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UNIVERSITY OF NORTHERN COLORADO

Greeley, Colorado

The Graduate School

EXPLORING THE THERAPEUTIC BENEFITS OF DANCE IN
THE ACADEMIC SCHEDULE: THE EFFECTS ON STRESS
AMONG HIGH SCHOOL STUDENTS

A Thesis Submitted in Partial Fulfillment
of the Requirements for the Degree of
Master of Arts

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College of Performing and Visual Arts
School of Theatre Arts and Dance
Dance Education

December 2024

This Thesis by: Amanda Polanowski

Entitled: *Exploring the Therapeutic Benefits of Dance in the Academic Schedule: The Effects on Stress Among High School Student*

has been approved as meeting the requirements for the Degree of Master of Arts in the College of Performing and Visual Arts in the School of Theatre Arts and Dance, Dance Education program

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ABSTRACT

Polanowski, Amanda. *Exploring the Therapeutic Benefits of Dance in the Academic Schedule: The Effects on Stress Among High School Students*. Unpublished Master of Arts thesis, University of Northern Colorado, 2024.

The purpose of this study was to gain insight into the minds of dance students about the stress they experienced as a result of their academic schedules and extracurriculars. The following research questions informed this study:

- Q1 Does incorporating dance into the academic schedule lower stress in high school students?
- Q2 In what mental state are students before and after taking dance class?
- Q3 Does dance provide mental health benefits for high school students?

Student stress was evaluated before the study using a questionnaire as well as before and after each dance class through surveys. Eighteen students participated in a group interview at the conclusion of the six-week study to discuss how dance affected their mental health and the benefits of including dance in the academic schedule. Quantitative and qualitative data obtained from this study suggested that dance in the academic schedule reduced stress in high school students.

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CHAPTER I

INTRODUCTION

Goal of Thesis

Teen stress is at an all-time high and could have detrimental consequences, both mentally and physically. According to a 2022 poll done for the National Alliance on Mental Illness, 64% of participants age 12-17 reported, “The world is more stressful now than it was when my parent(s)/guardian(s) were my age.” Although teens are open to learning stress management skills, only 40% of participants agreed their schools were doing enough to support students (National Alliance on Mental Illness).

This qualitative study was designed to examine physical activity in the form of dance as a stress management tool for high school students. Because teens are often overscheduled with extracurricular activities, the goal of this study was to determine the effects of dance in the academic schedule on high school students’ stress. The goal of going deeper into the students’ encounters with stress and with dance was to provide this field of study with a more robust depiction of their experiences and promotes awareness of how dance benefits mental health when a part of the high school academic schedule.

The following research questions informed this study:

- Q1 Does incorporating dance into the academic schedule lower stress in high school students?
- Q2 In what mental state are students before and after taking dance class?
- Q3 Does dance provide mental health benefits for high school students?

Asking a high school student “How is your day going?” is often met with negative interjections such as “horrible!” and audible groans, but rarely are they asked how their day is going *after* a dance class. This deficit inspired a qualitative study on the potential benefits of having dance class in the academic schedule and its effect on student stress. This study questioned whether students who took dance during their school day left the classroom more uplifted or if they would continue to describe their days as “horrible.” When talking to the students and their parents, they seemed to favor including dance in the academic schedule, often describing the experience as fun and a change of pace from the regular school day. This statement was common between students who danced outside of school and students who had little to no dance experience. Some parents and students were even surprised at how enjoyable dance class could be.

The act of expression through movement could serve as a means to work out personal issues and serve as an outlet for emotional articulation. “Dance Practice and Well-being Correlates in Young Women” by Muro and Artero featured a study of young women in Barcelona and how dance practice improved their life satisfaction and mindfulness (6). This article discussed dance as a “universal form of cultural expression” (2), meaning anyone could participate and benefit from dance. Muro and Artero’s study sought to prove that people who practiced dance would be more mindful and more satisfied with their lives than those who did not participate in dance. The researchers observed a group of people who currently practiced dance and a group that did not practice dance or any other sport. Rates of mindfulness and life-satisfaction were higher in the dance practitioner group, according to the study’s abstract, supporting Muro and Artero’s hypothesis of the benefits of dance. Links between mindfulness and life-satisfaction were also found, especially in the group of dancers.

When thinking about dance as therapy, it is important to consider what participants might be coping with. “Healing Minds, Moving Bodies: Measuring the Mental Health Effects of Online Dance during the COVID-19 Pandemic” by Rachel Rugh et al. focused on a study that began by discussing the mental health impacts a pandemic could have. The researchers merged their artistic and scientific interests to create a study that would predict that virtual dance classes would benefit those in isolation from the pandemic. The study, based in Blacksburg, Virginia, was designed by instructors who considered the differences between in-person dance classes versus zoom dance. After gathering feedback through a survey, it was concluded that even though many participants differed in experience, technical challenges, and learning styles, dance benefited the body and mind (Rugh et al.). This article showed that even though in-person dance might be preferable, a virtual class was better than complete isolation.

Purpose of the Study

The purpose of this study was to gain insight into the minds of dance students about the stress they experienced as a result of their academic schedules and extracurriculars. This study also sought to discover what, if any, changes in school curricula might improve those stress levels considering the insights gained. It was the aim of this study that the knowledge it yielded would assist in creating a more positive environment where students felt safe and could reap the benefits of dance in their academic schedule. Students also had a chance to reflect on their dance experience and how it affected their stress levels. Participants had a closer look into how dance affected them during the school day and how including dance in their academic schedule might help to reduce stress.

Significance of the Study

In December 2022, the *State of Student Mental Health Survey* was conducted by the Empowering Communities with Integrated Network Systems (ECINS). A total of 353 K-12 school social workers, superintendents, teachers, and counselors responded “strongly agree” or “agree” with specific statements about student mental health; 84% reported that adolescent stress was worse in the 2022-2023 school year; and 88% wished they had more resources to help students (ECINS). These statistics showed a need for more resources that reduced stress in school-aged children including those in high school. This study sought to find out if incorporating dance in the academic schedule was one of those resources.

Well-being is an increasingly predominant concern among high school students. Academic pressures rise with college on the horizon as well as the rigor of upper-level core classes. This study holds implications for those in many fields such as education, mental health, and performing arts. Studying the integration dance in the academic schedule would benefit these professionals and contribute to their future practices.

The results of this study provided insights on the high school experience, namely student stress. The potential of this study to reveal the positive effects of dance in the academic schedule offers educators and school administrators the opportunity to make changes in curriculum, scheduling, and a school culture that supports mental health. Professionals in the curriculum development field could find this study relevant when it comes to educating the whole child through the inclusion of the arts in the regular school day.

School counselors and mental health professionals will find connections between stress and dance through this study, giving them strategies to explore with students. Dance as a stress-management tool has the potential to benefit students who are experiencing many kinds of

mental health issues, thereby informing mental health professionals' future practices. This study has the capability to build relationships between mental health professionals and dance educators in schools.

Collaborations between dance educators and school counselors could play a significant role in the integration of arts as a therapeutic tool. Recognizing the arts as a vehicle for shaping the well-being of students would open doors for professionals in the arts, education, and mental health. This study might be significant for those who recognize the critical need for student well-being to take a front seat while navigating the growing academic pressures in high school.

CHAPTER II

LITERATURE REVIEW

Introduction

In recent years, the topic of mental health has received booming attention and interest, particularly that of adolescents. Whether it is on social media, television, or public figures speaking out, the subject of mental health is open for discussion, now more than ever. As educators and researchers continue to observe the effects of stress and mental health, the need for coping mechanisms has become significant. According to the literature, the state of stress in high school students has only increased but physical activity in the form of dance could help reduce those levels. The literature demonstrated that by incorporating dance into the high school academic schedule, students benefitted from the stress-reducing effects dance brought. To understand the mental health benefits of integrating dance into the high school academic schedule, explorations of theoretical literature and empirical research of stress, physical activity as a coping strategy, and dance as a specific form of physical activity.

Theoretical Literature

According to Monaghan and Spencer, “The concept of stress is closely related to the concept of homeostasis. Both are best viewed as biological states, the latter representing the optimal physiological state or ‘comfort zone,’ and the former the state that arises when homeostasis is disrupted” (R408).

Selye’s Guide to Stress Research defined stress as “the nonspecific (that is, common) result of *any* demand upon the body,” be it a mental or somatic demand for survival and the

accomplishment of one's aims (Selven 7). The body is equipped to respond to short-term stress, but for those who experience ongoing stress, many physical health problems can occur. Anxiety, depression, sleep problems, and numerous health issues have developed because of the heightened hormone levels caused by stress (Stangor and Walinga 739-740). These issues could become increasingly dangerous in adolescents who are still developing and going through significant hormonal changes.

According to The American Academy of Child and Adolescent Psychiatry ("Stress Management and Teens"), many teenagers experience stress daily, especially when a situation is difficult and they lack the skills to cope. Teen stress stems from school demands, bodily changes, social issues, home trauma, grief, and being overscheduled with extra-curricular activities. Teens could experience anxiety, illness, and drug/alcohol use because of the stress they feel. The body's natural reaction to stress is the heart-pumping 'fight, flight, or freeze' response that creates increased blood flow, clammy hands and feet, upset stomach, and a sense of dread ("Stress Management and Teens").

This article claimed, "The same mechanism that turns on the stress response can turn it off. As soon as we decide that a situation is no longer dangerous, changes can occur in our minds and bodies to help us relax and calm down" ("Stress Management and Teens"). If teens are able to develop this "relaxation response," they are able to manage stress with more ease. In situations where both parents and teens work to combat teen stress, adults model stress management skills and listen to their teens. They monitor how stress affects their teens and encourage them to be involved in pro-social activities. Teens who are more capable of managing their stress develop habits such as exercising regularly, getting enough sleep, avoiding caffeine, drugs, and alcohol,

taking a break from stressful situations, and building a positive support network (“Stress Management and Teens”).

Harvard Health Publishing argued that exercise could actually be relaxing, thereby reducing stress (“Exercising to Relax”). Although “rest and relaxation” is the more well-known cliché, many people overlook that exercise could also be relaxing. The word stress could be applied to both physical and mental states. Harvard Health Publishing stated that “exercise is a form of physical stress” and asked the question “Can physical stress relieve mental stress?” Because of its neurochemical basis, aerobic exercise was said to lower stress hormones and boost endorphins. Not only would exercise renew energy, but it would also provide opportunities to develop the discipline needed to complete tasks. Stress manifests itself physically as much as mentally, causing symptoms such as tight muscles, headaches, stomach issues, and chest tightness. Experiencing those symptoms caused by stress could perpetuate even more stress because of the discomfort and sickness felt. Along with physical benefits such as an increase in strength and stamina, people who exercised gained a sense of self-confidence and renewed energy. Exercise was also shown to distract the mind from worries and provided a network of friends. Illness can be stressful. People experience a chain reaction of stress, illness, and more stress. The article provided many ideas for exercising mentally and physically including walking, strength training, stretching, and breathing exercises. They concluded, “Popular beliefs notwithstanding, exercise *is* relaxing” (“Exercising to Relax”).

Further works in the literature showed that dance is likely to be an example of such a stress-reducing activity. Kenneth Cooper created a guidebook for aerobic exercise and stated that dance could help people reduce, avoid, or eliminate fatigue as a symptom of stress. The increased oxygen flow to the brain while dancing provides a sense of invigoration to the

individual (Cooper). This invigoration could also be related to catharsis as mentioned in Kendra Cherry's peer-reviewed, online article "Catharsis in Psychology." According to Cherry, "Catharsis is a powerful emotional release that, when successful, is accompanied by cognitive insight and positive change." Catharsis is described as an explosion of pent-up emotion, which could be caused by stress. By releasing these feelings through physical activity, dance as exercise could reduce the mental stress one experiences.

Julia Christensen and Dong-Seon Chang believed dancing is incredibly beneficial for our health. These authors were competitive dancers turned neuroscientists who argued that humans are designed for dancing and we could achieve our ultimate well-being through dance. Their book explored the physical benefits of dance for the body as well as the history of movement and music from early humans to today. Stress was also discussed, noting stress as the brain's natural response to challenges that would have helped our ancestors face things like "a saber-toothed tiger or an opposing tribe's most powerful warrior" (153). The human body biologically responds to the stress inflicted by predators and other threats, but academics, family, social life, and extracurricular activities had just as negative an effect.

Cortisol is the stress hormone that snaps the human body into fight or flight mode, whether the cause be a grizzly bear or a snake in the forest. This hormone pumps blood into the muscles, quickens the heart rate, and promotes focus on the challenge at hand. Today, however, people do not run away from challenges such as a busy schedule or a pile of homework. Because they do not run away from these modern-day snakes in the forest, their bodies eventually become sick with burnout. Immune systems crash and people become more susceptible to illness and life-altering health problems (Christensen and Chang 154-155).

Although exercise has been shown to benefit people both physically and mentally, it could be difficult to find a type of exercise that works for reducing stress. Christensen and Chang discussed how dancing could be one of those types of exercise. The authors referred to the vagus nerve and how activating it could reduce stress. Through dance, people could activate this nerve with the various movements of dance such as bending backward and forward and raising our arms above the head. This works wonders for the body, stimulating the heart and pumping fresh oxygen to the lungs. By stimulating the vagus nerve, the body relaxes and stress decreases. Dance incorporates many movements not seen in daily life or in traditional exercise. Walking backward, for example, is seen in ballroom and ballet dance but is rarely taken advantage of outside a dance setting. Walking backward reverses the effects of sitting such as spinal pressure and back pain (Christensen and Chang 102-104). Because dance incorporates so many different movements other forms of exercise lack, it is considered a unique way to maintain bodily health and reduce stress. Christensen and Chang concluded that dance lowered stress, thereby benefiting the body and reducing physical illness. They also concluded that like dance/movement therapy (DMT), regular dance increases the mind-body connection. Not only is dance mentally and physically beneficial, it is also fun.

Judith Lynne Hanna, an anthropologist, has written numerous books on dance and how it affects the human race. On the topic of stress, she wrote *Dancing for Health: Conquering and Preventing Stress* and *Dance and Stress: Resistance, Reduction, and Euphoria*. “In the United States and other countries, there has been a decline in public and private support of the arts including dance. Awareness that dance is not just entertainment but also a form of education and healing might reverse the trend” (Hanna 218).

Hanna also discussed diversion from stress as a tool for improved well-being. She described the escape dance provides and the ‘high’ that comes from moving the body. When the body moves vigorously, an ‘altered state of consciousness’ could be achieved, leading to catharsis and distraction from stress. Even though Hanna understood the benefit of other types of exercise such as biking or running, she was an advocate for dance. This was because dance is more than just physical exercise for fitness, it could also improve mental fitness. Dancing could be a mode of spirituality or part of a religious ritual. Dance could bring together communities made up of people from all backgrounds, ages, and physical abilities.

Why choose dance as a preferred form of exercise? Hanna stated that “dance is more than physical exercise for fitness and movement satisfaction. Dance also permits emotional intellectual, and aesthetic exploration” (208). Early pioneers of DMT understood dance as a way of healing the mind, body, and spirit, which are all connected. Dance/movement therapy uses movement to improve emotional, social, cognitive, and physical health and well-being. Dance/movement therapy achieves its therapeutic effects by using verbal and nonverbal language to communicate. The principal approach to DMT is body movement. Along with different forms of communication, therapists could intervene and undertake the emotional, social, physical, and cognitive integration of the individual (“What Is Dance/Movement Therapy?”). Dance professionals and mental health specialists have turned their attention to the connections between dance and mental well-being as a point of interest. Hanna understood that stress and dance were both complex things that involved the connection between mind and body.

Dance movement therapy is an affective form of physical activity when it comes to reducing stress. Reetu Jain, a movement therapist and co-founder of the Creative Movement Therapy Association of India worked with many types of individuals who had benefitted from

DMT including the transgender community, high school and college students, social sector leaders, and the general public, to name a few. Participants in her sessions were able to have an outlet for anger and sorrow through movement and vocalization (“Transgender in India”). Rena Kornblum worked with young students whose teachers identified anger challenges in school. Kornblum addressed their anger through externalization or imagining their anger was outside their body and approaching it through movement, visualization, and art.

Empirical Research

In high school students, academic pressure and schedules filled with extracurricular activities can take a serious toll on mental health, causing overwhelming stress. In December 2022, the ECINS conducted *The State of Student Mental Health Survey*, which gathered the input of 353 social workers, superintendents, teachers, and counselors in the United States. The results of the survey provided awareness of the challenges students face and solutions to support them. The survey found that teachers and social workers observed a decrease in mental health among students. According to results, “Eighty-nine percent of respondents note that mental health challenges have far-reaching implications, including negatively impacting students’ academic achievements.” One participant responded, “Students are burnt out just as much as teachers, staff, and administrators. We need to invest in supporting students’ mental health needs if we want students to meet learning outcomes” (ECINS).

Stress levels were reported to be elevated in 2023 and were higher than previous school years (ECINS). This study concluded that mental health and academic performance were related, and academic scores declined because of mental health. A survey respondent said that “students seem less equipped to manage stress and typical demands of school.” One surprising finding was that students were willing to communicate their challenges, providing opportunities for finding a

solution, but social workers and teachers felt unprepared to support students. They wished they had more tools to combat decreasing mental health. The support structures in place were inadequate for meeting students' needs.

While respondents said technology could bridge the gap, they reported their schools were not doing enough to help (ECINS). There were significant mental health issues among students but school staff felt ill-equipped to meet students' needs. Because schools often suffer financially and could rarely provide resources for teachers, dance would be an economically friendly way to bring stress relief to students during the school day. This survey found that even though students were willing to discuss their mental health issues and school staff were eager to help, still more action was needed on behalf of the schools to intervene (ECINS).

Although schools continue to struggle with providing resources that require finances, research found that physical activity, a low-cost resource, might support students who need stress relief throughout the school day. William P. Morgan, of the Sport Psychology Laboratory at the University of Wisconsin-Madison, conducted a study on the effects of vigorous exercise on individuals. This study showed that most people reported a reduction in tension after physical activity but Morgan argued that the exercise itself might not necessarily be the cause of this major change. Morgan's research led to the creation of a distraction hypothesis that categorized physical activity as a distraction from stressful stimuli. The hypothesis proposed that distraction from stress, rather than the exercise itself, was responsible for an improved state of mind.

The participants were assigned different exercises to distract them from stress (Morgan). Participants noticed a decrease in anxiety but the study was inconclusive about the maintenance of this state. The study concluded there are multiple explanations for the connections between stress reduction and exercise but it was unclear why (Morgan). Even if dance itself does not

warrant a decrease in stress, the distraction during a dance class could certainly be beneficial for today's high school students. The American Psychological Association administered the *Stress in America*TM survey online in 2013 ("American Psychological Association Survey"). Participants were adults and teens ages 13 and older who lived in the United States. The survey found that stress levels reported by teenagers were higher than those reported by adults.

Stress is manifesting earlier and earlier in people's lives, having an impact on exercise, sleeping, and eating habits. Stress during the school year and even during the summer is reported to be higher than what teens would consider healthy. Students feel overwhelmed, depressed, and tired because of stress. Although clearly present in their bodies, the physical effects of stress were reported less by teenagers. American Psychological Association CEO and Executive Vice President Norman B. Anderson said,

It is alarming that the teen stress experience is so similar to that of adults. It is even more concerning that they seem to underestimate the potential impact that stress has on their physical and mental health... In order to break this cycle of stress and unhealthy behaviors as a nation, we need to provide teens with better support and health education at school and home, at the community level and in their interactions with health care professionals. ("American Psychological Association Survey")

While some teens reported a decline in stress, twice as many participants said their stress level had increased or will increase in the coming year ("American Psychological Association Survey"). One in 10 teens also reported they never set aside time to manage stress. The survey investigated the stress-health behavior relationship. Although participants reported that health behaviors such as sleep, exercise, and eating were important to them, they were negatively impacted by stress. Teens reported sleeping far less than the recommended "7.4 hours on school

nights and 8.1 hours on non-school nights, compared with the 8.5 to 9.25 hours recommended by the National Sleep Foundation” (“American Psychological Association Survey”). They were also more stressed because they did not get the proper amount of sleep. This mirrored Harvard Health Publishing’s finding that stress created illness, which then created more stress (“Exercising to Relax”). Few people said they made time for exercise even though they had experienced positive benefits from it before. Teens reported that rather than exercising, they spent time online.

Anderson concluded that parents and other adults should spend time with teens and encourage them to develop healthy habits such as exercising, eating well, sleeping, and seeking professional help when needed (“American Psychological Association Survey”). This study found teens were not setting aside enough time to reduce stress. This was because they were often over-scheduled both during and after school hours. Because studies suggested that students were not creating time for stress management outside of school, time is needed during the school day, therefore taking the burden of scheduling from the students. Including dance as one of these stress management tools would also counteract the depression seen among teens today. While people reported feeling the positive benefits of exercise, one in five teens reported exercising less than once a week or not at all (“American Psychological Association Survey”).

Research showed that students are overscheduled with activities after school including academics. Gail Cornwall wrote about rising academic pressures high school students face in San Francisco. This competitive, high-pressure environment alongside other trauma such as poverty and discrimination affected students psychologically. These students were under constant surveillance and had internalized “grind culture” and perfectionism. They were forced into taking Advanced Placement classes, most of which were not even of interest. The ongoing stress these students experienced caused anxiety, depression, burnout, sleep loss, and stomach aches

(Cornwall). Although the documentary took place in San Francisco, the increasing academic pressure is seen throughout the country.

Cornwall told the story of Christina Zhang (pseudonym), a 16-year-old high school student. Zhang was a ‘high achiever’ who had already completed eight Advanced Placement courses in her sophomore year and constantly worried about academics. She was one of six students who were profiled in Debbie Lum’s documentary *Try Harder!*

Lum’s documentary discussed how adolescents were enrolling in overly rigorous course loads and felt parental pressure around academic achievement. According to the CDC, the death by suicide rate for ages 10 to 24 increased nearly 60 percent between 2007 and 2018 because of stress (Cornwall). Students described the pressure to excel academically alongside other challenges such as trauma and discrimination. Cornwall talked about how children subscribed to grind culture and felt guilty if they were not being perpetually productive. As a result of this perfectionism, students were experiencing anxiety, depression, burnout, and all of the physical symptoms that followed such as stomach aches and sleep loss (Cornwall).

This documentary (Lum) and article (Cornwall) accurately described what is going on among high school students today. With the growing number of students who are experiencing negative effects of stress because of schoolwork, there is a great need for reprieve during the school day. These students were basing their self-worth off their academic performance and how they stood compared to their peers. “You are left with a sort of mindset,” Zhang said in *Try Harder!* “You attach a lot of your self-worth to your achievements.” Kids judge and feel judged. Growing up in that atmosphere, “I wouldn’t say is particularly healthy,” she said (Lum).

One of the ways people could combat grind culture in students is by providing opportunities outside of academics for students to experience life. *The Unlikely Art of Parental*

Pressure (Thurber and Weisinger) was referenced in Cornwall's article and urged parents to "describe a world where opportunities are as abundant as a child's willingness to explore and where collaboration is personally and socially beneficial" rather than one where "opportunities are scarce, competition is fierce, tasks are many and urgent, and perfection is essential for success."

Creative art therapies are reported to be an example of one such world. "According to the World Health Organization, stress is currently the world's most pronounced health risk" (Martin et al.) Martin et al. discussed creative arts therapies (CATs) such as art, drama, music, and dance/movement therapies as ways of coping with stress. Creative arts therapies encourage clients to be active and create all while concentrating their attention on the creation of artistic content.

After compiling hundreds of studies around CATs, six were centered around dance/movement therapy (Martin et al. 28). These studies all focused on stress management and reduction but in different ways. The most notable of these was the "effects of tango dance on psychophysiological emotion or stress measurements." In this study, participants noticed a significant reduction of negative affect and a significant improvement of positive affect. The study also found a reduction of cortisol in saliva samples of participants Through regular partner tango with music, participants noticed the highest reduction of stress (Quiroga et al. 14-21). Creative arts have become an integral part of medicine research. As far as stress prevention and management, creative arts interventions are significant.

Creative art therapy in the form of dance has been reported as a beneficial activity for teenagers. Anna Duberg, a Swedish physiotherapist and health sciences researcher from Örebro University, developed the Dance for Health method. Duberg proposed that dance could

strengthen mental health and described how teenagers, especially girls, were experiencing anxiety at an alarmingly high rate. Duberg stated that physical activity is beneficial, but it is hard to get started when you have no interest. Dance is an activity that is more popular with today's youth, but it needs to be presented in a welcoming environment.

Duberg worked in collaboration with school health care and implemented a judgment-free environment in which she could run her dance classes. Along with fewer visits to the school nurse for physical symptoms, the Dance for Health program also brought economic benefits such as less use of facilities, materials, and medical supplies used when visiting the nurse. Dance for Health is a body-based intervention that is inexpensive, fun, and appealing to both school staff and teachers. According to Duberg, "We already have tools to increase quality of life built into our body, we just have to start using them. The rhythm is already there, we just have to start moving to it." Duberg's goals when implementing the Dance for Health program included four keys to dance our way to better health: "joy of movement," "come as you are," "social inclusion," and "see what you have."

Joy of movement includes the very relatable experience of hearing your favorite song and dancing or head-banging in the car. These experiences make you forget for a minute about negative thoughts and stress because you are in the present moment. Joy of movement can come from stimulating the senses, helping dancers to mentally recover and decrease stress. Dancing helps you believe in your ability and the judgment-free environment Duberg's program provides only strengthens that.

The come as you are key sets the expectation low and allows students to arrive in class without having to change themselves. This is a low-pressure class that does not involve a final performance, which is rarely seen in youth dance classes. The class still includes choreography

but students are encouraged to perform in their own way with no discrimination. Anyone can benefit from the social inclusion aspect of dance. This program brings students of different backgrounds together to dance without expectation. Often students make friends through dance, and they realize they experience similar stress. This “silent togetherness” occurs when students do not necessarily have to talk about their stress but sense that one another can relate.

Duberg’s final key is see what you have. She noted that struggles are a part of life but you could take a break from your problems through dance. Dance could help students find a new way of being themselves and does not have to fix what is broken. Students are encouraged to see what they bring today and not feel pressured to change during class. Duberg stated that “the way you move, you feel.” She believed in using bodily movement to increase mental health, an under-utilized tool. The need for non-pharmacological healthcare was apparent to Duberg, and her program is a different approach to life for young people. She trusted that “the tools we need are already inside of us” (Duberg).

The Tedx Talk showcased Anna Duberg’s passion for the subject of dance for mental health. Her story was infectious and took us through one participant’s journey of being in dance class. Although this was an after-school program, the physical and mental benefits were still there. Duberg made this theory sound so simple—that we already have the tools and just have to put them to use. Because of the low pressure, inclusion, joy, and self-acceptance, the Dance for Health created, students were able to increase mental health and lower stress through dance.

CHAPTER III

METHODOLOGY

The purpose of this study was to gain insight into the minds of dance students about the stress they experienced as a result of their academic schedules and extracurriculars.

Introduction

This chapter discusses the methods used in administering the study and analyzing its data. The research problem began with exploring mental health and how dance could affect its students and then focused on stress specifically. According to the research, today's high school students experience significant amounts of stress and dance as a stress management tool could be considered with these students.

This study reported on qualitative and quantitative responses of students and how dance in their academic schedules affected their stress levels. The research problem addressed in this study was incorporating dance in the academic schedule and its therapeutic benefits for reducing stress in high school students.

Setting/Background

The study was conducted in a Catholic, independent school for girls in grades 6-12 established in 1945. For confidentiality purposes, the school is referred to with the fictitious name, Stonegate Preparatory. Located in a rural/suburban area, Stonegate's campus consists of four buildings surrounded by nature. The school serves around 500 students in grades 6-12 with about 80 faculty members.

Because this institution is a Catholic college-preparatory school, Stonegate per their mission statement believes in providing an education that encourages students to reach their “academic, spiritual, physical, and civic potential”. The performing arts program at Stonegate currently includes theatre, vocal, music, and dance along with extracurricular theatrical productions. The dance program currently offers two middle school classes and three high school classes of varying levels.

Participants in this study attended dance classes during their academic day in the school’s dance studio. The studio includes an open dance space with minimal obstructions, mirrors, and ballet barres. Students were required to provide jazz and tap shoes for the classes in which they participated. The curriculum covered in these classes was designed and implemented by the researcher and included introductory lessons on the history and technique of creative movement, ballet, jazz, and tap dance.

This study was approved by the Institutional Review Board on November 30, 2023, under the protocol number 2310053771 (see Appendix A for approval as well as site approval). Research activities were conducted over a period of eight weeks—from the introduction of the study and distribution of consent forms to the final group interview. Data collection began on March 5, 2024, concluded on April 19, 2024, and the group interview took place on April 23, 2024.

Participants

Participants were recruited as volunteers from the researcher’s high school Introduction to Dance classes. The recruitment process began after students were presented with a description of the study, its goals, procedures, and parameters. The study was conducted with whomever consented and was enrolled in dance during the semester in which the study took place. All

participants completed an assent form (see Appendix B) and parents of volunteer participants completed a paper consent form (see Appendix C).

Research Design

The mental health of high school students was the original impetus behind the design of this study. Because students were arriving to class complaining about having horrible days and being stressed, this study was designed to see if that feeling changed after dance class. The following research questions were addressed in this study; the first question in particular focused on whether dance class reduced stress in high school students.

- Q1 Does incorporating dance into the academic schedule lower stress in high school students?
- Q2 In what mental state are students before and after taking dance class?
- Q3 Does dance provide mental health benefits for high school students?

Most of the time dance was offered as an extracurricular activity so students who were overbooked would not have time in their schedule to include dance. As a result, this study focused on incorporating dance in the academic schedule as a potential stress management tool. Building dance into the academic schedule would give students the opportunity to take an alternative style of class that could possibly reduce their stress throughout the day.

A questionnaire was designed to gauge participant stress before beginning the study (see Appendix D). Students were given multiple days to report their perception of their own stress as well as their lifestyle. Students were given multiple days to report their perception of their own stress as well as their lifestyle. This questionnaire asked participants to rate their stress levels from 1 (*low stress*) to 5 (*high stress*) in categories such as academics, extracurricular activities, social, and family stress. They also reported a rating of their general well-being and current coping mechanisms. This questionnaire was administered to gain insight into students' stress

levels before beginning the study. The participants' questionnaires were used to give context to any stress they might experience as a baseline.

Participants attended dance class about four times a week for six weeks. Upon arrival, they scanned a QR code that took them to the pre-class survey. This survey was administered through Google Forms and asked questions about participants' mental state at the time based on questions from Levenstein's Perceived Stress Questionnaire. After taking dance class, participants responded to the same 10 questions in a post-class survey. At the conclusion of the six-week study, students completed a group interview in which they provided their insight on the study and the effects dance had on their stress levels.

Data Analysis

The participants' questionnaires were used to give context to any stress they experienced at baseline. Answers on the pre- and post-class surveys were compared for changes in stress and in what areas. Surveys were organized by participant as well as week to see the changes in each student as the six weeks progressed. Each question was quantified as a whole and by student, which helped organize the number of students responding yes or no to each question and how many times each student answered yes or no. Pre- and post-class surveys were compared for each student and the group. The post-study group interview was recorded through iPhone voice memos and analyzed qualitatively for themes of stress and how dance might have reduced stress (see Appendix E for interview questions). Quantitative data were collected to see what percentage of students found dance helped reduce their stress. Through the qualitative and quantitative data accumulated, this study was able to show the effects of dance in the academic schedule on the stress of high school students.

Conclusion

This chapter detailed the methods used in administering this study and analyzing its qualitative and quantitative data. Through this methodology, the study was able to examine the effects of dance in the academic schedule on the stress levels of high school students.

CHAPTER IV

RESULTS

The purpose of this study was to gain insight into the minds of dance students about the stress they experienced as a result of their academic schedules and extracurriculars. This study examined physical activity in the form of dance in the academic schedule as a stress management tool for high school students. This chapter discusses responses from a pre-study stress questionnaire, pre- and post-class surveys, and the post-study interview. These data collection tools resulted in both quantitative and qualitative data.

Stress Questionnaire Data

The stress questionnaire was distributed to participants before the study to acquire baseline information about the types of stress experienced by each participant and to what extent. Participants first reported their age, grade level, and whether they participated in extracurricular activities. Student ages ranged from 14 to 18 and are depicted by percentage in figure 1. Out of 18 participants, only one did not report participating in extracurricular activities other than work.

Participants then reported on their perceived stress in the areas of academic performance, social life, extracurricular commitments, and home-related issues. Participants rated their stress levels from 1 to 5, 1 being *low stress* and 5 being *high stress*.

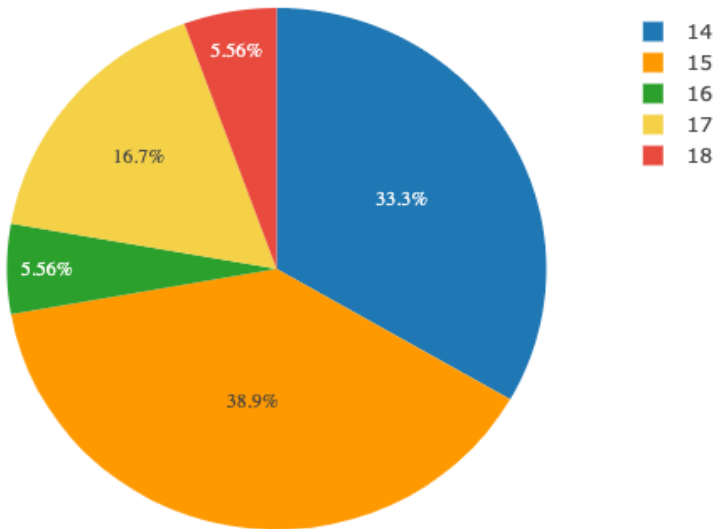


Figure 1. Participant Ages.

Academic Stress

In addition to rating academic stress, each participant reported their satisfaction with their academic performance and how many hours they spent on homework and studying each day. Students reported their satisfaction in an open-ended question with responses including yes, most of the time, mildly satisfied, and semi-satisfied. Homework and study hours ranged from one hour at the lowest and six hours at the highest. Academic stress ratings are reported in figure 2.

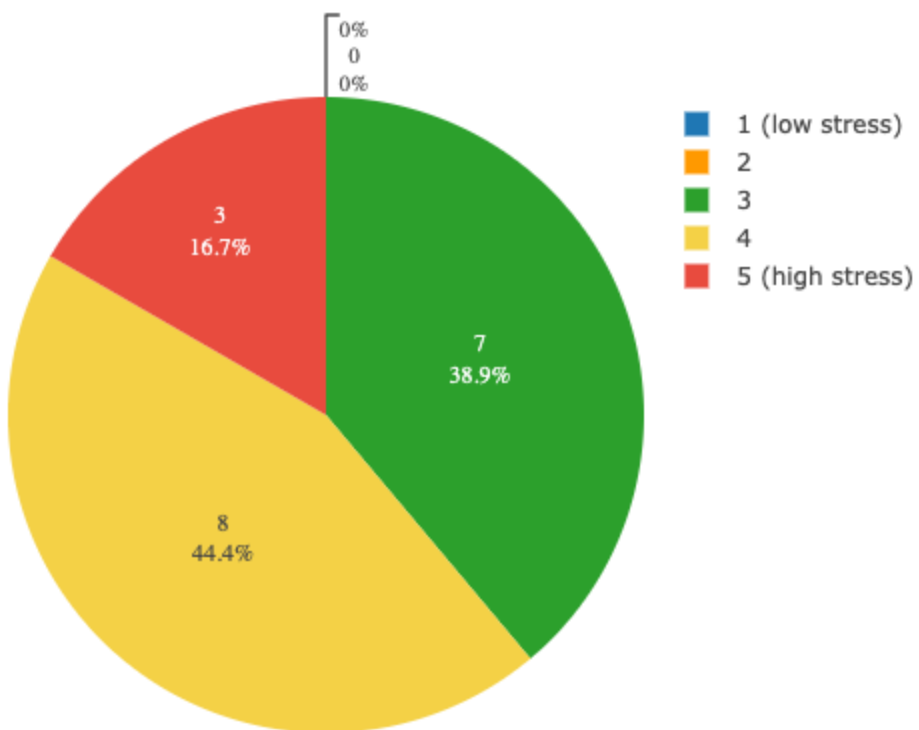


Figure 2. Academic Stress Ratings.

Social Stress

On a scale of 1 to 5, one being *low* and 5 being *high*, participants rated the stress of their social life. Ratings are reported in figure 3. In addition to rating stress, students also reported whether they experienced peer pressure or bullying at school. Seventeen participants reported *no* and one participant reported *sometimes*.

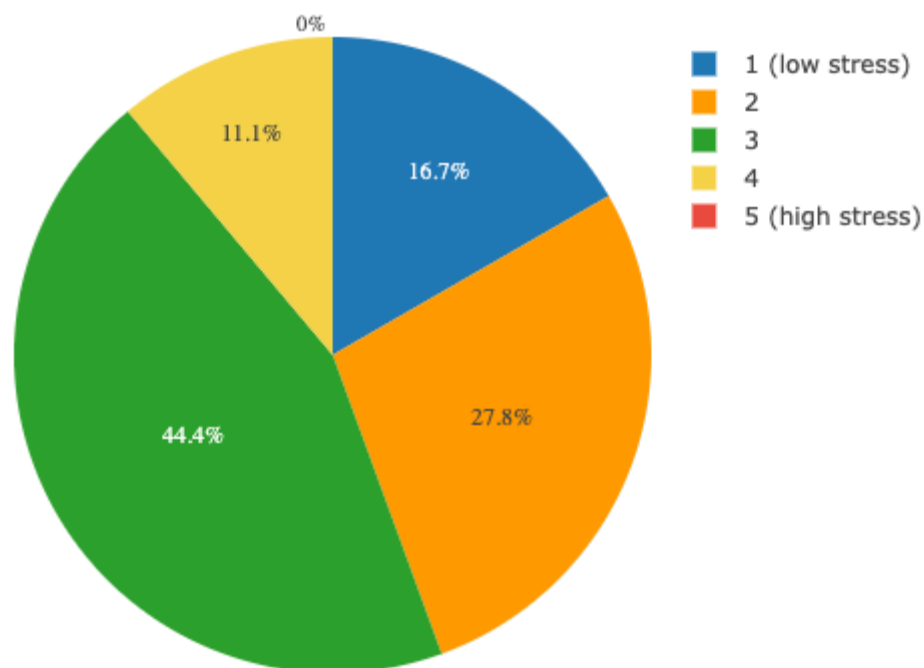


Figure 3. Social Stress Ratings.

Extracurricular Stress

Extracurricular activities were reported in number as well as type of activity. The amounts of extracurricular activities students were involved in ranged from one to three and included lacrosse, soccer, basketball, field hockey, work, track, sailing, clubs, art studio, volunteering, volleyball, ACE mentoring, dance, flute, softball, girl scouts, cooking class, gymnastics, horseback riding, badminton, piano, writing, tennis, and theatre. Extracurricular stress ratings are reported in figure 4.

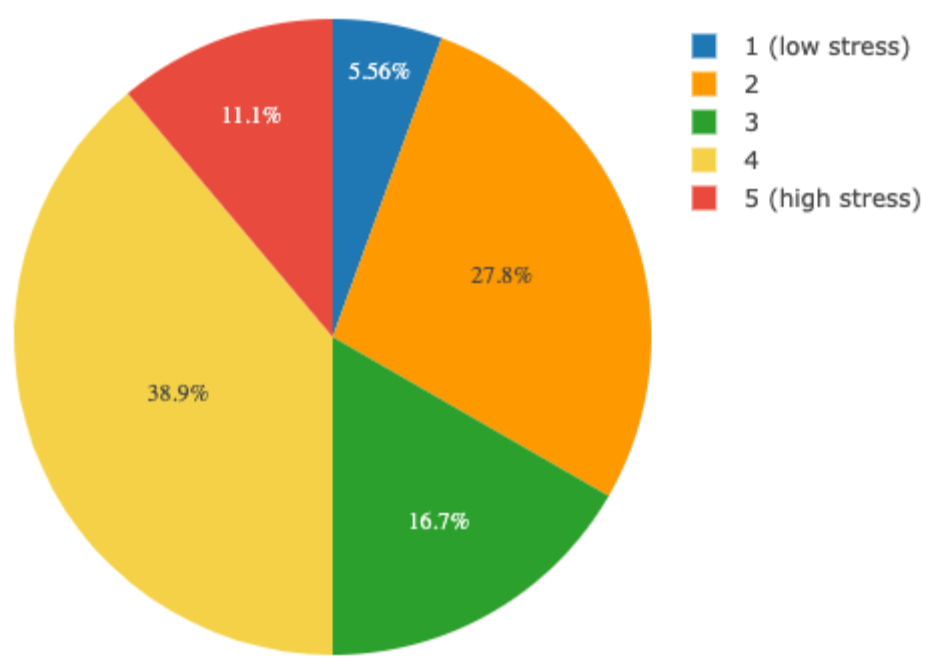


Figure 4. Extracurricular Stress Ratings.

Home Stress

Participants were asked to rate their levels of stress around home-related issues. Reported home stress ratings are outlined in figure 5. Participants were also asked to describe their coping mechanisms and how they typically coped with stress. These strategies included art, friend, sports, video games, brain breaks, listening to music, exercise, sleeping, meditating, reading, watching television, and hiking.

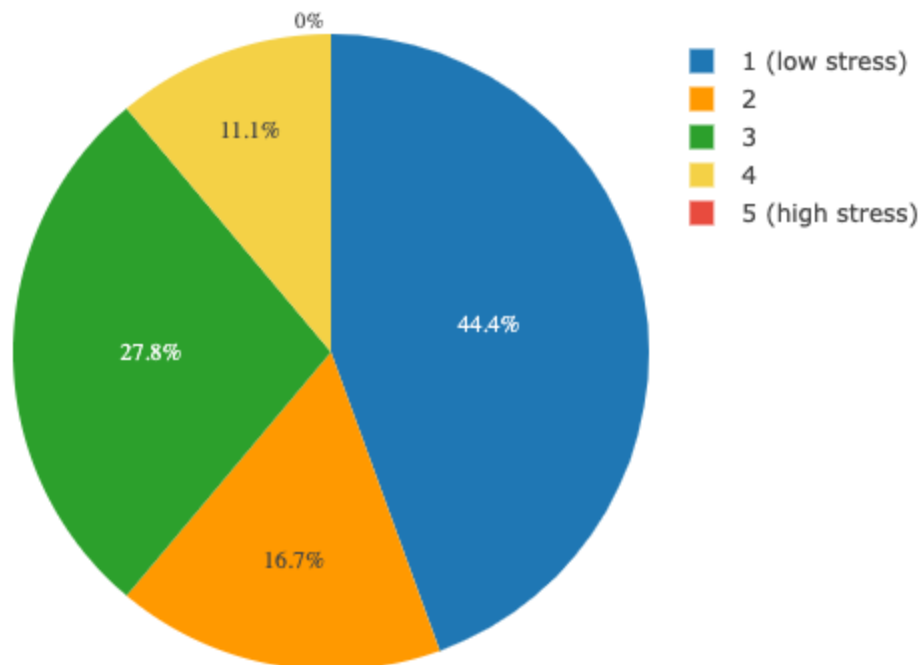


Figure 5. Home Stress Ratings.

Health and Well-Being

To close out the stress questionnaire, students were asked to rate their overall well-being on a scale of 1 to 5, one being *very poor* and five being *excellent*. Participants were also offered a chance to share any additional comments about their stress levels or high school experiences. Three students made additional comments. Student N noted that “having to obtain information from classes and dance choreography can be stressful.” Student F commented that “senior year has been stressful” while student R reported that “senior year for me has been my easiest year yet.” Health and well-being ratings are reported in figure 6.

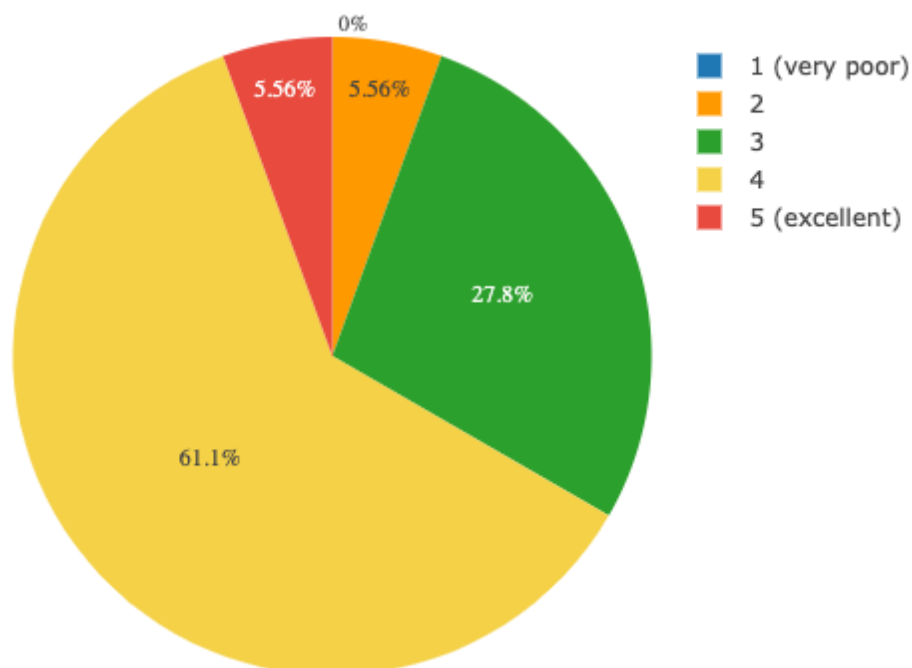


Figure 6. Health and Well-Being Ratings.

Pre-Class and Post-Class Surveys

Pre-and post-class surveys were conducted before and after each dance class and were available to students via QR code in the dance studio. As students entered the room, they scanned the pre-class survey code and responded to 10 statements by answering yes or no. After class, students scanned the post-survey code on their way out and responded to the same 10 statements by answering yes or no. Tables 1 through 6 detail each statement, the number of students who answered yes before class, after class, the number of students who answered no before class, and after class. The number of participants varied each week depending on how many times the class met that week, student absences, and days off. While students were absent each week, the number of students who only completed a pre-class survey or only a post-class survey were also noted as “incompletes” in each table.

Table 1

Student Responses to Pre- and Post-Class Surveys: Week 1

Statement	Yes: Pre-class	Yes: Post-class	No: Pre-class	No: Post-class
You are irritable or grouchy	16	2	30	45
You are full of energy	10	21	36	26
You feel tense	22	10	24	37
You have many worries	33	23	13	24
You have trouble relaxing	24	8	22	39
You feel calm	19	39	27	9
You are lighthearted	24	39	22	8
You enjoy yourself	33	43	12	4
You feel safe and protected	45	45	1	2
You are mentally exhausted	37	21	9	26
Incompletes	0	3	0	3

Table 2

Student Responses to Pre- and Post-Class Surveys: Week 2

Statement	Yes: Pre-class	Yes: Post-class	No: Pre-class	No: Post-class
You are irritable or grouchy	16	6	27	37
You are full of energy	7	18	35	25
You feel tense	18	7	11	21
You have many worries	29	23	13	21
You have trouble relaxing	20	14	22	29
You feel calm	23	35	19	8
You are lighthearted	23	30	20	13
You enjoy yourself	24	35	18	8
You feel safe and protected	38	39	3	3
You are mentally exhausted	32	27	10	16
Incompletes	0	8	0	8

Table 3

Student Responses to Pre- and Post-Class Surveys: Week 3

Statement	Yes: Pre-class	Yes: Post-class	No: Pre-class	No: Post-class
You are irritable or grouchy	13	6	39	45
You are full of energy	21	22	31	29
You feel tense	17	11	35	40
You have many worries	37	23	15	28
You have trouble relaxing	17	9	35	42
You feel calm	34	38	18	13
You are lighthearted	35	38	17	13
You enjoy yourself	39	40	15	11
You feel safe and protected	50	50	1	1
You are mentally exhausted	38	31	14	20
Incompletes	1	6	1	6

Table 4

Student Responses to Pre- and Post-Class Surveys: Week 4

Statement	Yes: Pre-class	Yes: Post-class	No: Pre-class	No: Post-class
You are irritable or grouchy	6	2	8	9
You are full of energy	2	6	10	5
You feel tense	5	1	15	10
You have many worries	7	5	2	6
You have trouble relaxing	5	2	7	9
You feel calm	5	8	6	3
You are lighthearted	5	7	6	4
You enjoy yourself	6	9	6	2
You feel safe and protected	10	10	1	1
You are mentally exhausted	9	6	2	5
Incompletes	0	8	0	8

Table 5

Student Responses to Pre- and Post-Class Surveys: Week 5

Statement	Yes: Pre-class	Yes: Post-class	No: Pre-class	No: Post-class
You are irritable or grouchy	11	1	23	29
You are full of energy	6	16	28	13
You feel tense	12	2	20	29
You have many worries	20	14	14	16
You have trouble relaxing	7	3	27	27
You feel calm	15	22	20	8
You are lighthearted	12	24	22	6
You enjoy yourself	21	27	13	3
You feel safe and protected	34	29	0	1
You are mentally exhausted	20	17	14	13
Incompletes	0	5	0	5

Table 6

Student Responses to Pre- and Post-Class Surveys: Week 6

Statement	Yes: Pre-class	Yes: Post-class	No: Pre-class	No: Post-class
You are irritable or grouchy	5	2	27	29
You are full of energy	8	18	23	13
You feel tense	11	4	20	26
You have many worries	18	14	13	17
You have trouble relaxing	5	4	26	27
You feel calm	21	28	10	5
You are lighthearted	20	25	11	6
You enjoy yourself	25	28	6	3
You feel safe and protected	31	30	0	1
You are mentally exhausted	21	17	9	14
Incompletes	1	14	1	14

Post-Study Group Interview

At the conclusion of the study, students returned for a group interview. As they arrived, students were able to read over the interview questions and think about their responses. The interview was audio recorded, which students were made aware of in the consent forms signed before the study began. Questions were verbally asked by the researcher and participants could respond as frequently as they wanted. Participants were asked to state their names before

responding and were aware their names would be changed to letters of the alphabet for this report.

The first question asked, “How do you feel before and after class? Do you notice any changes in your stress levels?” Participants reported enjoying having dance in the middle of school day because they enjoyed the break between their other classes. Student P commented, “I feel like before dance I’m so focused on doing school but once you get to dance it’s a different way of using your brain. Instead of focusing on so much work you just move.” Students noted that dance was sometimes in between their more stressful classes. Student E said, “It’s really nice to have it (dance) in the middle of the day...I like having dance and then I realize we have to go back.” Student H reported enjoying the participation aspect of dance class, stating, “It’s fun to move around and get the blood flowing and be active.” Overall, students reported a noticeable change in their stress levels before and after dance class.

The second question asked, “How is dance different from other stress relief techniques you’ve tried?” Participants reported that dance was a more fun stress relief technique than other things they had tried such as mindfulness and deep breathing. Student N described dance as “a release.” Student A commented on dance being built into the academic schedule, stating, “It’s not that I forget to do something that relieves stress, it’s that I don’t have time to...because dance is already there it’s easier.”

The third question asked, “Do you think participating in dance classes has had an impact on your overall stress levels? If yes, how would you describe that impact?” The mental distraction was the most discussed part of this question. Students described being able to think about something other than schoolwork when at dance class. Student H said that “even if it’s 50 minutes, it’s a time to get your mind off everything and just move around and be active.” Student

R stated that dance had an overall impact on their stress as “It give you a change to focus on something and let your soul do something other than math.” Coming back from school breaks was something Student M found stressful but dance “made it less intimidating.” Because students could take their focus away from schoolwork during dance, they found thinking about tests and assignments could be put off while in dance class. Student E said they had a test after dance class one day and did not have time to overthink it. This student reported “it (dance) does help and I have to just trust in what I’ve been learning and I don’t have time to overthink it. I can forget about it and then go in and I’m not super stressed about it.” Student K agreed and stated, “It’s good to have something that takes your mind off it” with regard to tests.

The next question asked, “Have you noticed any benefits when you dance with others, such as a sense of community, stress reduction, or improved mood?” Participants reported enjoying the social aspect and camaraderie of dance class including meeting new people and growing close with friends. Student K discussed becoming closer with Student C, who have been friends but bonded through dance. Student K said, “We have stuff to talk about and I feel like we’re on the same level. She’s pretty good at it (dance) and we can look to each other when we’re confused. I feel like if she wasn’t there it would be a lot harder.” Student P stated, “When you're dancing with other people it’s like you’re on a team because you’re all doing the same thing, working with people to reach a common goal. When you dance with other people the pressure isn’t just on you, you have other people with you.” Finally, Student M reported, “It (dance) definitely helped me get to know people better. I’m not good at talking to people if I’m not forced to, so I feel like it helped me get to know people better because I was doing dance with them.”

The next question asked, “How does the creative aspect of dance contribute to your stress relief?” Student R stated, “Especially when we have to make our own dance and improvise you have to just let your mind open up to what your body feels like doing. On this floor I just feel like moving. I feel my stress gets danced with too on the floor.” Student N reported, “I feel like when you come to dance, all your emotions are a lot from the day so it feels good to get it out during dance.” Students also reported enjoying the creative aspect because it took your mind off of schoolwork and stresses outside of school.

The final question asked, “Can you share any stories about when dance helped you cope with stress?” Participants noted the placement of dance in their schedules and how dance gave them breaks from more challenging classes. Student A stated, “I get really stressed in global studies before dance and coming to dance helps me forget about that for a minute.” Student H had study hall before dance and remembered, “When we had our English essay and I would spend study hall writing that. I would come here (dance studio) and move around and talk to people and it’s just energizing.” On the topic of general mindset, Student L reported, “With the improv it’s a nice was to be free and do whatever you want to so it’s nice to be able to translate that to other parts of our lives.”

CHAPTER V

DISCUSSION AND CONCLUSIONS

The purpose of this study was to gain insight into the minds of dance students about the stress they experienced as a result of their academic schedules and extracurriculars. The study also sought to discover whether including dance in the academic schedule reduced stress in high school students. This chapter restates the research question and reviews the methodology used. The major sections of this chapter summarize the results, discuss limitations to the study, and suggest additional research and recommendations for educators.

Research Questions and Methodology

As stated previously, this qualitative study was designed to examine physical activity in the form of dance as a stress management tool for high school students. Because teens are often overscheduled with extracurricular activities, the goal of this study was to determine the effects of dance in the academic schedule on high school students' stress. The following research questions informed the study:

- Q1 Does incorporating dance into the academic schedule lower stress in high school students?
- Q2 In what mental state are students before and after taking dance class?
- Q3 Does dance provide mental health benefits for high school students?

As discussed in chapter III, the methods used to collect data included a questionnaire, surveys, and a group interview. The questionnaire was administered before beginning the study to develop a baseline of students' stress in various areas. Participants included 18 high school

students in grades nine through twelve. The student surveys were used to record participants' mental states before and after dance class based on questions from Levenstein's Perceived Stress Questionnaire. The group interview was conducted at the conclusion of the six-week study and was used to gain insight into the study and the effects dance had on participants' stress levels. Quantitative data were acquired through the questionnaire and surveys by identifying stress ratings in different areas and mental state before and after dance class. Qualitative data were acquired through the group interview, which included open-ended questions about student stress and the effects of dance in the academic schedule on stress.

Interpretation of Findings

The quantitative data collected through the pre-study questionnaire showed that students reported their highest stress rates in the areas of academics and extracurricular activities. Participants reported spending at least one hour each day on homework in addition to at least one extracurricular activity. Before the study even began, it was noted that students were stressed about schoolwork and busy schedules, leaving no time for stress relief.

After collecting quantitative data through pre-class surveys, it was shown that while the highest number of students reported feeling safe and protected, they were also mentally exhausted. The data showed that students also had many worries despite feeling lighthearted and enjoying themselves. Post-class, the highest number of students reported enjoying themselves, feeling lighthearted, and calm. The most significant changes before and after dance class were reported in feeling calmer after class, followed by feeling lighthearted and full of energy. Students also reported significant changes in tension and worry after dance class. This showed that symptoms of stress could be reduced through dance class. Dance increased student energy, calmness, lightheartedness, and reduced feelings of tension and worry.

The qualitative data collected during the group interview supported the results of both the questionnaire and the surveys, showing that while students were stressed about academics and extracurricular activities, dance class in the academic schedule could reduce stress. Each participant responded at least one time when asked the open-ended questions around feelings before and after class, stress relief techniques, the impact of dance on stress, and the creative community found within dance. Overall, students enjoyed dance class and the stress relief it brought during the school day. They expressed that dance was a welcomed break from stressful academic classes especially because it was built into their school schedule. This relieved students of having to find time outside of school to manage stress.

Participants appreciated the different environment of dance class that included more movement and peer to peer interaction during class. They reported forming friendships and exploring creativity that otherwise would not have occurred without dance class. Because dance class was built into students' schedules, they could become distracted from tests, projects, and other assignments they would otherwise overthink. Even if the stress relief might have been a temporary fix for students, they reported gaining insight on how dance and its effects could help manage their stress.

The results of this study were not clearly defined. While most students reported a change in their stress levels and the feelings of irritability, tension, worry, and mental exhaustion, not all days were the same. Many outside factors contributed to each participant's stress before beginning the study that might have continued to affect them during the study. Some of these factors included home stress, extracurricular activities, and academic pressure. Daily stressors also changed for students such as tests, projects, and their responses to the content of dance class on a specific day. Because of these, students' stress varied from day to day before and after

dance class. Although some students still experienced stress symptoms after dance class, the qualitative data showed that dance in the academic schedule was an appreciated break in the day that offered social interaction, creativity, movement, and distraction from stress.

Limitations of the Study

A few limitations to this study included scheduling, student absences, and incomplete surveys. Scheduling was a limitation in this study because some weeks were shorter than others. This study was also conducted during a period that involved spring break for students, which was evident in the smaller sample size for week four. Although all students attended the same school, not all participants were enrolled in the same dance class. This school utilized a cascading schedule, meaning that while classes were attended in the same order, they were at different times each day. Students were enrolled in eight classes, yet only had six each day. As a result, each class met three to four times during a full week of school. Because of this type of schedule, some participants might have attended a different number of classes than other participants.

Similarly, student absences, lateness, and early dismissals were also a limitation. If students were absent, the number of classes they attended decreased compared to their peers. This varied depending on the number of absences each student accrued. If students were late to class, they would skip the pre-class survey and only complete the post-class survey. By the same token, if students left early from class for an outside commitment, they would only complete the pre-class survey and not the post-class survey.

As a result of several circumstances, incomplete surveys were also a limitation in this study. Because of early dismissals, lateness, and participant forgetfulness or choice, the number of pre-class surveys did not always match the number of post-class surveys. The number of incomplete surveys for each week was noted at the bottom of each table. Although some

participants' surveys were incomplete for legitimate reasons, others were incomplete even though the student attended the entire dance class. This was noticeable in the concluding weeks of the study.

Recommendations for Additional Research

The topic of this study would benefit from additional research. Because the sample size of participants was relatively small, it lacked diversity. This study was also conducted in a private school with rigorous academics and a high rate of students in extracurricular activities. These participants began the study with high levels of stress, which might be different than their peers at other schools and with less demanding extracurricular schedules.

Additional research on dance in the academic schedule is needed. Much of the research on dance classes was conducted in studios rather than a school setting. Insight on how dance could benefit students during the school day would benefit students who would potentially enroll in these classes, as well as school administrators, curriculum developers, and teachers. Most of the students in this study were also new to dance and had not experienced a more intense dance program. It would be interesting to see how beginner students and advanced students compare in how class affects their stress. Students might also respond to different dance styles in various ways so research on a particular style would be beneficial. Overall, validation of this study needs additional research but could benefit dance and education communities at large.

Conclusion

Based on this study, it could be concluded that dance in the academic schedule might reduce stress in high school students. Through a questionnaire, it was found that students were experiencing high levels of stress, particularly in the areas of academics and extracurricular activities. After completing surveys before and after dance class, students reported fewer

symptoms of stress including worry, tension, and mental exhaustion. During the group interview, participants reported lower levels of stress after dance class because they were able to move, be with their peers in a creative community, and have a distraction from academics, if only temporary. In response to the research questions, dance in the academic schedule provided positive mental health benefits for high school students, particularly a reduction in stress.

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APPENDIX A
INSTITUTIONAL REVIEW BOARD AND
SITE APPROVALS



Date: 11/30/2023

Principal Investigator: Amanda Polanowski

Committee Action: **IRB EXEMPT DETERMINATION – New Protocol**

Action Date: 11/30/2023

Protocol Number: 2310053771

Protocol Title: Exploring the Therapeutic Benefits of Dance in the Academic Schedule: The Effects on Stress Among High School Students

Expiration Date:

The University of Northern Colorado Institutional Review Board has reviewed your protocol and determined your project to be exempt under 45 CFR 46.104(d)(701) for research involving

Category 1 (2018): RESEARCH CONDUCTED IN EDUCATIONAL SETTINGS. Research, conducted in established or commonly accepted educational settings, that specifically involves normal educational practices that are not likely to adversely impact students' opportunity to learn required educational content or the assessment of educators who provide instruction. This includes most research on regular and special education instructional strategies, and research on the effectiveness of or the comparison among instructional techniques, curricula, or classroom management methods.

You may begin conducting your research as outlined in your protocol. Your study does not require further review from the IRB, unless changes need to be made to your approved protocol.

As the Principal Investigator (PI), you are still responsible for contacting the UNC IRB office if and when:

- You wish to deviate from the described protocol and would like to formally submit a modification request. Prior IRB approval must be obtained before any changes can be implemented (except to eliminate an immediate hazard to research participants).
- You make changes to the research personnel working on this study (add or drop research staff on this protocol).



- At the end of the study or before you leave The University of Northern Colorado and are no longer a student or employee, to request your protocol be closed. *You cannot continue to reference UNC on any documents (including the informed consent form) or conduct the study under the auspices of UNC if you are no longer a student/employee of this university.
- You have received or have been made aware of any complaints, problems, or adverse events that are related or possibly related to participation in the research.

If you have any questions, please contact the Interim IRB Administrator, Chris Saxton, at 970-702-5427 or via e-mail at chris.saxton@unco.edu. Additional information concerning the requirements for the protection of human subjects may be found at the Office of Human Research Protection website - <http://hhs.gov/ohrp/> and <https://www.unco.edu/research/research-integrity-and-compliance/institutional-review-board/>.

Sincerely,
Michael Aldridge
Interim IRB Administrator

University of Northern Colorado: FWA00000784



September 13, 2023

To Whom It May Concern:

Amanda Polanowski has my approval to conduct her research at Maryvale Preparatory School.

I support her attempt to conduct a thesis study with Maryvale students. I have reviewed her proposal entitled "Dance in the Academic Schedule and Stress Reduction in High School Students". I agree that the study will help demonstrate that including dance in the academic schedule may reduce stress in high school students.

Sincerely,

A handwritten signature in black ink that reads "Jennifer Nicholas".

Jennifer Nicholas
Upper School Head
Nicholasj@maryvale.com

APPENDIX B
ASSENT FORM



ASSENT FORM FOR HUMAN PARTICIPANTS IN RESEARCH
UNIVERSITY OF NORTHERN COLORADO

Hi!

I am researching the benefits of including dance in the academic schedule and its effect on stress in high school students. I am interested to see if stress in students reduces after attending dance class and how it is reduced. If you grant permission, you will be a participant in a six-week study conducted during class time at Maryvale Preparatory School.

Before the six weeks begin, you will complete a questionnaire that asks background information on your stress levels and what parts of your lives contribute to this stress. As a participant, you will be expected to attend dance class during the school day and reflect on your mental state and feelings of stress before and after class. Before beginning each class, you will complete a short survey via Google Forms. This survey will include pre-approved questions about your mental state and stress levels. After each class, you will complete the same survey reflecting on how you feel after dance class. These surveys will only be seen by me. At the conclusion of the six-week study, all participants will be included in a group interview that is conducted using pre-approved questions about how dance affected your stress levels as students. This conversation will be voice recorded and used for data. It will only be listened to by me. Your parents have said it's okay for you to talk with me, but you don't have to. It's up to you.

I foresee no risks to you beyond those that are normally encountered while dancing in the classroom. Your grade will not be affected based on your choice to participate in the study or your responses to surveys and interviews, should you participate.

Be assured that I intend to keep the contents of the questionnaires, surveys, and interviews private. To further help maintain confidentiality, computer files of data will be created, and students' names will be replaced by alphabetical identifiers such as "student A". Your names will not appear in any professional report of this research.

Consent forms will be delivered by hand and stored in the office of Ray Schwartz, Dance Education MA coordinator at the University of Northern Colorado. All data and consent forms will be destroyed after three years.

(Student's initials here)

Please feel free to reach out if you have any questions or concerns about this research and please keep one copy of this letter for your records.

Thank you for assisting me with my research.

Sincerely,

Amanda Polanowski

Participation is voluntary. You may decide not to participate in this study and if you begin participation, you may still decide to stop and withdraw at any time. Your decision will be respected and will not result in loss of benefits to which you are otherwise entitled. Having read the above and having had an opportunity to ask any questions, please sign below if you would like to participate in this research. A copy of this form will be given to you to retain for future reference. If you have any concerns about your selection or treatment as a research participant, please contact Nicole Morse, Office of Research, Kepner Hall, University of Northern Colorado Greeley, CO 80639; 970-351-1910.

Student

Date

Researcher

Date

APPENDIX C
CONSENT FORM



PARENT CONSENT FORM FOR HUMAN PARTICIPANTS IN RESEARCH
UNIVERSITY OF NORTHERN COLORADO

Project Title: Exploring the Therapeutic Benefits of Dance in the Academic Schedule: The Effects on Stress Among High School Students

Researcher: Amanda Polanowski

E-mail: polanowskia@maryvale.com, pola2284@bears.unco.edu

Advisor: Ray Schwartz

E-mail: ray.schwartz@unco.edu

With the help of my students, I am researching the benefits of including dance in the academic schedule and its effect on stress in high school students. I am interested to see if stress in students reduces after attending dance class as well as the aspects of stress in which they experience reduction. If you grant permission and if your child indicates a willingness to participate, they will be a participant in a six-week study conducted during class time at Maryvale Preparatory School.

Before the six weeks begin, students will complete a questionnaire outlining their current stress levels and what aspects of their lives contribute to this stress. This will take about 20 minutes to complete, but students will have multiple days. Students will be expected to attend dance class during the school day and reflect on their mental state and feelings of stress before and after class. Before beginning each class, students will complete a two-minute survey via Google Forms. This survey will include pre-approved questions about their mental state and stress levels. After each class, students will complete the same survey reflecting on how they feel after dance class. These surveys and questionnaires will only be seen by me. At the conclusion of the six-week study, all participants will be included in a 20-minute group interview that will be conducted using pre-approved questions about how dance affected their stress levels. This conversation will be voice-recorded and used for data. It will only be listened to by me.

I foresee no risks to subjects beyond those that are normally encountered while dancing in the classroom. Your child's grade will not be affected based on their choice to participate in the study or their responses to questionnaires, surveys, and interviews, should they participate.

Page 1 of 2 _____
(Parent's initials here)

Be assured that I intend to keep the contents of the surveys and interviews private. To further help maintain confidentiality, computer files of data will be created, and children's names will be replaced by alphabetical identifiers. The names of students will not appear in any professional report of this research.

Consent forms will be delivered by hand and stored in the office of Ray Schwartz, Dance Education MA coordinator at the University of Northern Colorado. All data and consent forms will be destroyed after three years.

Please feel free to phone me if you have any questions or concerns about this research and please retain one copy of this letter for your records.

Thank you for assisting me with my research.

Sincerely,

Amanda Polanowski

Participation is voluntary. You may decide not to participate in this study and if you begin participation, you may still decide to stop and withdraw at any time. Your decision will be respected and will not result in loss of benefits to which you are otherwise entitled. Having read the above and having had an opportunity to ask any questions, please sign below if you would like to participate in this research. A copy of this form will be given to you to retain for future reference. If you have any concerns about your child's selection or treatment as a research participant, please contact Laura Martin, Director of Research Compliance, Office of Research & Sponsored Programs, University of Northern Colorado at 970-351-1910 or laura.martin@unco.edu

Child's Full Name (please print)

Child's Birth Date (month/day/year)

Parent/Guardian's Signature

Date

Researcher's Signature

Date

APPENDIX D

SURVEY

Pre- and Post Class Survey to be completed before and after each class

INSTRUMENT 1

All statements will be answered with a “yes” or “no”

1. You are irritable or grouchy
2. You are full of energy
3. You feel tense
4. You have many worries
5. You have trouble relaxing
6. You feel calm
7. You are lighthearted
8. You enjoy yourself
9. You feel safe and protected
10. You feel mentally exhausted

Modified from Perceived Stress Questionnaire: [https://www.med.upenn.edu/cbti/assets/user-content/documents/Perceived%20Stress%20Questionnaire%20\(PSQ\).pdf](https://www.med.upenn.edu/cbti/assets/user-content/documents/Perceived%20Stress%20Questionnaire%20(PSQ).pdf)

Google Form Survey:

https://docs.google.com/forms/d/1CRGYgqFnbRplyty7DYgeutOnMSg8PAVaE_-6gRdlmfE/edit

APPENDIX E
INTERVIEW QUESTIONS

Interview Questions

Group interview to be conducted at the end of the study.

How do you feel before and after dance class? Do you notice any changes in your stress levels?

How is dance different from other stress relief techniques you've tried?

Do you think participating in dance classes has had an impact on your overall stress levels? If yes, how would you describe that impact?

Have you noticed any benefits when you dance with others, such as a sense of community, stress reduction, or improved mood?

How does the creative aspect of dance contribute to your stress relief?

Can you share any stories about when dance helped you cope with stress?