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A Quantitative Study of Perceived Fitness and Nutrition Levels of Secondary Educators in Relation to Their Overall Job Satisfaction Program at a Private Midwestern University

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A Quantitative Study of Perceived Fitness and Nutrition Levels of Secondary Educators in Relation to Their Overall Job Satisfaction Program at a Private Midwestern University

by

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Declaration of Originality

I do hereby declare and attest to the fact that this is an original study based solely upon my own scholarly work here at Lindenwood University and that I have not submitted it for any other college or university course or degree here or elsewhere.

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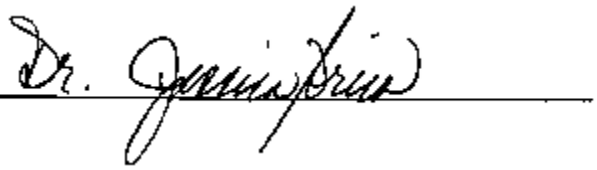
Signature:  Date: 9/29/23

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Abstract

The profession of education traditionally embodies an idea of educating children on math, science, social studies, and English along with other elective course areas. In recent decades, however, the burnout rates and mental health of educators have become a subject of media attention and the basis for many new professional development programs. The one element wholly ignored in this space is the physiological wellbeing of educators and the impact physical health has on mental health and job satisfaction. This study set out to provide a baseline for beginning the discussion and future research on the physiological impact on educators and how to improve the lives of educators, how they interact with students, and how to improve the physiological preparation of future educators. While this study did not conclusively identify the connection between nutrition and fitness and educators' overall job satisfaction, it did highlight the gap between the public service occupation of education and that of other public servants, as well as highlighting the emerging connections between nutrition and mental health.

Table of Contents

List of Tables

List of Figures

Chapter One: Introduction

Background of the Study

Numerous headlines, particularly in the era of COVID-19, laud overwhelming educator burn-out and stress due to a variety of factors ranging from student trauma, teacher trauma, long hours, new instructional methods, and lack of time for self, amongst a litany of other elements. A longitudinal study of the impact of the COVID-19 pandemic on overall teacher quality of life determined that educators experienced "increasing burnout and cynicism, along with teachers' emotional and cognitive attitudes towards change becoming increasingly negative" (Yang et al., 2009, p. 1).

And while the external or non-tactile factors play a critical role in educator burn-out, the significance of overall physiological health cannot be ignored. If one is to perform mentally at their optimal best, all systems must be operating at a relatively high rate. For example, if one is dealing with physical ailment, chronically or intermittently, it is more difficult to think, act, and speak at the highest level. However, much of the education research and media is dedicated to mental health and trauma issues of students as well as teachers, with little to no research or media dedicated to the one underlying issue that could bring the greatest value: physiological health. While cognitive therapies like mindfulness and breath work can certainly bring respite, it is only when a body is in a physiological homeostasis that these practices are supported optimally.

Student Trauma

Student trauma can be attributed to a myriad of factors ranging from emotional, physical, or sexual trauma stemming from anywhere within their environment. Unfortunately, Cohen and Scheeringa (2009) reported that as many as 68% of children

are impacted by some traumatic event in their lives (p. 96). Because the ripple effect of trauma goes beyond the home environment, students carry with them the burdens of this emotional turmoil into all sectors of their lives. In particular, how a student responds within a classroom setting is quite indicative of what might be occurring in their external environment. Students experiencing trauma may withdraw in the classroom, or respond in disruptive ways. In response, the teachers' natural reaction is to help the child in the current situation and redirect them to the lesson at hand. At times, however, efforts toward redirection fail. In these cases, a teacher manages the child's disruptive behavior, leading to stress in the teaching environment. Many times, because of the human element, teachers internalize the effects of the trauma they witness from the child, feeling helpless. These experiences can lead to compassion fatigue, thus directly linking to a potentiality for burn-out (Geoffrion et al., 2016).

Work Environment

The idea that teachers work limited hours compared to other professions, or that they have summers off is a concept with no merit. Brunetti (2001) cites numerous situations where teachers report working far into the evening hours, multiple nights a week preparing lessons and grading papers. Other teachers, Brunetti (2001) stated, spend summers traveling and researching with the implicit goal to use these experiences to enrich their students' lessons upon return (p. 56). While teachers may have contracted hours and contracted days in which to work during the annual year, these structures have little bearing on the reality of the situation. Rather, teachers spend much of their personal time dedicated to lesson planning, grading, and tutoring students who need extra support. Further, many teachers coach sports teams and student organizations, and lead education

committees. Professional development is often offered throughout the summer, and teachers dedicated to the betterment of students spend much of their breaks in continued education. Sometimes, due to lack of school district financial resources, teachers reach into their personal pockets to fund supplies for their classroom, or provide for furthering their own professional development. According to the Institute of Educational Sciences (2021), 94% of public school teachers spend their own money on classroom supplies without reimbursement (p. 1).

While these compounding factors do extend educators beyond their contractual obligations, there are other elements grounding educators to their profession. Many educators chose this profession because they have an intrinsic desire to improve the lives of their students. Richards (2012) found that many college students entering the teaching profession do so because of altruistic or intrinsic reasons. These students state that their desire to teach is because they wish to enrich the lives of children (Richards, 2012, p. 2). Consequently, there are polarizing elements at play for educators as they balance the practical aspects of the job with their internal desire to contribute to the betterment of society. Therefore, the thought of leaving the field because one is overwhelmed by the work environment is counterintuitive.

Thus, the predicament in which many educators find themselves is the struggle to maintain their own mental and physical well-being, while encouraging young minds to become the best versions of themselves. In order to offset this conundrum, much press and marketing now exists within a 21st century coined “self-care” market, aimed at deescalating the emotional turmoil teachers find themselves in (Yang et al., 2009).

Educator Well-Being

As well-intentioned as these practices are, at the core, teachers are natural care-givers. For many educators, their natural pull toward the field is because of an innate desire to give to and care for others. In this case, the idea of caring for the self might seem contradictory to their intrinsic belief to put others first. Ironically, educators must realize that in order to effectively care for others, they must first care for themselves. This phenomenon came to the forefront of the education system during and in the waning months of the COVID-19 Pandemic (Estrada-Araoz et al., 2023). During the Pandemic, educators faced a changing work landscape (Kotowski et al., 2022; Pace et al., 2022). Educators were, some for the very first time, teaching students virtually (Kotowski et al., 2022, p. 1). This new paradigm on top of being sheltered away from civilization paired with the potential for acquiring the illness themselves added to the multitude of stress educators dealt with during this period (Estrade-Araoz et al., 2023).

As the lockdown protocol of the Pandemic began to lift and students gradually began to return to the classroom, educators faced a new set of challenges. Returning students lacked the social and academic competencies "and skills established in the curriculum and that corresponded to the grades they were given due to the problems of connectivity and accessibility the lack of support from their parents, and the poor methodology of some teachers when developing their learning sessions virtually" (Estrada-Araoz et al., 2022, p. 2). As a result, educators experienced an "erosion of their emotional resources, . . . and their mental health has been affected, causing, among other emotional problems, psychological distress and burnout syndrome" (Estrada-Araoz et al., 2022, p. 2).

The concept of Burnout Syndrome can be traced back to the work of Freudenberg in 1974. This term referred to the "form of fatigue or exhaustion caused especially by the work carried out by professionals, such as teachers, doctors, nurses, and psychologists, among others, whose responsibilities include interacting with other people" (Estrada-Araoz et al., 2022, p. 2). Burnout Syndrome causes teachers who suffer from it to "provide a poor service to students, act indifferently, and do not offer support in the tasks assigned to them" (Estrada-Araoz et al., 2022, p. 3).

Further, Burnout Syndrome in educators has four main causes:

- Individual causes have to do with the feelings that teachers develop when they become too involved in the problems presented by students, which generates feelings of guilt, a subsequent decrease in levels of personal achievement, and an increase in fatigue.
- Emotional causes are related to the poor interpersonal relationships that teachers have with their colleagues, managers, and even their students, as well as the lack of support they receive from their immediate bosses (principals and deputy principals).
- Social causes are associated with the new policies and responsibilities that increase the bureaucratic burden of teachers, as well as demand, curricular changes, and new work methodologies.
- Organizational causes arise from problems within the organization of the educational institution, such as the lack of coordination and articulation between the different levels (early childhood education, elementary, and high school) as

well as the poor exercise of leadership of the management team. (Ourcilleón et al., 2007, p. 83)

Figure 1

Exhaustion Component of the Maslach Survey.

Questions:	Never	A Few Times per Year	Once a Month	A Few Times per Month	Once a Week	A Few Times per Week	Every Day
Section B:	0	1	2	3	4	5	6
I feel I look after certain patients/clients impersonally, as if they are objects.							
I feel tired when I get up in the morning and have to face another day at work.							
I have the impression that my patients/clients make me responsible for some of their problems.							
I am at the end of my patience at the end of my work day.							
I really don't care about what happens to some of my patients/clients.							
I have become more insensitive to people since I've been working.							
I'm afraid that this job is making me uncaring.							
Total score – SECTION B							

In order to identify Burnout Syndrome, the Maslach Burnout Inventory was developed by Dr. Christina Maslach in 1976, continuing the work of Freudenberg (Maslach, 1976). This inventory "made it possible to investigate burnout not only in human services but also in general occupations that do not work with customers" (Lee et al., 2022, p. 65). The inventory tests three different areas of burnout: exhaustion, cynicism, and

inefficiency (Lee et al., 2022, p. 66). Respondents answer questions in a Likert Scale format.

Figure 2

Cynicism Component of the Maslach Survey.

Questions:	Never	A Few Times per Year	Once a Month	A Few Times per Month	Once a Week	A Few Times per Week	Every Day
Section A:	0	1	2	3	4	5	6
I feel emotionally drained by my work.							
Working with people all day long requires a great deal of effort.							
I feel like my work is breaking me down.							
I feel frustrated by my work.							
I feel I work too hard at my job.							
It stresses me too much to work in direct contact with people.							
I feel like I'm at the end of my rope.							
Total score – SECTION A							

When Burnout Syndrome is not addressed, consequences abound. "Research has shown that workers suffering from burnout tend to regard the organization as an adversary and consequently withdraw emotionally from it" (Manju, 2018, p. 511).

Figure 3

Inefficiency Component of the Survey.

Questions:	Never	A Few Times per Year	Once a Month	A Few Times per Month	Once a Week	A Few Times per Week	Every Day
Section C:	0	1	2	3	4	5	6
I accomplish many worthwhile things in this job.							
I feel full of energy.							
I am easily able to understand what my patients/clients feel.							
I look after my patients'/clients' problems very effectively.							
In my work, I handle emotional problems very calmly.							
Through my work, I feel that I have a positive influence on people.							
I am easily able to create a relaxed atmosphere with my patients/clients.							
I feel refreshed when I have been close to my patients/clients at work.							
Total score – SECTION C							

Impact of Physiological Soundness

The push for educators to partake in mindfulness practices, breathing exercises, meditation, or any other mental health focused activity has merit. There is evidence that focusing on improving one's mental well-being will improve other facets of life, particularly when facing challenging circumstances (The Garrison Institute, 2022). However, it is difficult to truly optimize mental health and performance when the physical body is not intaking the proper nutrients, or partaking in necessary daily movement. Together, the body and the mind must be trained synergistically in order to operate on an optimal level (Harris, 2018).

Without a baseline of a sound nutrition and physical fitness program, the body will not be in a homeostasis to support optimal mental cognition. If one is ill, even with the common cold, the body's faculties are concentrated on healing, and not as much on critical thinking and important decision making. The concept of sub-optimal mental state applies even more severely if the body is in a compromised state (Tian et al., 2023).

Purpose of the Study

The purpose of this study was to investigate a direct correlation between secondary educator's perceived fitness and nutrition level and their overall job satisfaction. The objective was to provide foundational evidence to show that secondary educators who believe they are well committed to a consistent fitness and nutrition program of their choice have an overall more positive job satisfaction than their counterparts who do not. Through evaluation of the literature on the current research pertaining to education, health science, as well as other public service occupations, in addition to a survey of secondary educators throughout the state of Missouri, this study aimed to underscore the importance of physiological health and overall job satisfaction. In doing so, the motive of the study would lay the foundation for necessary future research and programs strengthening the health and fitness of educators, in turn bettering their job performance in order to best serve student populations.

Rationale

At the time of this writing, educator burnout and retention were issues at the forefront of education as a whole. In fact, McCarthy (2019) stated that 19% to 30% of educators walk away from their chosen profession after about five years (p. 10). In response to statistics like those found in the McCarthy (2019) study, multiple programs

were developed to counteract the issue. The researcher found a significant number of programs and studies related to mental wellness for educators. For instance, the Cultivating Awareness and Resilience in Educators (CARE) program developed by the Garrison Institute (Cultivating Awareness and Resilience, 2022) is solely dedicated to mindfulness practices to assuage educator stressors (Cultivating Awareness and Resilience, 2022, para. 1-10). The literature review covers a variety of other educator mental wellness methodologies and practices along with studies reviewing the effectiveness of such programming. While the researcher found mixed results in the studies of these wellness modalities (Brooks, 2016; Brown et al., 2017; Jennings et al., 2017; Klusmann et al., 2008), at the time of this writing, the researcher found no other physiological solution to educator stress and burnout. Currently, there is little to no research conducted on the correlation between nutrition and fitness levels of educators and the impact of these elements to overall job satisfaction. There are studies specifically on educator job satisfaction but not in relation to fitness and nutrition. Additionally, there are studies related to general fitness and nutrition, but not specifically to educators. The literature review revealed a number of studies related to both mental and physical wellbeing in relation to other public service occupations in contrast to that of the public service of education.

Definitions

Acute Stress Disorder (ASD): Acute stress disorder is a short-term mental health condition that can occur within the first month after experiencing a traumatic event. It involves stress responses, including anxiety, intense fear or helplessness, experiencing flashbacks or nightmares, feeling numb or detached from one's

body, avoiding situations, places or other reminders related to the traumatic event. (The Cleveland Clinic, 2023a)

Biomarker: "broad subcategory of medical signs-that is, objective indications of medical state observed from outside the patient-which can be measured accurately and reproducibly" (Strimbu & Tavel, 2010, p. 1)

Cultivating Awareness and Resilience in Education (CARE): The discussion of this program was intended in the Literature Review of this writing to address an example of the mental health awareness components provided for educators.

Central Nervous System (CNS): Central nervous system is a system of nerve tissue in vertebrates that consists of the brain and spinal cord. The central nervous system controls both voluntary movements, such as those involved in walking and in speech, and involuntary movements, such as breathing and reflex actions. It also is the centre of emotion and cognition. (Central Nervous System, 2023)

Enteric Nervous System (ENS): Enteric nervous system cooperates with intestinal microbes, the intestinal immune system, and endocrine systems; it forms a complex network that is required to maintain a stable intestinal microenvironment. (Geng et al., 2022)

Elementary and Secondary Education Act (ESEA): The discussion of the Elementary and Secondary Education Act of 1965 in the literature review was to frame an understanding for the reader regarding one of the core elements of the state of public education as it stood during the time of this writing.

Individuals with Disabilities Act (IDEA): The discussion of the Individuals with Disabilities Education Act of 1975 in the Literature Review was to provide an example of added responsibilities for educators during the time of this writing.

National Longitudinal Surveys of Youth 1979 (NLSY79): National Longitudinal Surveys of Youth 1979 was included in the Literature Review as a point of reference and statistical data to help shape the understanding of the state of educators' mental states over a period of time.

National Longitudinal Surveys of Youth 1997 (NLSY97): National Longitudinal Surveys of Youth 1997 was included in the Literature Review in addition to the NLSY79 to continue the point of reference in helping to shape the understanding of the state of educators' mental states over a period of time.

Post-Traumatic Stress Disorder (PTSD): Post-traumatic stress disorder is a mental health issue that may develop after a traumatic event. It causes negative, anxious emotions. Some people with PTSD relive the event over and over. Others avoid any reminders of it. PTSD interferes with life, work and relationships. But, medication and counseling can help, even years later. (The Cleveland Clinic, 2023b)

Micronutrient: Micronutrients are vitamins and minerals needed by the body in very small amounts. (Micronutrients, 2023)

Secondary Educators: For the purpose of this study, "secondary educators" are defined as any education professional certified in grades 6 through 12 in the state of Missouri.

Ultra-processed Foods: Industrial formulations typically with five or more and usually many ingredients. Besides salt, sugar, oils, and fats, ingredients of ultra-processed foods include food substances not commonly used in culinary preparations, such as hydrolyzed protein, modified starches, and hydrogenated or interesterified oils, and additives whose purpose is to imitate sensorial qualities of unprocessed or minimally processed foods and their culinary preparations or to disguise undesirable qualities of the final product, such as colorants, flavorings, nonsugar sweeteners, emulsifiers, humectants, sequestrants, and firming, bulking, de-foaming, anticaking, and glazing agents. (Gibney, 2019, p. 1)

Limitations

While this study instrument was delivered to participants throughout the state of Missouri through an email Listserv obtained through the Missouri Department of Education, the timing of its delivery had to be delayed due to the COVID-19 pandemic. Originally, this study was to be conducted in the early part of the year 2020. As of March 11, 2020, the World Health Organization (WHO) declared COVID-19 a pandemic, effectively shuttering all education institutions and all other public facilities, mandating that all people shelter in place. Once this Pandemic began, the researcher whose profession was a Secondary Curriculum and Instruction Specialist for a suburban public-school district in Missouri, had to shift their complete focus to the student and district needs completely. Additionally, the Pandemic also rendered the researcher's subjects, fellow educators, to the same fate, terminating their ability to participate in any activity that did not immediately serve their student populations. It was not until the fall of 2022 when the researcher was again able to develop a new timeline for the study. Interestingly,

though, the research on the physiological impact the COVID-19 Pandemics had on the human mind and body has lent more depth to this study, and provided the researcher with even greater insight into the relevance of the impact nutrition and fitness can have.

Another limitation is this study was conducted through email survey only. While it sought to gain an understanding of where secondary educators believe their perceived fitness and nutrition levels are and how they correlate to their overall job satisfaction, this study only concerns itself with educators' perceptions. In order to provide more in-depth understanding of the connection between physiological wellbeing and overall job satisfaction and performance, a study of biometrics including controlled dietary intake, prescribed fitness regimen, as well as monitored blood work and other biomarker evidence would be beneficial. Field studies of educators' workdays while participating in a controlled biometric study would provide more data that would lend itself to a greater understanding of the physiological connection or non-connection to educators' job satisfaction.

Additionally, this study was limited to secondary educators within the State of Missouri. Secondary educators in this case were defined as teachers, administrators, and paraprofessionals responsible for students in grades 6 through 12. While the results of this study may be applied to educators of other grade levels, there is no evidence to draw upon from this study that would provide empirical accuracy because the study was not offered to other grade level educators. Furthermore, the state of Missouri is located in the heartland of the United States, and does not necessarily have the same sociological or economical demographics of other states. Results from other socioeconomic, geographic, and demographic regions could yield divergent responses than those of secondary

educators in Missouri. This particular demographic element may or may not have significance if the results of this study were to be applied to educators within other geographic regions.

Hypotheses

Hypothesis 1: There is a direct correlation between a secondary educator's perception of their fitness level and their overall job satisfaction.

Hypothesis 2: There is a direct correlation between a secondary educator's perception of their nutrition adherence level and their overall job satisfaction.

Hypothesis 3: There is a direct correlation between a secondary educator's perception of their fitness and nutrition levels and their overall job satisfaction.

Research Questions

Research Question 1: Are the perceived fitness levels of secondary educators directly correlated to their overall job satisfaction?

Research Question 2: Are the perceived levels of nutrition of secondary educators directly correlated their overall job satisfaction?

Research Question 3: Are the combined perceived levels of nutrition and fitness of secondary educators directly correlated to their overall job satisfaction?

Conclusion

The purpose of this study was to identify current trends and practices in connection to the physiological aspects of fitness and nutrition to the job satisfaction of secondary educators. Educators at all levels are continually facing issues of burnout and stress and the researcher believed that more research into the physiological well-being of educators as critical to their mental health needed to be explored. The researcher also

believed that the solutions addressed at the time of the research for educator stress and burnout were solely centered on mental health practices like mindfulness. While there were limitations to this study, it does provide a baseline for further research in this area.

This particular area concerning the physiological impact on educator wellbeing and job satisfaction lacks research as highlighted in the Literature Review. There are a significant amount of studies relating to the impact of physiology on the job satisfaction and wellbeing in other public servant occupations (DeNysschen et al., 2018; Guffey et al., 2015; Lazarus & Folkman, 1987; MacMillan et al., 2017; Straub et al., 2016; Watanabe et al., 2016), however this is not the case in the education sector. The hope of this study was to underscore this gap and the need for future research in this area.

Chapter Two: Review of Literature

Introduction

The overall health and wellbeing of educators is paramount. During the COVID-19 Pandemic of 2020-2021, teacher quality of life took a significant decline (Lizana et al., 2021). Even prior to the Pandemic, teachers reported decreasing levels of overall health (Lizana et al., 2021). These facts are more than concerning if education is to sustain its original intent, described through the words of educational philosopher St. Augustine in Pusey's (1950) book, *Confessions of St. Augustine*, which delves into philosophies on education. St. Augustine's perspective on teaching is that the teacher is no more than the messenger, meant to inspire thought and the quest for truth within their student. In this work, St. Augustine is speaking to his son on his theories, and questions the idea of the teacher being the all-knowing entity. Rather, St. Augustine suggests, the teacher is to provide provoking questions for the student, along with their content knowledge. In turn, the students build their own knowledge, question theory, and make their own conclusions. Therefore, if teachers are to inspire thought and ideas within students, then it is natural that a true teacher should, themselves, be on the path to seeking their own truth, becoming their best self, and thus igniting a proverbial fire in their students. As Lizana's (2021) study suggested, teachers are facing severe physical and mental health struggles only compounded by the Pandemic. Therefore, fulfilling their role to inspire students is stunted because of a lack of overall physical health (Lizana et al., 2021).

This literature review begins with the history of public education in the United States and the initial seeds of educator stress. To demonstrate the response to the

increasing educator stress, the review delves into current research and media focus on educators' mental self-care. The profound lack of research surrounding physical fitness and nutrition for educators is underscored by the overwhelming presence of studies on educator trauma and the suggested remedies. This lack of research into the use of physiological modalities to support educators' wellbeing is in stark contrast with the current research on the connection between physiology and mental health. Examples of the types of neuroscientific practices are initially discussed in the review with the Cultivating Awareness and Resilience in Education (CARE) Program and similar modalities for emotional self-care. The review then evolves to explore the impact of physical fitness and nutrition programs in other professions. Impacts of fitness programs on police forces, clergy, and other non-education professions are explained. As much of the literature discussed contains biological science content, the review further examines connections between nutrition, physical activity, and psychology.

The History of Education and Educator Certification in the United States

The birth of the nation brought hope, a new beginning, and the promise of freedom. However, this new beginning also magnified the need for a way to educate future generations. Of course, the new colonists were also dealing with issues that were more immediate, like food acquisition, shelter, and protection; so, education, while important, was initially left to the individual families. As time progressed and communities began to form, more localized communal education began to take shape. Churches, townspeople, and traveling schoolmasters would gather local children and teach reading, writing, and arithmetic (Kober & Rentner, 2020, p. 1).

In order to uphold the freedoms of the new nation, The Founding Fathers

> believed strongly that preserving democracy would require an educated population that could understand political and social issues and would participate in civic life, vote wisely, protect their rights and freedoms, and resist tyrants and demagogues. (Center on Educational Policy, 2020, p. 1)

This belief was further supported in the 1800s by Horace Mann, the "father and founder of public education" (Morgan, 1937, p. 599). In his Inaugural Address as the Secretary of the School Board of the State of Massachusetts, Mann laid the foundation for what he believed to be the central mission of public school.

> A generation modifies the character of its children far more than it does its own. The lateral force of human action, that is, the influence of contemporaries, is great; but the influence of predecessors upon successors is far greater. (Morgan, 1937, p. 599)

This statement by Mann and the ideals put forth by the Founding Fathers regarding education emphasized the idea that public education in America should be taught by those who upheld the values of the new nation. Mann's (Morgan, 1937, p. 599) statement underscores the belief that the teachings of one generation to the next are of critical influence on the future of the nation.

As America matured and grew in the late 1700s, the federal government provided special land set aside purely for the building of public schooling. By the mid-1800s advocates for public schooling legislated for schools that would be "universally available to all children, free of charge, and funded by the state" (Center on Education Policy, 2020, p. 2). The push for public schooling was the theory that this institution would be the great equalizer of the country's citizens. Furthermore, this movement towards a

public education institution paved the way for development of education science, and social reform (Morris, 1975, p. 232).

Then, by the mid-1900s, the United States needed to greatly emphasize its educational focus towards science and math as the Soviets ignited a political fear that they would be the first in space. With the successful launch of Russia's Sputnik One and Sputnik Two, a growing uneasiness about America's ability to educate its youth in order to advance science and industry began to take root (Strickland, 1985, p. 6). Even in the 1980s, the National Science Board declared a scathing statement on the nation's education system:

> Already the quality of our manufactured products, the viability of our trade, our leadership in research and development, and our standards of living are strongly challenged. Our children could be stragglers in a world of technology. We must not let this happen: America must not become an industrial dinosaur. (Strickland, 1985, p. 6)

This statement echoed America's Founding Fathers' beliefs that education would preserve democracy (Center on Educational Policy, 2020, p. 1) and instruct future generations to "resist tyrants and demagogues" (Center on Educational Policy, 2020, p. 1). Therefore, the need for the education system to develop minds capable of competing on a global scale intensified, urging more educational "accountability and 'time on task'" (Strickland, 1985, p. 6).

Initially teaching students reading, writing, and arithmetic along with developing a strong social structure in the country was the early intent of public schooling. However, as time progressed and with increased pressure to achieve, the expansion of the institution

brought with it a need for more local and federal control. With this shift, there has been "an increasing emphasis on administrative rationalization and the testing, counselling etc. which were its administrative accompaniments" (Morris, 1975, p. 232). By the late 1800s public education became "universal, tax-supported, free, compulsory, bureaucratic, racist, and class-biased" keeping Americans "orderly, moral, and tractable" (Katz, 1971, p. 42). These broader expansions of oversight led to more need for a formal process to ensure that educators were professionally credentialed.

The idea of licensing educators is not an idea founded in America; rather, it can be traced as far back as Roman times (Angus, 2001, p. 4). By the end of the 19th century, most states required formal educator certification. Though this certification varied in requirements from state to state, the common factor was a basic knowledge of the content areas. Teacher education in preparation for this certification began in a variety of institutions ranging from normal schools to education departments in universities (Angus, 2001, p. 8).

Normal schools were the endeavor of James Carter, a Harvard University graduate who wrote many articles about what he saw as a "deplorable" state of public education in late 1800 New England (Flaherty & Flaherty, 1974, p. 8). Carter garnered tremendous support from state officials to revamp the common schools responsible for teacher education at the time. Eventually by 1839, Carter was successful in gaining enough political backing to open the first normal school. These schools would have "a well-stocked library, professors skilled in their respective areas, a laboratory school, and a Board of Commissioners" (Flaherty & Flaherty, 1974, p. 6).

This movement toward a more academic approach to teacher education and certification led to a formalized testing of an applicant's knowledge of certain content areas in reading, writing, orthography, grammar, and geography (Angus, 2001, p. 8). Early on, the idea of teaching as a craft that required an education in pedagogy was not a popular theme. However, this perspective changed with the advent of "courses in the principles of teaching" (Angus, 2001, p. 11) in the state of New York. As public education continued to evolve, more philosophical approaches toward preparing educators took hold. "They [educators] must have experience in living in a school situation that will give every opportunity for the growth of democratic habits of conduct and a true philosophy of democratic education" (Harper, 1939, p. 170).

As the process for teacher education became more formalized, and school attendance became mandatory, the issue of providing a more equal educational opportunity for all children emerged. Access to education for children of every race and socioeconomic background was not readily available nor was it equal. As recently as the 20th century, non-white children were not allowed to attend schools alongside their white peers (Center on Education Policy, 2020, p. 5). It was not until the United States Supreme Court decided in the 1952 decision of *Brown v. Board of Education* that it became federally illegal to segregate students based upon the color of their skin (Franklin, 2005, p. 1). Though the intent of this Act was to provide a more equal educational opportunity for children of diverse backgrounds, the achievement gap between white and non-white students became starkly clear (Center on Education Policy, 2020, p. 6). Race and economic disparity amongst school-age children drew national attention. Hoping to

remedy the situation, President Lyndon B. Johnson created The Elementary and Secondary Education Act (ESEA) in 1965 (Paul, 2022, para.1).

> ESEA is an extensive statute that funds primary and secondary education, emphasizing high standards and accountability. As mandated in the act, funds are authorized for professional development, instructional materials, resources to support educational programs, and the promotion of parental involvement. (Paul, 2022, para. 1)

In order to broaden the scope to include other marginalized children, more federal acts were enacted. The Individuals with Disabilities Education Act (IDEA) was signed into law by President Gerald Ford in 1975, ensuring children with physical and mental limitations would receive as fair and equal an education as other children (U.S. Department of Education, 2018). Continued revision of federal and local education laws changed the landscape of teaching and learning. These various laws produce structures for assessing student achievement as well as parameters for public education institutions to receive funding. For instance, Title I is a provision of ESEA and requires a certain percentage of students from a particular low-income threshold to be enrolled in order for the school to receive funding (Paul, 2022, para. 2). While these laws and the expansion of public education in the United States gives educational access to children regardless of race, gender, physical or mental ability, and socio-economic status, the stipulations of federal funding based upon performance can lead to teacher burnout (Gonzalez, et al., 2017, p. 513). These factors, along with on-going multi-factor challenges are the source of educator stress.

Roots of Educator Stress

Stress levels in individuals over the past 40 years have steadily increased, reaching beyond the teaching profession (U.S. Bureau of Labor Statistics, 2021). Data from the National Longitudinal Surveys of Youth tracked an initial cohort of individuals aged 14 to 22 in 1979 (NLSY79) and followed up with mental health assessments with this cohort in 1997 when they aged between 40 and 50 years old (Holt & Gershenson, 2022, p. 1). A second cohort of individuals aged 12 to 17 in 1997 (NLSY97) were also tracked and assessed for mental health between 2003 and 2015 when this cohort also reached middle age (Holt & Gershenson, 2022, p. 2). This longitudinal study revealed that while teachers from the 1979 cohort indicated their stress levels were no worse and slightly better than their non-educator counterparts, these findings were not indicative of the later NLSY97 cohort. Individuals, regardless of profession, in the 1997 cohort reported worse mental health over time (Holt & Gershenson, 2022, p. 2). Therefore, it is inferred that stress levels across all professions have increased over time. This data is supported from further studies where teachers were asked to rate their levels of stress. When asked how stressful they believe their occupation was, nearly a quarter of teachers stated their profession was a “very or extremely stressful job” (Kyriacou, 2001, p. 29).

While there are a variety of factors that can influence an educator’s level of stress, some of the main sources of educator stress are:

- Teaching pupils who lack motivation;
- Maintaining discipline;
- Time pressures and workload;
- Coping with change;

- Being evaluated by others;
- Dealing with colleagues;
- Self-esteem and status;
- Administration and management;
- Role conflict and ambiguity;
- Poor working conditions. (Kyriacou, 2001, p. 29)

These stressors, with the added pressure of adherence to federal and local education laws and standardized testing, enhance the potential for teacher overwhelm. School districts that place a higher value on high standardized test scores and other measurable academic data points have a greater number of teachers indicating feelings of burnout (Berryhill et al., 2009, p. 1). A study of teachers in North Carolina reported that 88.9% of these educators said high-stakes tests greatly increased their stress levels (Jones et al., 1999, p. 200). Balancing work stress and demands like meeting certain assessment criteria leaves teachers feeling poorly about their teaching self-efficacy. Teacher self-efficacy, or a teacher's ability to believe they have a positive impact on student outcomes, can have a direct impact on student achievement (Gonzalez et al., 2017, p. 513).

In addition to the demands of standardized testing, educators report other school-related factors that impact their overall stress level. These factors include, "student discipline, student apathy, student absences, inappropriate scheduling, large classes, athletic events, interruptions, and problems with the physical plant (e.g., heating, cooling)" (Blase, 1986, p. 28).

These factors contribute to teachers' overall feelings of stress and research reveals that because of these and other stressors, many teachers leave the field in the early stages

of their career. Approximately 19% to 30% of teachers walk away from teaching in the first five years of entering the profession (McCarthy, 2019, p. 10).

Not only do institutionally-imposed stressors like standardized testing performance or regular workplace stressors like dealing with varying work-colleague personalities (Kyriacou, 2001) impact educator satisfaction and performance, research demonstrates the growing and unpredictability of school violence incidents, particularly school shootings, have a tremendous impact on educator wellbeing. Data collected by the National Center for Education Statistics (2022) reported that school shootings have risen, increasingly, from their data spanning the years 2000 to 2021 (para. 6). The Center defines a school shooting as:

> all incidents in which a gun is brandished or fired or a bullet hits school property for any reason, regardless of the number of victims (including zero), time, day of the week, or reason (e.g., Planned attack, accidental, domestic violence, gang-related). (para. 6)

Daniels et al. (2007) stated that educators who have experienced a school shooting tend to have symptoms of acute stress disorder (ASD) which can lead to posttraumatic stress disorder (PTSD) (p. 653). These two trauma-related diagnoses are similar but do have differences.

> ASD is characterized by anxiety, dissociation, and other stress responses, which occur within one month of exposure to a traumatic event. Common symptoms of ASD include psychological numbing, feeling of being a daze, derealization, depersonalization, and dissociative amnesia. The individual may also reexperience the event through recurrent images, flashbacks, thoughts, dreams, or

> other symptoms, and may therefore avoid events or situations that remind the person of the event. (Daniels et al., 2007, p. 653)

If not treated properly, Daniels et al. (2007) states, these educators are at great risk for developing PTSD. According to the DSM-5, the criteria for PTSD are as follows:

Table 1

DSM-5 criteria for PTSD

Criterion A (one required): The person was exposed to: death, threatened death, actual or threatened serious injury, or actual or threatened sexual violence, in the following way(s):
• Direct exposure • Witnessing the trauma • Learning that a relative or close friend was exposed to a trauma • Indirect exposure to aversive details of the trauma, usually in the course of professional duties (e.g., first responders, medics)
Criterion B (one required): The traumatic event is persistently re-experienced, in the following way(s):
• Unwanted upsetting memories • Nightmares • Flashbacks • Emotional distress after exposure to traumatic reminders • Physical reactivity after exposure to traumatic reminders
Criterion C (one required): Avoidance of trauma-related stimuli after the trauma, in the following way(s):

- Trauma-related thoughts or feelings
- Trauma-related reminders

Criterion D (two required): Negative thoughts or feelings that began or worsened after the trauma, in the following way(s):

- Inability to recall key features of the trauma
- Overly negative thoughts and assumptions about oneself or the world
- Exaggerated blame of self or others for causing the trauma
- Negative affect
- Decreased interest in activities
- Feeling isolated
- Difficulty experiencing positive affect

Criterion E (two required): Trauma-related arousal and reactivity that began or worsened after the trauma, in the following way(s):

- Irritability or aggression
- Risky or destructive behavior
- Hypervigilance
- Heightened startle reaction
- Difficulty concentrating
- Difficulty sleeping

Criterion F (required): Symptoms last for more than 1 month.

Criterion G (required): Symptoms create distress or functional impairment (e.g., social, occupational).

Criterion H (required): Symptoms are not due to medication, substance use, or other illness.

Two specifications:

1. Dissociative Specification. In addition to meeting criteria for diagnosis, an individual experiences high levels of either of the following in reaction to trauma-related stimuli:

    - Depersonalization. Experience of being an outside observer or detached from oneself (e.g., feeling as if "this is not happening to me" or one were in a dream).
    - Derealization. Experience of unreality, distance, or distortion (e.g., "things are not real").

2. Delayed Specification. Full diagnostic criteria are not met until at least six months after the trauma(s), although onset of symptoms may occur immediately. (U.S. Department of Veterans Affairs, 2022).

Of course, other traumatic events, like student suicide, have similar psychological impacts on educators. According to the Centers for Disease Control and Prevention (2023), the percentage of high school students experiencing "poor mental health and suicidal thoughts and behaviors has increased from 2011 to 2021" (p. 59). Because educators routinely interact with students on a regular basis, these suicidal behaviors can have a detrimental effect on teachers and staff. In a survey of 145 teachers conducted by Kõlves et al. (2017), 35.92% had close knowledge of a student who committed suicide (p. 276). Of this population, 76% of teachers who experienced the most recent suicide of a student indicated the event impacted their personal life (Kõlves et al., 2017, p. 276).

Additionally, 85.7% of these teachers stated the event impacted their professional life (Kõlves et al., 2017, p. 276).

This level of exposure to trauma for these educators can have profound, long-term implications like illness, burnout, divorce, and complete career change among other life-changing experiences (Daniels et al., 2007, p. 654). Further compounding these detrimental psychological issues is the perceived lack of response from school officials to care for their teachers following a violent school event (Kondrasuk et al., 2005). In their study of school employees of schools in Portland, Oregon, Kondrasuk et al. (2005) found that only 25% of school administrators encouraged their teachers and staff to seek counseling following a traumatic and violent school event (p. 642). The Kõlves et al. (2017) study echoes this finding as many teachers reported they needed much greater help than what was afforded to them (p. 277). According to the National Institute of Mental Health (NIMH),

> Individuals who have a mental health condition or who have had traumatic experiences in the past, who face ongoing stress, or who lack support from friends and family may be more likely to develop more severe symptoms and need additional help. Some people turn to alcohol or other drugs to cope with their symptoms. Although substance use may seem to relieve symptoms temporarily, it can also lead to new problems and get in the way of recovery. (National Institute of Mental Health, 2022, para. 6)

Factors like these stressors were only compounded in 2020 when the COVID-19 Pandemic ravaged the world, and effectually halted mainstream educational practices. A RAND Corporation study indicated that almost 50% of educators indicated the intention

to leave the profession at the end of 2021 (Holt & Gershenson, 2022, p. 3). This number can be associated with the increase in the types of stressors the Pandemic added to educators in struggles maintaining strong mental health. For the first time in educators' careers, they dealt with "amplified media exposure, the implementation of school closures, social distancing, and home quarantine, and the stoppage of face-to-face teaching in higher education" (Zewude et al., 2023, p. 2). Managing these unprecedented challenges related to the global Pandemic forced educators to completely abandon their in-person instructional repertoire. During this Pandemic, teachers were relegated to teaching through virtual means, many for the first time. Over 72% of teachers report "feeling very or extremely stressed, and 57% feel very or extremely burned out," due to the working conditions during the pandemic" (Kotowski et al., 2022, p. 1). With copious amounts of time dedicated to teaching in front of a computer screen, educators developed technostress, or "a specific type of stress due to the mandatory use of technology" (Pace et al., 2022, p. 7).

> Technostress is made up of several sub-dimensions, for example: techno-overload, related to the need to work faster, multitask, or change work habits; techno-invasion, related to the ability of technologies to invade users' personal lives and blur the boundaries between work and private life; and techno-complexity, related to the feelings of inadequacy of users concerning their skills. (Pace et al., 2022, p. 2)

Not only were teachers thrust into solely using technology to reach their students, the added worry regarding their health, as well as that of their loved ones, during the Pandemic added to their levels of anxiety and fear (Beyene et al., 2023, p. 2). This fear

matriculated into the preservice educator environment as well, as many reported concerns over their family's health and safety along with financial implications. These factors have impacted the potential future educators as one study indicated that 33.9% of preservice teachers in the United States post-Pandemic considered changing careers (Hebert & Hickey, 2022, p. 195).

Additionally, COVID-19 underscored teachers' perceptions of self-efficacy as educators. Self-efficacy, or "teachers' belief that they can influence students' academic achievement and behavior when the students lack academic motivation" (Kim & Seo, 2018, p. 529-530) was shaken as many taught online for the first time. Many elementary educators lacked the content knowledge necessary to implement the online programming necessary to teach their students (Ladendorf et al., 2021, p. 142). Other K-12 educators struggled with the ability to teach in an online classroom, and school districts grappled with how to support their teachers in the new dynamic (Ladendorf et al., 2021, p. 143). When teachers have an internal belief that they can impact their students' academic achievement, they "bring more enthusiasm to their teaching, and this may positively affect student performance" (Kim & Seo, 2018, p. 536). Unfortunately, the lack of self-efficacy in their abilities to educate during the Pandemic is viewed as one factor in the nation's academic decline between 2020 and 2022 (Camera, 2022, p. 1). The National Assessment for Educational Progress, also considered the nation's educational report card, reported historic academic losses in mathematics and reading during the Pandemic (Camera, 2022, p. 2).

Compounded stresses of pre-COVID education in addition to the impact of the Pandemic placed a spotlight on the direct connection of educator to student impact. The

influence of educator stress reaches farther than the teacher themselves. Stress that educators experience can have a negative influence on their students. In order to better understand the impact of stress, the Transactional Model of Stress and Coping (Lazarus & Folkman, 1987) gives a scientific perspective on the relationship. This model demonstrates that "an individual's reaction to stress is guided by the subjective interpretation or appraisal of an external stressor which subsequently triggers an emotional response" (Spilt et al., 2011, p. 458). Therefore, it is an individual's response to an outside stressor that dictates the level of impact on that person. Teachers view their interactions with their students as inherently connected to their overall emotional well-being (Spilt et al., 2011, p. 466). Since external stressors influence an individual's actual stress-level, and the relationships educators have with their students influence a teacher's emotional well-being, then both negative and positive interactions will dictate overall stress levels.

How a teacher responds to these stressors will make a difference in a student's life and how they approach education throughout their lifetime (Hamre & Pianta, 2001, p. 626).

> Studies have shown that, whereas close teacher-child relationships are associated with positive child outcomes, such as school liking, classroom participation, and academic competence, conflictual teacher-child relationships are linked with negative outcomes, such as unfavorable school attitudes, school avoidance, classroom disengagement, and poor academic performance. (Birch & Ladd, 1998, p. 626)

It is, then, apparent that when teachers perceive their stress levels are high, and their stress response is negative in student interactions, student behavior will degrade. On the reverse side of this theory, students who experience positive interactions with their teachers have a better outlook on school and education overall (Hamre & Pianta, 2001, p. 626).

As there is a direct correlation between the effect of educator stress on student achievement (Birch & Ladd, 1998; Hamre & Pianta, 2001; Spilt et al., 2011), as well as teacher burnout and some leaving the profession (Kotowski et al., 2022; McCarthy, 2019), the need for some type of solution to the burnout and stress levels became paramount. In response to this need, a number of authors and educator institutes began creating programs as well as literature centered around mental selfcare specifically for educators.

CARE Program and Similar Modalities

Cultivating Awareness and Resilience in Education (CARE) was founded by the Garrison Institute in "2018 as a non-profit organization to serve educators with evidence-based programs and practices to nurture healthy, caring, equitable school communities that support social and emotional learning and teacher and principal wellness" (The Garrison Institute, 2022, para.1). The CARE program focuses on utilizing practices like mindfulness, meditation, and reflection to assist educators in managing the stresses of their job (The Garrison Institute, 2022, para. 1-10).

This CARE program was developed as a primary program for educator social and emotional wellness (CREATE, 2022, paras. 1-12). To test the viability of this program, the University of Virginia's Curry School of Education developed a study of teachers

using the CARE stress-reducing practices on a routine basis. The study took place in New York City's public elementary schools, where teachers participated in regular self-care sessions. These sessions included everything from emotional care to mindfulness and stress reduction practices. Mindfulness Based Interventions (MBIs) is the encompassing title used by practitioners to define the mindfulness, meditative, and breathing practices used (Jennings et al., 2017, p. 1012). Practices like these can be included in regular daily activities like casual walking, regular chores, and other basic tasks (Jennings et al., 2017, p. 1012). The rationale for this study was to identify the direct impact of the CARE for Teachers Program on the emotional well-being of teachers. Furthermore, the study demonstrates the improvement of classroom instruction because of the self-care focus and not a focus on classroom management strategies (Brown et al., 2017).

This study reviewed the impact of a self-care program for educators on their overall well-being as well as the impact on their classroom culture. In the study, the authors ascertained that because the field of education naturally brings the lives of students and teachers together, this fact naturally converges their feelings and emotions. The byproduct of this human-to-human interaction lends itself to teachers and students being impacted by the other's personal state of being, whether positive or negative (Brown et al., 2017).

Other popular self-care techniques for educators revolve around individualized personal growth. *Practicing Presence* (2018) outlined the need for educators to be self-reflective when it comes to their own well-being strategies. This book written by educator and self-care expert Lucas stated that these methods are, now more than ever, necessary for educators to be able to avoid burnout, due in part, because of the rapid pace of life, as

well as dealing with their students' traumas. Similar to the MBIs used in the CARE Program protocol (Cultivating Awareness and Resilience, 2022, paras. 1-10), Lucas (2018) discussed how mindfulness practices can reduced overall teacher stress. Throughout the book, Lucas (2018) provided specific examples along with coping strategies for teachers. Focusing on emotional self-care, Lucas (2018) discussed topics of meditation and cognitive-behavioral therapy, in addition to common practices, such as intentional breathing and yoga.

Testing the Impact of Emotional Selfcare on Educators

Testing the effectiveness of selfcare techniques like mindfulness, yoga, and breathwork is also a common practice in the field of education research. For example, continuing to focus on the more mental and emotional aspects of educator well-being and job satisfaction, a two-part study from 2008 reviewed the self-regulatory patterns of mathematics teachers in Germany. This particular study set out to study "the role of occupational engagement and resilience as two important work-related self-regulatory dimensions that predict occupational well-being and teachers' instructional performance in the classroom" (Klusmann et al., 2008, p. 702). The first part of the study looked at the teachers' self-regulation type and their level of exhaustion and job satisfaction. The second part of the study reviewed the teachers' self-regulatory type and their instructional effectiveness. Identifying the aspect of the teachers' ability to self-regulate their own behaviors allowed researchers to specifically point to their likelihood for job satisfaction. Correlating these behaviors, researchers found a significant connection between a teacher's ability to regulate their emotional response and how they viewed their overall work environment. This study is significant because it identifies a direct correlation

between how teachers can deal with their own emotional responses and how they, therefore, deal with their classrooms (Klusmann et al., 2008).

Similar to the German study, Harvard professor Brooks (2016) looked at three concepts through the lens of educator mindset: resilience, student engagement, and motivation. Throughout the study, Brooks reviewed teachers' perspectives on these concepts, and how their views impact their interaction with their students. Like the Klusmann et al. (2008) study, Brooks' (2016) research links the teacher's ability to monitor and regulate their own behaviors with their relationships with students. The author also provides ways for teachers to infuse these concepts throughout their day to facilitate more conversation. Brooks also looked at teachers' relationships with students, and how these relationships impact teacher and student satisfaction and thus, overall performance, respectively (Brooks, 2016).

Further underscoring the levels of stress pervasive amongst educators, another study using the Teacher Stress Inventory and the Coping Scale for Adults, education professor Richards (2012) looked at the various ways teachers of grades kindergarten through twelve manifest stress, how they perceive stress, and how they cope with stress. Unsurprisingly, the results indicated that teachers are highly stressed, and they do not possess the necessary coping skills to deal with their manifestations of stress. While the Brooks (2016) and Klusmann et al. (2008) studies identified that teachers' abilities to self-regulate their behaviors and mental state promote positive relationships between them and their students while enhancing their job satisfaction, the Richards (2012) study emphasized that teachers generally lack the ability to access these skills. While this study

covers only teachers in California, it has implications for teachers globally (Richards, 2012).

Hue and Lau's (2015) study was designed similar to the Richards (2012) study to further understand the connection between teacher stress and potential remedies. Throughout the Hue and Lau (2015) study, researchers conducted a six-week mindfulness-based program for preservice teachers. In their work, Hue and Lau (2015) contend that providing teachers with the internal resources they need to promote psychological resilience and health would potentially offset the negative effects of job-related stress. In this study, two emotion regulation processes were studied, both reappraisal of events, as well as suppression of events. Throughout the studies, subjects who reappraise a situation, or view it from a multitude of facets, have more positive relationships and well-being. While those who suppress events have more negative relationships and overall sense of well-being (Hue & Lau, 2015). Unlike the Klusmann et al. (2008) and Brooks (2016) studies, the Hue and Lau (2015) study focused on direct preservice programming. Their findings indicated that using a preservice program that promoted mindfulness had a direct positive effect on teacher well-being and reduced symptoms of stress and depression. The authors hypothesized that there would be a lower burnout rate for teachers and thus, greater teacher satisfaction if educators had this type of program upon the initiation of their careers (Hue & Lau, 2015). This preservice training could potentially provide incoming teachers with the necessary self-regulatory skills described in the Klusmann et al. (2008) and Brooks (2016) studies, offsetting the detrimental effects of stress associated with more veteran teachers as described in the Richards (2012) study.

While the self-regulating methodologies mentioned in these studies like mindfulness, meditation, and other emotion regulating processes provide remedies for educator stress, there are further social considerations. Associate professor and lead researcher for CARE for Teachers, Jennings et al. (2017), discussed the implications for potential anti-secular issues in implementing mindfulness practices in the public sector. Given that mindfulness techniques historically have their roots in Eastern religions, the concerns over whether or not these practices remain secular are relevant. There are, as Jennings et al. (2017) discussed, a variety of ways mindfulness practices can be secular. While some of these practices do have beginnings in certain religions, the practice itself is secular. "Meditation refers to the deliberate act of regulating attention through the observation of thoughts, emotions and body states" (Waters et al., 2015, p. 3). This statement articulates the idea that practices like meditation have scientific, secular basis. Exploring a variety of methods and approaches for specific educational purposes, Jennings et al. (2017) reviewed what educators can do for themselves, as well as their students, to safely include mindfulness practices within the public education sector.

Jennings, et al. (2017) offered that such practices like mindfulness do not need to be prescribed to a certain non-secular philosophy. Rather the practices many times have their beginnings in empirical sciences like neuroscience and psychology. Studies found that practices like meditation show an impact on neuroplasticity, physical changes that occur in the brain in response to experiences (Davidson & Lutz, 2008, p. 176). Further, when these practices are implemented from a scientific perspective, the potential conflict between secular and public is rendered moot (Jennings et al., 2017).

While the physiological aspect of brain neuroplasticity is addressed in some of these studies (Davidson & Lutz, 2008; Jennings et al., 2017; Waters et al., 2015), their findings enhance the fact that an overwhelming majority of educator stress-related mediation focuses on emotional regulatory practices, with a clearly obvious lack of focus on the physiological practice potential. This gap leaves a great area of opportunity open to future exploration of the mind-body connection and the potential for further stress-reducing practices for educators. Juxtaposed against other public service occupations research, the lack of physiological research for educators is in stark contrast.

Fusing Physiological Practices on Other Public Service Occupations

Current research in educator well-being has solely focused on the psycho-social aspects of remediating the effects of stress. Conversely, other public service occupations have focused studies not only on the mental practices to support those in the professions, but also the physiological. Police forces, fire departments, and clergy have all identified the emotional and physical impact these public servant occupations have on their professionals and have researched potential solutions, both from a neuroscience and a physiological point-of-view (DeNysschen et al., 2018; Guffey et al., 2015; MacMillan et al., 2017).

For instance, a systematic study published in *Occupational and Environmental Medicine* of one 109 different papers covering the topic of some variation of police physiological wellness were reviewed to identify best practices in this particular field (MacMillan et al., 2017). Given that, as of this research, there are limited specific studies dedicated to the physiological well-being of educators, the MacMillan et al. (2017) study alone magnifies the remarkable difference in wellness research for public servants. To

further highlight this discrepancy, there are specific studies dedicated to the impact of fitness and nutrition on police officers and its impact on obesity and job safety. Guffey et al. (2015) found a correlation between officers' levels of injury and their weight. "Heavier officers incurred more injuries than officers whose weight was in balance with height and age" (Guffey et al., 2015 p. 12). DeNysschen et al. (2018) studied the impact of a fitness and nutrition program on criminal justice students preparing for careers in law enforcement. The results indicated that students' overall health was increased through the 14-week intervention and had positive impact on their lifestyle (DeNysschen et al. 2018, p. 77). While the Guffey et al. (2015) and DeNysschen et al. (2018) studies strictly tested fitness and nutrition parameters on police, the MacMillan et al. (2017) study identified a variety of physiological approaches for the wellbeing of the police force, it also took into consideration the mental health aspects.

> Evidence from higher-quality intervention studies is promising, suggesting targeted interventions can result in positive, although small effects on diet, sleep quality, stress and tobacco use, and large effects on blood pressure. Peer support and incorporation of behaviour change support in combination with structured support appear most impactful. (MacMillan et al., 2017, p. 922)

Similar to studies on the effects of fitness and nutrition on police officers, studies of physiological influences on firefighters' mental and physical states are abundant. One particular study demonstrated a significant impact of physical fitness on stress responses on 46 firefighters (Gnam et al., 2019, p. 345). The results of this study indicated that aerobically fit firefighters "…exhibit lower cardiovascular stress responses to

psychological stresses compared with untrained subjects" (Gnam et al., 2019, p. 345). Additionally, "…high aerobic endurance capacity reduces the cardiovascular reactivity to psychological stress" (Gnam et al., 2019, p. 345). These results echo the MacMillan physiological study on the police force as fitness relates to stress reduction (MacMillan et al., 2017). Another study focused on the incidence of metabolic syndrome (MetS) on firefighters as well as office workers in Germany (Straub et al., 2016). MetS includes a vast number of metabolic diseases like diabetes, hypertension, obesity, dyslipidemia atherosclerosis, as well as hyperglycemia which are all linked to an increase in cardiovascular disease (Straub et al., 2016, p. 1). This study revealed that the office workers had significantly higher waist circumference than the firefighters, indicating a greater level of obesity. The researchers pointed to the fact that office workers typically do not perform the same level of physical activity as firefighters, potentially leading to this difference (Straub et al., 2016, p. 6). However, they do ascertain that the level of cardiovascular risk increased with firefighters between the ages of 41-50 in their study, due to a lower level of physical activity (Straub et al., 2016, p. 3).

Unlike the Klusman (2008), Hue et al. (2015), Jennings et al. (2017), and Jennings (2016) studies on the effectiveness of neuroscientific approaches to educator well-being, the MacMillan et al. (2017) study combines the two variations, mental and physical, in order to provide a comprehensive approach to public servant wellness. Physiological studies of those in public service occupations like the MacMillan et al. (2017) and Guffey et al. (2015) studies are not stand-alone. A study Lindholm et al. (2016) surveyed 150 clergy members in the Kansas City area. This study concluded that while a majority of respondents indicated that their overall health was good, very good,

or excellent at a rate of 93.7%, the reality was that, of those respondents, 77.4% reported weights classifying them in the overweight category (Lindholm et al., 2016, p. 97). Taking this information, the study concluded that because of their work and attempt to balance their family lives, clergy members' physiological health was not at the forefront of their priorities, leading to greater declines in health.

While the Lindholm et al. (2016) study, the MacMillan et al. (2017) study, and the Guffey et al. (2015) study found connections between a more wholistic physiological approach to reducing public servant stress, a study by Currie et al. (2022) directly studied one particular nutritional component. Currie et al. (2022) looked at the impact of flavonoids on the psychological health of warfighters (p. 1). This study indicated that this population is vulnerable to depression and suicide due to the extreme emotional and physical demands of the Armed Forces and approximately 15% of this population suffers "…from at least one behavioral health diagnosis" (Currie et al., 2022, p. 2). Additionally, Currie et al. (2022) points out that while these individuals are typically prescribed anti-depressants for their symptoms, many of these medications can have serious side-effects (Currie et al., 2022, p. 2). The consumption of more foods like strawberries, cherries, blueberries, elderberries, and many others in the berry family has shown to improve depression (Currie et al., 2022, p. 2). These foods contain antioxidants called flavonoids which are the component of the berry that targets the neurotransmitters causing depressive symptoms (Currie et al., 2022, p. 4). This nutrition-based approach to behavioral health is similar to the aerobic approach in the Gnam et al. (2019) firefighter study. As flavonoids worked to reduce the depressive response in warfighters, the aerobic activity reduced the cardiovascular response to stressful situation for firefighters (Currie

et al., 2022; Gnam et al., 2019). Both studies underscore the ability of fitness regimes and sound nutritional practices to mitigate the stress response of these public service occupations.

Warfighters, police officers, firefighters, and clergy work with similar public service issues similar to educators, deal with a variety of stressors relating to working with the general public. However, unlike the research presented on police forces, firefighters, warfighters, and clergy (Currie et al., 2022; Gnam et al., 2019; Guffey et al., 2015; Linholm et al., 2016; MacMillan et al., 2017), the field of education lacks the research on physiological impact on educators' mental well-being and their job satisfaction. While the research on the impact of neuroscience and self-regulatory practices on educators (Hue & Lau, 2015; Klusmann et al., 2005; Jennings, 2016) is vast, research into the impact of physiological practices like proper nutrition and fitness programming on educators would provide a greater understanding of how to best approach mitigating the effects of stressors on professionals within the educational field.

Given the compounding amount of educator stress (Beyene et al., 2023; Camera 2022; Hebert & Hickey, 2022; Holt & Gershenson, 2022; Kim & Seo, 2018; Ladendorf, 2021; McCarthy, 2019; Pace et al., 2022; Spilt et al., 2011; Zenwude et al., 2023), the potential for educators to acquire potentially fatal conditions is great. However, studies concerning teacher physiological well-being are limited and tend to focus on the diseases caused through educators' diet and fitness practices or lack thereof. For instance, one study conducted in India demonstrated that because of the more sedentary nature of the teachers, they are more predisposed to developing non-communicable diseases like cardiovascular diseases and diabetes (Monica et al., 2018). Other studies point out that

teachers' regular diets do not consist of nutrient-dense foods because fast food and junk food, considered ultra-processed foods, are more readily available (Bakhotma, 2012).

In areas of public service as well as other workplace environments, providing people with the means to take care of their physical fitness leads to greater productivity and self-efficacy (Watanabe et al., 2016). As demonstrated in the Kim and Seo (2018) study on teacher self-efficacy and its impact on student achievement, how an educator perceives their ability to perform at their highest level directly impacts a student's achievement outcome (Kim & Seo, 2018, p. 529). When employees are under psychological stress, their self-efficacy can be low. When their self-efficacy is low, their work performance suffers. In turn, this can translate into their personal lives as well. Of course, if they lack self-efficacy, this can have a negative impact on employees' physical performance as well. However, if employees are given opportunities to improve their physical fitness through work promoted health programs, their overall psychological and physical well-being are positively impacted (Watanabe et al., 2016, p. 181).

Physiological Implications on Neurological Wellbeing

This direct connection between physiological health and psychological health has an empirical relationship. Envick (2012) studied the psychological impact of a specific fitness and nutrition plan on a random group of 60 adults. Coinciding with the seven-week fitness and nutrition regime, the Emogram software tracked the subjects' emotional responses and well-being. The Emogram software is typically used to measure the emotions of disaster response workers, but has other applications. This software:

uses non-linear systems theory to analyze the 11 basic emotions and their interaction, as well as to track the dynamic changes in emotions over time. Among other applications, it

has been used to measure and manage the emotions of disaster-response workers, interpret emotional dynamics in counseling, improve organizational climate and decision-making in businesses, and determine purchase intent after consumers are exposed to products, services and advertising. (Envick & Martinez, 2010)

In this study, the Emogram (Figure 4) presents "a series of photographs that precisely depict each emotion" (Envick & Martinez, 2010, p. 3).

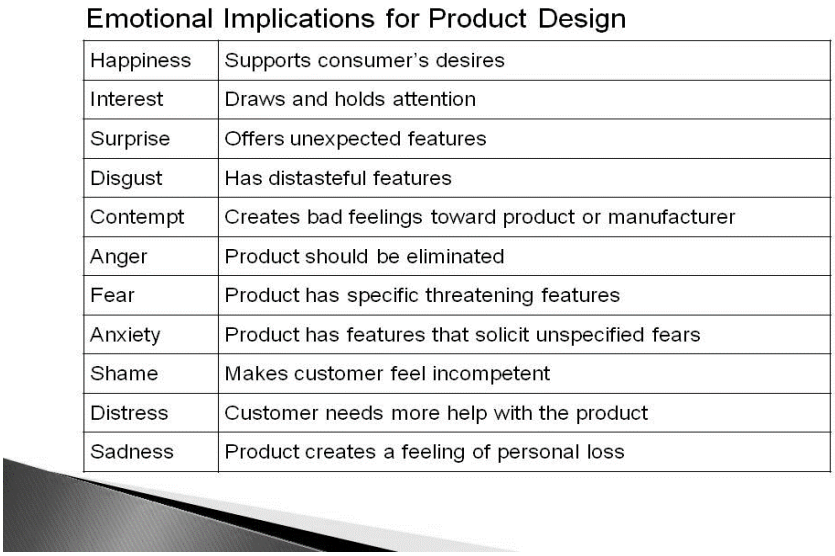
Figure 4

Sample Emogram photograph.

Once a participant looks at the individual photograph, they assign one of 11 emotions from a chart (Figure 5) (Envick & Martinez, 2010, p. 2).

Figure 5

Eleven emotions to select from.



Emotional Implications for Product Design

Happiness	Supports consumer's desires
Interest	Draws and holds attention
Surprise	Offers unexpected features
Disgust	Has distasteful features
Contempt	Creates bad feelings toward product or manufacturer
Anger	Product should be eliminated
Fear	Product has specific threatening features
Anxiety	Product has features that solicit unspecified fears
Shame	Makes customer feel incompetent
Distress	Customer needs more help with the product
Sadness	Product creates a feeling of personal loss

After completing the physical program, participants were scored on the Emogram scale from 1 to 10. The pre-scores of participants ranged from 1.50 to 3.50, and after the physical program, their scores increased to between 5.00 and 6.00. Specifically, the scores increased across the board for all of the positive emotions, and showed a decrease in all of the negative emotions (Envick, 2012).

Radavelli-Bagatini et al. (2022) tested a similar physiological-mental wellbeing connection researching fruit and vegetable intake and the impact on four perceived stress domains (worries, tension, lack of joy, and demands) (p. 1). While the Envick (2012) study used the Emogram software to track responses, the Radavelli-Bagatini et al. (2022) study used two questionnaires. In order to track food intake, a 74-question Food Frequency Questionnaire allowed participants to document the food type ingested. The instrument to test perceived stress domains was a 20-item version of the Perceived Stress Questionnaire (Radavelli-Bagatini et al., 2022, p. 1). The results of this study concluded

that simply increasing the consumption of fruits and vegetable, completely independent of other lifestyle factors, decreased an individual's perceived stressors. While the Envick (2012) study included a fitness component that the Radavelli-Bagatini et al. (2022) study did not, both associate physiological wellbeing to increased mental health.

The nutrition-mental health association is further connected in the Carabotti et al. (2015) scientific review of the gut-brain axis. Similar to the link made between fruit and vegetable consumption and mental health in the Radavelli-Bagatini et al. (2022) study, Carabotti et al. (2015) demonstrated that numerous scientific studies connect a healthy intestinal system to a strong mental state.

Insights into the gut-brain crosstalk have revealed a complex communication system that not only ensures the proper maintenance of gastrointestinal homeostasis, but is likely to have multiple effects on affect, motivation, and higher cognitive functions (Carabotti et al., 2015, p. 203).

From a purely biological perspective, Naidoo (2019) states that the human gut contains bacteria that regulate a variety of physical and neurological functions. While the healthy bacteria in the gut help to protect the body from harmful infections, support the immune system, and breakdown nutrients for transport throughout the body, the gut also contains 90% of the serotonin receptors necessary for processing emotions (Naidoo, 2019, p. 11). Additionally, the additives used in processing foods can cause inflammation in the gut, disturbing the delicate balance of the helpful bacteria, thereby disrupting the direct connection between the neural receptors connecting the gut and the brain (Zinöcker & Lindseth, 2018, p. 2). Zinöcker and Lindseth (2018) further noted that the disruption caused by the additives in processed foods used in Western diets can lead to "a

permanent loss of bacteria important to microbiome function and possibly induce inheritable metabolic changes" (p. 2). The study further suggests that emulsifiers, additives that contribute to the taste enhancement of low-fat processed foods, disturb the microbiota in the gut, causing inflammation (Zinöcker & Lindseth, 2018, p. 2).

This gut-brain connection was similarly demonstrated in a study conducted with mice (Zinöcker & Lindseth, 2018). While the Radavelli-Bagatini (2022) study demonstrated a positive connection between adequate fruit and vegetable consumption on stress domains, the Santos et al. (2018) study, like the Zinöcker & Lindseth (2018) study, articulates a negative connection between a high refined carbohydrate diet and anxiety and depression-like behavior (Santos et al., 2018, p. 33). High refined carbohydrate diets contain added sugars and foods exposed to certain processes degrading the nutritional value of a food (Gross et al., 2004, p. 774). The mice exposed to the high-refined carbohydrate diet "demonstrated the relationship between carbohydrate-enriched diet consumption and susceptibility to induce anxiety and depressive related behaviors after a stressful stimuli" (Santos et al., 2018, p. 36). As the Santos et al. (2018) study concentrated on how the high-refined carbohydrate has a negative impact on anxiety and depressive behavior, the Currie et al. (2022) study demonstrated how non-refined carbohydrates like berries can have a positive psychological impact. It is clear from the Radavelli-Bagatini (2022), Carabotti et al. (2015), Santos et al. (2018), and Currie et al. (2022), as well as the Zinöcker and Lindseth (2018) studies that promotion of nutrition-based mental health programming can significantly impact human behavioral health.

These links between nutrition and mental health (Carabotti et al., 2015; Currie et al. 2022; Radavelli-Bagatini, 2022; Santos et al., 2018; Zinöcker & Lindseth, 2018) are

highlighted through biological science. Within the human body, the central nervous system (CNS) and the enteric nervous system (ENS) engage in two-way communication (Dennett, 2021, p. 4).

The CNS has about 100 billion neurons (nerve cells) which communicate with other neurons. The ENS, which covers the entire intestinal tract, has about 500 million neurons, so the gut-brain axis links your brain's emotional and cognitive centers with your intestinal functions. The vagus nerve is one of the biggest nerves connecting your gut and your brain, also sending signals in both directions (Dennett, 2021, p. 4)

Therefore, the impact of foods ingested would then have a positive or negative influence on the intestinal system, and consequently on mental state as noted in the Carabotti et al. (2015), Santos et al. (2018), and Zinöcker and Lindseth (2018) studies. Adan et al. (2019) stated that, "accumulating data has identified the gut microbiota as a key player in the responses to stress and affective disorders, including anxiety, depression and cognition" (p. 1325). Even more specifically, in the Indian Psychiatry Society's Presidential Address, Dr. Raju (2017) stated that the brain uses 50% of the oxygen supplied to the blood stream and 20% of the glucose (Raju, 2017, p. 144). Glucose is supplied through carbohydrate macronutrients, such as the berries, fruits, and vegetables mentioned in the Currie et al. (2022) and Radavelli-Bagatini (2022) studies. Furthermore, Raju's (2017) statements regarding the particular type of carbohydrate's impact on mental state parallel the findings of the Santos et al. (2018) and Zinöcker and Lindseth (2018) studies. Raju (2017) stated the ingestion of "rapidly absorbed glucose contributes to greater release of cortisol which affects memory adversely" (Raju, 2017, p. 144). This

correlates with Santos et al.'s (2018) findings that high-refined carbohydrate diets lead to a greater potential for mental stress (Santos et al., 2018, p. 37).

Studies further demonstrating the carbohydrate-mental health link revealed that during the COVID Pandemic, people were more inclined to choose junk foods rather than the carbohydrates that promote reduced mental anxiety (Pal et al., 2022, p. 4942). Therefore, educators consuming these types of foods during the Pandemic were inadvertently adding to the already stressful situation COVID-19 presented for the educational field (Beyene et al., 2023). As the rise of stress, depression, and anxiety took hold during the Pandemic for the entire population, educators included, so did emotional eating (Shehata & Abdeldaim, 2022, p. 2). "Emotional eating is considered the propensity to eat in response to emotions" (Dakanalis et al., 2023, p. 1). According to Dakanalis et al. (2023), "deficits in emotional dysregulation and a high level of negative emotions are crucial in the progression and prolongation of obesity" (p. 2). Therefore, the behavior of emotional overeating can have a lasting impact on an individual's psyche. This behavior leads to distorted perceptions of one's body, lower self-esteem, and objectification of the self among other detrimental self-perceptions (Dakanalis et al., 2023, p. 2). Underscoring the type of diet that negatively impacts the human psyche, Arshad et al. (2023) explains that the typical Western diet is mostly comprised of foods that have undergone processing (p. 1). This study further defines the NOVA food processing classification system:

1. Unprocessed or minimally processed foods
2. Processed culinary ingredients
3. Processed foods

4. Ultra-processed foods (Arshad et al., 2023, p. 2)

Over the years, the definitions of processed and ultra-processed foods have evolved as displayed in Table 2.

Table 2

Evolution of definitions of the term ultra-processed foods (2010–2017)

Year	Reference	Definition
2009	6	These are made up from group 2 substances (Group 2 is of substances extracted from whole foods) to which either no or relatively small amounts of minimally processed foods (Group 1) are added, plus salt, and other preservatives, and often also cosmetic additives.
2010	7	This group is defined as a process that mixes Group 2 ingredients (processed culinary or food industry ingredients) and Group I foodstuffs (unprocessed or minimally processed foods) to create durable, accessible, convenient, and palatable ready-to-eat or ready-to-heat food products liable to be consumed as snacks or desserts or to replace home-prepared dishes.
2012	8	These are formulated mostly or entirely from ingredients and typically contain no whole foods. The purpose is to devise durable, convenient, high- or ultra-palatable, and profitable products. They typically are not recognized as versions of foods. Most are designed to be consumed by themselves or in combination as snacks or drinks. Most of the ingredients used by manufacturers are not available in supermarkets or other retail outlets. Although some are directly derived from foods, such as oils, fats, starches, and sugars, others are obtained by the further processing of food constituents. Numerically, the great majority of ingredients of ultra-processed products are additives of various types that include among others, bulkers, sweeteners, sensory enhancers, flavors, and colors.
2014	4	Formulated mostly or entirely from substances derived from foods. Typically contain little or no whole foods. Durable, convenient, accessible, highly or ultra-palatable, often habit-forming. Typically, not recognizable as versions of foods, although may imitate the

Year	Reference	Definition
		appearance, shape, and sensory qualities of foods. Many ingredients not available in retail outlets. Some ingredients directly derived from foods, such as oils, fats, flours, starches, and sugar. Others obtained by further processing of food constituents. Numerically the majority of ingredients are preservatives; stabilizers, emulsifiers, solvents, binders, bulkers; sweeteners, sensory enhancers, colors and flavors; processing aids and other additives. Bulk may come from added air or water. Micronutrients may "fortify" the products. Most are designed to be consumed by themselves or in combination as snacks. They displace food-based freshly prepared dishes, meals. Processes include hydrogenation, hydrolysis; extruding, molding, reshaping; preprocessing by frying, baking.
2015	9	The third group (ultra-processed foods) is composed of industrial products that are made entirely or mostly made from substances that have been extracted from food (oils, fats, sugar, starch, proteins), those that are derived from food constituents (hydrogenated fats, modified starches), or foods synthesized in a laboratory based on organic materials such as oil and coal (colorants, flavorings, flavor enhancers, and other additives used to give the products attractive sensory properties).
2016a	5	The fourth NOVA group is of ultra-processed food and drink products. These are industrial formulations typically with 5 or more and usually many ingredients. Such ingredients often include those also used in processed foods, such as sugar, oils, fats, salt, antioxidants, stabilizers, and preservatives. Ingredients only found in ultra-processed products include substances not commonly used in culinary preparations, and additives whose purpose is to imitate sensory qualities of group 1 foods or of culinary preparations of these foods, or to disguise undesirable sensory qualities of the final product.
2016b	10	Formulations of several ingredients that, besides salt, sugar, oils and fats, include food substances not used in culinary preparations, in particular, flavors, colors, sweeteners, emulsifiers, and other

Year	Reference	Definition
		additives used to imitate sensorial qualities of unprocessed or minimally processed foods and their culinary preparations or to disguise undesirable qualities of the final product.
2017	11	Industrial formulations typically with 5 or more and usually many ingredients. Besides salt, sugar, oils, and fats, ingredients of ultra-processed foods include food substances not commonly used in culinary preparations, such as hydrolyzed protein, modified starches, and hydrogenated or interesterified oils, and additives whose purpose is to imitate sensorial qualities of unprocessed or minimally processed foods and their culinary preparations or to disguise undesirable qualities of the final product, such as colorants, flavorings, nonsugar sweeteners, emulsifiers, humectants, sequestrants, and firming, bulking, de-foaming, anticaking, and glazing agents. (Gibney, 2019, p. 3)

This definition has evolved because the research continued to evolve. It was found that foods in the processed and ultra-processed categories have a positive correlation with an increase in depression (Arshad et al., 2023, p. 7). Of those study participants belonging in the top quintile of long-term ingestion of ultra-processed foods, 31% had a strong likelihood in the reoccurrence of depressive symptoms over a 13-year period than those in the lower quintile groups (Arshad et al., 2023, p. 8). When reviewing the literature on food choice and mental health, the Arshad et al. (2023) study underscores the Santos et al. (2018) and the Zinöcker and Lindseth (2018) studies regarding the link between high and ultra-processed foods and conditions like depression and anxiety. The Arshad et al. (2023) study also reinforces the findings of Carabotti et al. (2015), Currie et al. (2022), and Radavelli-Bagatini et al. (2022) regarding the connection between high intake of vegetables and fruits and a positive mental state.

As more research gains momentum regarding nutrition's role in mental health, a branch of psychiatry, nutritional psychiatry, is gaining research attention. In their 2015 position statement, the International Society for Nutritional Psychiatry Research stated:

> Epidemiological data, basic science, and clinical evidence suggest that diet influence both the risk for and outcomes of mental disorders. As such, we advocate that evidence-based nutritional change should be regarded as an efficacious and cost-effective means to improve mental health. In addition to dietary modification, we recognize that nutrient-based (nutraceutical) prescription has the potential to assist in the management of mental disorders at the individual and population level. Many of these nutrients have a clear link to brain health, including omega-3s, B vitamins (particularly folate and B12), choline, iron, zinc, magnesium, S-adenosylmethionine (SAMe), vitamin D, and amino acids. While we advocate for these to be consumed in the diet where possible, additional select prescription of these nutraceuticals may also be justified. (Sarris et al., 2015, p. 370)

In a study confirming this claim, NabaviNabavi et al. (2017) stated, "The introduction of micronutrient therapy along with standard treatment have reduced the psychiatric symptoms by 50%" (p. 1). This area of psychiatry makes nutrient therapy not only beneficial, but cost effective for many patients (NabaviNabavi et al., 2017). The NabaviNabavi et al. (2017) study findings pertaining to micronutrient therapy and mental health are similar to the Currie et al. (2022) findings relating to the impact of the consumption of micronutrients found in berries and a decrease in depression (Currie et

al., 2022, p. 4). In fact, Sarris (2019) stated that this type of intervention can potentially have an impact even at the earliest stages of life.

> Thus, given the early age onset for mood disorders, early dietary intervention is indicated as a key modifiable interventional target for preventing the potential incidence of many common mental disorders, in particular in those with emerging metabolic or inflammatory conditions. (Sarris, 2019, p. 931)

In particular, the Mediterranean Diet, one comprised mostly of fish, seed oils, and nuts, has proven successful in randomized control trials (RTC) to be effective for those suffering with anxiety and depression (Adan et al., 2019, p. 1324). Adan et al. (2019) also echoed the findings of Pal et al. (2022), Arshad et al. (2023), Santos et al. (2018), and Zinöcker and Lindseth (2018) regarding the link between poor nutrition and mental wellbeing.

> Unbalanced diets increase the risk of cardio-metabolic disease and cognitive decline. Thus, it is becoming clear that the negative consequences of a poor-quality diet can impair mental health and cognitive function, which is likely to be exacerbated with age. (Adan et al., 2019, p. 1325)

A multitude of studies indicated a direct correlation between physical well-being and mental well-being of a workforce. While other public service professions have dedicated large amounts of research into this correlation, it is clearly lacking in the area of education. Because educator stress is increasing (Lizana et al., 2021), then more research into how to mitigate this stress using the physical well-being practices researched in other professions is paramount.

Summary

Educator stress and burnout increased greatly over the last decades, particularly since the COVID-9 pandemics (Beyenne et al., 2022). While efforts to mitigate this fact included techniques like mindfulness and meditation, the effects of stressors remained (Kotowski et al., 2022; McCarthy, 2019). This literature review identified the benefits of research and application of physiological modalities as a remedy to occupational stressors on other public service fields (Currie et al., 2022; Gnam et al., 2019; Straub et al., 2016). In light of this research, applying similar protocols to educators requires future research into the possibilities.

Chapter Three: Research Method and Design

Introduction

The purpose of this quantitative study was to investigate the correlation between perceived fitness and nutrition levels of secondary educators and their overall job satisfaction, by examining the results of a Yale job satisfaction survey and Perceived Wellness survey of Missouri secondary educators in the fall of the 2022 school year. According to *Interactive Statistics* quantitative research method is, "Explaining phenomena by collecting numerical data that are analysed using mathematically based methods (in particular statistics)" (Aliaga & Gunderson, 2002, p. 1). Using the quantitative method for the study, the researcher used the Yale job satisfaction survey instrument to identify subjects' beliefs about aspects of their jobs. Then, the researcher used the Perceived Wellness survey instrument to identify the subjects' beliefs regarding their overall perceived fitness and nutrition levels. Using a combination of these two instruments allowed the researcher to determine the correlation between secondary educators' overall job satisfaction and their perceived fitness and nutrition levels.

Participants

While it is clear from the current literature (Berryhill et al., 2009; Beyene et al., 2023; Birch & Ladd, 1998; Blase, 1986; Camera, 2022; Daniels et al., 2007; Gonzalez et al., 2017; Hamre & Pianta, 2001; Hebert & Hickey, 2022; Holt & Gershenson, 2022; Jones et al., 1999; Kõlves et al., 2017; Kondrasuk et al., 2005; Kotowski et al., 2022; Kyriacou, 2001; Kim & Sep, 2018; Ladendorf et al., 2021; McCarthy, 2019; Pace et al., 2022; Zewude et al., 2023) that stress and burnout are factors for all levels of educators, the researcher narrowed their study scope to that of only secondary educators in the state

of Missouri, a midwestern state located in the central portion of the United States (U.S. Census Bureau, 2022a). In the 2020 Missouri Census, the state population totaled 6,154,913 residents (U.S. Census Bureau, 2022b). Missouri is home to St. Louis County, an urban county with the highest population in the State topping over one-million residents in 2020 (Missouri Census Bureau, 2020). In contrast to this high population number, Missouri encompasses a total of 115 counties, many of which are rural. According to the U.S. Census Bureau, the classification of urban areas is as follows: "Urban areas represent densely developed territory, and encompass residential, commercial, and other non-residential urban land uses" (U.S. Census Bureau, 2020). The U.S. Census Bureau defines rural areas as follows: "encompasses all population, housing, and territory not included within an urban area" (U.S. Census Bureau, 2020). The areas outside of St. Louis, Missouri's largest county are comprised of a variety of smaller counties. Some of these smaller counties fall under the U.S. Department of Agriculture's Office of Management and Business' definition of micropolitan communities (U.S. Department of Agriculture, (2023), para. 6). This category of community comprises 19%, or 22 counties within the State of Missouri. According to the U.S. Department of Agriculture, these micropolitan communities have a population size between 10,000 and 49,900 residents (para. 6). The majority of remaining counties in Missouri fall under the category of nonmetropolitan, or noncore areas, because they have a population below the 49,900 resident threshold for a micropolitan community (U.S. Department of Agriculture (2023), para. 7).

To delineate further, the U.S. Department of Agriculture stated that, according to the 2017 Census definition, rural, or non-metropolitan, communities "include some combination of the following:

1. Open countryside
2. Rural towns (places with fewer than 2,500 people) and
3. Urban areas with populations ranging from 2,500 to 49,999, that are not part of a larger labor market areas (metropolitan areas). (U.S. Department of Agriculture, para. 2)

It is these areas which comprise the vast majority of the geographic landscape of Missouri, also affording the State the largest farming state, second only to the state of Texas (USDA.gov, para. 1). The Missouri Farm Bureau stated that the majority of Missouri farms are family owned (Bohl, 2019, para. 2). Therefore, the respondents comprised secondary educators from both rural and urban school districts.

For the purposes of the study, secondary educators are any certified educator from grades 6 to 12. The participants included in this research survey comprise teachers, administrators, and paraprofessionals. In order to obtain access to these participants, the researcher contacted the Missouri Department of Elementary and Secondary Education (MODESE). Once the researcher communicated via phone and email with the appropriate source at MODESE, they requested the most up to date and accurate email list of current public secondary educators throughout the State of Missouri. Upon receiving the list, the researcher then sent the *Qualtrics* survey along with an introductory email explaining the purpose of the study, as well as instructions on how to proceed.

The researcher initially sent 125 verified emails to secondary educators throughout the State of Missouri. The researcher gave the potential respondents three weeks during the fall of 2022 to respond to the survey. Of these educators, the researcher received 75 survey responses, or 60% of the total amount of surveys sent. Of those 75 survey responses, the researcher garnered 68 usable responses. The surveys which could not be used had some incomplete responses to questions.

Site

The researcher developed the survey through the study university and submitted the survey through the study university electronic communication resources. Because the survey instrument was electronic and participants for this study were dispersed throughout the state, it was necessary to have the instrument for the study available in a remote fashion. Therefore, the researcher reached out to the Missouri Department of Education for a comprehensive list of grades 6 to 12 educators throughout the state. The researcher then reviewed the list to make sure contact emails were still valid. Once the review was complete, the researcher sent the survey instrument to all valid email recipients.

Instrumentation

Due to the limited research at the time of this study, the researcher's intent with this study was to identify a correlation between secondary educators' overall job satisfaction and their perception of their levels of fitness and nutrition. As the participants in the study lived throughout the state of Missouri, the most efficient method to gather this evidence was through an emailed survey. Additionally, the researcher wished to use already tested instruments to gather the data. Therefore, questions from the Job

Diagnostic Survey: An Instrument for the Diagnosis of Jobs and the Evaluation of Job Redesign Projects, created by J. R. Hackman of Yale University and G. R. Oldham of University of Illinois University, were used to gather data on secondary educators' overall job satisfaction. The Job Diagnostic Survey was created through the Yale University Department of Administrative Sciences and sponsored by the Office of Naval Research for the Organizational Effectiveness Research Program. This survey was designed to

> measure the following classes of variable: (1) objective job characteristics, particularly the degree to which jobs are designed so that they enhance work motivation and job satisfaction; (2) personnel affective reactions of individuals to their jobs and work settings; (3) the readiness of individuals to respond positively to "enriched" -- jobs with high potential for generating internal work motivation. (Hackman & Oldham, 1974, p. 1)

Using this particular instrument, the researcher hoped to acquire a strong baseline for secondary educators' overall job satisfaction. A review of the Job Diagnostic Survey stated that "the JDS has facilitated the development of a large and fruitful body of research into the meaning of work" (Taber & Taylor, 1990, p. 495). The researcher believed the reports regarding the previous validity and use of this instrument in a variety of workplace studies made it ideal for this study (Taber & Taylor, 1990). Additionally, this instrument was selected because, "It provides measures of core job dimensions, critical psychological states, and personal & work outcomes" (Hackman & Oldham, 1974, p. 1). This job satisfaction survey was the initial part of the correlation in the study, with the perceived fitness and nutrition level survey as the second part.

To assess secondary educators' self-perceptions of their fitness and nutrition levels, questions from The Perceived Wellness Survey were used. The Perceived Wellness Survey was created by Adams et al. (1997) in order to have "a valid and reliable measure of individual wellness" (p. 1). Adams, (2020) stated:

> The study of perceptions is empirically well supported by other bodies of research. Social support researchers have suggested that perceived support is a powerful influence upon health. Stress researchers have indicated that a tension producing stimulus elicits the stress response only if it is perceived as threatening. Finally, epidemiological researchers have concluded that self-rated perceptions of health are among the most powerful predictors of subsequent health outcomes. In addition, health perceptions have been identified as one of the strongest predictors of physical and mental health care utilization. (Adams, 2020, para. 3)

The validity of the Perceived Wellness Survey was tested in a study of employees of the Shiraz University of Medical Sciences (Kaveh et al., 2016). Further, the results of this study indicated that the Perceived Wellness Survey "is therefore an effective tool for evaluating the different dimensions of perceived wellness" (Kaveh et al., 2016, p. 46). By combining questions from both The Job Diagnostic Survey (Hackman & Oldham, 1974) and The Perceived Wellness Survey (Adams et al., 1997), the researcher believed there was sufficient validity to test the hypothesis. As soon as the researcher received Institutional Review Board (IRB) permission along with approval of their Chair, the survey was submitted to the list of secondary educators in the State of Missouri procured through MODESE.

Research Questions and Null Hypothesis

The researcher hoped to identify whether or not there was a direct correlation between a secondary educator's overall job satisfaction and their perceived fitness and nutrition levels. As there are two physiological elements involved in the study, fitness and nutrition, the researcher identified three separate hypotheses and three separate research questions.

Null Hypotheses

Null Hypothesis 1: There is not a direct correlation between a secondary educator's perception of their fitness level and their overall job satisfaction.

Null Hypothesis 2: There is not a direct correlation between a secondary educator's perception of their nutrition adherence level and their overall job satisfaction.

Null Hypothesis 3: There is not a direct correlation between a secondary educator's perception of their combined nutrition and fitness adherence level and their overall job satisfaction.

Research Questions

Research Question 1: Are the perceived fitness levels of secondary educators directly correlated to their overall job satisfaction?

Research Question 2: Are the perceived levels of nutrition of secondary educators directly correlated their overall job satisfaction?

Research Question 3: Are the combined perceived levels of nutrition and fitness of secondary educators directly correlated to their overall job satisfaction?

Method

In order to identify whether or not there was a correlation between job satisfaction and perceived fitness and nutrition levels of secondary educators, the researcher used the correlation methodology. According to Price et al. (2017), the correlational methodology:

> is a type of non-experimental research in which the researcher measures two variables and assesses the statistical relationship (i.e., the correlation) between them with little or no effort to control extraneous variables. (para. 1)

In order to understand whether or not there was a correlation between secondary educators' overall job satisfaction and their perceived fitness and nutrition levels, the researcher determined the best way to accomplish identifying these results would be through a quantitative survey instrument. Therefore, the researcher utilized a combination of The Job Diagnostic Survey (Hackman & Oldham, 1974) and The Perceived Wellness Survey (Adams et al., 1997). Using questions from both quantitative survey instruments, the researcher was able to deliver the resulting survey through an email database of all Missouri secondary educators. The survey questionnaire included a disclosure of the intent of the survey and how the results would be used.

The researcher placed the job satisfaction survey questions at the beginning of the quantitative study, with the perceived fitness and nutrition questions at the end. Using a Likert Scale method of answer selection, the researcher allowed the respondents to choose from a range of responses to questions posed. The Likert Scale is a research tool created and used by Rensis Likert in 1932 (Edmundson, 2005). This Scale was originally developed to measure attitudes in the social and psychological fields as Likert believed "the number of attitudes which any given person is almost infinite" (Edmunson, 2005, p.

127). At the same time, Likert believed "'there are certain discernable groups of social responses' and that a response to an attitude, although not flexible or rigid, can move only within a certain range" (Edmunson, 2005, p. 127). Because the researcher was testing a correlation between respondents' perceptions of their job satisfaction and fitness and nutrition, this Likert Scale method allowed the respondents to choose from a limited variety of attitudes toward the questions posed. In this way, the researcher hoped to gain as close to an exact attitude toward a question as possible from the respondents.

Data Collection

The Missouri Department of Elementary and Secondary Education housed all professional contact information for educators certified in the State of Missouri. Because the researcher wished to conduct the survey with all secondary educators throughout the State of Missouri, it was necessary to acquire the email addresses of these potential participants. Therefore, the researcher contacted the Office of Educator Quality at the Missouri Department of Elementary and Secondary Education through email correspondence. In the email, the researcher indicated the purpose of the request and that they were making this request as a doctoral candidate through their academic institution. Upon receipt of the secondary educators' emails, the researcher then individually validated that each email was a working address. This email confirmation was done through a test email sent to the addresses to ensure they were still working email addresses for the secondary educators.

Upon approval of the researcher's instrument through the Institutional Review Board (IRB), the researcher then uploaded the instrument into *Qualtrics*, the academic institutions' approved survey tool. The *Qualtrics* survey tool created a link to include in

an email which the researcher embedded in their email communication with their potential participants. After the email was created, the researcher sent the survey and an introductory email to each valid email address. The respondents were given three weeks to respond to the survey during the fall of the year 2022.

The *Qualtrics* survey tool automatically collects the data once the participants complete the survey. Through the researcher's access to *Qualtrics*, they were able to access the participants' responses to the survey questions. Once the researcher closed the survey, they collected all responses and uploaded the quantitative data into an Excel spreadsheet for analysis.

Data Analysis

At the time of this study, the researcher's own background was in secondary education as well as fitness and nutrition. Therefore, the potential for researcher bias toward the potential benefits of a high fitness and nutrition regime was noted by the researcher prior to exploring this topic. In research, the concept of reflexivity is typically identified with qualitative research as qualitative studies tend to lend themselves to more researcher bias (Jamieson et al., 2023). As Jamieson et al. (2023) stated:

> Reflexivity is the act of examining one's own assumption, belief, and judgement systems, and thinking carefully and critically about how these influence the research process. The practice of reflexivity confronts and questions who we are as researchers and how this guides our work. It is central in debates on objectivity, subjectivity, and the very foundations of social science research and generated knowledge. (p. 1)

However, because of the researcher's personal and professional interest in both the educational and physiological aspects of the study, and the fact that the researcher would select the quantitative instruments used for the study, the idea of reflexivity was significant in the research. The concept of using a reflexive approach with this quantitative survey is supported by Jamieson et al. (2023), "the reflexive lens is an important one for all data collection in sociology, noting in particular how reflexivity can lead to important insights into the emotional cost of researching sensitive topics" (p. 1). Understanding their potential bias towards the possible benefits of a strong fitness and nutrition regime, the researcher selected instruments that were previously validated and tested in other studies.

Once the data was collected and the data sets uploaded into an Excel spreadsheet, the researcher noted that three participant responses to questions were absent. Ensuring that these scores would not skew the results, the researcher removed those three respondents from the total. Originally, the researcher received 72 responses from the survey, and once the three were removed, the researcher was able to analyze a total of 69 responses. From these responses, the researcher imported the numerical data into the *t*-Test calculator to identify results for the null hypotheses and research questions. After reviewing the results from the *t*-Tests, the researcher then determined responses to both the research questions and the null hypotheses.

Conclusion

The overall purpose of the study was to identify a correlation between overall job satisfaction of secondary educators as it relates to their perceived fitness and nutrition levels. In order to establish a baseline for this area of research as there was little to no

research in this area as of the date of this writing, the researcher chose a quantitative study to gain initial insight. Of course, the researcher had to understand their own personal bias toward their perceptions of the benefits of a sound nutrition and fitness program as it relates to overall job satisfaction, and selected validated instruments to conduct the study. Both instruments selected by the researcher have at least three decades of validity in use.

Chapter Four: Analysis

Introduction

Using two different validated instruments, the researcher surveyed secondary educators throughout the State of Missouri. After collecting the survey responses through the *Qualtrics* database, the researcher transferred the data to an Excel spreadsheet. Looking through the data, the researcher separated the fitness-specific question responses from the nutrition-specific responses, and then combined the responses from both question types in order to run three separate tests. The researcher compared and analyzed all three *t*-test results against their individual hypotheses.

Review of Methodology

This quantitative study was developed using two different validated instruments. To test secondary educators' job satisfaction, questions from the Yale Job Diagnostic Survey (JDS) (Hackman & Oldham, 1974) were selected. This particular survey was developed:

> to measure the following classes of variables: (1) objective job characteristics, particularly the degree to which jobs are designed so that they enhance work motivation and job satisfaction; (2) personnel affective reactions of individuals to their jobs and work setting; (3) the readiness of individuals to respond positively "to "enriched" jobs -- jobs with high potential for generating internal work motivation. Based on a specific theory of how jobs affect employee motivation, the JDS is intended to: (1) diagnose existing jobs to determine if (and how) redesigning could improve employee productivity and satisfaction; and (2) evaluate the effect of job changes on employees -- whether the changes derive

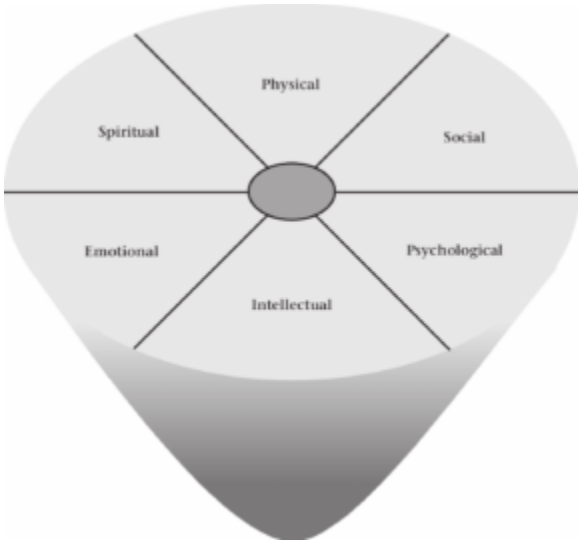
> from deliberate "job enrichment" projects or from naturally occurring modifications of technology or work systems. The JDS has gone through three cycles of revision and pre-testing. (Hackman & Oldham, 1974, p. 1)

The researcher selected the Yale Job Diagnostic Survey because the length of time between its inception and the time of this particular study gave credence to its validity.

In order to identify educators' perceived fitness and nutrition levels, questions pertaining to physiology were selected from The Perceived Wellness Survey (Adams, 2020). This Perceived Wellness Survey (PWS) "is a salutogenically-oriented, multidimensional measure of perceived wellness in the physical, spiritual, psychological, social, emotional, and intellectual dimensions" (Adams et al., 1997, p. 210). The term salutogenic in this study refers to anything that is "health causing" (Adams et al., 1997, p. 209) (Figure 6).

Figure 6

The Wellness Model of PWS.



While the original PWS comprises a multitude of health-related elements, for the purposes of this study the researcher decided to select only those questions from the PWS which corresponded to perceived physical fitness and perceived levels of nutrition. Compiled within *Qualtrics*, the survey tool selected by the researcher's overseeing institution, the survey began with a formal statement explaining the rationale for the survey, as well as the directions for taking the survey. Additionally, there was an option for potential participants to opt out of the survey.

Upon receipt of the email address information of all secondary educators in the state of Missouri at the time of the study from The Missouri Department of Elementary and Secondary Education, the researcher submitted the survey within an email to all valid addresses along with an introductory memo to potential participants. Once the survey responses were returned, the researcher entered the results into an Excel spreadsheet. Because there were three separate groups of questions, one for job satisfaction, one for perceived fitness level, and another for perceived nutrition level, the researcher ran three separate tests.

The first test was a correlation between overall secondary educator job satisfaction and a combination of perceived fitness and nutrition levels. The second test was to test a correlation between overall secondary educator job satisfaction and their perceived fitness levels, and the third was a test of the correlation between their job satisfaction and perceived nutrition levels. Once these results were calculated, the researcher looked at the given data against their hypotheses and research questions.

Hypothesis Discussion

The data was uploaded from *Qualtrics* database into an Excel spreadsheet where calculations could be made. Before any tests were run, the researcher noticed that of the 72 responses returned, three were incomplete. In order to ensure test validity, the three responses were immediately removed prior to any tests run. Once these incomplete responses were removed, the researcher then noticed that because of the way the questions were posed, and because every question was posed in a Likert Scale format, some question responses needed to be arranged so that the numbers correlating to a particular response matched the same degree for each question. For instance, for certain questions in the survey, the Likert Scale started at "1-Very strongly disagree" to "6-Very strongly agree." Within the survey, some questions were asked with a lean toward a high perception of physical fitness. In contrast, other questions were asked with a with a lean toward a lower perception of physical fitness. This type of questioning occurred throughout the survey. Following is an example of this contrast in questioning, taken directly from the survey delivered for this study:

Figure 7

Example of study instrument fitness question.

"My physical health has restricted me in the past."					
Very strongly disagree 1	2	3	4	5	Very strongly agree 6

Table 6: Example of Study Instrument Nutrition Question

"My body seems to resist physical illness very well."					
Very strongly disagree 1	2	3	4	5	Very strongly agree 6

In this example, a response of "Very strongly disagree" for the first question would mean that the study participant believes their physical health has not been a hindrance to them and, therefore, they perceive from this response that they have had good health. However, in the second question, the opposite would be true if the study participant chose "Very strongly disagree" as the second statement means the participant believes their body is in good physical health. Therefore, the researcher went through the questions on the Excel spreadsheet and equalized the value of the responses so that the results would properly reflect what the study participants intended for their responses to the study questions.

Once the researcher completed putting the responses in an order that would equalize the intended responses for each question, the first of the three tests was run on the data. This first test was based upon the first null hypothesis:

> *Null Hypothesis 1*: There is not a direct correlation between a secondary educator's perception of their fitness level and their overall job satisfaction.

This first test set out to identify a correlation between a secondary educator's overall job satisfaction as it relates to their perceived fitness level. For the purposes of this test, a perceived fitness level was the level of physical fitness the respondent believes they had at the time of the survey. The concept of perception of fitness was used as:

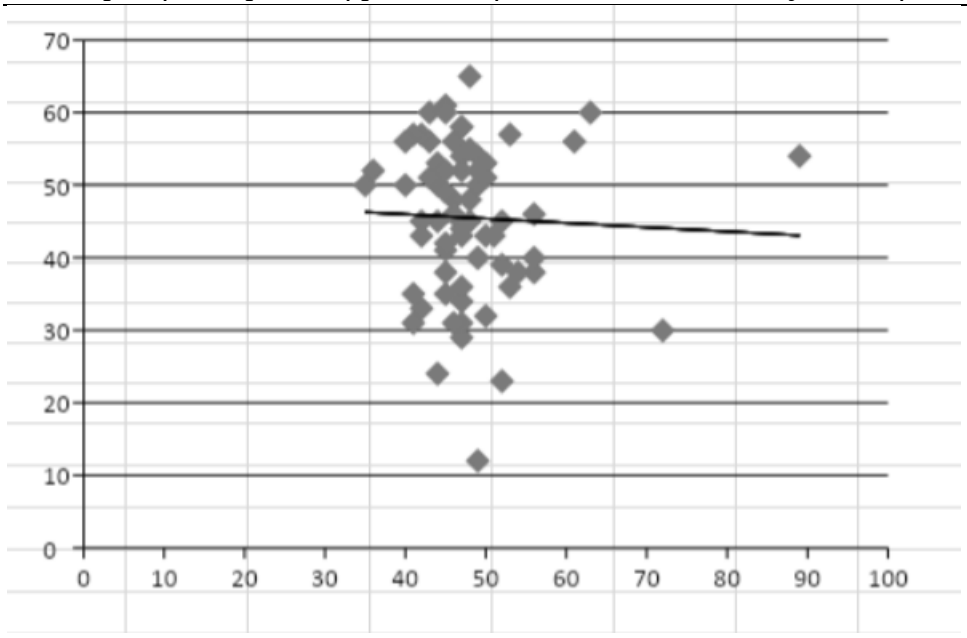
> The study of perceptions is empirically well-supported by other bodies of research. Social support researchers have suggested that perceived support has a powerful influence upon health. Stress researchers have indicated that a tension-producing stimulus elicits the stress response only if it is perceived as threatening. Finally, epidemiological researchers have concluded that self-rated outcomes of health are among the most powerful predictors of subsequent health outcomes. In

> addition, health perception has been identified as one of the strongest predictors of physical and mental health care utilization. (Adams et al., 1997, p. 209)

This null hypothesis and the subsequent questioning did not concern any biometric data such as blood, urine, saliva tests or any other external tests like energy exertion tests. On the contrary, this null hypothesis and test sought to understand any impact that an educator's own idea of their physical fitness level would have on their overall job satisfaction. In order to identify this correlation, the researcher ran Pearson Product Moment Correlation (PPMC) coefficient and ran a *t*-Test. The analysis showed that the coefficient of correlation (r = -.043) was not significant; $t(67)$ = -.35, p = .726. The results of this test failed to reject the null hypothesis (Figure 8).

Figure 8

Scatter plot for response of perceived fitness level on overall job satisfaction.



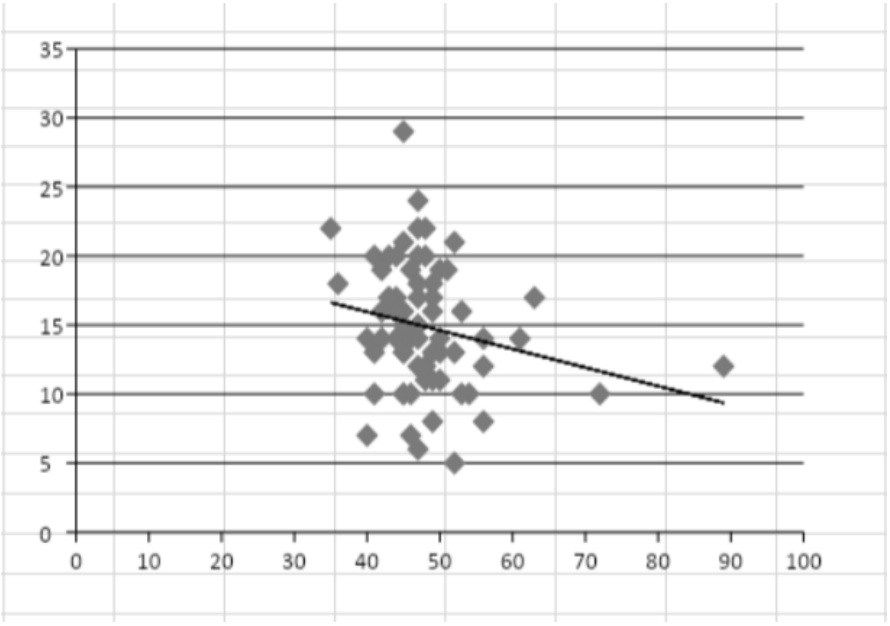
The second test set out to identify a correlation between secondary educators' perceived nutrition levels and their overall job satisfaction:

Null Hypothesis 2: There is not a direct correlation between a secondary educator's perception of their nutrition adherence level and their overall job satisfaction.

Similar to the purpose of the first test, this second test considered participants' own perspective of their levels of nutrition intake. Like the first test, this did not use biometric assessments like blood, urine, or saliva tests. To identify any correlation between an educator's perceived nutrition levels and their overall job satisfaction, the researcher ran the Pearson Product Moment Correlation (PPMC) coefficient and ran a *t*-Test. The analysis showed that the coefficient of correlation (r = -.223) was not significant; $t(67)$ = -1.87, p = .066.

Figure 9

Scatter plot results of perceived nutrition levels and overall job satisfaction.



The results of this test failed to reject the null hypothesis. Interestingly, though, the results of this test did show slight significance that those educators who perceived their nutrition level to be higher than other respondents had slightly lower job satisfaction.

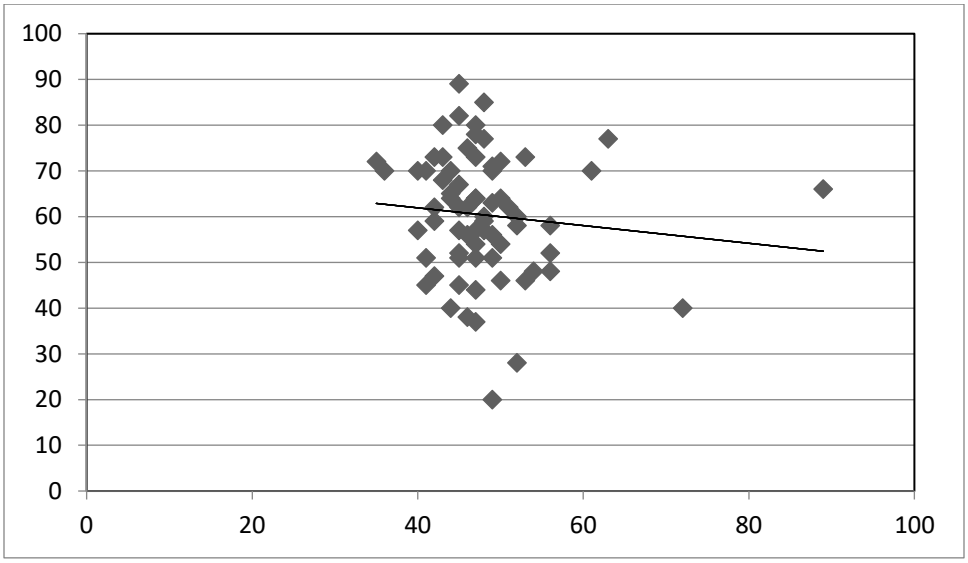
However, this was not significant enough to prove nor disprove the null hypothesis. The researcher decided to include an explanation of this phenomena because it was noteworthy that there was this result (Figure 9).

> *Null Hypothesis 3:* There is not a direct correlation between a secondary educator's perception of their combined nutrition and fitness adherence level and their overall job satisfaction.

This initial test was to identify a correlation between a secondary educator's overall job satisfaction and both their perceived fitness level and their perceived nutrition level. In order to identify this correlation, the researcher ran Pearson Product Moment Correlation (PPMC) coefficient and ran a *t*-Test. The analysis showed that the coefficient of correlation (r = -.11) was not significant; $t(67)$ = -.91, p = .368. The results of the test failed to reject the null hypothesis. The following figure shows the data for both perceived fitness and nutrition levels in correlation to secondary educators' overall job satisfaction.

Figure 10

Perceived Fitness and Nutrition Levels



Research Questions

Research Question 1: Are the perceived fitness levels of secondary educators directly correlated to their overall job satisfaction?

Given the results of the *t*-Test for this research question, the data do not indicate from this study that an educator's perceived level of fitness correlates or does not correlate to their overall job satisfaction. From the results of this research survey, there is no indication that that there is a correlation between an educator's perceived level of fitness and their overall job satisfaction. However, upon reviewing the survey questions correlating specifically to educators' perceptions of their physical fitness, the researcher concluded that some survey items like, "My physical health has restricted me in the past," along with, "Compared to people I know, my past physical health has been excellent," are subjective and may not provide enough objective context in order for a direct correlation between physical fitness and job satisfaction to be made. While this survey identified respondents' personal perceptions of their fitness and nutrition levels, the questions were subjective in nature. Therefore, the researcher suggests future research instruments include more objective item types in addition to these more subjective item types to be included.

Research Question 2: Are the perceived levels of nutrition of secondary educators directly correlated to their overall job satisfaction?

Reviewing the results of the *t*-Test used to determine a correlation between an educator's perception of their level of perceived nutrition level and their overall job satisfaction, the researcher concluded that there was no statistical significance to indicate that perceived nutrition level influenced overall job satisfaction either way. As stated in

the discussion of the second hypothesis correlating to this research question, there was a slight significance correlating those educators with a high perceived nutrition level to lower job satisfaction, this correlation was not great enough to make the connection. Similar to the researcher's review of the item types from the physical fitness component of the survey instrument, the researcher concluded that the item types posed were subjective in nature. The researcher determined that adding more objective question types might provide deeper insight into this research question in future studies.

Research Question 3: Are the combined perceived levels of nutrition and fitness of secondary educators directly correlated to their overall job satisfaction?

As in research questions one and two, research question three did not yield a correlation toward or away from overall job satisfaction. Therefore, there was no indication that a combination of perceived levels of nutrition and fitness levels have an impact on overall job satisfaction. After reviewing a combination of both the perceived fitness and nutrition level questions, the researcher made the conclusion for this question that adding more objective item types would provide a greater understanding of any potential correlation.

Conclusion

This quantitative study could not conclusively correlate the overall job satisfaction of secondary educators to their perceived fitness and nutrition levels. When the researcher ran the second test for correlation between secondary educators' overall job satisfaction and their perceived fitness levels, the test could not conclude whether or not an educator's perceived fitness level had an impact or did not have an impact on their overall job satisfaction. The same conclusion was drawn when the test for correlation

between secondary educators' overall job satisfaction and their perceived nutrition levels. However, in testing perceived nutrition levels and the impact on an educator's overall job satisfaction, the results were slightly significant, meaning there was a small correlation between an educator's higher level of perceived nutrition level and a low job satisfaction. In this case, though, the result was not significant enough to make a conclusive correlation. Therefore, in all three tests it was not conclusive whether or not perceived fitness and nutrition levels have an impact on secondary educators' overall job satisfaction.

Chapter Five: Discussion, Reflection, and Recommendations

Review of Study

The conception of the idea for this study initiated from the researcher's own observation of their educational peers as well as the researcher's own experiences with fitness and nutrition and its impact on job satisfaction. After much investigation into the research available for the overall wellbeing of educators as a whole, the researcher noticed a strong lack of research available about the impact of physiological fitness on educators' job satisfaction. In contrast, there is much data regarding the impact of programs that include mindfulness and meditation (Brooks, 2016; Brown et al., 2017; CREATE , 2022; *Cultivating Awareness and Resilience,* 2022; Hue & Lau, 2015; Jennings et al., 2017; Klusmann et al., 2008; Lucas, 2018; Richards, 2012; Waters et al., 2015) on educators' wellbeing. Through this investigation of existing studies though, the researcher identified that other public servant occupations have numerous studies (Bakhotma, 2012; Beyene et al., 2023; Camera, 2022; Currie et al., 2022; DeNysschen et al. 2018; Gnam et al., 2019; Guffey et al., 2015; Hebert & Hickey, 2022; Holt & Gershenson, 2022; Kim & Seo 2018; Ladendorf, 2021; Lindholm et al., 2016; MacMillan et al., 2017; McCarthy, 2019; Pace et al., 2022; Spilt et al., 2011; Straub et al., 2016; Zewude et al., 2023) conducted regarding the impact of fitness and nutrition on employee job satisfaction. The intent of this study was two-fold. The first intent was to identify whether or not there was a correlation between secondary educators' overall job satisfaction and their perceived fitness and nutrition levels. The second intent was to initiate future research on the impact of physiological wellness on educators' job satisfaction and, in turn, how they impact their students.

Summary and Discussion of Hypothesis

The first hypothesis was whether there was a direct correlation between a secondary educator's perception of their fitness level and their overall job satisfaction. The *t*-Test was run for this hypothesis and the results were not significant, indicating there was not a clear correlation in whether or not a secondary educator's overall job satisfaction was impacted by their perceived fitness level. Because of the results of this test, the answer to the first research question, "Are the perceived fitness levels of secondary educators directly correlated to their overall job satisfaction?" was, there was not enough evidence to suggest either way that perceived fitness levels correlate to secondary educators' overall job satisfaction.

The second hypothesis was whether there was a direct correlation between a secondary educator's overall job satisfaction and their perceived nutrition levels. As in the first hypothesis, a *t*-Test was run. Additionally, like the perceived fitness test, the result was not significant. Therefore, there was not an indication of whether the perceived nutrition level of a secondary educator has an impact on their overall job satisfaction. Interestingly, the fact that the *t*-value of this particular test was -1.87 which is .09 points away from significance may indicate that there is greater potential for some type of correlation between perception of the level of nutrition and overall job satisfaction. It is because of this unique value that the researcher believes this is an area of study that would benefit from further review. Additionally, because of this result, research question number two, "Are the perceived levels of nutrition of secondary educators directly correlated their overall job satisfaction?," did not have a clear answer to prove whether

perceived nutrition levels directly correlate to secondary educators' overall job satisfaction.

A third hypothesis was also tested to include a combination of secondary educators' perceptions of their fitness and nutrition levels and the impact on their overall job satisfaction. Like the perceived fitness test, a *t*-Test was run. Similar to the perceived fitness level hypothesis results, this test did not produce significant results. This result would indicate that further study could be conducted in order to identify a correlation between an educator's perceived overall fitness and nutrition levels and their overall job satisfaction. Like the previous two hypothesis, because the results indicated neither a positive nor negative correlation, the third research question, "Are the combined perceived levels of nutrition and fitness of secondary educators directly correlated to their overall job satisfaction?," could not be answered either way. It is because of these results that the researcher believes further study, particularly with live trials, would benefit this research in the future.

Implications for Future Practice

The long history of public education in the United States began with the singular idea of the Founding Fathers' and the concept that they:

> believed strongly that preserving democracy would require an educated population that could understand political and social issues and would participate in civic life, vote wisely, protect their rights and freedoms, and resist tyrants and demagogues. (Center on Educational Policy, 2020, p. 1)

However, somewhere along the way, these good intentions became mired in the bureaucracy of a growing country, and the ever-growing need to measure achievement,

place policies and procedures in place in order to ensure special-interest groups were represented where tax-payer funding was concerned (Franklin, 2005; Katz, 1971; Morris, 1975; Paul, 2022; Strickland, 1985; U.S. Department of Education, 2018). With various laws to govern the distribution of education funding, assessment practices, and inclusion of subgroups, rising demands on public educators became a common theme. The effects of the implications of these laws on the stress levels of educators brought the profession to a point of burn-out. Adding in unforeseen natural events like COVID-19, the demand upon educators grew to an even more elevated level, highlighting the impact that these stressors had on the overall well-being of educators (Berryhill et al., 2009 Blase, 1986; Gonzalez et al., 2017; Hebert & Hickey, 2022; Holt & Gershenson, 2022; Jones et al., 1999; Kõlves et al., 2017; Kondrasuk et al., 2005; Kyriacou, 2001 McCarthy, 2019; Pace et al., 2022).

In order to address these stressors, education professionals applied numerous programs and studies over the years to mitigate the impact of these stressors on educators. Still, the prevalence of educator stress continues (Berryhill et al., 2009 Blase, 1986; Gonzalez et al., 2017; Hebert & Hickey, 2022; Holt & Gershenson, 2022; Jones et al., 1999; Kõlves et al., 2017; Kondrasuk et al., 2005; Kyriacou, 2001 McCarthy, 2019; Pace et al., 2022). Clearly, from the investigation into other public service careers like that of police officers, clergy, and fire departments, there are a number of programs and studies indicating not only the benefits of the application of mindfulness and meditation techniques, but also significant positive impact of physiological protocols.

Therefore, the researcher firmly believes that this is an overlooked area of study for educators. This particular study was the first of its kind at the time of this writing to

investigate any correlation between educators' overall job satisfaction and their physiological health. It stands to reason that if other public service occupations can benefit from physiological supports, then educators facing similar stressors would as well. If the intent of education in the United States is to educate "a population that could understand political and social issues and would participate in civic life, vote wisely, protect their rights and freedoms, and resist tyrants and demagogues" (Center on Educational Policy, 2020, p. 1), then preparing those who are tasked to guide this population needs to be equipped, both physically and mentally, to handle the task.

Applying similar physiological modalities like those employed for Guffey et al. (2015), DeNysschen et al. (2018), as well as the MacMillan et al. (2017) studies on the impact of fitness and nutrition protocols on police officers would be a positive first step in identifying the best possible physiological approach for educators. In these studies, very targeted physiological approaches were used to determine which would be best in improving the overall lives of police officers (Guffey et al., 2015; DeNysschen et al., 2018; MacMillan et al., 2017). In particular, the DyNusschen et al. (2018) study included a very detailed 14-week intervention fitness and nutrition study of criminal justice students, determining that this protocol had a positive impact on their lifestyle. Using similar protocols for educators, public servants like these police officers, would only serve to enhance not only the job performance and satisfaction of these individuals, but also their overall wellbeing.

Currently, multitudes of protocols for educators abound in the areas of mental health (Carabotti et al., 2015; Curry et al., 2022; Dennett, 2021; Naidoo, 2019; Pal et al., 2022; Raju, 2017; Santos et al., 2018; Zinöcher & Lindseth, 2018) in response to

educator stress. It evades the researcher as to the reason why the field of education has placed all stress-mitigating efforts towards concepts like mindfulness (CREATE, 2022) and self-reflection (Lucas, 2018) while simultaneously ignoring research on the gut-brain axis (Carabotti et al., 2015; Curry et al., 2022; Dennett, 2021; Naidoo, 2019; Pal et al., 2022; Raju, 2017; Santos et al., 2018; Zinöcher & Lindseth, 2018) that clearly indicates a direct benefit to overall mental and physical wellbeing. This is particularly glaring since other research within the educational field conducted directly after COVID-19 showed an increase in emotional eating (Beyenne et al., 2022) and the food choices were more non-nutritional value junk foods rather than high quality foods (Pal et al., 2022). The researcher believes if more research and application of research on the physiological modalities like fitness and nutrition were applied to the field of education, the already existing research and practices on stress-mitigating modalities could only serve to benefit all educators.

Implications for Future Research

This study was focused solely on public secondary educators in the state of Missouri within the United States of America. However, the implications for all educators, public or private, secondary, elementary, or post-secondary are universal. Other studies regarding the physiological implications on all educators would help to propel the academic conversation and bring more attention and potential solution to the stress and burnout crises within this profession.

Additionally, the researcher believes that other types of studies would benefit this discussion as well. For instance, actual physiological research on educators' biomarkers like blood tests, heart rate, respiratory, and sleep monitoring among many others would

help to guide future practices for how educators are able to care for themselves. These types of studies would also provide insight into how educators physiologically respond to certain circumstances throughout their daily interactions with students and colleagues. This information could potentially inform future health care practices for educators, giving them more individualized insight into their own health so that they can manage their stressors more effectively. In turn, the practice of caring for themselves would naturally be observed by their students, potentially spurning a movement for self-motivated care on their behalf.

Educators have a lasting impact on the overall well-being and success of their students. "…students assigned to high value-added teachers are more successful in many dimensions. They are more likely to attend college, earn higher salaries, live in better neighborhoods, and save more for retirement. They are also less likely to have children as teenagers" (Chetty et al., 2014, p. 2633). As educators have this obvious impact on students' lives, more emphasis on all areas of well-being, physiologically in particular, could be an area of focus for future educator development.

Given the increasing research being conducted at the time of this study on the gut-brain axis (Carabotti et al., 2015; Curry et al., 2022; Dennett, 2021; Naidoo, 2019; Pal et al., 2022; Raju, 2017; Santos et al., 2018; Zinöcher & Lindseth, 2018), this would be a topic of study that would yield more investigation into the impact of this phenomena on educators in general. Since Pal et al. (2022) found that consumption of ultra-processed foods which comprised a significant portion of educators' diets during the pandemic cause an increase in depression and anxiety (Bakhotma, 2012), directly studying the impact of these food types on educators and their wellbeing would be a significant

contribution to the discussion. Since the research indicates that ultra-processed and high-processed foods contribute to disruption in the intestinal microbiome (Arshad et al., 2023) and, therefore, negatively impacts an individual's mental homeostasis (Pal et al., 2022), further study on this correlation relating to educators would be beneficial. Furthermore, from this potential research, prescribed nutritional protocols could theoretically be developed, possibly similar to those in other studies (Guffey et al. , 2015; DeNysschen et al., 2018; MacMillan et al., 2017).

The researcher also notes that while the research on the mental wellbeing of educators dominated the educator stress study efforts during the time of this writing (Brooks, 2016; Davidson & Lutz, 2008; Hue & Lau, 2015; Klusmann et al., 2008; Jennings et al., 2017; Richards, 2012; Waters et al., 2015) along with books (Lucas, 2018) as well as non-profit organizations (CREATE, 2022) in what is a well-intentioned effort to subvert the stress and burnout crisis in education, future efforts, economies, and mindshare could be better utilized to include the physiological dimension of stress-mitigation for educators. The state of educator stress and wellbeing research fell far behind that of other public service efforts at the time of this writing (DeNysschen et al., 2018; Guffey et al., 2015; MacMillan et al., 2017).

Another observation made during this study was the state of educator certification requirements for secondary educators in the State of Missouri. At the time of this writing, prospective educators were required to complete courses related to the instruction of students, curriculum design, child psychology, and if specialized, subject matter courses, amongst a number of other courses as denoted in Figure 11 (*OED EdPrep Blank Matrix Middle School Education Grades 5-9*, 2023).

Figure 11

OED EdPrep Blank Matrix Middle School Education Grades 5-9

MIDDLE SCHOOL EDUCATION, GRADES 5-9

EDUCATOR PREPARATION PROGRAM NAME		EDUCATOR PREPARATION PROGRAM CODE	
A. Professional Requirements (Minimum of 45 semester hours)			
1. Content Planning and Delivery			
	Course Number	**Course Title**	**Semester Hours**
a. Curriculum and Instructional Planning			
b. Instructional Strategies and Techniques in Content Area Specialty			
c. Assessment, Student Data, and Data-Based Decision-Making			
d. Strategies for Content Literacy			
e. Critical Thinking and Problem Solving			
f. English Language Learning			
2. Individual Student Needs			
	Course Number	**Course Title**	**Semester Hours**
a. Psychological Development of the Child and Adolescent			
b. Psychology/Education of the Exceptional Child			
c. Differentiated Learning			
d. Classroom Management			
e. Cultural Diversity			
f. Educational Psychology			
3. Schools and the Teaching Profession			
	Course Number	**Course Title**	**Semester Hours**
a. Consultation and Collaboration			
b. Legal/Ethical Aspects of Teaching			
c. Middle School Philosophy and Organization			
4. Middle School Literacy (Minimum of 6 semester hours)			
	Course Number	**Course Title**	**Semester Hours**
a. Reading and Writing in the Content Area			
b. Instructional Interventions for Students with Reading Deficits			
5. Content Knowledge for Teaching (Minimum of 24 semester hours with appropriate distribution in one of the following certificate subject areas)			
	Course Number	**Course Title**	**Semester Hours**
a. Agricultural Education			
b. Business Education			
c. Technology and Engineering			
d. Language Arts			
e. Mathematics			
f. Science			
g. Social Science			
h. Speech/Theatre			
Professional Requirements - Total Semester Hours			
B. Field and Clinical Experiences (Minimum of 10 semester hours)			
	Course Number	**Course Title**	**Semester Hours**
1. Early Field Experiences (Minimum of 1 semester hour with a minimum of 30 clock hours)			
2. Mid-Level Field Experiences (Minimum of 1 semester hour with a minimum of 45 clock hours)			
3. Culminating Clinical Experiences (Minimum of 8 semester hours with a minimum of 12 weeks in 1 placement)			
Field and Clinical Experiences - Total Semester Hours			

Along with these higher education requirements, at the time of this writing, secondary educators in the State of Missouri were required to pass the Missouri Content Assessment (MoCA) initial teacher certification. According to the Missouri Department of Elementary and Secondary Educations (MODESE) website:

> On June 14, 2022, the State Board of Education voted to authorize DESE grant certificates to those test takers scoring within 1 Standard Error of Measurement (SEM) below the current qualifying score on Missouri Content Assessments (MoCA) in all initial teacher certification areas except Elementary Education. (*Teacher MoCA Scoring Changes*, 2023).

While courses regarding child psychology, classroom management, content knowledge, curriculum, and a test assessing the candidate's proficiency in these areas is necessary to determine whether or not an individual has the capacity to be an effective educator, there is an obvious lack of teacher preparation regarding preparing the individual to handle the stressors of the profession. Therefore, the researcher believes that teacher preparation programs, with the support of the state education certification guidelines, should provide programming for future educators to deal with potential stressors of the field. Courses or application regarding the importance and application of sound nutrition and movement practices to combat stress in conjunction with instructional knowledge would provide for a more well-rounded and resilient workforce.

Limitations

Due to the fact that this particular study took place through a survey sent via email, the researcher was not able to glean any observable data from their participants. While this survey data did provide the researcher with a baseline for future research, it was clear that this was also a limiting factor in how much information the researcher could extrapolate. The questions posed did use Likert scales to determine how much a respondent agreed or disagreed with a statement, but the questions were limited in the respondent's ability to explain their response further.

Additionally, while the instruments were valid and previously tested, the researcher found that there were other types of questions that would have provided further insight into how the participants' choices may impact their job satisfaction. Regarding the questions pertaining to job satisfaction, the Yale survey used did not directly address educator jobs, but rather job satisfaction in general. The researcher

believes that including questions specific to the educational field would be an area of future research to consider when asking respondents about their job satisfaction.

Upon reviewing the responses to the job satisfaction and perceived nutrition and fitness survey, the researcher pondered the format in which the questions were posed and considered that a more uniform questioning approach may have a different impact on responses. For instance, in the job satisfaction portion of the survey, the quantitative questions were posed in two different formats, potentially confusing respondents in their surveys.

Figure 12

This survey question shows how one question type of the job satisfaction survey was addressed to respondents.

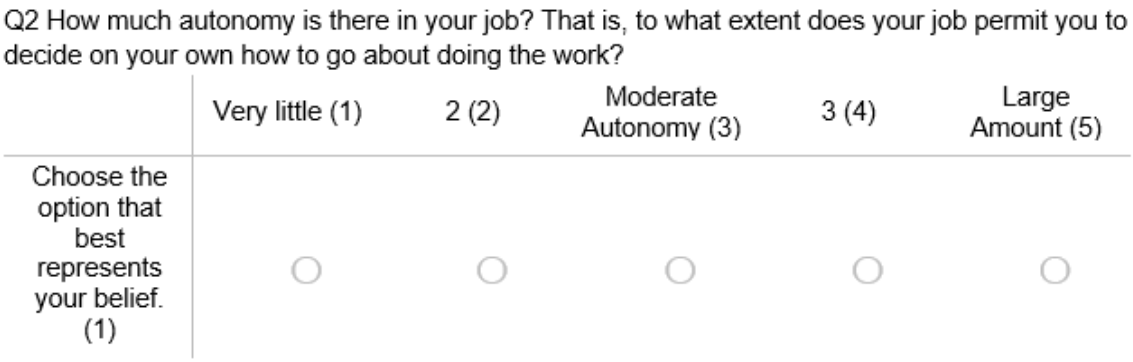


Figure 13 shows the other format questions in the job satisfaction survey were presented to respondents.

Figure 13

	Very Accurate (1)	Mostly Accurate (2)	Slightly Accurate (3)	Uncertain (4)	Slightly Inaccurate (5)	Mostly Inaccurate (6)	Very Inaccurate (7)
The job requires me to use a number of complex or high-level skills. (1)	○	○	○	○	○	○	○
The job requires a lot of cooperative work with other people. (2)	○	○	○	○	○	○	○
Just doing the work required by the job provides many chances for me to figure out how well I am doing. (3)	○	○	○	○	○	○	○
This job denies me any chance to use my personal initiative or judgment in carrying out the work. (4)	○	○	○	○	○	○	○

Looking at Figure 12, there is one question with a horizontal Likert scale directly below. Contrasting, Figure 13 shows the other way in which questions were asked. This table has statements to the left of the Likert scale which has descriptions for all statements labeled at the top. The researcher sees that this could have the potential to make responding to these questions and statements challenging since the method changed. In future studies, the researcher believes a consistent method questioning when using a Likert scale may have an impact, however slight, on the outcome of the survey. Additionally, the survey includes questions specifically about participants' ingestion of processed foods. The instrument was distributed prior to some of the research included in this writing pertaining to how high-processed and ultra-processed foods (Arshad et al., 2023; Currie et al., 2022; Radavelli-Bagatini, 2022) affect the gut-brain axis (Figure 3). The researcher believes that including questions furthering the discussion regarding processed foods would provide an even deeper understanding of how these types of foods impact educators. This is particularly interesting because the research revealed that educators select processed foods especially when they emotionally eat (Dakanalis et al., 2023; Shehata & Abdeldaim, 2022).

Moreover, since this was a quantitative study and the responses limit a participant's ability to extrapolate, a qualitative study would provide more detailed information on participants' perspectives. For instance, because the survey included responses solely from secondary educators throughout the state of Missouri, the perspective of these educators would be from a midwestern, predominantly rural teaching environment. If, however, a study included other geographic regions, perhaps from the state of New York, the results may produce a differing perspective as the demographics

and geographic influences of the state of New York contrast that of Missouri. The state of New York included a population of 2,201,249 residents as of the year 2020 (census.gov, 2020). Juxtaposed against Missouri's population of 6,154,913 residents in the year 2020, New York's population as of 2020 was 70% greater (census.gov, 2020).

The stark population density differences are only one of the elements that may influence the responses from these regions. According to Colin Woodard, a sociologist and author of *American Nations: A History of the Eleven Rival Regional Cultures of North America,* residents of New York fall in to two distinct categories (Abadi, 2018, paras. 7 & 10). These categories include Yankeedom and New Netherland.

> Yankeedom comprises New England, upstate New York, and much of the industrial Midwest, from northern Pennsylvania to Minnesota…Residents in these states, founded by Puritans, are more comfortable with government regulation than people in other regions. They also value education, citizen participation in government, and the assimilation of outsiders. (Abadi, 2018, paras. 9 & 10).

New Netherland includes both greater New York City as well as northern New Jersey and part of the state of Connecticut. According to Woodard, New Netherlands has "a profound tolerance for ethnic and religious diversity and an unflinching commitment to the freedom of inquiry and conscience" (Abadi, 2018, para. 11). Moreover, he stated that New Netherland is "a magnet for immigrants, and a refuge for those persecuted by other regional cultures" (Abadi, 2018, para. 12).

The New York regions' residents contrasted against those of Missouri which, according to Woodard's sociological definitions, fall into two different categories (Abadi,

2018). The first of these regions is The Midlands. Defined as being ethnically diverse and politically moderate with a rejection of top-down government, this region includes:

> Quaker territory in Pennsylvania, Delaware through populated Midwestern areas in Ohio, Indiana, and Illinois down through the Plains states of Iowa, Nebraska,, and Kansas, and stretching out to include parts of Oklahoma, the Texas Panhandle, and New Mexico. It includes some of what we consider the American Heartland and Middle America. (Abadi, 2018, para. 14)

The second region Missouri falls under, according to Woodard, is Greater Appalachia. This is the region, Woodard stated, includes "…the area from southwestern Pennsylvania and West Virginia, through the lower Midwest, down through Kentucky, Tennessee, Arkansas, and into Oklahoma and Texas" (Abadi, 2018, para. 18). Woodard further described the culture of this area as "characterized by a warrior ethic and a commitment to personal sovereignty and individual liberty" (Abadi, 2018, para. 19). He continued stating that people from Greater Appalachia are "…intensely suspicious of lowland aristocrats and Yankee social engineers alike" (Abadi, 2018, para. 19). Given these differing perspectives on life in general, future research might include surveying a variety of regions throughout the United States, or even globally in order to ascertain a more robust response.

The researcher believes that these social differences based upon geography would yield more diverse responses from participants. Along with this element, including qualitative questions about a participant's job satisfaction as well as perceptions about their fitness and nutrition levels would give researchers more breadth to understanding correlations. For instance, one question posed in this particular survey asks respondents

to indicate whether they “very strongly agree” or “very strongly disagree” on a scale from one to six that their “health has restricted them in the past.” While the response to this Likert scale quantitative question gave the researcher a baseline of information to work from, it was limited in its ability to understand more fully the participant’s intent in their response. Had the respondent had the opportunity to expand further on their reply, the researcher could then sort the qualitative responses into thematic categories, providing for a different understanding of participants’ responses. Other question types that would provide further information for research are asking about respondent’s habits in seeking preventative care and accessing health screenings. Adding these qualitative questions in future research would give further depth to the qualitative information provided, and give future research more information to help provide future solutions in educator wellbeing.

In addition to qualitative questioning regarding participants’ job satisfaction as well as perceived fitness and nutrition levels, the researcher believes that conducting biometric tests on participants would add an empirical component to the research. Additionally, including descriptive statistics like respondent’s height, weight, gender, and body fat percentage would provide more data to provide a broader perspective on the research outcomes. This level of testing and reporting would help to contribute to the body of evidence in the field of wellbeing for educators, but also lend to the growing research into the impact of nutrition and fitness as a whole. Instead of limiting education wellbeing research to surveys, adding the biometric component would provide specific, real-time feedback on physical components like the body’s response to stress, nutrition manipulation, and physical movement. Including biometric research could provide educational research more information on targeted wellbeing prescription.

The researcher believes that conducting a biometric study on educators combining components of studies discussed in the literature review would yield even more comprehensive information regarding educators' physiological wellbeing and its impact on their job satisfaction. For instance, a study combining a protocol like the Currie et al. (2022) study on the effects of flavonoids on warfighters, with a biometric test like a blood draw would provide empirical evidence of the impact of the flavonoids on the body. Using this information, researchers could monitor educators' intake of flavonoid containing foods, and survey participants about their job satisfaction during the study period.

Another potential study could be to monitor two groups of teachers, one consuming a regular Western diet containing ultra and high-processed foods, and the other consuming whole foods like high quality proteins, carbohydrates, and fats. Combining this protocol with qualitative surveys concerning their stress levels along with biomarker tests would provide a full picture of educators' physiological and mental response to diet. This research could provide more possibilities for solutions to teacher stress and burnout.

Conclusion

While this study did not indicate one way or another that perceived fitness and nutrition levels have an impact on secondary educators' overall job satisfaction, this was the first step in introducing physiological practice discussion in the mitigation of educator stress and burnout. Going forward, the researcher believes that if other studies in this arena are conducted, then the crisis in educators' wellbeing would have another avenue to explore for solutions. Clearly, physiological applications provide benefit for other public

servants. Similar types of practices could have potential benefit to the public service of education.

While there are a multitude of issues, laws, and historical events that have added to educator stressors since the inception of public education in the United States, it is critical to go back to the original reason the institution exists. In order to effectively develop the Nation's future generations to become citizens capable of caring for themselves, others, the country, and the global community, they require exemplars to model. Educators who are capable of managing their physiological and mental wellbeing along with demonstrating instructional prowess and content knowledge will be necessary to facilitate this noble task. To do so requires individuals at the highest level of education to steer the development of future educators to have an understanding and practice of the need for physiological wellbeing. These protocols might include education program classes in basic nutrition and its impact on mental states along with courses on basic fitness and its application for educators. Including these physiological components to required course structures for future educators would supply them with the knowledge of how to respond to potential daily stressors, in addition to unforeseen global disasters like the COVID-19 Pandemic. Fusing these physiological courses with mental wellbeing courses in concepts like mindfulness and meditation would be an even more robust way to provide future educators personal skills to handle the ever-changing landscape of their career field. St. Augustine, educational philosopher, stated that the teacher is the vessel to inspire and ignite thought and the quest for truth for students (Pusey, 2005). If this is so, ensuring that the vessel is properly cared for, both mentally and physically, is paramount to student success.

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Appendix A

Fitness and Nutrition/Secondary Educators

Q1. Survey Research Information Sheet You are being asked to participate in a survey conducted by Jessica Arico and Dr. Roger Nasser at Lindenwood University. We are doing this study to research a link between perceived fitness and nutrition levels and the job satisfaction of secondary educators. This is a multiple choice survey and it will take about 7 minutes to complete. Your participation is voluntary. You may choose not to participate or withdraw at any time by simply not completing the survey or closing the browser window. There are no risks from participating in this project. We will not collect any information that may identify you. There are no direct benefits for you participating in this study.

WHO CAN I CONTACT WITH QUESTIONS? If you have concerns or complaints about this project, please use the following contact information: Jessica Arico jae527@lindenwood.edu or Dr. Roger Nasser rnasser@lindenwood.edu. If you have questions about your rights as a participant or concerns about the project and wish to talk to someone outside the research team, you can contact Michael Leary (Director - Institutional Review Board) at 636-949-4730 or mleary@lindenwood.edu.

By clicking the link below, I confirm that I have read this form and decided that I will participate in the project described above. I understand the purpose of the study, what I will be required to do, and the risks involved. I understand that I can discontinue participation at any time by closing the survey browser. My consent also indicates that I am at least 18 years of age. You can withdraw from this study at any time by simply

closing the browser window. Please feel free to print a copy of this information sheet. Do you wish to proceed?

- ○ Yes (1)
- ○ No (4)

Q2. How much autonomy is there in your job? That is, to what extent does your job permit you to decide on your own how to go about doing the work?

	Very little (1)	2 (2)	Moderate Autonomy (3)	3 (4)	Large Amount (5)
Choose the option that best represents your belief. (1)	○	○	○	○	○

Q3. To what extent does your job involve doing a “whole” and identifiable piece of work? That is, is the job a complete piece of work that has an obvious beginning and end?

Or is it only a small part of the overall piece of work, which is finished by other people or by automatic machines?

	Small Piece of Larger Project (1)	2 (2)	Moderate (3)	4 (4)	"Whole" and Identifiable (5)

Choose the option that best represents your belief. (1)	○	○	○	○	○

Q4. How much variety is there in your job? That is, to what extent does the job require you to do many different things at work, using a variety of your skills and talents

	None at all (1)	A little (2)	A moderate amount (3)	A lot (4)	A great deal (5)
Click to write Statement 1 (1)	○	○	○	○	○

Q5. In general, how significant or important is your job? That is, are the results of your work likely to significantly affect the lives or well-being of other people?

	Dislike a great deal (1)	Dislike somewhat (2)	Neither like nor dislike (3)	Like somewhat (4)	Like a great deal (5)
Click to write Statement 1 (1)	○	○	○	○	○

Q6. To what extent do managers or co-workers let you know how well you are doing on your job?

	Not well at all (1)	Slightly well (2)	Moderately well (3)	Very well (4)	Extremely well (5)
Click to write Statement 1 (1)	○	○	○	○	○

Q7. To what extent does doing the job itself provide you with information about your work performance? That is, does the actual work itself provide clues about well you are doing, aside from any "feedback" co-workers or supervisors may provide?

	Low Amount (1)	2 (2)	Moderate Amount (3)	4 (4)	High Amount (5)
Click to write Statement 1 (1)	○	○	○	○	○

Q8. How accurate is the statement in describing your job? Please answer for each individual statement.	Very Accurate (1)	Mostly Accurate (2)	Slightly Accurate (3)	Uncertain (4)	Slightly Inaccurate (5)	Mostly Inaccurate (6)	Very Inaccurate (7)
The job requires me to use a number of complex or high-level skills. (1)	○	○	○	○	○	○	○

The job requires a lot of cooperative work with other people. (2)	○	○	○	○	○	○	○
Just doing the work required by the job provides many chances for me to figure out how well I am doing. (3)	○	○	○	○	○	○	○

This job denies me any chance to use my personal initiative or judgment in carrying out the work. (4)	○	○	○	○	○	○	○

Supervisors often let me know how well they think I am performing the job. (5)	○	○	○	○	○	○	○
The job provides me the chance to completely finish the pieces of work I begin. (6)	○	○	○	○	○	○	○

Generally speaking, I am very satisfied with this job. (7)	○	○	○	○	○	○	○
Generally speaking, I am very satisfied with this job. (8)	○	○	○	○	○	○	○
The work I do on this job is very meaningful to me. (9)	○	○	○	○	○	○	○

My own feelings generally are not affected much one way or the other by how well I do on this job. (10)	○	○	○	○	○	○	○

End of Block: Default Question Block

Start of Block: In the following questions about your beliefs regarding your physiological

Q9. In the following questions about your beliefs regarding your physiological health, please choose how much you agree with each statement. Please answer for each individual statement.	Very strongly disagree 1 (1)	2 (2)	3 (3)	4 (4)	5 (5)	Very strongly agree 6 (6)

My physical health has restricted me in the past. (1)	○	○	○	○	○	○
My body seems to resist physical illness very well. (2)	○	○	○	○	○	○
My physical health is excellent. (3)	○	○	○	○	○	○
Compared to people I know, my past physical health has been excellent. (4)	○	○	○	○	○	○

I always expect to be physically healthy. (5)	○	○	○	○	○	○
I expect my physical health to get worse. (6)	○	○	○	○	○	○
I maintain a rigorous nutrition program. (7)	○	○	○	○	○	○
I maintain a rigorous exercise program. (8)	○	○	○	○	○	○
I usually eat fairly well. (9)	○	○	○	○	○	○

I consider myself to be an elite athlete. (10)	○	○	○	○	○	○
I exercise every day in some capacity. (11)	○	○	○	○	○	○
I exercise a few times a week. (12)	○	○	○	○	○	○
I exercise once a week or less. (13)	○	○	○	○	○	○
I typically do not regularly exercise. (14)	○	○	○	○	○	○

I eat processed foods nearly every day. (15)	○	○	○	○	○	○
I eat no more than one processed food per week. (16)	○	○	○	○	○	○
I never eat processed foods. (17)	○	○	○	○	○	○

End of Block: In the following questions about your beliefs regarding your physiological

Vitae

Jessica Arico

Universities

1992-1996: Bachelor of Journalism, emphasis in advertising from the Missouri School of Journalism from the University of Missouri-Columbia; 2004-2007: Master of Arts in Teaching, emphasis in secondary English education, Lindenwood University; 2015-2017: Education Specialist in Education Administration from Lindenwood University; 2016-present: pursuing Doctor of Education Administration (expected graduation date in 2023) from Lindenwood University

Teaching and Curriculum Leadership Employment History

Curriculum Coordinator-K-12 English Language Arts and Social Studies: 2023-present

Curriculum and Instruction Specialist-Secondary Level: 2016-2023 for the

City of St. Charles School District, St. Charles, MO

Secondary Communication Arts Instructor: 2005-2016 at St. Charles High School, St. Charles, MO

Aspiring Administrator Intern/Principal Substitute: 2013-2016 St. Charles High School, St. Charles, MO

Adjunct Instructor-Methods of English: 2008-2017 for Lindenwood University, St. Charles, MO