmental factors also played a role.

While Eid (2008) found genetics might impact the development of illnesses such as depression, he also realized the environment is a significant factor. Family environment can significantly impact adolescents' development, influencing the outcome. Eid emphasized there is no single variable that influences well-being; instead, it is a combination of factors. Many other researchers recognize the role the environment plays, stating that the surroundings influence overall well-being (CDC, 2018; U.S. Department of Health and Human Services, 2020a).

Nonetheless, Palen & Coatsworth (2007) argued parents had less of an effect than expected. Compared to school and other activities, they posited that students often spend less time with their parents, which lessens parents' impact on the adolescent's psychological development. Especially considering adolescents tend to hide psychological and behavioral

problems from parents, their impact is minimized. Since parents have less impact, development must come from other opportunities, such as extracurricular activities (Palen & Coatsworth, 2007). Damon (2004) looked at positive youth development to consider the interaction between nature and nurture. Environmental factors include expectations set upon individuals, the amount of responsibility they have, their role in the community, and the influence on their morals and values.

Eccles and Gootman (2002) agreed that programs for adolescents provide an opportunity for growth, specifically physical, cognitive, and social-emotional development. The more diverse activities students are involved in, the greater their development will be, as each opportunity provides a unique structure. They argued that students need to be involved in diverse opportunities, as no single organization can teach students everything. Fredricks et al. (2002) emphasized that organizations need to create an environment where students feel connected, competent, and are recognized for their work. If they can also enjoy the social aspect, they will benefit from participation.

According to the research above, extracurricular activities can provide an environment that can potentially influence mental health. An overview of extracurricular activities and their impact will be reviewed in greater detail below.

History of Extracurricular Activities

Extracurricular activities began in the 19th century, with schools such as Yale and Harvard providing opportunities for involvement in Greek organizations and debate clubs (Massoni, 2011), and then they filtered down into high schools. Support for extracurricular activities was inconsistent at best, as educators were skeptical of the benefits these activities

provided. The leading opinion was that schools should be academic-based, and students should only focus on their education. During the 19th century, educators felt that extracurricular activities might take away from student learning (Marsh & Kleitman, 2002). Holland and Andre (1987) argued that students only participated in activities they enjoyed and ones that validated their sense of self. The idea was also that involvement resulted from existing characteristics such as intrinsic motivation, parent expectations, and scheduling convenience; however, they could not conclusively determine this in their study, only providing indirect evidence. While Holland and Andre made these claims, many studies since then have continued to demonstrate the impacts extracurricular activities had in a plethora of areas across all levels of education.

A longitudinal study by Marsh in 1992 used a large and nationally representative sample measuring 22 outcomes for seniors and post-secondary students. The study found that 17 of the outcomes were significant and had a positive relationship, including academic achievement, social skills, educational aspirations, absenteeism, and more (Marsh, 1992). Csikszentmihalyi (1990) found similar positive relationships when looking at participation and an individual's reported self-concept and self-esteem. Bandura's study in 1977 explained that involvement leads to a higher self-efficacy, which translates to a greater ability to cope, a better ability to focus, and more persistence. These values ultimately improve students' behavior and overall outcomes through their psychological development from involvement (Bandura, 1977). Eckert (1989) explained these positive outcomes make sense because as students participate, they share experiences with other group members, which provides both structure and instills a set of norms and values upon the students.

General Impact of Extracurricular Activities

As some of the older studies above indicated, there are various outcomes for students who participate in extracurricular activities. One of the more studied outcomes is academic achievement. Dearman (2017) found a significantly positive relationship between participation in activities and resulting GPA and ACT scores. Many other studies also reported improvements in academic achievement as measured by GPA (Dick, 2010; Knifsend & Graham, 2012; Sitkowski, 2008), showing an increase in SAT scores (Craft, 2012), an improvement in literacy (Shulruf et al., 2008), and graduation rates (Gifford et al., 2011). Some schools even used activities as an academic intervention for students who struggled and were not involved in clubs (Howard & Ziomek-Daigle, 2009).

Attendance rates have been another outcome that is frequently studied. Research shows that students who were more involved typically felt schools were safer, fostered a more positive learning environment, and were, therefore, more likely to go to school (Wilkins, 2008). These results were similar for many other studies, which all concluded students who participated had fewer absences in schools (Dick, 2010; Feldman & Matjasko, 2005) and a higher graduation rate (Wilson, 2009). Reeves (2008) even proposed changing school policies that prevent students from participating due to low grades or poor attendance to help students improve. Killgo (2010) argued that involvement serves as an incentive to keep students in school, which ultimately decreases the dropout rate, especially for disadvantaged students.

It is becoming more evident that participation can have a meaningful impact on adolescents and their development, which includes their initiative, ability to engage in teamwork, ability to cope, identity development, and having a firmer grasp on their place in society (Vandell et al., 2015). Adolescents who participate in extracurricular activities experience age-

appropriate development opportunities that foster autonomy, creating self-identity, forming relationships, and improving achievement (Forgeard & Benson, 2017; Vandell et al., 2015).

While academic achievement and attendance were two common outcomes for participation, several studies found substance abuse decreased for students involved in activities (Barber et al., 2001; Bohnert & Garber, 2007; Fredricks & Eccles, 2006). Other outcomes included developing social skills (Barber et al., 2005; Fredricks & Eccles, 2008), improvement in behavior that led to less discipline (Darling et al., 2005), reduced criminal behavior (McNeely et al., 2002), development of meaningful relationships with adults (Bohnert et al., 2007; Logan & Scarborough, 2008), development of leadership skills (Strapp & Far, 2009), improved self-perceptions (Durlak et al., 2010), greater self-confidence (Kort-Butler & Hagewen, 2011; Usher & Kober, 2013), and developing non-cognitive skills, among others (Gutman & Schoon, 2013).

Extracurricular Activity Impact on Mental Health

According to the CDC (2020), schools provide students with a significant opportunity to develop socially and emotionally through staff and students' psychological and emotional support. The CDC emphasized schools offer essential services for social and emotional learning (SEL) and that anxiety and depression may increase when students do not have routine and structure in their lives. Herrman et al. (2005) explained that students need to engage in these social and emotional learning opportunities to develop positive mental health skills. These positive skills are fostered in supportive environments that offer social opportunity and individual growth through educational and group activities and civic engagement (Herrman et al., 2005). Kobau et al. (2010) concluded that well-being is maximized in these supportive environments, which leads to a productive and satisfying life. Randall et al. (2016) found that

students who choose to participate in activities on their own accord saw more benefits, while students who were forced to participate reported lower levels of satisfaction participating in their respective activities.

Bohnert and Garber (2007) conducted a longitudinal study including 198 adolescents from lower-middle to middle class outside a metropolitan area that looked at psychopathology as a predictor of organized activity involvement. They found that students who showed more depressive symptoms in 8th grade were less involved in clubs and that students who were more involved showed fewer symptoms, in addition to less substance abuse and fewer behavioral disorders throughout high school. They support the value extracurricular activities have on adolescents (Bohnert & Garber, 2007).

Mahoney et al. (2002) looked at the relationship between detached parents and students' depressive symptoms. Their findings indicated that adolescents who have detached parents but participated in an extracurricular activity reported fewer depressive symptoms than their peers who did not participate (Mahoney et al., 2002). Ultimately, being involved in extracurricular activities leads to a greater level of well-being (Gilman, 2001; Guilmette et al., 2019; Palen & Coatsworth, 2007). Melman et al. (2007) concluded similar findings between participation in organized activities and lower levels of depression; however, their study showed that more time participating led to higher anxiety levels, as they were likely to have busier schedules.

Several studies have reported inconclusive results for participation and its impact on mental health. Feldman and Matjasko (2005) completed a multi-study analysis of many factors and outcomes from involvement. They found that the literature is still sparse for well-being and psychological adjustment and that findings have led to mixed results. Lerner et al. (2005) concluded similar findings for psychological adjustment, stating that there is no strong

correlation between youth's involvement and positive adjustment; however, they also hypothesize that as students got older, this correlation became more prominent. Farb and Matjasko (2012) found the relationship between extracurricular involvement and psychological adjustment has led to mixed results because the context matters. Therefore, it is essential to look at the type of activities students are participating in to draw more specific conclusions.

How the type of extracurricular activity influences the outcome

It is important to recognize there is a difference between structured and unstructured activities. Structured activities are typically facilitated by a school or organization, while unstructured activities occur without adult supervision during an adolescent's leisure time (Zarrett, 2007). School-age children across the US and other nations spend nearly half of their time in leisure activities (Larson & Verma, 1999). Being involved in structured school activities leads to various positive outcomes, while more negative psychosocial outcomes exist for unstructured activities (Gilman et al., 2004; Mahoney & Stattin, 2000). Dotterer et al. (2007) found similar outcomes with structured activities leading to higher self-efficacy and greater school bonding, while unstructured activities had a negative effect on academic performance.

Organized school activities are associated with academic success, positive mental health, developing a sense of identity, civic engagement, developing positive relationships, and more positive behavior, among others. These benefits give way to more positive long-term educational success and prepare students for the future. While the findings are generally positive, the type of activity may lead to different outcomes, and further research is needed in this area (Mahoney et al., 2005). Simpkins posited that participation in extracurricular activities would vary widely for each person by the type of activity and time spent in each activity. Each

activity has nuanced characteristics that will impact students differently. Simpkins emphasized that it is not the number of activities that makes a difference; the critical factor is what the students gain from the activity (Simpkins, 2015). The outcome of participation depends on the specific activity students are involved in (Fujita, 2006). Raymond et al. (2006) explained it is important also to consider that while students put an activity on their resume, it does not mean that they meaningfully participated or gained anything significant from it.

The outcome of activities can change depending on the type of activity (breadth), the time they have committed to it (intensity), how many years they have been involved (duration), and how engaged they were during their time participating (engagement). Bohnert et al. (2010) cautioned that these factors might overlap, making it harder to conclude accurately. They stressed that it is essential to determine whether more intense participation in one or two activities yields more than being involved in a diverse number of activities.

Breadth and Intensity

Broh (2002) found mixed results from reviewing the literature on the impact of participating in different extracurricular activities. Some activities lead toward improvement in academic achievement, while others saw results diminish. Students who participated in high school sports saw positive results, while students who participated in intramural sports or music programs saw varied results. He concluded that not all forms of involvement led to the same type of results, which creates a need to determine each specific impact (Broh, 2002). In Woodstock High School in Illinois, the administration approves a club once six or seven students are interested. Reeves (2008) studied this school and concluded that students who are in three to four activities see a significant increase in grades compared to non-participants. He concluded

more than four activities did not make a difference. While he could not determine causality, he could say with certainty that participating in three or four activities has no negative impact (Reeves, 2008).

Larson et al. (2006) studied 2,280 11th grade students across 19 diverse high schools and broke activities into different categories, including faith-based, sports, academic clubs, community-oriented, service-based, and performing arts. The study's goal was to look at average experiences in each activity type compared to classes, work, and leisure activities. They concluded that students in all activities gained more from participation than they did from class. For performing arts, students demonstrated a higher initiative but lower rates of teamwork and positive relationships. Community-based activities led to stronger relationships with adults but lower rates of teamwork and controlling emotions. Service activities showed higher teamwork and relationships but lower rates of regulating emotions. Faith-based activities had higher rates in all areas, while academic clubs had lower scores in all areas compared to the rest of the activities (Larson et al., 2006).

Lewis (2004) conducted a meta-analysis of 164 studies and identified six categories for extracurricular activities: sports, performing arts, prosocial, general, work and vocational, and community-based activities. He found that general activities and prosocial activities significantly impacted academic achievement, while performing arts and prosocial activities significantly impacted students' self-esteem. Overall, there were more negative outcomes for sports and cheerleading, including no link to academic achievement and lower self-esteem. Ultimately, Fredricks and Eccles (2006) concluded that participating in multiple activities may help make up for a negative experience or outcome in one activity.

While many studies considered the intensity of involvement in each activity, very few did so without considering the breadth of involvement (Bohnert et al., 2010). Several studies concluded that the diversity of activities and the time participated in each are related (Bohnert et al., 2010; Busseri et al., 2006). These two factors (breadth and intensity) can lead to the same results, as students who participate in multiple activities will commit time to each, which can be equivalent to the time dedicated to just one activity. They concluded that youth who do not attend consistently would not gain the same outcomes (Feister et al., 2005). Ultimately, students need exposure to the activity to gain positive outcomes from the experience (Hansen & Larson, 2007).

In a study that looked at the impact on high school students' GPAs in 2017, Ritchie (2018) reported that an increase in the number of activities and in the time participating both led to a higher GPA. Mahoney et al. (2006) looked at participation in structured activities and the time spent per week on academic achievement, graduation, achievement in secondary education, psychological adjustment, and drug use. They found a positive association between time participating and the resulting outcomes. As students committed more hours each week, they gained more positive outcomes, and there was no evidence of a point where this would change to a negative result from over-scheduling (Mahoney et al., 2006). While Fredricks (2012) also looked at breadth and intensity and concluded positive outcomes for academics, test scores, and educational expectations, she determined there is a point where too much commitment leads to a decline in results.

Duration

The number of years a student participates in an activity can also meaningfully influence the result. Gardner et al. (2008) found that students who participated in at least two years of activities were more likely to succeed at the post-secondary level. This study did not consider whether participation was continuous for two years or stopped and then resumed. However, the outcome did not change whether students participated in school-based or community-based activities (Gardner et al., 2008). Theokas et al. (2006) cautioned that measuring duration does not measure consistency. Many studies do not consider whether a student stays with the same activity over time and that youth often change activities over the years.

Darling et al. (2005) found the length of time was associated with higher grades, higher academic aspirations, and more positive school attitudes. These outcomes were consistent for students involved in year 1, year 2, or both years of the study and were only different from students who did not participate at all. Mahoney et al. (2003) reported similar research results that looked at students with two years of involvement, one year of involvement, and no involvement. They found that students who participated consistently had higher overall achievement and a greater likelihood of going to college.

Engagement

There is no one indicator for determining how effective a program is; instead, all of the components will lead to a stronger program. Participation should be measured through engagement in the activity, which is defined by giving meaningful interest and attention to the activity in an effort to gain new skills and learn something from participating (Weiss et al., 2005).

Larson (2000) studied adolescents' motivation and concentration across participation in structured and unstructured activities. He found that students showed higher engagement levels when participating in extracurricular activities, which led to significant developmental opportunities and experiences that students could not find elsewhere. While students had high motivation levels in structured and unstructured activities, only structured activities showed high concentration. He concluded that more engagement leads to stronger psychosocial skills over time, which leads to more positive outcomes in life (Larson, 2000).

Zehner (2011) also looked at engagement and found the more satisfied students were, the more involved they were in activities. Students who had a full class schedule were also the most involved in activities and typically had higher GPAs. He cautioned that engagement does not necessarily lead to satisfaction, and there is no causal relationship (Zehner, 2011).

Each of these factors can be accounted for in this study to varying degrees. Participation in activities will be broken down by activity type (breadth), and a combination of intensity, duration, and engagement will be included through a score measuring the extent of involvement.

How the type of activity impacts mental health

Studies have shown continuous participation in extracurricular activities can help students decrease depressive symptoms as they move into adulthood, ultimately improving their mental health (Viau & Poulin, 2015). This involvement leads to greater levels of well-being for structured activities (Dotterer et al., 2007). Being involved in extracurricular activities with sufficient breadth and intensity has led to greater levels of well-being. These results were consistent across all ages, utilizing self-reports of 7,430 high school students (Rose-Krasnor et al., 2006). Mahoney et al. (2005) shared that while findings are generally positive for mental

health involvement in extracurricular activities, the type of activity may lead to different outcomes, and further research is needed in this area.

Farb and Matjasko (2012) explained the relationship between extracurricular involvement and psychological adjustment has led to mixed results because the context matters. Therefore, it is important to look at the type of activities students are participating in to draw more specific conclusions. This study aims to explore this relationship further.

Bartko and Eccles (2003) grouped 918 adolescents into activity categories of sports, school, volunteer, uninvolved, highly involved, and work. They concluded that active involvement in structured activities leads to more positive mental health, whereas little or passive participation did not. They stressed there is more than one path to get there and that one specific activity did not change the outcome (Bartko & Eccles, 2003).

Darling (2005) grouped students by activity: sports, performing groups, leadership groups, clubs, and none, measuring the intensity and considering duration during a three-year longitudinal study. The study aimed to determine whether participation lowers substance use, lessens depression, increases grades, boosts academic aspirations, and improves school attitude while considering students' stress levels in their lives. Darling found no difference in self-reported depressive symptoms across any category, and depression only increased with more reported life events (Darling, 2005).

While several studies showed no difference in depression based on the type of activity, others did. Fredricks and Eccles (2005) grouped students across grades 9, 10, and 12 into team sports, school involvement activities, performing arts, and academic clubs. They concluded that students in athletics and school involvement activities had statistically significantly lower rates of depression; however, the results were inconclusive for performing arts and academic clubs

(Fredricks & Eccles, 2005). Barber et al. (2001) broke involvement into four categories: prosocial activities, team sports, performing arts, and school involvement. While athletes had the lowest rates of depression, performing arts students had higher suicide rates and psychological doctors' visits by age 24 (Barber et al., 2001).

Differences by gender

Research has shown a difference between males and females regarding depression, anxiety, and mood disorders. According to the WHO (2008), depression is 50% higher for females compared to males, and females also have higher rates of anxiety. In addition, depression is the leading cause of disease for women aged 15-44 in all income level countries (WHO, 2008). Fitzgibbons (2005) stated depression is an epidemic and that 25% of female adolescents report depression, and 29% have considered suicide. Looking at the suicide rate and its increase from 1999 through 2014, Curtin et al. reported that the rates were especially higher for females from 10 to 14 years old (2016).

While Stevenson & Wolfers (2009) found that men tend to be happier and report higher levels of subjective well-being, Inglehart (2002) stated that prior research has found men and women have similar levels of happiness, life satisfaction, and subjective well-being. Also contradicting much of the recent literature, Lasgaard et al. (2011) concluded that gender did not predict depressive symptoms, loneliness, or suicidal ideation over time.

Nes et al. (2002) found that there are reported gender differences in an individual's subjective well-being but that more research is needed in this area. Issakainen (2014) stated women experience depression more often than men, and the disparity grows more significant during adolescence. Rossler (2016) found that women have a greater chance of developing

anxiety or mood disorders throughout their lives. Her findings concluded gender should be considered more strongly when it comes to research, training, and practice.

While Mahoney and Stattin (2000) concluded there are no gender differences for adolescents involved in structured compared to unstructured activities, Fusco (2008) argued there are inequalities in gender when considering youth's perceptions of school opportunities. Fusco posited that after-school programs provide meaningful opportunities to develop and are helping close the gender gap. Females had higher participation in school involvement activities, performing arts, and academic clubs compared to males (Dearman, 2017) and were also involved in more activities for a longer time (Ritchie, 2018). Ultimately, while girls report higher levels of depressed mood, the benefit of participation is consistent for both females and males (Mahoney et al., 2002).

In athletics, while females tend to engage in less physical activity and have worse mental health (Halliday et al., 2019), participation can lead to indirect improvements in depressed mood. Gore et al. (2001) found that girls with lower GPAs typically reported less depressed moods when involved in athletics.

It should be noted that while this study looks exclusively at males and females, Heise et al. (2019) argued that gender is not a simple dichotomy of male or female. While individuals are typically born biologically male or female, gender identification, sexism, and discrimination based on gender can impact adolescents' mental health. These issues are compounded by policies, laws, and institutions, which can have an adverse effect on an adolescent's mental health (Heise et al., 2019). Gender norms and the acceptance of gender norms by parents and peers can also influence adolescents' future health. Feeling rejected on the basis of gender can harm individuals' mental health (Weber et al., 2019). A meta-analysis of 77 studies published

between 1997 and 2017, which looked at mental health outcomes for transgender or gender non-conforming individuals, concluded that depressive symptoms, risk of suicide, and anxiety have all been higher for individuals of this population (Valentine & Shipherd, 2018). Roberts et al. (2013) studied the depressive symptoms of 10,655 individuals from ages 12 through 30, focusing on gender nonconformity (not fitting into the binary classification of male or female) by 11 years old. They found individuals in the top decile of gender nonconformity experienced more depressive symptoms and concluded that gender nonconformity in adolescence was a strong predictor of depressive symptoms. Physical and emotional bullying accounted for a lot of this risk (Roberts et al., 2013).

Summary

The literature demonstrates that depression and suicide are on the rise, especially for females. It is apparent that while genetics, personality, and the ability to set goals could influence mental health, adolescents' environment can also significantly influence their mental health. Participating in extracurricular activities can provide an environment that promotes positive development, which could improve mental health. Involvement in different activities may lead to different results, and other factors, including the extent of commitment, the number of years they participated, and the level of engagement, can also affect mental health outcomes. It should be noted that these outcomes, while generally positive, may vary based on gender.

While studies have looked at the impact of participation on mental health in terms of gender differences and how each activity is different, no one study has looked at all the variables at once. This study is designed to determine whether there is an association between the type of

extracurricular activity and mental health (utilizing a depressive score explained in Chapter 3) and whether any association varies by gender.

It should be noted that this study is not designed to ascertain causality between participation in extracurricular activities and improved mental health. There are too many factors that play into mental health and depression and its diagnosis to state confidently that one impacts the other. Instead, this study is intended to shed light on the possible association between extracurricular involvement and mental health while considering the effect of gender.

CHAPTER 3: METHODS

Introduction

This study was conducted to determine an association between involvement in extracurricular activities and a high school senior's mental health, specifically looking at whether there is variation between males and females. This study also explores whether this association changes based on the type of activity a student is involved in. This information could help administrators make informed decisions regarding which school-sponsored extracurricular activities should be promoted and supported, especially when determining where to make budget cuts (or preservations).

Research Questions

1. To what extent does participation in school-sponsored extracurricular activities impact an adolescent's mental health?
    a. To what extent does this impact vary by activity?
    b. To what extent does this impact vary by gender?

Research Design

This dissertation uses publicly available secondary quantitative data from a 2018 study by Monitoring the Future, published through the Inter-University Consortium for Political and Social Research (ICPSR), a consortium of 750 institutions that maintain and provide data for education and research. This study pulls from 12th-grade students' four self-reported Likert statements scored from 1-5 about life satisfaction, combined to create a composite score for depression (with a total range of 4 - 20). Students were also asked to rate their involvement in

six different extracurricular activities categories, scored from 1-5. These measurements are combined to create a composite score of participation from 6-30 in the first model, and all six activities are used individually in the second model. Since these variables are continuous, a series of linear regression models are utilized, studying the association between involvement in activities (independent variable) and their composite score for depression (dependent variable). These models are set up so that more variables are added to each successive model, detailed below. This method helps isolate the association between the independent variables included and the composite depressive score. Multiple covariates are used, including parent education as a proxy for SES, race, parental involvement, students' academic performance, whether they enjoy school, their weekly hours at a part-time job, and how much time they volunteer and engage in sports or exercise outside of school.

Participants and Sampling

This research study uses secondary data from the Inter-university Consortium for Political and Social Research (ICPSR). This study randomly surveyed 12th-grade students in the United States on their behaviors, values, and lifestyles, drug use, and more. This study was conducted during 2018 at the Institute for Social Research at the University of Michigan, funded by the United States Department of Health and Human Services, the National Institutes of Health, and the National Institute on Drug Abuse. The respondents were a random nationally representative sample that spanned the four regions based on the Census Bureau (Northeast, Midwest, South, and West); however, a representative sample is not maintained for smaller regions (states, counties, or cities). A multistage area probability sample was used with three stages: primary sampling units (PSUs) at the geographic level, schools, and then students within

the school. There were 72 PSUs, where eight were selected with certainty, 10 with a probability of .50, and the rest were based on probability from the 2010 Census. For schools with under 350 seniors, the entire population was typically used; however, they used a random sample in schools with more than 350 seniors. This study spanned two years, so half of the sample could be replaced. Any school that chose not to participate was replaced with a school of similar size, type, and geographic location. All personally identifying information was removed or re-coded for public use to ensure the anonymity of all participants. Ultimately, the overall response rate was 81%.

In the 2018 study, 128 schools are included: 106 are public schools, and 22 are private schools. A total of 14,502 students answered one of six questionnaires that included roughly 1,400 variables. Each questionnaire consisted of 364 questions, which are slightly different but maintain a core set of questions and demographic information. The survey was administered to students during a class period in school by the University of Michigan staff members. This study utilizes data from the last questionnaire, Form 6, which included 2,424 students, provided information regarding the types of extracurricular activities they are involved in, the extent to which they participated, and questions about life satisfaction.

While a similar study exists for eighth and tenth-grade students, this data cannot be used due to a lack of specificity in extracurricular activity variables, limiting the sample to high school seniors. Seniors are the best population to study because research shows about half of mental disorders start during the mid-teens, and three-fourths occur by the mid-20s (Kessler et al., 2007). Focusing on seniors provides a better representation of how extracurricular activities impact students in this area. They would have potentially been involved for four years during high school, compared to eighth grade and tenth-grade students who would likely have less

participation experience comparatively. Students do not reach their peak in participation until at least their junior year, at which point they are more mature and should be able to identify how they have changed and developed based on their experiences (Larson et al., 2006). In addition, prior research shows adolescent boys do not reach their peak in depressive symptoms until age 17 (Keyes et al., 2019). Using seniors in this study best encompasses participation and depressive symptoms.

Data Sources and Collection

This study uses pre-existing data from Monitoring the Future's 2018 survey of 12th-grade students. The 2018 study was conducted by the Institute for Social Research at the University of Michigan in 2018 and was funded by the United States Department of Health and Human Services, the National Institutes of Health, and the National Institute on Drug Abuse. Only data from Form 6 of this study is utilized, as this is the only one of the six forms that collect detailed responses for participation in extracurricular activities. This data was selected because it conveniently offered a large sample (2,424 participants) while providing a consistent and reliable data source, having been conducted annually since 1975.

Variables

Depressive Score

From this data, a composite score for depression (dependent variable) is created using Likert statements rated by the students, answering "How much do you agree or disagree with each of the following statements?" These statements are coded 1 (disagree) to 5 (agree): 1 = "Disagree," 2 = "Mostly Disagree," 3 = "Neither," 4 = "Mostly Agree," and 5 = "Agree."

Participants responded to four statements: “Life often seems meaningless,” “The future often seems hopeless,” “It feels good to be alive,” and “I enjoy life as much as anyone,” reverse coding the last two for comparative purposes. This variable was also utilized in a relevant study by Keyes et al. (2019) working with this same data and was used in multiple other studies utilizing data from Monitoring the Future (Maslowsky et al., 2013; Maslowsky et al., 2014; Schulenberg & Zarrett, 2006). This variable is sufficient to represent depressive scores because it maps onto two symptoms (feelings of worthlessness and recurrent thoughts of death) for major depressive episodes on the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) (American Psychiatric Association, 2013). In addition, the four statements used to create this scale are similar to other statements commonly referenced in other research (Keyes et al., 2019; Radloff, 1977). If one or more statements are missing a response, that participant is omitted from the study. This composite score ranges from 4 - 20 and is framed in the negative, which means a 20 would represent a student having a higher chance of depression, while a 4 represents a student having a lower chance of depression.

Extracurricular Activity Participation

Students’ participation in school-sponsored extracurricular activities is the independent variable. The study grouped activities into six categories: “school newspaper or yearbook,” “music or other performing arts,” “athletic teams,” “academic clubs (e.g., science, math, language),” “student council or government,” and “other school clubs or activities.” For each activity, students were asked their level of involvement from 1 (not at all) to 5 (great extent): 1 = “Not at all,” 2 = “slight,” 3 = “moderate,” 4 = “considerable”, 5 = “great extent.” This continuous variable can consider breadth through the number of activities they report and

captures a combination of intensity, duration, and engagement through their self-reported level of involvement from 1-5. In addition, for the first set of models, these six activities are combined into one composite continuous variable: participation in extracurricular activities, to determine if there is a general association between students who participate compared to those who do not. Since six total scores are combined, the range is from 6 (no participation) to 30 (participating in each type of activity to a great extent).

Covariates

Gender

The student's gender is the main covariate of focus for this study. As MTF collected the data, students could either select "male" or "female" as they answered the questionnaire. Of the 2,424 participants, 1,044 (43.1%) are male, 1,109 (45.8%) are female, and 271 (11.2%) respondents left this statement blank. If a student did not include gender in their response, they are omitted from the regressions. This binary variable is dummy coded, with males serving as the reference group.

Race

Before the publication of this data, the questionnaire options for race were Black or African American, Mexican American or Chicano, Cuban American, Puerto Rican, Other Hispanic or Latino, Asian American, White (Caucasian), American Indian or Alaska Native, and Native Hawaiian or Other Pacific Islander. However, before publication in ICPSR, this data was re-coded to be "Black or African American," "White (Caucasian)," "Hispanic," and "Other." This change vastly limits the data set's diversity and has resulted in nearly 23% of the sample

missing data. In total, 208 (8.6%) participants are Black, 1150 (47.4%) are White, and 516 (21.3%) are Hispanic. Even though so many participants are missing race, this variable is still used, but with caution. This categorical variable is dummy coded, with white participants as the reference group, since this is the largest group in the sample.

Parent/Guardian Education (SES)

The parent's highest level of education can be used as a proxy for socioeconomic status (SES) since parents who typically have a higher degree of education tend to be more affluent (Keyes et al., 2009). This variable is being included because research shows that students from more affluent families participate in before and after school programs more often compared to students from less affluent families (Wimer et al., 2006). This variable ranges on a scale from 1 (grade school or less) to 7 (don't know or doesn't apply): 1 = "Completed grade school or less," 2 = "Some high school," 3 = "Completed high school," 4 = "Some college," 5 = "Completed college," 6 = "Graduate or professional school after college," 7 = "Don't know, or does not apply." This variable is re-coded such that 1-3 represents high school level education, 4-5 represents college education, and a 6 is included as graduate-level education. Responses indicating a 7 or missing data are omitted from the analyses. This data has two separate variables to represent parent education—one for the mother's highest education level and one for the father's. The prompt explains, "If you were raised mostly by foster parents, stepparents, or others, answer for them." Participants were instructed to use the individual they feel best represents each as a mother and father figure. The higher of the two-parent variables is retained and used in the regression models as categorical data. This variable is dummy coded, and parents with a college education are the reference group.

Parents/Guardians in household

Students who have a strong relationship with their parents and participate in activities typically reported lower levels of depressed mood, while students with detached parents reported higher levels of depression (Mahoney et al., 2002; Mason et al., 2009). There are two variables for parents present in the household; one for the participant's mother and one for their father. Each variable is binary where a 0 means the parent is not present, and a 1 represents a parent is present. These two variables are combined to create a new score to consider both parents' presence, ranging from 0 (no parents/guardians in the household) to 2 (both parents/guardians are in the household). This categorical variable is dummy coded, with two parents being the reference group.

Academic grades

Grades can be a positive outcome for involvement in extracurricular activities, and academic success can be connected to emotional well-being (Barker et al., 2016). This variable is self-reported and represents their overall academic grade, ranging from 1-9. The variables represent the following: 1 = "D (69 or below)," 2 = "C- (70-72)," 3 = "C (73-76)," 4 = "C+ (77-79)," 5 = "B- (80-82)," 6 = "B (83-86)," 7 = "B+ (87-89)," 8 = "A- (90-92)," and a 9 = "A (93-100)." This variable is used as a continuous variable to limit the number of additional covariates in the regression.

Enjoy school

Students were asked over the last year, "How often did you enjoy being in school?" This variable ranges from 1 (never) to 5 (almost always): 1 = "Never," 2 = "Seldom," 3 =

"Sometimes," 4 = "Often," 5 = "Almost always." While this is similar to the last variable of academic grades, it is possible that regardless of academic performance, a student who enjoys being in school may be more likely to participate in extracurricular activities. This is used as a continuous variable.

Weekly hours at a part-time job

This variable is included because the time worked in a part-time job may take away from potential time students participate in extracurricular activities and could add to the stress of being over-scheduled. This statement asked, "On the average over the school year, how many hours per week do you work in a paid or unpaid job?" Students responded with a scale from 1 (none) to 8 (more than 30 hours): 1 = "None," 2 = "5 or less hours," 3 = "6 to 10 hours," 4 = "11 to 15 hours," 5 = "16 to 20 hours," 6 = "21 to 25 hours," 7 = "26-30 hours," 8 = "More than 30 hours." Similar to academic grades, this variable is used as a continuous variable to minimize the number of covariates in the regression.

Outside Activities: Volunteer

This variable accounts for the extent to which students participate in volunteer activities outside of school. This variable may or may not have a relationship with the dependent variable (depressive score), as it is similar in category to participation in school-sponsored activities. It is, therefore, included in this study as a covariate. Students needed to answer the question, "How often do you do each of the following: Participate in community affairs or volunteer work." They respond on a scale from 1 (never) to 6 (every day): 1 = "Never," 2 = "Seldom," 3 =

"Sometimes," 4 = "Most Days," 5 = "Nearly Every Day," and 6 = "Every Day." This variable is continuous.

Outside Activities: Sports or exercise

This variable accounts for the extent to which students participate in sports or exercise. This variable may or may not have a relationship with the dependent variable (depressive score), as it is similar in category to the independent variable of participating in athletics. Students may have responded to this if they participated in an associated school-sponsored activity (athletics), but they may have responded to this if they spent time doing sports or exercise outside of school. Therefore, this variable is included in this study as a covariate. Students needed to answer the question, "How often do you do each of the following: Actively participate in sports, athletics, or exercising." They respond on a scale from 1 (never) to 6 (every day): 1 = "Never," 2 = "Seldom," 3 = "Sometimes," 4 = "Most Days," 5 = "Nearly Every Day," and 6 = "Every Day." This variable is continuous.

Archive Weight

This study utilizes the provided sample weight, called Archive Weight, in the sample in each of the regressions and models used in the analysis. An archive weight, or sample weight, is utilized when there is sample bias from oversampling within a population. A sample weight adjusts the resulting data to account for this bias (National Longitudinal Surveys, 1997). The sample weight is necessary in this study, as there is a sample bias when selecting students for the study. In schools with less than 350 seniors, all students were used, while students were randomly sampled in schools with over 350 seniors in the class. In addition, the gender sample

is not evenly distributed. More females (1080) were sampled in this data, compared to males (1055). This difference could provide inconsistencies in the results, which the archive weight takes into account.

Covariate Groups

Since there are many covariates included in the models, similar variables are grouped and added to the regressions simultaneously. Parent/guardian's education and the number of parents/guardians in the household are grouped as "parent demographics." Average academic grade and whether the participant enjoys school are grouped as "school factors." Hours worked in a part-time job, participation in volunteer activities, and sports/exercise are grouped as "hours spent in outside activities."

Table 1

Descriptive statistics for the variables described above

Variable	N	Minimum	Maximum	Mean	Std. Deviation
Total Depressive Score	2005	4	20	8.87	3.92
Composite Activities Score	2323	6	30	11.93	4.59
Activity: Newspaper & Yearbook	2361	1	5	1.47	1.04
Activity: Performing Arts	2350	1	5	2.08	1.52
Activity: Athletics	2355	1	5	2.71	1.75
Activity: Academic Clubs	2352	1	5	1.78	1.30
Activity: Student Government	2352	1	5	1.47	1.12
Activity: Other activity	2353	1	5	2.45	1.51
Sex: Female	2135	0	1	0.51	0.50
Parent/Guardian Education: Grad School	2135	0	1	0.20	0.40
Parent/Guardian Education: High School	2135	0	1	0.30	0.46
Parent/ Guardian in Household: None	2240	0	1	0.06	0.23
Parent/Guardian in Household: One	2240	0	1	0.28	0.45
Average Academic Grade	2166	1	9	6.58	1.92
Enjoy School in Last Year	2384	1	5	3.03	1.05
Outside Activities: Part-Time Job	2159	1	8	3.19	2.33
Outside Activities: Volunteer	2386	1	6	2.30	1.08
Outside Activities: Sports/Exercise	2384	1	6	3.94	1.73
Race: Black	1863	0	1	0.11	0.32
Race: Hispanic	1863	0	1	0.29	0.46
Valid N (listwise)	1425				

Table 2

This table includes frequencies for gender, race, parent education (SES), and the number of parents/guardians present in the household.

	Frequency	Percent
Gender		
Male	1044	43.1
Female	1109	45.8
Missing	271	11.2
Total	2424	100
Race		
Black	208	8.6
White	1150	47.4
Hispanic	516	21.3
Missing	550	22.7
Total	2424	100
Parent Education Combined		
HS	599	24.7
College	1101	45.4
Grad School	480	19.8
Missing	244	10.1
Total	2424	100
Parents/Guardians Present in Household		
No Parents/Guardians	130	5.4
1 Parent/Guardian	618	25.5
2 Parents/Guardians	1518	62.6
Missing	158	6.5
Total	2424	100

Data Analysis

A total of 9 series of regressions are used to answer each of the research questions. All variables described in the prior section were organized and re-coded in SPSS before being run. After the data is run through SPSS, the results are analyzed, and associations are made, if possible. All regressions include the archive weight to account for the sampling bias.

Regression series 1

The first series of regressions seeks to answer, "To what extent does participation in school-sponsored extracurricular activities impact an adolescent's mental health?" These regressions include the composite score for participation to represent a student's overall participation in activities as the independent variable and the composite score for depression as the dependent variable. The covariates have been grouped to limit the number of regressions run. The first group is family demographics, including parents' education level and parents/guardians in the household. The second group is school factors, which include academic achievement and whether students enjoy school. The third group is hours in outside activities, including students' time spent volunteering, doing sports/activities, or working a part-time job. The final covariate added is race, which is intentionally last, as it limits the overall sample size due to a large percentage of missing data. Each model determines whether there is an association between the independent variables, dependent variables, and the included covariates.

Models for regression series 1

Model 1: Independent: the composite score for participation. Dependent: the composite score for depression.

Model 2: Independent: the composite score for participation. Dependent: the composite score for depression. Covariate: gender.

Model 3: Independent: the composite score for participation. Dependent: the composite score for depression. Covariates: gender and the covariates grouped as parent demographics (parent education and parent/guardian in the household).

Model 4: Independent: the composite score for participation. Dependent: the composite score for depression. Covariates: gender, parent demographics, and the covariates grouped as school factors (academic grades and whether students enjoy school).

Model 5: Independent: the composite score for participation. Dependent: the composite score for depression. Covariates: gender, parent demographics, school factors, and the covariates grouped as hours spent in outside activities (volunteering, sports/exercise, and part-time job).

Model 6: Independent: the composite score for participation. Dependent: the composite score for depression. Covariates: gender, parent demographics, school factors, hours spent in outside activities, and race.

Regression series 2

The second series of regressions seeks to answer, "To what extent does this impact vary by activity?" The same models from the first series of regressions are used with the same covariate groupings, with the only difference being that the six activities (newspaper & yearbook, athletic teams, music or other performing arts, academic clubs, student government,

and other activities) are used instead of the composite score for participation. Including each of the six activities allows the results to speak to the possible differences in depressive scores based on each activity type. Each model determines whether there is an association between the independent variables, the dependent variable, and the included covariates.

Models for regression series 2

Model 1: Independent: the six activities. Dependent: the composite score for depression.

Model 2: Independent: the six activities. Dependent: the composite score for depression. Covariate: gender.

Model 3: Independent: the six activities. Dependent: the composite score for depression. Covariates: gender and the covariates grouped as parent demographics (parent education and parent/guardian in the household).

Model 4: Independent: the six activities. Dependent: the composite score for depression. Covariates: gender, parent demographics, and the covariates grouped as school factors (academic grades and whether students enjoy school).

Model 5: Independent: the six activities. Dependent: the composite score for depression. Covariates: gender, parent demographics, school factors, and the covariates grouped as hours spent in outside activities (volunteering, sports/exercise, and part-time job).

Model 6: Independent: the six activities. Dependent: the composite score for depression. Covariates: gender, parent demographics, school factors, hours spent in outside activities, and race.

Regression series 3

The third series of regressions seeks to answer, "To what extent does this impact vary by gender?" This series of regressions includes sex (female) as the independent variable in model 1 to determine its association with the composite score for depression. In the second model, the composite score for activities is used as the independent variable. The third model, the composite score for participation, is the independent variable and includes sex as a covariate. Then, an interaction (the product) of sex (female) and the composite score for participation are added in with the variables in model 4. Isolating each of the respective models' variables before adding the interaction allows for triangulation between the composite score for participation, sex (female), and composite score for depression. This triangulation will help identify each variable's association and determine if and how the three are connected.

Models for regression series 3

Model 1: Independent: sex (female). Dependent: composite score for depression.

Model 2: Independent: composite score for participation. Dependent: composite score for depression.

Model 3: Independent: composite score for participation. Dependent: composite score for depression. Covariate: sex (female).

Model 4: Independent: Interaction between sex (female) and a composite score for participation. Dependent: composite score for depression. Covariates: composite score for participation and sex (female).

Regression series 4-9

The final six series of regressions seek to answer, "To what extent does this impact vary by gender?" with more specificity. These regressions include the results from model 1 in the third series of regressions for comparison: sex (female) and the composite score for depression. In the second model, one of the activities (newspaper and yearbook, performing arts, etc.) is included along with the composite score for depression. The third model uses the same variables as model two and incorporates sex (female) as a covariate. Then, an interaction (the product) of sex (female) and the specific activity is added to the variables in model three. This series of four models is run six times for each respective activity. Isolating each of the respective models' variables before adding the interaction allows for triangulation between the specific activity, sex (female), and composite score for depression. Doing so will help identify each variable's association to determine if and how the three are connected.

Models for regression series 4-9

Model 1: Independent: sex (female). Dependent: composite score for depression (the same model is included in regressions 3-9 for reference).

Model 2: Independent: one of the six activities. Dependent: composite score for depression.

Model 3: Independent: one of the six activities. Dependent: composite score for depression. Covariate: sex (female).

Model 4: Independent: Interaction between sex (female) and the activity. Dependent: composite score for depression. Covariates: one of the six activities, and sex (female).

Validity & Reliability

The 2018 study conducted by Monitoring the Future through the University of Michigan, Institute for Social Research has been maintained annually since 1975, significantly increasing its reliability. Each year, the principal investigators conduct an extensive analysis of the data, comparing their results to the previous years' and other publications from that year. This data is also used to monitor changes in national health goals and is regularly utilized by the White House to inform policy (Schulenberg et al., 2020). While this study focuses on youth's drug use, MTF states there are many purposes behind this study, specifically "to study changes in the beliefs, attitudes, and behavior of young people in the United States" (Monitoring the Future, 2020).

Keyes et al. (2019) suggest that since this data has been used many times to study substance abuse and mental health in prior research, the depressive score has high construct validity. In addition, psychometric analyses suggest that this study's data has high internal reliability, having an average Cronbach's alpha of 0.75 to 0.81 for the depressive scale from 1991 through 2018 for the 8th & 10th grade along with 12th-grade data (Keyes et al., 2019). At the time of this dissertation, the data being used was also the most recently published. Utilizing this secondary data affords the opportunity to include a much larger sample size, which allows for greater generalizability of the results.

Limitations

The following limitations are identified, which may impact the results and conclusions drawn from this study. It should be noted that since this study utilizes secondary data, this study is inherently limited in its scope and flexibility. Multiple factors could not be included in this

research project, such as changes in data collection and the inclusion of certain variables or answer choices. These limitations are detailed to guide how to expand the study for future research.

1. This study utilizes secondary data focusing on drug use and life perceptions, limiting the collected variables' scope. While 1,400 variables are included in this study, the extracurricular activities are confined to the six provided groups (student council/government, academic clubs, music/performing arts, athletics, school newspaper & yearbook, and other school clubs/activities). This also limits the covariates that can be used. For example, SES status is not collected, so parent education needs to be used as a proxy.
2. While the four statements used to create a depressive score have reliability from prior studies, these are not sufficient to determine the clinical diagnosis of depression. In addition, this study only considers two symptoms of depression and cannot account for everything.
3. Only high school seniors are included in this study. MTF includes 8th, 10th, and 12th-grade students in their annual study; however, different questionnaires are used for 8th & 10th grade compared to 12th-grade. This difference in collected data prevents all three grade levels from being used, as the 8th & 10th-grade data does not include some of the necessary variables (e.g., extracurricular activities).
4. This study does not include any students who dropped out of high school. Not including this sample of students could influence the possible outcome, especially if dropout rates are linked with mental health.

5. Responses to all questions were self-reported by the students. It is possible students did not answer all questions truthfully and in good faith. Students may not have felt comfortable sharing sensitive information such as statements regarding mental health.
6. This data does not fully consider a student's level of engagement in extracurricular activities. While students can rate their engagement on a scale from 1 to 5, their perception of what is considered significant involvement may differ. For example, a student may be the President and rate it a 5, while another may have attended several meetings and reported similar engagement levels (a 4 or 5). Their leadership experience may change their depressive symptoms while not being accurately represented in their engagement level compared to others.
7. This data does not consider the number of activities students participate in. For example, they may state that they have a "considerable" or "great" level of athletics participation, but the data does not consider whether a student was involved in one season or three within a school-year. The same goes for the other school clubs and activities.
8. This data does not consider the duration of involvement. How many years a student was involved in an activity cannot be determined based on the data. A student would need to account for this when rating their involvement from 1-5.
9. A small percentage of missing data for each variable limits this data's generalizability, especially for race, which has 22% of the data missing.
10. There is a sample bias in this study. Schools with 350 or fewer seniors included everyone as a participant, while schools with more than 350 seniors used a random sample. This caused a misrepresentation of the sample for generalizability, giving bias toward smaller schools. A sampling weight is used to compensate for this bias.

11. Besides the environment, literature shows personality/happiness, goal-setting, and genetics may also influence mental health. This study cannot account for these factors.
12. While gender is typically classified as male or female, in today's society, gender identity may be fluid. An individual's gender identity may include non-binary, gender-fluid, and transgender; however, this study's data only collected whether an individual identified as male or female and cannot account for the rest.
13. This study does not consider why students become involved. Their motivation to remain involved could potentially influence the extent to which they gain positive or negative outcomes.
14. The questionnaire utilized provides no baseline for mental health. Since the questionnaire was only conducted once, a student's reported mental health is captured based on how they felt that day. This could have been influenced by external events/factors that are not considered, such as their mood and personal experiences earlier that day/week. It does not consider how students changed over time or how they feel over multiple days.
15. As a covariate, race was re-coded from the original options: Black or African American; Mexican American or Chicano; Cuban American; Puerto Rican; Other Hispanic or Latino; Asian American; White (Caucasian); American Indian or Alaska Native; Native Hawaiian or Other Pacific Islander to "Black or African American," "White (Caucasian)," "Hispanic" and "Other." This significantly limits the diversity in the data set. To account for this limitation, race is included last in the regression models, so it did not influence the other results but could still be considered a covariate.

16. This study utilized the four regions based on the Census Bureau (Northeast, Midwest, South, and West); however, a representative sample is not maintained for smaller areas (states, counties, or cities).

Delimitations

Similar to the limitations section, these delimitations are specified to help future researchers understand the choices that are made in this study and why so that they can be understood and considered in future research.

1. Any variables that have missing data are excluded from the analysis, as the data would be incomplete for that participant. When limiting the data in this way, the sample changes from 2,424 participants to 1,425 when including all covariates.
2. Only Form 6 of the data from 12th-grade students is used in this study, as the other five questionnaires for 12th grade and the questionnaires for 8th and 10th-grade students do not include the six questions regarding participation in extracurricular activities.
3. A composite score for participation is created to determine a general association between participation and resulting mental health. This is done to adequately answer the first research question regarding whether general participation in school-sponsored activities is associated.
4. This study cannot feasibly account for post-high school aspirations as a covariate, so it is not included in the regressions. There are too many separate variables for this category (going to a 2-year school, going to a 4-year school, going into the military, going into vocational school, and graduate school). There are two variables for each, indicating how much a student wanted that option and whether the student planned on attending.

5. The parent's level of education is used as a proxy for SES since free and reduced lunch status was not included as a question on the survey.

Overall, these limitations and delimitations are intended to guide further research and are noted to improve future studies' focus. Accounting for this study's limitations was not possible since secondary data was used; however, not doing so does not take away from this study's validity. The methodology and delimitations established are sufficient to analyze the data, draw appropriate conclusions, and make recommendations for the future.

CHAPTER 4: ANALYSIS & FINDINGS

Chapter 4 presents the descriptive statistics, analyses, and findings from this research study, using secondary data from Monitoring The Future, published through ICPSR. A total of 2,424 high school seniors were randomly administered the last of the six questionnaires from a 2018 study of adolescents' drug use and quality of life (Miech et al., 2018). Data was utilized from this study to determine whether there is an association between participation in extracurricular activities and depression and whether the potential impact changed based on the type of activity or gender. Nine different series of multiple linear regressions were utilized and run using SPSS as outlined in Chapter 3 to answer the research questions.

Research Questions

1. To what extent does participation in school-sponsored extracurricular activities impact an adolescent's mental health?
    a. To what extent does this impact vary by activity?
    b. To what extent does this impact vary by gender?

Hypotheses

Hypothesis for Research Question 1

Participation in extracurricular activities will result in a positive association between general participation and the composite score for depression.

Hypothesis for Research Question 1a

The resulting association for composite depressive score will vary depending on the type of extracurricular activity.

Hypothesis for Research Question 1b

Females who participate in extracurricular activities will have a higher depressive score than males since research shows they are more likely to have depression and anxiety (WHO, 2008).

Descriptive Statistics

As each of the regressions is run, a series of models are included, incrementally adding groups of covariates (female, parent demographics, school factors, hours in outside activities, and race). Adding covariates in groups is done to show how the beta coefficients potentially change with the addition of a new variable. The data of participants with missing responses are omitted from the regression. As additional variables are added to the models, the sample becomes more limited. In the most limited sample, a total of 1,425 participants remain after all of the missing data is omitted. Table 1 in Chapter 3 outlines the descriptive statistics for the original sample from Form 6 of the data collected by Monitoring the Future. Table 3, below, shows the descriptive statistics for the variables after the sample is most limited by omitting the missing data. From the original 2,424 participants in this study, this research study is limited to as few as 1,425 participants in some of the regressions.

Table 3

Descriptive statistics for the 1,425 participants included in the study after the missing data is omitted.

Variable	N	Minimum	Maximum	Mean	Std. Deviation
Total Depressive Score	1425	4	20	8.75	4.72
Composite Activities Score	1425	6	30	11.84	5.43
Activity: Newspaper & Yearbook	1425	1	5	1.50	1.34
Activity: Performing Arts	1425	1	5	1.97	1.75
Activity: Athletics	1425	1	5	2.74	2.11
Activity: Academic Clubs	1425	1	5	1.70	1.51
Activity: Student Government	1425	1	5	1.50	1.42
Activity: Other activity	1425	1	5	2.43	1.79
Sex: Female	1425	0	1	0.49	0.60
Parent/Guardian Education: Grad School	1425	0	1	0.34	0.57
Parent/Guardian Education: High School	1425	0	1	0.18	0.46
Parent/ Guardian in Household: None	1425	0	1	0.05	0.26
Parent/Guardian in Household: One	1425	0	1	0.27	0.54
Average Academic Grade	1425	1	9	6.50	2.40
Enjoy School in Last Year	1425	1	5	3.06	1.27
Outside Activities: Part-Time Job	1425	1	8	3.09	2.76
Outside Activities: Volunteer	1425	1	6	2.32	1.33
Outside Activities: Sports/Exercise	1425	1	6	4.02	1.97
Race: Black	1425	0	1	0.07	0.30
Race: Hispanic	1425	0	1	0.36	0.58

Research Question 1

The first research question is, “To what extent does participation in school-sponsored extracurricular activities impact an adolescent’s mental health?” A series of multiple linear regressions were run to answer this question. To determine if there is a general association between participation in school-sponsored activities and an adolescent’s mental health, all six activities (ranging 1-5) were combined into one composite score for participation ranging from 6

through 30. All students in this study received a depressive score from 4 to 20 based on their responses to the four statements of satisfaction of life (rated from 1 to 5). A 4 on this scale means they have potentially fewer depressive symptoms, while a 20 on this scale means they have potentially more depressive symptoms. Since several covariates are included in the regression, the models were run including only the independent and dependent variables, then progressively introducing the covariate groups. The first model only includes the composite score for participation (independent variable) and the composite score for depression (dependent variable). For this model, the mean for participation is 11.74 on a scale ranging from 6 to 30. The mean for the depressive score is 8.89 on a scale from 4 to 20. The beta coefficient for the composite score for participation is B=-0.099. 1 point higher on the self-reported scale of participation (compared to the mean of 11.74) is associated with a depressive score that is 0.099 points lower (compared to the mean of 8.89), on average. Model 1, in Table 4, shows the regression between these two variables is statistically significant ($p<0.01$). The p-value indicates the chance the results are random. Lower p-values (such as 0.05 or 0.01) indicate a lower chance the results are random, respectively. This model has an r-squared value of 0.013, which says 1.3% of the variation in the model could be explained by the independent variable (composite score for participation).

The second model incorporates the previous two variables (composite score for participation and composite score for depression) and adds gender as a covariate. Model 2 in Table 4 shows a minimal change in the beta coefficient for the composite depressive score (B=-0.110) as the covariate of gender is added, and it is still statistically significant ($p<0.01$). The model also shows that the variable female is not statistically significant ($p=0.466$) and that no association can be made. The value for r-squared did not change much either, being $R^2=0.015$.

The third model includes the previous three variables (composite score for participation, composite score for depression, and gender) and adds the parent demographics group of covariates. The parent/guardian's level of education was included as a proxy for SES. The parent with the highest level of education was included as a categorical variable, including parents with high school level education and graduate school level education (parents with college education is the reference group). For the number of parents/guardians in the household, participants could report zero, one, or two parents, with two parents as the reference. With the inclusion of these parent demographic covariates, the score for participation did not change ($B=-0.105$, $p<0.01$). The results in model 3 of Table 4 show that the variable for high school education is not statistically significant; however, graduate school education is statistically significant at $p=0.032$ ($B=0.539$). Results for this model are compared to the model mean for depressive score, which is 8.86. The results from model 3 suggest having parents with a graduate-level education is associated with a depressive score that is 0.539 points higher, compared to students whose parents have college-level education, on average. Participants who have no parents present are associated with a depressive score that is 2.589 points higher, compared to participants with both parents at home, on average ($p<0.01$). Participants who have one parent present are associated with a depressive score that is 0.430 points higher, on average, compared to students with two parents present ($p=0.047$, $R^2=0.042$). The covariate for gender showed little change from the prior two models and is not significant. This model suggests students having no parents or one parent present in their household, along with parents who have graduate school education, are associated with higher depressive scores.

The fourth model of this regression includes the previously mentioned variables (composite score for participation, gender, and parent demographics covariates) while adding the

grouped covariates for school factors. Higher academic achievement and students enjoying school are associated with lower depressive scores, and both variables are statistically significant ($p<0.01$). The fourth model's data suggests a higher academic grade (e.g., from a B to a B+) is associated with a depressive score that is 0.255 points lower, on average, compared to the model mean for a depressive score of 8.88 out of 20. Students who rate their enjoyment in school 1 point higher on the scale from 1-5 are associated with a depressive score that is 1.321 points lower, on average ($R^2=0.183$). However, it should be noted that the beta coefficient for the composite score for participation changed to nearly zero (B=0.002) and is no longer statistically significant (p=0.926). The covariates for gender and parents having high school education show little change. Having one parent in the household is no longer statistically significant, while parents having graduate school education went up from B=0.539 to B=0.855 ($p<0.01$). The beta coefficient for participants with no parents in the household decreased from B=2.589 to B=2.198 ($p<0.01$). Students who have higher achievement and those who enjoy school are associated with a lower depressive score.

The fifth model in this regression includes the previously mentioned variables (composite score for participation, gender, parent demographics, and school factors covariates) while adding the next grouping of covariates for hours in outside activities (part-time job, volunteering, and participation in sports or exercise). Hours worked in a part-time job and participating in sports or exercise suggests a lower depressive score and is statistically significant ($p<0.01$). Volunteering outside of school is not significant (p=0.179). For hours worked, working an additional 5 hours per week is associated with a depressive score that is 0.117 points lower (depressive score model mean of 8.92), on average. For participation in sports or exercise, 1 point higher on the self-reported scale from 1 through 6 is associated with a depressive score that

is 0.601 points lower on average. In this model, the composite score for participation changes to a minimally positive association (B=0.076, $p<0.01$, $R^2=0.241$). The covariates in this model show little change, with the most significant difference being participants who have no parents/guardians present in their household changing from B=2.198 to B=2.717, which is still significant ($p<0.01$). This model suggests students who participate in sports or exercise outside of school and those who work part-time jobs are associated with statistically significantly lower depressive scores.

In the final model of this regression, all of the covariates are included, with race as the last covariate (Hispanic and Black, with White as the reference group). This variable is included last because 22% of the responses are missing since it was re-coded before publication. Hispanic participants are associated with a depressive score that is 0.533 points higher, on average, compared to participants who are White, when controlling for all variables in the model. This covariate is statistically significant ($p=0.017$); however, being Black, while showing a similar association, is not statistically significant ($p=0.197$). The composite score for participation remains the same as model 5 (B=0.072, $p<0.01$, $R^2=0.253$). The covariates show little change from model 5 to model 6. Overall, this model suggests Hispanic participants have a higher depressive score compared to students who are White.

These results suggest participating in extracurricular activities has little association with a change in depressive score, despite being statistically significant. While participating in activities suggests a minimally negative association with the depressive score, as the grouped covariates for school factors and hours spent in outside activities are added, the relationship changes, and the depressive score becomes higher (changing to a minimally positive association). The results from the first series of regressions also suggest students whose

parents/guardians have a graduate school education, students with no parents/guardians in the household, and Hispanic students could have a significantly higher depressive score. The results also suggest that students with better grades, those who enjoy school, work a part-time job, and participate in sports/exercise outside of school have a lower depressive score.

Table 4

Linear regression between the composite score for activities and composite score for depression

Variable	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Composite Activities Score	-0.099***	-0.110***	-0.105***	0.002	0.076***	0.072***
	(0.020)	(0.021)	(0.021)	(0.021)	(0.022)	(0.023)
Sex: Female		0.133	0.242	0.271	0.097	0.102
		(0.182)	(0.186)	(0.176)	(0.175)	(0.188)
Parent/Guardian Education: High School			-0.187	0.109	-0.016	-0.229
			(0.214)	(0.204)	(0.200)	(0.225)
Parent/Guardian Education: Grad School			0.539**	0.855***	0.785***	0.958***
			(0.251)	(0.235)	(0.231)	(0.258)
Parent/Guardian in Household: None			2.589***	2.198***	2.717***	2.566***
			(0.455)	(0.435)	(0.426)	(0.449)
Parent/Guardian in Household: One			0.430**	0.324	0.301	0.215
			(0.216)	(0.203)	(0.198)	(0.215)
Average Academic Grade				-0.255***	-0.175***	-0.246***
				(0.049)	(0.048)	(0.053)
Enjoy School in Last Year				-1.321***	-1.211***	-1.080***
				(0.088)	(0.087)	0.094
Outside Activities: Part-Time Job					-0.117***	-0.138***
					(0.038)	(0.041)
Outside Activities: Volunteer					-0.119	-0.117
					(0.089)	(0.093)
Outside Activities: Sports/Exercise					-0.601***	-0.616***
					(0.055)	(0.060)
Race: Black						0.496
						(0.384)
Race: Hispanic						0.533**
						(0.223)
Constant	10.056	10.098	9.711	14.016	15.484	15.421
	(0.250)	(0.267)	(0.303)	(0.403)	(0.420)	(0.474)
N	1,966	1,843	1,749	1,715	1,689	1,425
R-Squared	0.013	0.015	0.042	0.183	0.241	0.253

Note: ***p<0.01, **p<0.05, *p<0.10. Standard errors are shown in parenthesis

Research Question 2

The second research question is, “To what extent does this impact vary by activity?” Similar to the previous research question, a series of multiple linear regressions were run to

answer this question, including all six activities as independent variables and the composite depressive score as the dependent variable. The six activities are newspaper and yearbook, performing arts, athletics, academic clubs, student government, and other school clubs/activities. Like the first research question, since there are many covariates, the models are run separately while progressively introducing the grouped covariates. Model 1, shown in Table 5, only includes the six school-sponsored activities as independent variables and the composite score for depression as the dependent variable. Newspaper and yearbook ($B=-0.187$, $p=0.031$), athletics ($B=-0.604$, $p<0.01$), and academic clubs ($B=-0.202$, $p<0.01$) all showed an association between participating in these types of activities and lower depressive scores, compared to the mean depressive score of 8.89 points (on a scale from 4 through 20). For each of these activities, 1 point higher self-report on the self-reported scale (from 1-5) for the extent of participation is associated with a lower depressive score relative to the beta coefficient. All three are statistically significant. Performing arts ($B=0.302$, $p<0.01$) and student government ($B=0.208$, $p=0.014$) show a positive association between participation in these types of activities and depressive score. For both of these activities, 1 point higher on the self-reported scale (from 1-5) for the extent of participation is associated with a higher depressive score. Both are statistically significant. The activities classified as "other" showed a near-zero beta coefficient ($B=0.011$), which is not statistically significant ($p=0.862$). This model's r-squared value is 0.087, which means the included independent variables explain 8.7% of this model's variation.

The second model in this regression includes the six activities from model 1, adding gender as a covariate. After running model 2, all six activities remained consistent in the size of the beta coefficient, direction of the association, and statistical significance, with the only difference being that student government changed significance ($p<0.01$). The results in model 2

of Table 5 suggest an association between being female and lower depressive scores. Participants who are female are associated with a depressive score that is 0.353 points lower, compared to the depressive score's model mean of 8.87, on average ($p=0.52$, $R^2=0.085$).

For the third model in this regression, the six activities and gender are included while adding the grouped covariates for parent demographics. The results in model 3 of Table 5 show that the variable for high school education is not statistically significant; however, graduate school education is statistically significant ($p=0.051$). Students whose parents/guardians have graduate-level education are associated with a depressive score that is 0.477 points lower (relative to the depressive score's mean of 8.86) compared to students whose parents/guardians have college-level education, on average. The second group of covariates, parents/guardians in the household, is also categorical, with two parents present as the reference group, including households with no parents and one parent in the model. Participants who have no parents/guardians present are associated with a depressive score that is 2.258 points higher, compared to participants with both parents at home, on average ($p<0.01$). Households with one parent present are not statistically significant. As for the six activities, there is very little change in four of them (newspaper and yearbook, performing arts, athletics, and other activities) for both coefficient size, direction, and statistical significance. With the inclusion of these new covariates, academic clubs' coefficient changed from B=-0.193 to B=-0.096 and no longer has statistical significance. Student government's coefficient also dropped from B=0.225 to B=0.170 ($p=0.052$, $R^2=0.109$). These findings suggest that when considering these covariates, participation in newspaper and yearbook and athletics predict lower depressive scores, while participating in performing arts and student government predict higher depressive scores. The data for the covariates suggests students with no parents in the household and students with

parents who have graduate school education may be associated with a higher depressive score, on average.

For the fourth model in this series of regressions, the variables mentioned above are included (the six activities, sex, and parent demographics), adding the grouped covariates for school factors. The results in model 4 of Table 5 suggest both of the school factors variables are associated with a lower depressive score and are statistically significant ($p<0.01$). A higher grade in academics (e.g., from a B to a B+) is associated with a depressive score that is 0.221 points lower compared to the depressive score mean of 8.88, on average. Additionally, 1 point higher on the self-reported scale for school enjoyment on the scale from 1-6, the associated depressive score is 1.359 points lower, on average. Of the six extracurricular activities, newspaper and yearbook shows very little change (B=-0.210), along with performing arts (B=0.279) and athletics changing slightly (B=-0.521). All three of these are still statistically significant ($p<0.01$). While the beta coefficient showed little change for student government, its statistical significance changed ($p<0.01$). As for academic clubs, the beta coefficient changed again, increasing to B=0.083, but it is still not statistically significant. The one variable that changed is other activities, now having a beta coefficient of B=0.182 and being statistically significant ($p<0.01$). There is little change for gender or the parent demographic covariates, except the beta coefficient for parents with graduate school experience went up from B=0.477 to B=0.798 and changed significance from $p=0.051$ to $p<0.01$, ($R^2=0.247$). Model 4 suggests students who have higher academic grades and enjoy school are associated with lower depressive scores.

For the fifth model in this series, the next grouping of covariates is added: hours spent in outside activities (part-time job, volunteering, and sports/exercise). Based on the results in

model 5 of Table 5, the association between all three suggests a lower depressive score, with hours worked in a part-time job and participating in sports or exercise being statistically significant ($p<0.01$), along with volunteering ($p=0.033$). For hours in a part-time job, working an additional 5 hours per week is associated with a depressive score that is 0.101 points lower (model mean is 8.92), on average. For participation in volunteer activities, 1 point higher on the self-reported scale from 1 through 6 is associated with a depressive score that is 0.187 points lower, on average. For participation in sports or exercise, 1 point higher on the self-reported scale from 1 through 6 is associated with a depressive score that is 0.394 points lower, on average. Compared to model 4, five of the six activities showed little variation, with athletics being the only one to change to a beta coefficient of $B=-0.295$; however, it is still statistically significant ($p<0.01$). There was little change in the covariates for gender and parent education; however, parents in the household showed changes for both variables. In households where there are no parents, the depressive score is higher in this model, changing from $B=1.983$ to $B=2.433$ ($p<0.01$), while households with one parent changed from $B=0.271$ to $B=0.334$ and became significant ($p=0.089$). This model has an r-squared value of 0.271, which means that 27.1% of the variation can be explained by the model's independent variables.

For the sixth model in this regression, all of the covariates mentioned earlier are included, adding race (Hispanic and Black, with White as the reference group) as the last covariate ($R^2=0.298$). Compared to Whites, participants who are Black are associated with a depressive score that is 0.745 points higher (compared to the mean of 8.87), on average, when controlling for all other variables in the model ($p=0.047$). Hispanic participants are associated with a depressive score that is 0.508 points higher, on average, compared to participants who are White ($p=0.022$). Of the six extracurricular activities, newspaper and yearbook's beta coefficient

changed slightly (B=-0.256), its highest out of all six models. Performing arts' beta coefficient remained similar (B=0.297), and athletics changed (B=-0.404). The remaining three variables reached their peaks in this model: academic clubs (B=0.176), student government (B=0.256), and other activities (B=0.263). All variables are statistically significant ($p<0.01$), including academic clubs, which gained statistical significance ($p=0.027$). As for the covariates in this model, gender, parents with high school education, and having one parent in the household are not statistically significant. Parents with grad school education, no parents in the household, academic grades, enjoying school, hours worked per week, volunteering, and participation in sports/exercise all showed minimal changes and are still significant ($p<0.01$), except volunteering ($p=0.015$).

These results suggest participating in performing arts, student government, or activities that fall into the 'other' category are associated with a higher depressive score, while participating in newspaper and yearbook and athletics are associated with a lower depressive score. Academic clubs started as a negative association until the other covariates were added in, at which point it became a positive association. The covariates' results suggest participants who have parents with grad school education, no parents/guardians in the household, are Black or Hispanic are associated with higher depressive scores. Conversely, participants with better grades, who typically enjoy school more, work a part-time job, volunteer, or participate in sports/exercise outside of school are associated with a lower depressive score.

Table 5

Linear regression between the six extracurricular activities and composite score for depression

Variable	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Activity: Newspaper & Yearbook	-0.187**	-0.201**	-0.206**	-0.210**	-0.197**	-0.256***
	(0.086)	(0.088)	(0.090)	(0.084)	(0.083)	(0.087)
Activity: Performing Arts	0.302***	0.243***	0.222***	0.279***	0.315***	0.297***
	(0.060)	(0.061)	(0.062)	(0.058)	(0.058)	(0.063)
Activity: Athletics	-0.604***	-0.624***	-0.629***	-0.521***	-0.295***	-0.404***
	(0.051)	(0.053)	(0.055)	(0.052)	(0.061)	(0.066)
Activity: Academic Clubs	-0.202***	-0.193***	-0.096	0.083	0.105	0.176**
	(0.068)	(0.069)	(0.076)	(0.072)	(0.073)	(0.079)
Activity: Student Government	0.208**	0.225***	0.170*	0.236***	0.210***	0.256***
	(0.084)	(0.087)	(0.087)	(0.081)	0.081	(0.084)
Activity: Other Activities	0.011	0.030	0.026	0.182***	0.216***	0.263***
	(0.063)	(0.064)	(0.067)	(0.064)	(0.066)	(0.070)
Sex: Female		-0.353*	-0.219	-0.201	-0.100	-0.158
		(0.182)	(0.185)	(0.175)	(0.176)	(0.187)
Parent/Guardian Education: High School			-0.200	0.128	0.045	-0.191
			(0.208)	(0.198)	(0.198)	(0.221)
Parent/Guardian Education: Grad School			0.477*	0.798***	0.753***	0.886***
			(0.244)	(0.228)	(0.228)	(0.252)
Parent/Guardian in Household: None			2.258***	1.983***	2.433***	2.156***
			(0.440)	(0.419)	(0.421)	(0.441)
Parent/Guardian in Household: One			0.309	0.271	0.334*	0.252
			(0.210)	(0.197)	(0.196)	(0.210)
Average Academic Grade				-0.221***	-0.171***	-0.251***
				(0.047)	(0.047)	(0.053)
Enjoy School in Last Year				-1.359***	-1.262***	-1.144***
				(0.085)	(0.086)	(0.092)
Outside Activities: Part-Time Job					-0.101***	-0.133***
					(0.038)	(0.040)
Outside Activities: Volunteer					-0.187**	-0.223**
					(0.088)	(0.091)
Outside Activities: Sports/Exercise					-0.394***	-0.341***
					(0.063)	(0.068)
Race: Black						0.745**
						(0.375)
Race: Hispanic						0.508**
						(0.221)
Constant	10.201	10.471	10.168	14.408	15.313	15.339
	(0.243)	(0.262)	(0.298)	(0.394)	(0.418)	(0.466)
N	1,966	1,843	1,749	1,715	1,689	1,425
R-Squared	0.087	0.085	0.109	0.247	0.271	0.298

Note: ***p<0.01, **p<0.05, *p<0.10. Standard errors are shown in parenthesis

Research Question 3

The third research question is, "To what extent does this impact vary by gender?" This question is answered by triangulating three variables: sex (female), the activity, and the composite score for depression. The final six series of regressions feature four models that follow the same format using the composite score for depression as the dependent variable. This first only includes gender in the model, then only the score for activity participation is included in the second model. The third model includes both variables, while the fourth model adds in the interaction between the two.

The third series of regressions looks at gender and the composite score for participation with respect to the composite depressive score. The first model, shown in Table 6, includes sex (female), which is not statistically significant. The second model includes the sum of activities, which has a minimal association ($B=-0.099$) and is statistically significant ($p<0.01$). The third model shows the variable female is still not statistically significant, and the composite score for activities still has a negative association with depressive score. However, the fourth model with the interaction shows gender is statistically significant ($B=1.604$, $p<0.01$), while the variable for composite score for participation is no longer significant. The coefficient for the interaction is $B=-0.125$ and is statistically significant ($p<0.01$).

When considering the beta coefficients for composite score for participation ($B=-0.044$, $p=0.139$), female ($B=1.604$, $p<0.01$), and the interaction of female and participation ($B=-0.125$, $p<0.01$), these variables can be combined to indicate a potential change in the depressive score constant, which is 9.351. Males who do not participate in extracurricular activities would have a predicted depressive score of 9.351. Female ($B=1.604$), when combined with the constant, indicates a depressive score of 10.955. To determine the outcome of males who participate, the

beta coefficient for the composite score of participation needs to be factored by their score for participation on the scale from 6 to 30 before being combined with the constant. Using the average composite score for participation for this model, 11.81, the results suggest males who participate could have a depressive score of 8.831 on average (11.81*-0.044 + 9.351). For females, the resulting score is 8.959. This value was determined by finding the product of the interaction's beta coefficient and the average composite score for participation, adding it to the beta coefficient for females, and then adding the product of the interaction's beta coefficient and the mean composite score for participation (11.81*-0.044 + 1.604 + 11.84*-0.125). For students who report the maximum level of participation with a score of 30, males have a predicted depressive score of 8.031 (30*-0.044) while females have a predicted depressive score of 5.885 (30*-0.044 + 1.604 + 30*-0.125). The interaction between the composite score for participation and sex shows a meaningful association between the two, as it is statistically significant ($p<0.01$). The r-squared value is 0.020, which says 2.0% of the variation can be explained by the independent variables in the model.

It should be noted the r-squared value is expectedly lower than the previous regressions, as the covariates are not included in these models. More variables typically cause the r-squared value to increase. These results suggest compared to males, females may have a lower depressive score when participating in extracurricular activities, and this impact is more significant with more participation.

Table 6

The third series of regressions; including four models to determine a possible association between the composite score for participation, sex, and depressive score.

Variable	Model 1	Model 2	Model 3	Model 4
Sex: Female	-0.025		0.133	1.604***
	(0.181)		(0.182)	(0.518)
Composite Activities Score		-0.099***	-0.110***	-0.044
		(0.020)	(0.021)	(0.030)
Comp Act X Females				-0.125***
				(0.041)
Constant	8.875	10.056	10.098	9.351
	(0.128)	(0.250)	(0.267)	(0.363)
N	1879	1,966	1,843	1,843
R-Squared	0.000	0.013	0.015	0.020

Note: ***p<0.01, **p<0.05, *p<0.10. Standard errors are shown in parenthesis

The fourth series of regressions looks at the interaction between participation in newspaper and yearbook and gender as it regresses on depressive score. Similar to the third series of regressions, a set of four models are included, where model 1 includes the same results for sex as it regresses on depressive score, which is not statistically significant. The second model looks at the association between participating in newspaper and yearbook and the depressive score and shows a negative beta coefficient (B=-0.186), which is statistically significant (p=0.023), as seen in Table 7. The third model includes both sex and newspaper together. While the coefficient does not change for sex, the beta coefficient for newspaper and yearbook changes (B=-0.281, p<0.01). The fourth model adds the interaction between sex (female) and newspaper and yearbook (R^2=0.005). The results indicate that none of the variables

in model 4 are significant; however, it suggests being involved in newspaper and yearbook potentially leads to lower depressive scores, regardless of gender.

Table 7

The fourth series of regressions; including four models to determine a possible association between participation in newspaper & yearbook, sex, and depressive score.

Variable	Model 1	Model 2	Model 3	Model 4
Sex: Female	-0.025		0.060	0.464
	(0.181)		(0.182)	(0.313)
Activity: Newspaper & Yearbook		-0.186**	-0.281***	-0.038
		(0.082)	(0.084)	(0.141)
Newspaper X Female				-0.278
				(0.175)
Constant	8.875	9.142	9.139	8.896
	(0.128)	(0.150)	(0.171)	(0.229)
N	1879	1988	1864	1864
R-Squared	0.000	0.051	0.004	0.005

Note: ***p<0.01, **p<0.05, *p<0.10. Standard errors are shown in parenthesis

The fifth series of regressions looks at the interaction between participation in performing arts and gender as it regresses on depressive score. This regression, shown in Table 8, includes the same model 1 for sex as it regresses on depressive score (referenced in the previous two regressions), which is not statistically significant. Model 2 shows performing arts and its association with the depressive score, which suggests a positive association between participation in performing arts and depressive score (B=0.277, p<0.01). When adding in performing arts and sex for model 3, there is little change for either variable. When the interaction between performing arts and females is added, it shows a coefficient of B=-0.477 for the interaction. The coefficient for females becomes B=0.926, and the coefficient for

participation in performing arts becomes B=0.475. All of these are significant ($p<0.01$, $R^2=0.014$).

The constant for males who do not participate is 7.957; however, the prediction shows a higher depressive score of 8.917 when participating at an average level (2.02 out of 5). This model also suggests that greater participation results in an even higher depressive score (10.332) for males who indicated a 5 out of 5 for participation. Females who do not participate have a predicted score of 8.883; however, the score does not change for females with average participation, being 8.881. This trend does not change whether looking at the average (2.02 out of 5), maximum (5 out of 5), or minimum (1 out of 5) involvement for this activity. These figures are statistically significant ($p<0.01$), suggesting that while females see no change in depressive scores for participation, males' depressive scores start lower than females and become higher with greater participation.

Table 8

The fifth series of regressions; including four models to determine a possible association between participation in performing arts, sex, and depressive score.

Variable	Model 1	Model 2	Model 3	Model 4
Sex: Female	-0.025		-0.029	0.926***
	(0.181)		(-0.182)	(0.307)
Activity: Performing Arts		0.277***	0.212***	0.475***
		(0.060)	(0.062)	(0.092)
Performing Arts X Female				-0.477***
				(0.123)
Constant	8.875	8.328	8.445	7.957
	(0.128)	(0.148)	(0.171)	(0.212)
N	1879	1983	1857	1857
R-Squared	0.000	0.011	0.006	0.014

Note: ***p<0.01, **p<0.05, *p<0.10. Standard errors are shown in parenthesis

The sixth series of regressions in Table 9 follows the same process as the previous regressions, looking at participation in athletics. It includes the same model 1 for sex as it regresses on depressive score, which is not statistically significant. Model 2 shows participation in athletics and its association with the depressive score. The beta coefficient for participation (B=-0.597) is significant ($p<0.01$). The third model includes both sex and participation in athletics. While there is no change in participation (B=-0.608), the coefficient for sex (female) goes down (B=-0.302) and becomes significant (p=0.088). The fourth model includes both variables from model 3 and adds the interaction between the two (R^2=0.071). The results indicate that the interaction is not significant; however, it suggests being involved in athletics potentially leads to lower depressive scores (B=-0.666), regardless of gender ($p<0.01$).

Table 9

The sixth series of regressions; including four models to determine a possible association between participation in athletics, sex, and depressive score.

Variable	Model 1	Model 2	Model 3	Model 4
Sex: Female	-0.025		-0.302*	-0.634*
	(0.181)		(0.177)	(0.327)
Activity: Athletics		-0.597***	-0.608***	-0.666***
		(0.049)	(0.051)	(0.070)
Athletics X Female				0.124
				(0.103)
Constant	8.875	10.489	10.656	10.830
	(0.128)	(0.156)	(0.196)	(0.244)
N	1879	1983	1858	1858
R-Squared	0.000	0.069	0.071	0.071

Note: ***p<0.01, **p<0.05, *p<0.10. Standard errors are shown in parenthesis

The seventh series of regressions, shown in Table 10, follows the same set of models as the previous three, considering the association between academic clubs, gender, and depressive scores. This regression includes the same model 1 for sex as it regresses on depressive score, which is not statistically significant. Model 2 shows participation in academic clubs and its association with the depressive score ($B=-0.190$, $p<0.01$). The third model shows little change when including gender and academic clubs, suggesting participating in academic clubs is associated with a lower depressive score. However, the fourth model changes for all of the variables. The beta coefficient for female jumps to $B=1.586$, the coefficient for participation in academic clubs jumps to $B=0.338$, and the interaction is $B=-0.867$. All three of these variables in the fourth model are significant ($p<0.01$, $R^2=0.025$).

These results suggest males who do not participate have a depressive score of 8.299 out of 20 on average, while females who do not participate have a predicted depressive score of 9.885 on average. The results indicate there is little difference between males (8.907) and females (8.933) who have an average amount of participation (1.80 out of 5). However, the results suggest as participation becomes greater (looking at students who rate participation as 5 out of 5), the depressive score for males goes up (9.989), while the depressive score for females goes down (7.240). It should be noted that females are overrepresented at a 5 out of 5 compared to males. While the results show a beta coefficient of $B=1.586$ for females, the overrepresentation hides the increase for males until it is broken down like this. These results are inversely related and suggest as females become more involved, their depressive score goes down; however, for males, the depressive score goes up with participation. These results are statistically significant ($p<0.01$).

Table 10

The seventh series of regressions; including four models to determine a possible association between participation in academic clubs, sex, and depressive score.

Variable	Model 1	Model 2	Model 3	Model 4
Sex: Female	-0.025		0.063	1.586***
	(0.181)		(0.183)	(0.305)
Activity: Academic Clubs		-0.190***	-0.203***	0.338***
		(0.067)	(0.068)	(0.110)
Academic Clubs X Female				-0.867***
				(0.140)
Constant	8.875	9.211	9.181	8.299
	(0.128)	(0.148)	(0.170)	(0.220)
N	1879	1986	1860	1860
R-Squared	0.000	0.004	0.005	0.025

Note: ***p<0.01, **p<0.05, *p<0.10. Standard errors are shown in parenthesis

The eighth series of regressions in Table 11 looks at participation in student government. This regression includes the same model 1 for sex as it regresses on depressive score, which is not statistically significant. Model 2 shows participation in student government and its association with the depressive score, which is not statistically significant. The third model shows little change when including gender and student government together. While the coefficients change a little in the fourth model, none of the variables are significant. The r-squared value is 0.000, which says none of the variation can be explained by the model's independent variable. The results indicate that the interaction and all of the variables are not significant, which means that no associations can be determined.

Table 11

The eighth series of regressions; including four models to determine a possible association between participation in student government, sex, and depressive score.

Variable	Model 1	Model 2	Model 3	Model 4
Sex: Female	-0.025		0.016	-0.197
	(0.181)		(0.182)	(0.303)
Activity: Student Government		-0.034	-0.024	-0.118
		(0.079)	(0.081)	(0.134)
Student Government X Female				0.148
				(0.169)
Constant	8.875	8.923	8.877	9.006
	(0.128)	(0.145)	(0.170)	(0.224)
N	1879	1985	1859	1859
R-Squared	0.000	0.000	0.000	0.000

Note: ***p<0.01, **p<0.05, *p<0.10. Standard errors are shown in parenthesis

The ninth and final series of regressions in Table 12 followed the same analysis as the previous five, looking at involvement in "other activities." Model 1 still includes the same regression of sex (female) on depressive score, which is not statistically significant. The second model includes other activities as it regresses on depressive score (B=-0.116, p=0.052). The third model includes the two variables from models 1 and 2, showing no change. While there is a little change in the coefficients in model 4, none of the variables are significant (R^2=0.003). The results indicate that the interaction, along with most of the variables, is not significant, and no conclusions can be reasonably deduced there. While "other activities" is statistically significant in model 3 (B=-0.113, p=0.066) and it indicates participation is associated with lower depressive scores, it is difficult to make specific conclusions since the "type" of activity is ambiguous.

Table 12

The ninth series of regressions; including four models to determine a possible association between participation in other activities, sex, and depressive score.

Variable	Model 1	Model 2	Model 3	Model 4
Sex: Female	-0.025		0.042	0.510
	(0.181)		(0.183)	(0.345)
Activity: Other Activities		-0.116*	-0.113*	-0.007
		(0.060)	(0.061)	(0.091)
Other Activity X Female				-0.198
				(0.123)
Constant	8.875	9.141	9.093	8.857
	(0.128)	(0.166)	(0.187)	(0.238)
N	1879	1987	1862	1862
R-Squared	0.000	0.002	0.002	0.003

Note: ***p<0.01, **p<0.05, *p<0.10. Standard errors are shown in parenthesis

These results suggest that based on the composite score for participation and the associated depressive scores, female participation may lead to lower depressive scores, and the score decreases with greater participation. For participation in academic clubs, being female predicts a lower depressive score with greater involvement, while males predict a higher depressive score with greater involvement. Being male predicts a higher depressive score when participating in performing arts, and the score is higher with greater participation, whereas females show no change regardless of the level of involvement. For participation in athletics, there is no difference in gender for either activity; however, participation still predicts a lower depressive score. For newspaper and yearbook and other activities, the activity in model 3 is significant and suggests a lower depressive score with participation; however, neither of the

model 4 variables are significant; therefore, no associations can be made. For student government, no conclusions for gender can be drawn because nothing is statistically significant.

CHAPTER 5: SUMMARY, CONCLUSIONS, & RECOMMENDATIONS

Summary

Chapter Five includes a summary of the purpose and design of the study. It highlights the study's significance, re-explains the problem, and summarizes the major findings. Then, recommendations are made for policy and practice, along with suggestions for future research to help guide changes in education.

Research has shown clinical depression is on the rise for adolescents. According to The Lancet (2019), depression is the 4th leading cause of disease for individuals between 10 and 24 years old, with self-harm being third worldwide. Comparing data from 1991 to 2015, the prevalence of suicide-related behaviors (consideration for suicide, having a plan, and attempts) all increased (CDC, 2016). Compared to males, the risk of mental health is especially high for females, who have a greater chance of developing anxiety or mood disorders at some point during their life (Rossler, 2016). According to the World Health Organization (2008), a diagnosis of depression is 50% more likely for females.

Each year, millions of adolescents participate in extracurricular activities (Afterschool Alliance, 2014) and, on average, participate in 2-3 school-sponsored activities each week (Fredricks, 2012). However, with recent budget constraints, school district leaders find themselves trying to do more with less, leading to a need to cut back (Filsinger, 2012; Leachman & Figueroa, 2019). School-sponsored activities are often among the first places administrators look to cut back (Balingit, 2015; Taylor, 2009). However, research has shown that participation can lead to positive outcomes for students, including higher achievement and emotional well-being (Guilmette et al., 2019). Participating in school-sponsored activities allows students to

develop social skills, leadership skills and build positive relationships with peers and adults in a safe environment (Forgeard & Benson, 2017; Vandell et al., 2015).

The literature also shows that while genetics impact the development of illnesses such as depression, the environment can influence depression just as much (Eid, 2008). Participating in extracurricular activities can provide a positive environment and have a meaningfully positive influence on mental health and emotional well-being (Palen & Coatsworth, 2007). Specifically, structured school-sponsored activities can lead to lower levels of depression as reported by participants, compared to students who do not participate (Mahoney et al., 2002). Eccles and Gootman (2002) posit that a single program cannot do this individually. Instead, multiple and diverse opportunities are needed in varying environments.

This study addresses three research questions. The first is to determine the extent participation in school-sponsored extracurricular activities impacts an adolescent's mental health. The second is to determine the extent this impact varies by the type of activity. The third is to determine the extent the outcome varies by gender. While other studies have considered each of these variables (participation, gender, and the type of activity), there is little data that looks closely at all of them and how they are associated with mental health.

Design of the Study

To answer the research questions, this study utilizes secondary data from a 2018 survey conducted by Monitoring the Future, made publicly available through ICPSR (Miech et al., 2018). This study surveyed 14,502 high school seniors by giving each one of six random questionnaires about drug use and life choices. Only Form 6 of the questionnaire is relevant to this study, as it is the only one to collect information about participation in extracurricular

activities. Data from 2,424 participants were analyzed for this research study. In the questionnaire, students were asked how much they agreed or disagreed with four statements about their satisfaction with life: "Life often seems meaningless," "The future often seems hopeless," "It feels good to be alive," and "I enjoy life as much as anyone." The last two statements were reverse coded, and all four variables were combined to create a composite score for depression. This score ranged from 4 (lower chance of depression) to 20 (higher chance of depression). If one or more statements were missing, that participant was omitted from the analysis. It should be noted that this score is only intended to indicate possible associations with depression and does not intend to diagnose adolescents with depression or determine causality.

Students were also asked the extent to which they participated in six categories of extracurricular activities: "school newspaper or yearbook," "music or other performing arts," "athletic teams," "academic clubs," "student council or government," and "other school clubs or activities." Students responded on a scale from 1 (no participation) to 5 (a great extent of participation). Each of these variables was used in regressions two through nine; however, in regression one, they were combined into one composite score for participation, with a 6 indicating no participation and a 30 indicating a great extent of participation.

Several covariates were included, with similar variables grouped. These groups included sex (female), parent demographics (parent/guardian's level of education and parents/guardians presence in the household), school factors (average academic grade and whether participants enjoyed school), hours spent in outside activities (part-time job, volunteering, and sports/exercise), and race. These variables were organized, re-coded, and run in SPSS.

Major Findings

Findings for Research Question 1

The first series of regressions sought to answer: "To what extent does participation in school-sponsored extracurricular activities impact an adolescent's mental health?" To answer this question, the composite score for activities ranging from 6 to 30 was used to determine its association with the composite depressive score. Results suggest that participating in extracurricular activities has a minimal, statistically significant, negative association with depressive score ($B=-0.099$, $p<0.01$). However, as the grouped covariates for school factors and hours spent in outside activities are added in, the associated depressive score is higher, on average ($B=0.072$, $p<0.01$). This change in direction from negative to positive depressive score with the addition of covariates suggests it cannot be concluded that participating in extracurricular activities, in general, is associated with lower depressive scores. However, the covariates suggest students who are more engaged with school (higher average academic grade and those who enjoy school) and those who are active outside of the school (work a part-time job and participate in sports/exercise) potentially lead to lower depressive scores. The results also suggest students who have parents/guardians with graduate-level education, do not have parents/guardians present at home, or are Hispanic are predictive of higher depressive scores. The rest of the covariates: sex (female), being Black, parents having high school education, and having one parent in the household are not statistically significant.

Findings for Research Question 2

The second series of regressions sought to answer: "To what extent does this impact vary by activity?" To answer this question, participants rated each activity from 1 to 5, and each of

the six respective activity categories was included in the regression: newspaper and yearbook, performing arts, athletics, academic clubs, student government, and other activities. While the results for the composite score for participation showed little association with their depressive score, the results varied when broken down by activity type. Students who participated in newspaper and yearbook (B=-0.256, $p<0.01$) and athletics (B=-0.404, $p<0.01$) both suggest lower associated depressive scores. However, students who participated in performing arts (B=0.297, $p<0.01$), academic clubs (B=0.176, $p=0.023$), student government (B=0.256, $p<0.01$), and other activities (B=0.263, $p<0.01$) are all associated with higher depressive scores. It should be noted that academic clubs started as a negative association with the depressive score, but this changed to a positive association as more covariates were added. Compared to the section above (Findings for Research Question 1), the statistically significant covariates suggested the same outcome in these regressions, with the only difference being that two additional covariates are now statistically significant. Volunteering outside of school predicts lower depressive scores, and being Black predicts higher depressive scores. The covariates for sex (female), parents having high school education, and having one parent in the household are still not significant.

Findings for Research Question 3

The remaining regressions sought to answer: "To what extent does this impact vary by gender?" To answer this question, separate regressions were run for each category of activity as well as the composite score for participation, including the activity, sex, and interaction between that activity and sex (female). All of the beta coefficients referenced here are relative to the interaction in the fourth model. While the composite score for participation did not predict depressive scores in the first regression and is not significant in the third regression ($p=0.139$),

the interaction suggests females who participate in activities are associated with lower depressive scores (B=-0.125, $p<0.01$), and the score becomes even lower with greater participation. When looking at specific activities, the results predict females who participate in academic clubs are associated with a lower depressive score (B=-0.867, $p<0.01$), and the score decreases with more participation, whereas male participation predicts depressive scores go up with greater participation. Performing arts predicts higher depressive scores for males who participate, and the score goes up with greater participation; however, the score does not change for females across any level of participation (B=-0.477, $p<0.01$). For athletics, the results suggest that participation predicts lower depressive scores regardless of gender, as the interaction with gender is not significant. For newspaper and yearbook and other activities, the activity in model 3 is significant and suggests a lower depressive score with involvement; however, the activity, gender, and interaction are not significant in the last model of each regression. Finally, for student government, no associations can be made, as nothing is statistically significant.

Discussion of the Findings

Looking at the literature, studies indicate that participation leads to greater levels of well-being and, thus, lower levels of depression (Dotterer et al., 2007; Rose-Krasnor et al., 2006; Viau & Poulin, 2015). A broad claim that participation in extracurricular activities is associated with lower levels of depression cannot be concluded from this study's findings. However, Mahoney et al. (2005) emphasize these results vary by the type of activity, which this study supports. When considering general participation (not focusing on gender), all six activities are statistically significant. Only two of the activities suggest that participation leads to lower depressive scores: newspaper and yearbook and athletics. Performing arts and student government suggest higher

depressive scores with participation, while the composite score for participation and academic clubs started as a negative association but became positive as more covariates were included. The category other activities suggested a significant positive association with depressive scores when all the covariates were included but suggested a negative association when isolated with just gender, becoming insignificant when the interaction was added.

Participating in athletics and a lower depressive score align with the literature (Barber et al., 2001; Fredricks & Eccles, 2005). Fredricks and Eccles (2005) suggest that athletes have a higher sense of belonging since many participants are on team sports, potentially lowering their depressive symptoms. This suggestion certainly aligns with the results of this study, where the data suggests students who participate in athletics have the lowest depressive scores (B=-0.404) out of all activities included. It is possible that exercising and living an active lifestyle plays a role as well, as the covariate for hours exercising or participating in sports outside of school also suggests a lower depressive score.

Participating in a newspaper or yearbook club is the only other activity that suggests a lower association with depressive score. Of the literature included in this study, none specifically discuss participation in newspaper or yearbook and its association with mental health or positive development; however, this is still supported by the general literature, which suggests that participation can lead to greater levels of well-being and thus, lower levels of depression (Dotterer et al., 2007; Rose-Krasnor et al., 2006; Viau & Poulin, 2015). While the outcomes of this specific activity cannot be validated, the finding of a lower depressive score with participation in newspaper or yearbook still generally supports this research study's hypothesis that involvement is associated with lower depressive scores.

While athletics and newspaper and yearbook's findings suggest lower associated depressive scores, student government suggests a higher depressive score with participation. Similar to the findings for newspaper and yearbook, there is no literature in this dissertation that speaks to the results for participation in student government specifically, so the results cannot be validated. While this activity was the least participated in, having the fewest participants in this study (382 out of 2,104, Table 17), no data suggests a significant skew that could influence the results. It is possible this activity's environment could lead to higher depressive scores or that students with higher depressive scores gravitate towards this type of activity, but there is no way to determine a conclusion without future research.

Similar to student government, the study also suggests participating in performing arts is associated with a higher depressive score. The findings in the literature are more mixed. Barber et al., 2001 suggest that performing arts is associated with higher depressive scores and that participants had a higher chance of suicide as they got older. Fredricks and Eccles (2005) determined the results were inconclusive for participation in performing arts and associated depression. While these results corroborate Barber et al. (2001), more research is needed to validate these findings further and explore why participants may have a higher depressive score.

Fredricks and Eccles (2005) also determined the results were inconclusive for a relationship between participation in academic clubs and depression. This study found that academic clubs started as a statistically significant negative association, but once the remaining covariates were added after sex, the association changed to a positive relationship. Adding additional covariates that may influence the outcome (in this case, the depressive score) can help increase the precision of explaining whether participation in that activity (academic clubs) is associated with the depressive score. In this case, since the addition of covariates show the

associated depressive score increases, it means that the covariates better account for the initial decrease in depressive score. Since these results change direction with additional variables, it cannot be concluded that participation in academic clubs is associated with lower depressive scores and that other covariates better explain this result.

It should be noted that no definitive conclusions can be made for "other activities." Not only is the data inconsistent across models, but the definition of what constitutes "other" activities is ambiguous. These "other activities" could include philanthropy, sports medicine, gardening, world languages, gaming, robotics, etc. Since each of these clubs has a unique purpose and potentially different environment, no reasonable conclusions can be drawn here.

Even though this study's findings suggest participation in certain activities, such as academic clubs, student government, and performing arts, is associated with a higher depressive score, this study does not address why. It is possible adolescents who are more depressed feel safer in these types of environments and are more willing to step out of their comfort zone and get involved. This feeling of comfort may be the case for individual clubs, but on the other side, it is also possible that depressed students may choose not to participate because they do not feel comfortable, or they have social anxiety. This possible inconsistency highlights the importance of studies identifying why students choose or do not choose to participate. Fredricks et al. (2002) emphasized that organizations need to create an environment where students feel connected, competent, and are recognized for their work. If clubs can successfully do so, more depressed students may choose to participate, which could cause the average depressive score to increase, even if students benefit from participating in these activities.

Since these scores are a snapshot in time, taken from one survey, there is no comparison to see if the score decreases throughout the year. It is possible these activities still lead to lower

depressive scores through participation, and this study cannot account for that. One challenge with giving a single survey is that other environmental factors may influence what a student reports. Circumstances such as the location is uncomfortable, students do not feel safe, respondents are having a bad day, etc., could bias their responses. In addition, if students do not feel the survey is confidential and their answers are "safe," they may not be willing to answer truthfully, which would bias the results. Providing multiple surveys throughout the year may lead to different results that are more in line with the literature.

It is also possible that the four statements used to represent the depressive score do not accurately represent a student's clinical diagnosis of depression or how they grow and develop from being a part of these activities. Students may still gain in several areas, and a higher associated depressive score may simply be a coincidence. Since this study cannot determine causality, it is difficult to draw conclusions for any of these activities. Without determining causality, there is no way to know whether participation in each of the respective activities is a coincidence or the environment that activity fosters. More research is needed to address these areas.

When considering the differences by gender for regressions 3-9, females are associated with higher depressive scores compared to males. This is the case in many of the significant models (composite activities in Table 6, performing arts in Table 8, and academic clubs in Table 10), with athletics (Table 9) being the only significant outlier. These findings mostly align with the literature suggesting that females are more likely to have higher levels of depression and anxiety than males (Rossler, 2016; Stevenson & Wolfers, 2009; WHO, 2008). Mahoney et al. (2002) report that females tend to have higher levels of depressed moods in general, which this study corroborates; however, this study does not match the rest of their findings which concluded

the benefit of participation is consistent for both males and females. This current study's results suggest males and females have different outcomes, which is highlighted by participation in academic clubs (Table 10), where results are inversely related for males and females. The associated depressive score for males increases, while it decreases for females with greater involvement.

Despite females typically having a higher depressive score compared to males, when looking across participation in significant activities (composite activities, performing arts, and academic clubs), the trends suggest that as females become more involved, their associated depressive score when participating tends to be lower, compared to males. This data suggests similar findings to Fusco (2008), who recognizes the differences between males and females and posits that participation helps close the gender gap. According to Fusco, participation in extracurricular activities provides meaningful learning opportunities that the classroom does not, and that greater involvement for females will reduce the inequalities between them and males. The results from this study corroborate Fusco's claims.

The literature also reported that females had more significant participation in activities such as performing arts and academic clubs compared to males (Dearman, 2017) and that they were involved for a more extended period (Ritchie, 2018). Even though this study cannot reasonably consider the longevity of participation, the results suggest otherwise, as participation is somewhat balanced between males (roughly 1040 students) and females (roughly 1060 students) for each activity. See Tables 13 through 19 in Appendix A for the extent of participation in each respective activity by gender.

With regard to academic clubs and performing arts, the depressive scores become higher for males with greater participation. While a higher depressive score for males in performing

arts aligns with the literature, an associated higher depressive score for males participating in academic clubs does not. It is possible that since there are twice as many females in academic clubs who rate their participation at 5 out of 5 (119 students), compared to males (52 students), this imbalance could lead to inconsistent results; however, this differential does not fully explain the discrepancy, since gender is balanced (66 males and 66 females) for those who reported participation at a 4 out of 5, referenced in Table 16.

Ultimately, even though this study cannot make many conclusive findings, the results help shed light on some differences in both the type of activity and gender, and adds to the limited literature on this topic, suggesting athletes, participants in newspaper and yearbook, and females are all associated with lower depressive scores with greater participation.

Recommendation for Policy and Practice

Considering the findings from this study, school districts should promote greater participation in organizations associated with lower depressive scores. Based on this study's findings, schools should promote participation in athletics and the school newspaper or yearbook club, but reviewing additional studies and other research may provide confidence expanding on this list. Schools should also make a greater push to get females involved. This initiative is especially important, as the findings indicate females participating in clubs suggest significantly lower depressive scores compared to males when participating at greater levels in activities (Table 6). Schools may want to consider hosting a club fair and promoting female participation and student participation in extracurricular activities associated with lowering depressive scores. Making this information available to students on a wide scale may also encourage greater participation for the students who can benefit most from it.

Several researchers suggest administrators may not fully understand the impact that participation in school-sponsored activities can have on adolescents and how detrimental budget cuts in this area will be. They caution school districts to think twice before making cuts (Block, 2012; Fredricks & Eccles, 2005; Fredricks et al., 2002; Taylor, 2009). Even though this study cannot indicate causality, the advice to think twice should continue to be followed by school administrators, as this research study's findings at least demonstrate that being involved has positive associations, that different activities can lead to different outcomes, and that those outcomes can vary by gender. While all the findings may not provide overwhelming evidence to continue supporting extracurricular activities to improve mental health, participation in athletics and newspaper or yearbook still suggest lower associated depressive scores. Administrators should keep in mind that the rest of the activities may not cause higher depressive scores, but rather students who are more depressed may feel comfortable participating in those activities. In addition, the literature review in Chapter 2 shows participation can still lead to many positive and meaningful outcomes. Consequently, it is encouraged that each district conducts its research before making budgetary decisions regarding extracurricular activities. Moving forward, school administrators should closely examine the activities their district offers, the outcomes they provide, and how they can make improvements before deciding to eliminate an activity.

Districts should implement a formal process to evaluate the impact of extracurricular activities. This means a better evaluation system of the effect of clubs/activities, including surveying students, advisors, parents, and teachers on the perceived impacts of involvement. They should also consider the environment the club creates, its opportunities, and the skills it fosters, as all of these factors can influence positive development. Since the literature suggests the environment can positively impact students' development and well-being (Eid, 2008; Palen

& Coatsworth, 2007), school districts should consider focusing on this area. It may also be beneficial to survey students who do not participate to determine why and what it would take to get involved. The results of a survey like this may provide a few ideas that can meaningfully encourage participation. After this evaluation process, it may be worthwhile to provide professional development to advisors based on these results, so they can learn how to create a more positive and encouraging environment and improve the impact of the activities offered.

As social and emotional learning (SEL) takes a priority in districts today, getting students involved in extracurricular activities may be an excellent avenue to develop those necessary skills (Eccles & Gootman, 2002). Schools should consider using this study's survey and methods as a guide since it captures a composite depressive score for each student, which can be used to identify students who need specific support and target services that can help them. Herrman et al. (2005) explain that students need to engage in these social and emotional learning opportunities to develop positive mental health skills. This may include getting more participation in extracurricular activities or a different service, but using this data is a great place to start.

The findings suggest that participating in athletics, as well as hours spent in sports/exercise outside of school, both predict lower depressive scores for adolescents. Given the results, it seems beneficial to encourage students to be more active in their daily lives. Schools should promote more physical activity both in and out of school, as well as examine their health and physical education programs to ensure that students are making the most of their time in these classes. If curricula in these areas do not focus on mental health or promote a more positive lifestyle, it may be beneficial to emphasize this area. This change may require allocating resources for curricular materials and revisions/rewriting of the curriculum.

In addition, districts should consider more ways to support adolescents who are female, have no parent/guardian in the household, have parents with graduate-level education, and students who are minorities (specifically Black and Hispanic), as these findings suggest higher depressive scores for each of these groups of individuals. Schools should be considerate of this and support initiatives that assist these students. These adolescents may benefit from speaking to counselors more frequently and providing more resources to cope with stress, anxiety, or other difficult topics.

Finally, implementing a school-wide suicide prevention program may provide the necessary resources to students who are depressed but do not fall into any of these higher-risk categories, or participate in activities. This program can be implemented as an assembly that all students must attend, featuring guest speakers or a traveling school program. This idea can also be integrated into the curricula, into health classes, freshman seminars, or any other relevant course. It is essential that the idea of suicide prevention and seeking support if necessary should continue to be promoted consistently. Students will benefit from constant reminders that they are supported and cared for. Even if the program helps one person, it will be invaluable.

Recommendations for Future Research

While thorough in its approach, this study still has limitations that prevented it from being more conclusive. There are several areas for this study to be expanded upon in future research.

1. While students were randomly sampled across all four regions based on the US Census, these findings are biased by the sampling process. Schools with 350 or fewer students included everyone, while larger schools were randomly sampled. The school size can

make a difference in the results. With bigger schools, students may have less chance to participate in certain clubs (more competition in sports); however, bigger schools may also provide more opportunities because a larger district may have a bigger budget. Future studies should identify whether these results vary by school size, as this study could not include school size as a variable.

2. This study focused on participants who are seniors in high school. Future studies should be expanded to include students in grades 9-11 to see how results change throughout high school. It is possible seniors are more focused and more heavily involved in a smaller number of activities by the time they get to their final year of high school. Including all high schools could lead to different results and offer a larger sample.
3. This study was limited to six categories of activities based on the parameters of the secondary data. Future studies should consider what these categories should be and also factor in breadth, intensity, duration, and engagement to a greater depth. Having an "other activities" category does not allow for accurate conclusions to be drawn in this area.
4. Future studies should also consider the "why." The reason students choose to stay involved and continue participating can potentially influence their associated depressive score. Are students participating because they are passionate or to put it on a resume? Do more depressed students choose to participate because they feel comfortable? This motivation can potentially influence the outcomes they experience, changing the results of a future study. Researchers may want to consider an inductive approach using a qualitative study to see how the results compare.

5. Similar to the previous recommendation, researchers may want to focus a study on why students may choose not to participate. If research suggests students gain more by being involved, the focus should be on getting more students to participate and identifying why they do not. If some patterns or areas can be addressed, this may make a larger number of students want to get involved.
6. This study could not look at the impact of student leaders compared to general members of the club/activity. It is possible that results could change based on the type of role the individual has in their respective activity. Students who take on larger leadership roles may have more responsibility and participate to a greater extent compared to general members in the club. This extent of involvement can potentially influence the associated depressive score.
7. When indicating their sex, participants were limited to choosing male or female for this study, whereas many students today do not fit into these binary categories. It is possible that results, specifically depressive scores, may vary based on the participant's gender and sexual identity. Current literature suggests that adolescents who do not fit into a traditional gender dichotomy will have higher rates of depression, risk of suicide, and anxiety (Roberts et al., 2013; Valentine & Shipherd, 2018). Future studies should consider these gender differences, include more options, and examine whether a difference in gender identity impacts the association between participation in extracurricular activities and depressive score.
8. This study was unable to determine causality, as the data does not allow for a diagnosis of depression. In addition, students were given one questionnaire at one point in time.

Future studies should seek to identify an average depressive score using multiple surveys over time. This would help eliminate any bias and add to the reliability of the results.

9. This study was limited in its ability to draw conclusions based on race, as the original categories for race were changed from Black or African American; Mexican American or Chicano; Cuban American; Puerto Rican; Other Hispanic or Latino; Asian American; White (Caucasian); American Indian or Alaska Native; Native Hawaiian or Other Pacific Islander to "Black or African American," "White (Caucasian)," "Hispanic" and "Other." Since these changes were made before the data was published, little could be done to speak to the differences based on race. Future studies should include more diversity to see how results may vary and consider whether all students have equal access to opportunities to get involved based on race.
10. This study included a total of 128 schools: 106 were public schools, and 22 were private schools. The variables in the utilized data did not allow for comparison between the two. It is possible that different types of schools offer different types/number of activities. Future research should consider whether depressive scores and extracurricular opportunities vary across public and private schools.
11. While the study used secondary data from 2018, the analysis was conducted during the 2020 Coronavirus Pandemic. It is possible the extended period of time being stuck at home has had an impact on student's mental health, and the results could be different from the 2020 data and beyond. Future research should consider the impact the pandemic had on mental health and whether associations with participating in extracurricular activities changed as a result.

Conclusion

This study has shown that participation in extracurricular activities can be associated with lower depressive scores depending on the type of activity and the participant's gender; however, definitive conclusions should be cautioned because of study limitations such as the use of secondary data and an inability to determine causality. This study identifies many limitations and suggestions for future research that can meaningfully contribute to future studies in this area. Especially with the possible negative impacts of Covid-19 on mental health, this topic should be a focus for future researchers to consider as our society continues to seek how to better support today's youth in an ever-changing world.

APPENDIX A: ADDITIONAL TABLES

Table 13

This table shows the breakdown of males and females who participated in newspaper and yearbook, by the extent of participation.

Participation	Males	Females	Total
Not at all (1)	851	818	1669
Slight (2)	88	101	189
Moderate (3)	49	48	97
Considerable (4)	34	43	77
Great extent (5)	24	59	83
Total	1046	1069	2115

Table 14

This table shows the breakdown of males and females who participated in performing arts by the extent of participation.

Participation	Males	Females	Total
Not at all (1)	689	573	1262
Slight (2)	99	121	220
Moderate (3)	63	76	139
Considerable (4)	73	93	166
Great extent (5)	117	200	317
Total	1041	1063	2104

Table 15

This table shows the breakdown of males and females who participated in athletics by the extent of participation.

Participation	Males	Females	Total
Not at all (1)	397	540	937
Slight (2)	86	91	177
Moderate (3)	96	77	173
Considerable (4)	109	87	196
Great extent (5)	356	268	624
Total	1044	1063	2107

Table 16

This table shows the breakdown of males and females who participated in academic clubs by the extent of participation.

Participation	Males	Females	Total
Not at all (1)	736	692	1428
Slight (2)	112	86	198
Moderate (3)	75	104	179
Considerable (4)	66	66	132
Great extent (5)	52	119	171
Total	1041	1067	2108

Table 17

This table shows the breakdown of males and females who participated in student government by the extent of participation.

Participation	Males	Females	Total
Not at all (1)	858	864	1722
Slight (2)	78	48	126
Moderate (3)	33	32	65
Considerable (4)	23	35	58
Great extent (5)	48	85	133
Total	1040	1064	2104

Table 18

This table shows the breakdown of males and females who participated in other activities by the extent of participation.

Participation	Males	Females	Total
Not at all (1)	499	394	893
Slight (2)	142	124	266
Moderate (3)	168	179	347
Considerable (4)	111	146	257
Great extent (5)	120	224	344
Total	1040	1067	2107

Table 19

This table shows the breakdown of males and females and the extent of participation in all activities using the composite score from 6 to 30.

Participation	Males	Females	Total
6	167	127	294
7	50	45	95
8	52	70	122
9	79	69	148
10	167	115	282
11	73	73	146
12	87	95	182
13	54	52	106
14	78	94	172
15	49	67	116
16	43	44	87
17	38	45	83
18	28	49	77
19	14	27	41
20	10	22	32
21	10	15	25
22	10	19	29
23	10	7	17
24	4	4	8
25	1	8	9
26	2	6	8
27	1	0	1
28	1	0	1
29	1	0	1
30	2	2	4
Total	1031	1055	2086

APPENDIX B: IRB LETTER

SETON HALL UNIVERSITY
1 8 5 6

December 22, 2020

Michael Gottfried
Seton Hall University

Re: 2021-172

Dear Michael,

The IRB is in receipt of the application for your study entitled "The Association Between Participation in Extracurricular Activities and Adolescent's Mental Health." After reviewing the inclusive content, the proposed study was deemed to be "Not Human Subjects Research" by the Research Ethics Committee of the Seton Hall University Institutional Review Board and is therefore beyond the purview of the Institutional Review Board. Therefore, you are under no obligation to submit any further correspondence to the Seton Hall University Institutional Review Board regarding this effort, unless of course there are any modifications made to the design or intent of your study that may otherwise change the designation to human subject's research. If you plan to create any future correspondence with the Institutional Review Board about this study, please reference the ID# listed above.

Sincerely,

Director, Institutional Review Board
Seton Hall University

Office of the Institutional Review Board
Presidents Hall · 400 South Orange Avenue · South Orange, New Jersey 07079 · Tel: 973.275.4654 · Fax 973.275.2978 ·
www.shu.edu

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