

EARLY INTERVENTION: A HOLISTIC MODEL OF MEDICAL STUDENT ACADEMIC AND PERSONAL WELLNESS

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ABSTRACT

Medical students experience high levels of academic stress and burnout during the transition into medical school, underscoring the need for structured systems that support both academic performance and holistic wellness. The purpose of this inquiry was to examine the relationship between early identification and intervention processes and first-semester medical student academic outcomes within a newly implemented early alert framework. Guided by Hettler's Wellness Theory, this study explored how formalized monitoring structures influence both performance and well-being. Using a mixed-methods design, data were collected from first-year medical students (N = 97) during the first semester of training. Academic performance data were categorized into pass, at-risk, and fail designations through weekly monitoring within the Navigate360+ system. Students also completed the Academic Emotions Questionnaire (AEQ), the Maslach Burnout Inventory–Student Survey (MBI-SS), a structured wellness plan assessment, and the 16Personalities inventory. Findings indicated a positive relationship between structured early intervention and academic performance. While students reported increased stress and fatigue as coursework progressed, overall burnout levels remained moderate. The

implementation of consistent monitoring and advisor follow-up created predictable mechanisms for identifying and addressing academic challenges. These findings support integrating systematic early intervention models with intentional wellness frameworks to promote academic achievement and holistic well-being in medical education.

Keywords: early intervention, medical student wellness, academic performance, burnout, institutional theory, wellness framework

EARLY INTERVENTION: A HOLISTIC MODEL OF MEDICAL STUDENT ACADEMIC
AND PERSONAL WELLNESS

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DEDICATION

This dissertation is dedicated to my family—my husband, Kenney, and our children, Grayson and Allie. Your unwavering love, encouragement, and patience have been my greatest strength. Kenney, thank you for believing in me even when I doubted myself. Grayson and Allie, you are my constant inspiration and the reason I strive to be better every day. This work is as much yours as it is mine.

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CHAPTER 1: INTRODUCTION

As graduate medical education and healthcare professions have shifted towards the importance of well-being among students and professionals, supporting students' wellness while participating in medical education has become increasingly important (Bland et al., 2000). A holistic model of medical student academic and personal wellness encompasses the Focus of Practice (FoP) - *supporting student academic wellness while supporting student social and emotional well-being* - delivered through wellness models and early interventions.

For the past 131 years, the osteopathic medical profession has provided full-spectrum care for millions of patients seeking a unique approach to managing their health—one that considers the whole person: body, mind, and spirit. Founded in the late 1800s by Andrew Taylor Still, DO, MD, the profession is based on the philosophy that harmony between the body's structure and function is essential to achieving optimal health (AOA, 2024). The grounding tenants of mind, body, and spirit of osteopathic medicine undergird the focus of the practice of total wellness. Students can perform at their peak by utilizing the medical science of osteopathy and the behavioral science of wellness. The two governing bodies of professional osteopathic medical education are the American Association of Colleges of Osteopathic Medicine (AACOM) and the American Osteopathic Association (AOA). Founded in 1898, the American Association of Colleges of Osteopathic Medicine (AACOM) is the leading voice for educating and training physicians who practice osteopathic medicine. AACOM supports colleges of osteopathic medicine in their efforts to attract and train future physicians who are fueled by a desire to make a difference, treat the whole person, and build a future of health and wellness for all people (AACOM, 2024). What began as a small profession with a distinctive philosophy has become a critical component of the nation's health care system. In 2023, the total number of

osteopathic physicians in the U.S. reached almost 149,000—a 30% increase over the past five years. Over the past three decades, the number of DOs and osteopathic medical students has more than quadrupled, reaching 186,871 in 2023. Currently representing more than 11% of all physicians and 25% of all medical students in the U.S., the osteopathic medical profession is positioned to continue growing exponentially (AOA, 2024).

The context for this inquiry is the Orlando College of Osteopathic Medicine (OCOM) in Winter Garden, Florida. OCOM enrolled its first cohort of students in August 2024. OCOM's vision and mission align with the philosophies of the AOA and AACOM. OCOM focuses on training caring and competent physicians focused on service and wellness. OCOM is a brand-new school and, as such, the groundwork is being laid for a thriving culture that supports and implements the wellness initiatives surrounding the FoP. The initiatives are fundamental to creating the school environment as they establish the institution's best practices and guiding principles.

The goal and implications of this inquiry are to shift the student culture at OCOM. Once the students at OCOM become practicing physicians, the hope is that the students will bring healthy habits into medical practice. The current culture of medicine often rewards physician's attitudes and behaviors that detract from wellness (Smith, 2023). As the culture of medicine changes, physicians should become more aware of patients' needs and focus on patient-centered care because physicians are ultimately more aware of their own needs. Cultivating a culture of care at the medical school level corresponds with national awareness and initiatives in the healthcare profession, with more health systems investing in wellness infrastructures (McKenna, 2024). A paramount indicator of higher quality care complimenting the idea of changing the

scope of healthcare is physicians not treating a symptom that may be just a reaction/indicator of a much deeper-rooted issue, but physicians treating a total person.

This inquiry focuses on creating a Holistic Medical Student Academic and Personal Wellness Model. Implementing a model of student wellness and utilizing an early alert system will support medical students' academic and social-emotional well-being. This chapter will cover the FoP background, the context of the inquiry, and the inquiry guiding questions that frame the inquiry's approach.

Background of the Focus of Practice

MedScape, a medical professional platform, has conducted an annual survey since 2018 regarding physician burnout and depression. In McKenna's 2024 study, 49% of practicing physicians note feeling burned out, and 20% note being depressed. Looking at the collective data that ranges from 2018 to 2024, 72% of physicians attributed their feelings of burnout to their feelings of depression. The rate of clinical depression at 27% of physicians reported rose while the percentage of colloquial depression remained the same at 63%. Depression was defined as clinical depression, and colloquial depression was defined as feeling sad or blue (McKenna, 2024). "Burnout characterized by physical and mental exhaustion, cynicism, and a lack of feelings of professional efficacy" (Ruiz et al., 2024, p. 143). The studies support that the amount of practicing physicians facing staggering odds regarding personal mental health, continues to grow, which can translate to poor professional performance.

Physician mental wellness concerns are traceable to medical school. "Burnout in medical students is a complex construct that is thought to be fueled by negative life events, personal mental health conditions as well as climate factors (law, support, academic pressure)" (Ruiz et al., 2024, p. 143). For first-year medical students to succeed academically, they are expected to

adapt to the curriculum delivery methods they will experience in medical school. Medical students must often be equipped to manage time effectively and utilize adequate resources that lead to success in medical school. Unfortunately, medical students frequently do not use resources readily available and often find themselves suffering academically and mentally. As a result of not utilizing resources appropriately, medical students can suffer feelings of burnout and depression, which causes a cascade of adverse effects on a student's wellness. The rates of burnout and depression are confirmed in research conducted by Harolds (2021) and by Song (2020). They found that at least 50% of students suffer from burnout, suicide ideation, and depression during their medical school education. The research indicated that medical school burnout could have significant future public health consequences if a student detaches emotionally while in medical school; the quality of patient care is impacted when the students become physicians (Harolds, 2021; Song, 2020). With daunting statistics and potential future implications, evaluating the medical school environment is a professional necessity.

To reform the medical school environment, medical school education and the medical school experience form the catalysts for change in the medical profession. The research of this inquiry will critically analyze the early intervention strategies and their effectiveness in increasing student performance. Through the data provided through the learning management system, key stakeholders will track indicators and identify markers of needed intervention for individual students. The medical school curriculum will guide the learning environment and the institution's culture through curricular reforms such as flipped classrooms, case-based learning, and technology tools for learning and exploration.

A critical component of this inquiry will include the wellness culture being implemented at the institution. Wellness is integral to successful medical school students, and wellness

programming is integral to a successful medical school experience. Framing the inquiry using the theoretical approach of Hettler's Model of Wellness, the investigation will cross-analyze the impacts of a student's wellness and ability to perform academically in medical school. Evaluative measures such as Burnout Inventories and data-tracking the utilization of resources such as learning specialists and mental health counselors will provide data that adequately measure the strategies and allocation of resources.

Context of Study

The history of osteopathic medical education, particularly in Florida, played a significant role in establishing OCOM. The Florida Osteopathic Association (FOMA) is the state association for osteopathic physicians in Florida. FOMA's vision is to be the leading state medical society advocating for public health, education, and Florida physicians through the distinctiveness of osteopathic principles and practices across all medical and surgical subspecialties (FOMA, n.d.). FOMA works collaboratively with the schools of osteopathic medicine by advocating and promoting osteopathic medicine in Florida.

The location of this inquiry took place at Orlando College of Osteopathic Medicine (OCOM) in Winter Garden, Florida. In August 2023, OCOM was granted pre-accreditation from the Commission on Osteopathic College Accreditation (COCA) accreditation body. As a result, Orlando College of Osteopathic Medicine was able to start recruiting, interviewing, and accepting students to the Doctor of Osteopathy (DO) program. The inaugural class had 97 students beginning the program in August 2024. The DO program is a four-year program with two years of didactic and two years of clinical education. The first OCOM DO class will graduate in May 2028.

The mission and values of OCOM reflect the importance of research, diversity, equity, inclusion, and implementation in the College. OCOM values wellness and service by encouraging all students to participate in wellness initiatives and participate in the Winter Garden community through service. The Diversity, Equity, and Inclusion Statement of OCOM is

OCOM recognizes, values, and affirms that diversity contributes richness to OCOM and enhances the quality of education, research, clinical care, and service. Students, faculty, staff, and administration are valued for their diversity. OCOM will provide and nurture an academic and employment environment where students and employees are treated with courtesy, respect, and dignity. (OCOM 2023).

One way that OCOM will address equitable access is through affiliation agreements. OCOM currently has affiliation agreements with Historically Black Colleges and Universities (HBCUs) such as Alabama State University, Bethune-Cookman University, Edward Waters University, and Indian River State College. Given this commitment to diversity, OCOM will work to build a culture where all students feel supported, and wellness is crucial.

Statement of the Focus of Practice

The focus of this inquiry is to explore the success of first-year medical students by assessing student academic achievement designed around curricular reformation and wellness programming implemented through an early intervention system. The original plan for the inquiry was to track students for their entire first academic year of medical school. Events unrelated to the inquiry necessitated the need to change the timeframe to just the first academic semester. The focus of practice tracks the inaugural students during their first semester of medical school, the implementation of interventions, and the student's academic success. This

inquiry will focus on the impact of an early intervention system and its effectiveness in helping to improve students' academic achievement and overall wellness. The early intervention system is a collective approach that factors all targeted areas of student wellness into the approach with individual students. Through the implementation of an Early Alert System, as part of a comprehensive student approach focusing on student academic achievement, the specific interventions will target and produce improved academic achievement in first-year medical students. According to research studies conducted by Burr and Beck Dallaghan (2019) and Song (2020), if medical students are provided with an environment that addresses curricular reform along with academic coaching on how to master material that allows appropriate strategies to be deployed, it can serve as a predictor of future well-being for physicians and serve as an indicator of success for medical students. This inquiry proposes that measuring student success will be instrumental in the collective development of a medical school environment framed around wellness and the development of caring and competent physicians.

Contextually, the research surrounding medical student wellness and interventions needs to be more extensive. The studies all echo the sentiment that more research is needed surrounding supporting medical students during their medical education experience. While the current literature agrees that wellness is essential, it consistently reiterates that the current culture of medical education could be more conducive to student wellness and success. The inquiry hopes to address the gap and expects to improve overall student academic performance by crafting a culture that explicitly addresses wellness and implementing an early intervention system that identifies markers and specific indicators to address student needs as quickly as possible. The focus of practice affects all first-year medical students. All students will be enrolled in the EAB software, which allows critical stakeholders such as academic advisors,

faculty, and learning support staff to monitor and track the students. Using an early intervention system, this inquiry aims to increase student achievement through curricular reformation and wellness programming.

Inquiry Guiding Questions

The questions guiding this FoP inquiry are:

- Q1: What effect does the intervention have on the academic success among first year medical students?
- Q2: What effect does the intervention have on the personal wellness among first year medical students?
- Q3: Assess whether the level of student wellness has a relationship with the level of academic performance.

One of the core elements of a thriving student culture is an emphasis on student wellness. Wellness is a core component of the culture being crafted as part of the inquiry. The context of this inquiry is the Orlando College of Osteopathic Medicine (OCOM) in Winter Garden, Florida. OCOM enrolled its first cohort of students in August 2024. OCOM focuses on training caring and competent physicians focused on service and wellness. Bill Hettler, the father of wellness, believed that to make a difference, identifying areas of need and introducing programming might lead to success (Hardie, 1984).

Overview of Inquiry

The inquiry is completed in three phases. The three phases of inquiry are built around student wellness and targeted interventions. The first phase of the inquiry establishes a baseline of data that supports the holistic model of medical student academic and personal wellness via supporting student academic wellness while supporting student social and emotional well-being,

which will be delivered during the second phase through wellness models and early interventions. The data will be gleaned from primary sources and administered to the students at OCOM via valid and approved measurement assessments. The third phase concludes the inquiry by evaluating each student's performance and results, comparing them with their Maslach Burnout Inventory (pre- and post-test).

The first research phase addresses first-year medical students' academic success and wellness, providing the baseline for interventional support. It occurs during August at the beginning of the school year. The students take several assessments that will serve as the baseline for the inquiry. The following assessments will be administered to students in Phase One: Maslach Burnout Inventory (pre-test), Academic Emotional Questionnaire, 16 Personalities, and Six Dimensions of Wellness Plan. The second phase is exclusively targeted interventions and resources. Students work collaboratively with Academic Advisors and the early intervention process during the second phase. The third phase occurs near the end of the first academic semester. The students complete the post-test Maslach Burnout Inventory during this phase and provide summative feedback on their wellness plan.

Participants are first-year medical students at Orlando College of Osteopathic Medical School. The students are active participants in the inquiry. Students participate in inventories that address academic achievement, burnout, and wellness at the beginning and conclusion of first semester of medical school. The inquiry will be kept confidential and housed in Student Services, with access only available to key stakeholders and inquiry partners.

Inquiry Partners

The critical inquiry partners are EAB, the CARE Team, a Learning Specialist, Academic Advisors, the Associate Dean for Pre-Clinical Education, the office of Medical Education

Operations, a Mental Health Counselor, and the Director of Student Affairs. Each inquiry partner plays a significant role in ensuring students' success.

EAB

EAB is a CRM student support software utilized at OCOM for all students, faculty, and staff. The specific program is Navigate360+. EAB works collaboratively with the Student Information System and the Learning Management System to comprehensively examine all student profiles. EAB will provide all inquiry partners and key stakeholders with the information needed to assess a student's well-being. The Navigate360+ program is the repository that holds the case notes, as well as meeting documentation with any stakeholder. It allows for alert flags to be raised on students as well as case development and management.

CARE Team

The OCOM CARE Team is comprised of the critical inquiry partners. The members of the team established that CARE stands for Connection, Access, Resources, Evaluation. The CARE team reviews student data and makes recommendations of potential resources for each student. The team handles case management and evaluation for all identified students.

Learning Specialist

A full-time learning specialist with academic credentials in advanced education and experience advising students will be available to help guide students through adjustments in time management, academic difficulties, and learning strategies. The learning specialist plays an integral role as part of the intervention team. The learning specialist will be available to work with all students. The learning specialist meets with any student who is flagged as not meeting academic performance expectations. Data will be tracked for the inquiry regarding the specialist's usage within the EAB system.

Academic Advisors

The Academic Advisor Program plays a vital role at OCOM. The Academic Advisor-Advisee relationship is one of an institutional representative providing insight or direction to a student about academic, professional, scholarly, and career planning issues. The nature of this direction may be to inform, suggest, counsel, discipline, coach, mentor, or even teach. The OCOM advising process ensures that both biomedical science and clinical faculty are involved in student advising and establishing relationships that create an atmosphere of trust and meaningful dialogue. The Advisor-Advisee relationship will ensure consistent feedback regarding academic performance and direct the student to additional resources within the institution as needed. All Advisors are essential in identifying students experiencing academic, personal, or behavioral health problems and providing them with referrals to OCOM's Office of Student Affairs, Student Support Services, and/or Behavioral Health Services. Students and faculty work closely together in the academic arena. Students are encouraged to use the advice, expertise, and help of the faculty through the Advisor program. Students should contact their assigned Advisor frequently for guidance, encouragement, and support. Advisors may assume a proactive role and become involved with their students when performance levels fail to meet minimum academic standards. The Office of Student Affairs assigns advisors. The Director of Student Affairs appoints academic advisors to each incoming OCOM student, with input and approval from the Associate Dean for Pre-Clinical Education. All Academic Advisors will be provided with the Appreciative Advising training. The Appreciative Advising model is the framework for all the advising structure. First-year students are encouraged to see the student's assigned advisor at least twice each semester. Data tracking along with notes about meetings and referrals will be housed in the

Navigate360+ platform. In the platform, Academic Advisors can only see their assigned advisee students and advising notes will only be visible to case managers.

Associate Dean for Pre-Clinical Education

The Associate Dean for Pre-Clinical Education oversees the pre-clinical (Years 1 & 2) of the medical school curriculum. The Associate Dean plays an integral role in the delivery and structure of the curriculum. The Associate Dean for Pre-Clinical Education identifies the academic metrics that indicate poor academic performance that is provided to the office of Medical Education Operations.

Medical Education Operations

The Office of Medical Education Operations interfaces daily with medical students. They manage the Learning Management System and input all grades. Once the Associate Dean for Pre-Clinical Education has identified the metrics for various assessments, the office of Medical Education Operations identifies all students who are performing at or below the indicators that reflect poor academic performance and provides the information to the CARE team to allow for data tracking for the Early Intervention System.

Mental Health Counselor

For mental health counseling, OCOM keeps resources for in-person and virtual visits confidential to support the student's needs. A Licensed Behavioral Health Clinician will serve on staff at OCOM to meet with students struggling academically, emotionally, or behaviorally. The role of the mental health counselor as it relates to the inquiry is to serve as a vital member of the CARE team. De-identified usage of behavioral health resources will provide data tracking for the inquiry.

Director of Student Affairs

The Director of Student Affairs oversees all student life. They serve an integral role with all students. The Director serves as a member of the CARE team. They meet with students who express concern and help allocate appropriate resources.

Theoretical Framework

Hettler's Wellness Theory serves as the theoretical framework for the FoP. In 1980, Bill Hettler established a Wellness Theory Model that included six dimensions of wellness: social, emotional, physical, intellectual, spiritual, and occupational (Roscoe, 2009). Hettler defined wellness as identifying aspects of one's life that can be improved and actively striving to enhance that deficit. "Wellness promotion augments health, which, in turn, can enrich one's quality of life" (Oliver et al., 2018, p. 41). Hettler's Wellness Theory will provide the framework for the Wellness programming that establishes the culture of OCOM. Hettler's definition of wellness "fostered a major shift in wellness composition toward a general examination of all factors that could potentially influence holistic health" (Oliver et al., 2018, p. 42). Wellness models are underutilized in the literature, particularly in medical education. There is not much literature surrounding the practical use of Hettler's Wellness Theory. Hettler's Wellness Theory will provide the theoretical framework for this inquiry. In Chapter 2, Hettler's Wellness Theory is discussed, providing the context for using the theory with this inquiry. By creating a culture of wellness, students at OCOM will perform optimally academically due to the resources available to them.

Key Terms

Several key terms are used throughout this inquiry and are defined as follows:

Belonging - Belonging is the experience of being accepted, included, and valued by others (Roberts, 2020).

Burnout - burnout is an occupational phenomenon associated with chronic work-related stress that is not successfully managed (Smith et al., 2023).

DO - Doctor of Osteopathy (Osteopathic Medicine) - applies a unique patient-centered approach to the full spectrum of care; a whole-person approach to hands-on care; the interrelationship between the body's structure and function enhances a DO diagnostic and treatment skills (American Osteopathic Association, n.d.) (American Colleges of Osteopathic Medicine, n.d.).

Hettler's 6 Dimensions of Wellness Theory - six dimensions of wellness comprising a hexagonal model: Intellectual, physical, emotional, social, spiritual, and occupational dimensions of wellness (National Wellness Institute, n.d.).

Wellness - a positive approach to living – an approach that emphasizes the whole person (Hettler, 1984).

Research Assumptions

The inquiry has three main research assumptions. These assumptions will guide the research by acknowledging the ideal scenarios and recognizing the potential limitations and realities that might impact the outcomes. The first assumption is that medical students will actively utilize their available resources. These resources, which are accessible at little to no cost, will be effectively used by the students when they are informed about their availability. The reality is that despite the availability and accessibility of resources, not all students will utilize them effectively or appropriately.

The second research assumption is the effectiveness of early intervention systems in preventing academic failures. The assumption is that implementing an early intervention system, coupled with academic advising and identifying students in need, will prevent academic failures.

These interventions are designed to provide necessary assistance to students, thereby enhancing their chances of success. The reality is that despite early interventions and support systems, some students will experience academic failures regardless of the efforts made by the student.

The third research assumption is to expect honest responses and adherence to wellness plans by students. The assumption is that students will respond honestly to inventories and adhere to their wellness plans. This honesty and adherence are crucial for the effectiveness of wellness programs and support systems. Unfortunately, the reality is that due to social pressure and the fear of stigmatization, some students may not respond honestly or may pretend to be well, thereby not fully engaging with the wellness plans.

Scope and Delimitations

The scope of the inquiry is based at the Orlando College of Osteopathic Medicine in Winter Garden, Florida. The inquiry will involve first-year medical students at one osteopathic medical school. The cohort will consist of 97 students. OCOM curriculum is novel from other osteopathic medical schools with self-directed learning, case-based learning, integrative virtual anatomy, and innovative medical school courses like Medical Humanities with course-objective integration. As a result of the novel integration, the ability to compare to other current osteopathic medical schools is not an option. However, using Hettler's Wellness theory as the framework will allow other medical schools to modify the inquiry via individualized school resources. Transferability of this framework of medical school wellness to other schools with fidelity is possible within the constraints of the school structure. In the future, as the medical education profession potentially begins to transition to a more integrative and collaborative-based learning approach, the hope is that the data collected at OCOM will display academic success and minimal student burnout rates to support the curriculum paradigm shift.

Limitations

The design of this inquiry has its challenges and limitations. Various resources for data tracking and student assessments will collaboratively form a picture of student performance and wellness at the end of the school year. The inquiry is pulling ideas from different arenas and putting them together to form the focus of practice. As a result of the framework and focus of practice, it is challenging to cross-study and compare with other medical schools. The transferability of the findings may be limited. As the environment at each medical school is different, as well as the curriculum delivery modalities, current research surrounding early intervention, student wellness, and academic success live in independent silos of areas of interest. OCOM is a new osteopathic medical school, and there is no pre-existing data to compare the focus of practice.

Significance of Inquiry

The significance of this inquiry is potentially groundbreaking for medical education. Combining best practices around medical education curriculum design and wellness-based cultural interventions and initiatives could serve as a model for other medical schools that seek to make curricular changes alongside investing in the culture of wellness for students. The ability to start and build a culture from the ground up has potential to set up the institution for long-term success where the students focus wellbeing and experience improved academic success. Faculty, administration, and students use common language and have universal focus on wellness.

Advancing Equity and Social Justice

The focus of this research is framed around key questions of equity and social justice. The three key questions are: How do accessible resources impact the academic success of medical students from diverse backgrounds? How can early intervention systems be tailored to

support students at higher risk of academic failure due to systemic barriers? How can wellness plans be designed to ensure all students, regardless of background, feel safe and supported in seeking help?

Advancing Equity and Social Justice Through the Inquiry

This inquiry aims to advance equity and social justice within medical education by addressing systemic barriers and ensuring fair access to resources and support systems. The following points highlight how this inquiry is positioned to contribute to these goals. The first goal is equitable access to resources. This goal is in place to ensure that all medical students have equal access to academic resources regardless of their socioeconomic background. To achieve this goal, the inquiry must ensure that all medical students have equal access to academic resources regardless of their socio-economic background. The resources must be readily available to all students to satisfy that objective. This inquiry aims to level the playing field, allowing students from disadvantaged backgrounds to utilize them effectively. If this goal is achieved, an equitable learning environment will be created where every student can succeed academically. The second goal is to tailor early interventions. Prevent academic failures by providing timely and customized support to students identified not making satisfactory academic progress. The early intervention system is designed to identify students who need early help and provide them with tailored support through academic advising and other resources. This proactive approach addresses students from marginalized or disadvantaged groups' unique challenges, ensuring they receive the assistance needed to thrive. The third goal is to create an inclusive wellness program by creating a supportive environment where all students feel comfortable seeking help and participating in wellness programs. Through understanding the social pressures and stigmatization that some students may face, the inquiry advocates for

inclusive wellness plans sensitive to all students' needs. The culture of openness and support encourages students from all backgrounds to engage honestly with wellness initiatives without fear of judgment or stigma.

Positioning to Advance Equity and Social Justice

In positioning this inquiry to advance equity and social justice, the inquiry focuses on creating an inclusive educational environment where all students, regardless of their backgrounds, have the necessary tools and support to succeed. By addressing the disparities in access to resources, providing tailored support through early interventions, and promoting inclusive wellness programs, this research contributes to a fairer and more just educational system in medical education. Through these efforts, the inquiry seeks to improve academic outcomes and champion the broader cause of social justice within the educational framework.

Advances in Practice

Impact on the Field of Practice

The anticipated outcomes of this inquiry are designed to drive significant improvements within the context of medical education, specifically focusing on enhancing equity and social justice. The following points articulate the expected changes and advancements in practice resulting from this study: enhanced utilization of resources, effective early intervention systems, and inclusive wellness initiatives. The first is enhanced utilization of resources. The anticipated change is increased awareness and utilization of academic resources among medical students, particularly those from underrepresented or disadvantaged backgrounds. This will lead to a more equitable distribution of support, helping all students to maximize their potential and reduce the performance gap between different student groups. The second is effective early intervention systems. The anticipated change is implementing a robust early intervention system that

identifies students early and provides timely, tailored support. By proactively addressing academic struggles, this system will help reduce the number of academic failures, particularly among students who face systemic barriers, thus promoting higher retention and graduation rates. The third is inclusive wellness initiatives through the development and adoption of wellness programs that are inclusive, culturally sensitive, and designed to reduce stigma around seeking help. These initiatives will create a supportive environment where all students feel empowered to seek assistance, improving overall well-being and academic performance.

Applicability to Similar Contexts

The findings and advancements from this inquiry have broad applicability to similar educational contexts, particularly in fields requiring rigorous training and high levels of academic performance. The strategies developed can be adapted and applied via other medical schools, higher education institutions, and professional training programs. Medical schools face similar challenges and can adopt the resource utilization strategies, early intervention systems, and wellness programs outlined in this inquiry. Universities and colleges can implement these practices to support students across disciplines, particularly in demanding law, engineering, and nursing programs. Enhanced support structures can help these institutions address their diverse student populations' unique needs, improving academic outcomes and student well-being. Finally, these insights can also benefit professional training programs outside their academic sphere, particularly those that involve high-stress environments and rigorous evaluations. Similar support mechanisms can improve trainee success rates and well-being, fostering a more inclusive and supportive professional development environment. We expect significant equity and social justice improvements within the medical education context through the advancements anticipated from this inquiry. By making resources more accessible, implementing effective early

intervention systems, and fostering inclusive wellness programs, this inquiry will impact our immediate context and serve as a valuable model for similar educational and professional settings. The broader applicability of these practices underscores the potential for widespread positive change, promoting a more equitable and just educational landscape.

Summary

Hettler's Wellness Model serves as the theoretical backbone for this inquiry. Using interventions and guiding questions that frame the inquiry, the inquiry should show that wellness is integral to student success. Hettler's Wellness Model has three core principles: helping people achieve their full potential, recognizing and addressing the whole person (multi-dimensional approach), and affirming and mobilizing people's positive qualities and strengths. (Marsh, 2024). As a result of using these core principles as best practice, the wellness interventions can be measured and tracked, along with individual tailoring based on student needs. This inquiry focuses on creating a Holistic Medical Student Academic and Personal Wellness Model. Implementing a model of student wellness and utilizing an early alert system will support medical students' academic and social-emotional well-being. Medical students who are well during medical school translate into good physicians. Burnout and depression are potent foes to medical students who aim to be effective students and eventually practitioners while enjoying a well-rounded life. Chapter 2 is a literature review that explores the research surrounding the areas of medical school experience, wellness, and early interventions. Chapter 3 will provide an in-depth look at the overall research design of the inquiry. Chapter 4 will provide and analyze the research design of the inquiry and data collected. Chapter 5 will provide the summary of the inquiry's findings along with limitations and recommendations.

CHAPTER 2: REVIEW OF LITERATURE

A holistic model of medical student academic and personal wellness focuses on supporting student academic wellness while supporting student social and emotional well-being delivered through wellness models and early interventions. Implementing a model of student wellness and utilizing an early alert system will support medical students' academic and social-emotional well-being. The success of first-year osteopathic medical students at Orlando College of Osteopathic Medicine will be measured by assessing student academic achievement designed around curricular reformation (case-based learning in conjunction with self-directed learning) and wellness programming implemented through an early intervention system. The literature review presented in this chapter explores the research surrounding the areas of Hettler's Wellness Theory and the medical school experience. The theoretical framework of Hettler's Model of Wellness will guide the focus of practice. The literature review presented in this chapter is framed around the foundational ideas about medical student wellness and medical education. The first section of the literature review will discuss the medical school experience and explore student learning in traditional learning environments and medical education. The literature review will also address the impact of COVID-19 on medical education. The operational context will allow the inquiry to address the need for curricular reform in medical education through case-based collaborative learning, virtual medical education, effective learning environments, and evaluation tools. The second section of the literature review will address wellness in medical students and the medical profession. The operational context will allow the inquiry to address the need to establish a wellness culture within medical schools and education. The final section of the literature review will address the levers to address wellness matters—early intervention based on academic and need-based interventions to provide total

support for medical students. Read collectively, the areas of literature reviewed here explore the relationship between academic success, wellness initiatives, and effective interventions for medical students and how they could improve student academic achievement.

Hettler's Wellness Theory

Hettler's Wellness Theory will serve as the framework for this inquiry. Initially conceived by Bill Hettler in 1976, the Model of Wellness was designed for implementation within the college campus environment at the University of Wisconsin–Stevens Point (UW-SP) as a program for well-being improvement. Hettler defined wellness “as an active process through which individuals become aware of and make choices toward a more successful existence” (Hettler, 1984, p. 13). Hettler used inspiration from Greek mythology – the Greek God of healing, Aesculapius, who had two daughters – Panacea and Hygiea. Panacea's healing philosophy was that treating illness was the best way to help people. Hettler found that most modern-day healthcare facilities today use the Panacean approach. Hygiea's healing philosophy was that the best way to approach health was to teach people how to live so they did not become ill. Hettler found that if the healthcare system and educational institutions adopted the Hygiean approach, they would spend more time and energy reaching out and providing educational opportunities to promote optimal well-being (Hettler, 1984). Continuing with the inspiration of providing education and modeling, Hettler worked to create the Model of Wellness. Hettler found that if individuals became stewards of their wellness, successful choices are influenced by their self-concept and the parameters of their culture and environment. Wellness is "an active process through which the individual becomes aware of and makes choices toward a more successful existence, a positive approach to living--an approach that emphasizes the whole person" (Hettler, 1980, p. 77). For individuals to be empowered to take charge of their health and

well-being, they needed to be in an environment and culture that undergirded and supported wellness. The will to do it alone will not be as successful unless resources are readily available to help individuals accomplish their goals. Hettler firmly believed that every institution of higher learning has one mission: “to encourage each student to assess and improve their lifestyle” (Hettler, 1984, p. 17).

The Model of Wellness builds on the premise that people could be healthier and more content if they improved the balance between different aspects of their lives, a continuum between exceptionally positive and drastically negative (Williams, 2022). Hettler eventually founded Modern Wellness and co-founded the National Wellness Institute (NWI). Hettler created the Hexagonal Model of Wellness, which refers to the six dimensions of wellness. According to Hettler’s Model, the six dimensions of wellness are occupational, physical, social, intellectual, spiritual, and emotional (Six Dimensions of Wellness, 2023). By applying the model, a person becomes aware of the interconnectedness of each dimension and how they contribute to an overall healthy lifestyle (Global Wellness Institute, 2019). Hettler’s Wellness Model uniquely defined the dimension of wellness. Hettler defined social wellness as “a socially well individual living in harmony with others and working toward mutual respect and cooperation” (Roscoe, 2009, p. 218). Hettler defined emotional wellness as a “continual process that includes an awareness and management of feelings, and a positive view of self, the world, and relationships” (Roscoe, 2009, p. 219). Hettler defined physical wellness as “encompassing one’s attention to physical self-care, security level, nutritional needs, and use of medical services” (Roscoe, 2009, p. 219). Hettler defined intellectual wellness as “the degree to which one engages one’s mind in creative and stimulating activities, as well as the use of resources to expand one’s knowledge” (Roscoe, 2009, p. 220). Hettler defined spiritual wellness as “a

worldview that gives unity and goals to thoughts and actions, as well as the process of seeking meaning, purpose in existence, and understanding of one's place in the universe" (Roscoe, 2009, p. 220). Hettler defined occupational wellness as "the level of satisfaction and enrichment gained by one's work and the extent to which one's occupation allows for the expression of one's values" (Roscoe, 2009, p. 221). Using specific definitions outlined by Hettler for wellness allows for the framework to be built around intentional wellness initiatives for each dimension.

The importance of different wellness dimensions may vary significantly from individual to individual; some people may derive their most incredible sense of satisfaction or purpose from their work, while others place more excellent value on their physical health, spirituality, or family relationships. Each dimension of wellness can be broken down into guiding questions. How can one develop and direct self-awareness, self-regulation, curiosity, and motivation? How can one develop their belief systems, identify their values, and create a strong worldview? How can regular physical activity, nutrition, strength, vitality, and self-care benefit one? How can one enrich life through work and recognize its connectedness to living and playing? How can one enhance their environment by building better living spaces and social networks? How can one positively contribute to their environment and engage in their community? (Six Dimensions of Wellness, 2023). Integrating Hettler's Wellness Model and guiding questions around the theoretical framework will work collaboratively with the wellness culture being established at the medical school. The importance of different wellness dimensions may vary significantly from individual to individual; some people may derive their most incredible sense of satisfaction or purpose from their work, while others place greater value on their physical health, spirituality, or family relationships. Each dimension of wellness can be broken down into guiding questions. How can one develop and direct self-awareness, self-regulation, curiosity, and motivation? How

can one develop their belief systems, identify their values, and create a strong worldview? How can regular physical activity, nutrition, strength, vitality, and self-care benefit one? How can one enrich life through work and recognize its connectedness to living and playing? How can one enhance their environment by building better living spaces and social networks? How can one positively contribute to their environment and engage in their community? (Six Dimensions of Wellness, 2023). Integrating Hettler's Wellness model and guiding questions around the theoretical framework will work collaboratively with the wellness culture being established at the medical school.

Medical School Experience

Medical education curricula are considered the foundation of a medical school. The curricula drive the courses, instruction, and focus of the faculty. It can effectively measure the success of a student's ability to perform academically. The curriculum delivery methods often determine the culture of an institution. The curriculum delivery significantly influences the overall medical school educational experience. Evaluating the current medical school curriculum is paramount in an evolving academic world. Traditional methods for delivering instruction should be analyzed, and instruction via different instructing modalities should be implemented as the face of medical education changes. This literature review will focus on the challenges medical education faces, the need for curricular reform, what curricula reform could look like, how to create an optimal learning environment, and the importance of evaluating curricular reform. This inquiry will focus on meeting the changing needs of medical student learners via curricular reform, fostering a culture of wellness within the medical school, and the impact of an early intervention system on student's academic success.

Student Learning and the Traditional Learning Environment

Student Learning

Successful student learning is an essential piece of the medical education puzzle.

Students need to be aware of their strengths and weaknesses as learners and be open to fostering new habits that could lead to more efficient and effective studying. Each student can learn.

Dantas et al. (2020) define learning as a "holistic process of adaptation to the world that requires the ability to resolve dialectical conflicts between modes of adaptation to the world" (p. 2).

Medical students must distinguish the critical components of each lecture and find a way to integrate that knowledge practically from passive to active memory. Students must integrate their learning experiences with their learning environments for successful knowledge retention.

Traditional Learning Environments

Traditional learning environments in medical schools encompass a variety of instructional methods, including lectures, small-group discussions, laboratory sessions, in-hospital clinical rotations, and hands-on exposure. This multi-faceted approach is designed to cover a broad spectrum of knowledge and skills necessary for medical practice (Althwanay, 2020, p. 4). However, recent scholarship highlights significant limitations in this traditional educational framework, particularly regarding its ability to prepare graduates for the complexities of modern healthcare. Majumder (2023) argues that more than traditional educational strategies are required in delivering value-based care. He points out that these curricula' didactic, fragmented, and static nature does not adequately prepare students for contemporary healthcare challenges (Majumder, 2023, p. 2). Criticisms of traditional lecture-based teaching methods support this perspective. While lectures are effective at disseminating large volumes of content and facilitating some level of student-instructor interaction (Kay, 2018,

p. 450), they are also associated with passive learning and poor memory retention (Kay et al., 2018; Padugupati et al., 2021).

The lecture format's passive nature is a significant drawback. It often leads to surface-level learning, where students memorize information for exams without fully understanding or retaining the material long-term. Kay et al. (2018) emphasize that while lectures can efficiently cover extensive material, they must engage students actively, which is crucial for deeper learning and skill acquisition. Padugupati et al. (2021) criticize formal lectures for their limited ability to foster critical thinking and problem-solving skills, which are essential in medical practice. Despite these criticisms, traditional lecture-based models are only partially with merit. They can be particularly effective when integrated with other instructional methods. For instance, combining lectures with small-group discussions, interactive sessions, and practical hands-on experiences can provide a more comprehensive and engaging learning environment. This blended approach can help address the deficiencies of traditional lectures by promoting active learning and critical thinking.

In conclusion, while traditional learning environments, particularly lecture-based teaching, remain prevalent in medical education, their limitations necessitate a more dynamic and integrated approach. To better prepare medical students for modern healthcare's complexities, educational strategies must evolve to include diverse and interactive teaching methods that promote active learning and skill development. Traditional lectures should not be abandoned entirely but supplemented with other pedagogical techniques to create a more effective and holistic educational experience.

COVID-19 Pandemic Medical Education

In March 2020, medical education faced an abrupt disruption. A global pandemic forced universities and colleges nationally to close their campuses. Higher education was completely disrupted. Hospitals and health-care facilities were forced to only allow essential staff on campuses. Medical students participating in clinical rotations were forced to go home with no option to fulfill curricular clinical requirements. The pandemic was an incredibly stressful global event that directly impacted the ability to provide medical education. The COVID-19 pandemic forced educators to drastically shift the landscape of how curriculum was delivered. “Medical educators needed to adopt a forward-thinking and scholarly approach with curriculum innovation to train future medical graduates during and after the pandemic” (Gaur 2020, p. 1995). Medical education began to shift to online learning and “new innovative ways to continue teaching and exposing students to clinical settings” were established (Shindeep, 2022, p. 4). Teaching shifted to strictly online modalities. With very little training and guidance, educators were forced to create, teach, and assess curriculum. “Appropriate attention must be paid to pedagogical requirements of online learning as well as provide face-to-face clinical training so that students can develop required competencies to proactive medicine (Gaur, 2020, p. 1995). Professionally, the pandemic provided the opportunity for academic leadership to allocate and distribute resources appropriately establishing clear lines of communication and dealing with the situation aptly.

Medical Education Today

“Medical education in the last two decades has seen extensive implementation of evidence-based teaching with the adaption of new learning strategies supported by digital technology” (Gaur, 2020, p. 1993). Medical students must distinguish the critical components of each lecture and find a way to integrate that knowledge practically from passive to active

memory. According to the research conducted by Artino et al. (2023), the best approach for successful learning in medical schools is to match instructional methods to the characteristics of the context or learning objectives being taught and to take advantage of the dual coding theory, which combines visual and auditory information. Medical education is deeply entrenched in methods and modalities of delivering curriculum. Current medical education traditionally uses lecture-based classroom environments and human cadaver anatomy labs and focuses on student academic performance. The current medical education curriculum needs to be reformatted to address the needs of 21st-century medical students and, ultimately, the medical profession (Rysavy et al., 2015). Research agrees that medical education needs to change, starting with curriculum. Majumder et al. concluded that medical education needs to catch up with the healthcare system's challenges (Majumder, 2023). Likewise, Wartman et al.'s (2019) research supports the idea that medical education is at a crossroads, facing challenges wrought by science, technology, and societal change; the curriculum is increasingly out of sync with new needs in teaching content and medical practice. The COVID-19 pandemic, set medical education on an accelerated trajectory to rapidly implement different modalities of providing the medical curriculum. As research supports the need to foster change, it is essential to evaluate the areas of challenges addressed.

Curricular Reform

The Need for Curricular Reform

As a medical school develops a curriculum or proposes revisions to current curricular practices based on recent research and literature, it becomes vital to identify the desired reform or change. A clear vision and identifiable goals are crucial for effective reform. Medical school curricula must stay active. The material, learning objectives, and delivery modalities must evolve

with current trends. COVID-19 created difficulties for pre-clinical education, but it also led to new opportunities. Expectations set forth by knowledge-based licensing exams and standards set forth by accrediting bodies, medical education has a unique opportunity to grow with society's technological advances. Acuity Insights (2021) identified top trends in medical education as hybrid learning, integrated care, focus on mental health, and a better approach to diversity, equity, and inclusion. Curricular reform is a challenging task. It challenges the traditional methods and entrenched values. It also requires institutions to have critical stakeholders who guide the process. It is acknowledged that curricular reform will “require a substantial investment in health professions education and a shift from traditional didactic teaching methods to more innovative and effective ways of institution (Acuity Insights, 2021, p. 2). Critical stakeholders must develop a personal understanding of each planned reform and become subject matter experts for the institution. As subject matter experts, the stakeholders will guide the institution through each reform and provide the necessary guidance and tools for successful implementation. While curricular reform is necessary, it is also essential that targeted reform is research-based and critically analyzed throughout implementation. Critically analyzing each reform will allow for best practices for the interventions put into place and provide additional support for the research that backs the intervention. Each targeted reform should consider the evolving nature of medical education, and the knowledge that future physicians need. In the study conducted by Hon et al. (2019), it is emphasized that future physicians will need to use technology for individualized learning while strengthening physicians’ skills for the humanistic approach to patients.

What Curricular Reform Looks Like

Effective curricular reform is achieved through open communication, a unified purpose, and common goals. Society has made incredible technological advances, and medical education needs to match those advances. Science and technology are becoming interwoven.

Advancements in technology allow for creative and innovative ways to provide healthcare as a profession, and the medical school curriculum should mirror and educate budding physicians to ensure students are ready to integrate into the profession successfully. Addressing changes from an educational perspective as rapidly as the acceleration of technology and societal changes is a paramount issue facing current medical education. A rapidly changing healthcare perspective and rapidly evolving curriculum redefines the healthcare profession. Hon et al.'s research supports the idea that providing medical students with early clinical experience and longitudinal integration of clinical experiences are very helpful in promoting effective and lifelong learning, such as with "community-based programs which enable medical students to broaden their perspectives on society and develop respect for diverse patient populations" (Hon et al., 2019, p. 13). Medical students must develop humanistic skills and foster the ability to work with patients early in their medical training. Developing humanistic skills, fostering empathy, and learning patient advocacy are part of becoming a caring, altruistic physician. As part of the curricular shift, institutions should focus on hybrid learning, integrated care, mental health, diversity, equity, and inclusion. Bland et al.'s (2000) research focuses on characteristics of successful, innovative curricular reform. This scholarship emphasizes that strategies to implement the reform must be appropriate to the organization's context and the environment. If the strategies do not fit contextually, the reform will not be successful. Institutions should have a clear vision as they look toward achieving effective curricular reform.

Curricular Reform in Action

According to Fischel (2019), curriculum reform “provides an opportunity to integrate both new strategies and timely evaluation of new content pedagogies and technologies” (p. 99). In a technological-driven society, the need to utilize current technologies becomes paramount as a medical healthcare provider. The advancements in artificial intelligence, virtual reality, and other powerful applications will require training to effectively deliver the curriculum in flipped classrooms and through standardized patient encounters. Gaur’s research supports the use of “emergent technology for education, such as artificial intelligence for adaptive learning, virtual simulation, and telehealth, are most likely to be essential components of the transformational change and the future of medical education, including clinical training” (Gaur, 2020, p. 1999).

Case-Based Collaborative Learning

One promising curricular approach is case-based collaborative learning. Researchers agree that using case-based collaborative learning approaches with competency-based education promotes active learning and focuses on acquiring specific goals and knowledge while maintaining academic rigor (Majumder, 2023; Sullivan et al., 2022; Wartman et al., 2019). The scholarship provided by Majumder, Sullivan et al., and Wartman et al. highlights that the medical curriculum requires critical reflection and analysis, ethical and philosophical considerations, implicit bias analysis, and reflection on social processes. Critical reflection allows students to reframe social processes and philosophical assumptions that guide their unconscious bias. Acknowledging bias and studying ethical and philosophical practices promote personal growth and development for students entering the medical profession (Majumder, 2023; Sullivan et al., 2022; Wartman et al., 2019).

Virtual Medical Education

Best practices in medical education curricular reform combine the efforts of case-based

collaborative learning and virtual learning environments. Virtual medical learning modalities could include online lectures, webcasting, virtual group discussions, videoconferencing, virtual simulators, and telemedicine. The efficacy and reliability of virtual medical learning environments are evaluated as they are integrated more throughout the daily education of medical students. A study by Althwanay et al. (2020) supports the conclusion that virtual medical learning is effective in “improving students learning behavior toward deep learning, self-efficacy, self-directed learning (SDL), collaborative learning skills, and critically analyzing basic concepts” (p. 4). Through virtual medicine, two key educational modalities are being utilized more in medical education – self-directed learning and simulation. Self-directed learning (SDL) is an approach where students are provided with pre-recorded material, given an outline/guidance of how to approach the material and left to their ability to navigate the curriculum. It is an approach that requires self-discipline and where learners feel in control of their learning.

A curricular reformation to expose medical students to early clinical experiences is accomplished through simulation medicine, where “simulation has, in particular, gained momentum as a method of delivering experiential learning” (Dottle et al., 2019, p. 181). Simulation medicine is a growing educational technique in medical education and provides real-life patient encounters and situations that are controlled and used as teaching tools for medical students. In research conducted by So et al. (2019), “simulation activities are a powerful force of enactive experiences (direct/purposeful experiences, contrived experiences, or dramatic participation) and are typically followed by a debriefing to facilitate reflection, learning abstraction, conceptualization, and connection to real events” (p. 52).

The Affective Learning Environment

A critical piece of the medical school experience is the learning environment. The curriculum can be a driving force in this environment and can be crafted as collaborative and cohesive, with common goals and a unified vision. “Student-centered learning environments allow customized learning for individual learners that enables learning on demand a student’s individual pace along with increased social interactions mediated by technology” (Kim, 2022, p. 2). With a curricular reform, the learning environment must all be reformatted to create a climate conducive to effective learning. According to Klein and McCarthy and their research, pass/fail grading systems and longitudinal collaborative learning approaches with peer support protect students’ wellness (Klein & McCarthy, 2022).

Further research supports the need for curricular reform and creating a healthy environment for medical students and the clinical faculty providing instruction. The learning environment should be “designed to promote learner well-being and faculty professional development” (Dyrbye, 2020, p. 674). In the environment that facilitates the reform, adequate support is needed for all stakeholders, including faculty, staff, and students. Faculty and staff require access to resources, money for professional development and training, and the ability to analyze and revisit best practices based on evaluations. According to Klein and McCarthy, faculty and administrator development is necessary to ensure student wellness (Klein & McCarthy, 2022). Students need to be heard. They need genuine support. The learning environment must reflect the culture of the organization.

Organizations are mission-driven and have guiding values and principles. An organization’s guiding principles and values should reflect the curricula reform and the learning environment. In the healthcare system, this means that leaders devote time daily to creating a work environment and culture that fosters a sense of belonging, where every staff member feels

safe, valued, and part of a collaborative mission to improve the health and well-being of patients and colleagues (Southwick & Southwick, 2020). An essential component of the learning environment is student belonging. Student belonging is vital for student success (Roberts, 2020). Belonging is finding a safe space to provide optimal personal growth and achieve peak performance. Belonging addresses a fundamental human need. Roberts' (2020) research on belonging emphasizes that “committing to a more diverse and more vibrant future requires self-honesty, creativity, and courage in tackling aspects of the culture of medicine that may interfere with people from all backgrounds feeling welcomed, included, valued-namely, feeling like they belong” (p. 661). Respectful inclusion, empathy, and compassion are foundational practices for a thriving medical student learning environment.

Evaluation

Evaluation is an integral tool in effective organizational research and change efforts. Evaluating a change agent or item allows for non-biased examination regarding the positives, negatives, and ways to improve for each item assessed. Evaluating medical school curriculum change requires multiple methods of practical evaluation tools (Fetterman, 2010). One such vetted tool is empowerment evaluation. Empowerment evaluation “provides a method for gathering, analyzing, and sharing data about a program and its outcomes and encourages faculty, students, and support personnel to participate in system changes actively” (Fetterman, 2010, p. 813). Empowerment evaluation gives authentic ownership to all participants and establishes buy-in throughout the process. The fundamental principles of Empowerment Evaluation (democratic participation, community ownership, capacity building, social justice, culturally responsive, learning and improvement, and transparently and accountability) guide the approach to evaluation, emphasizing the importance of collaboration, participation, and empowerment. By

applying these principles, empowerment evaluation promotes sustainable development and positive social change (EvalCommunity, 2023). Fetterman's research regarding empowerment evaluation reiterates the importance of practical evaluation following change agents. The steps of empowerment evaluation include collecting evaluation data, designating a critical friend, communicating areas of potential improvement, establishing a culture of evidence, encouraging a cycle of reflection and action, cultivating a community of learners, and developing reflective educational practitioners (Fetterman, 2010). As an institution identifies markers, effective curriculum reform practices will require collecting data points at those designated evaluation markers and then analyzing that data. Empowerment Evaluation offers many advantages, including promoting participation and ownership, building capacity, promoting learning and improvement, and supporting sustainable development. However, the process also poses challenges, including the need for skilled facilitation, resource constraints, and resistance to change (EvalCommunity, 2023). Based on the data collected, key stakeholders can reflect, provide feedback, and offer growth opportunities based on the proposed changes. Open communication and transparency with the evaluative process will promote institutional buy-in. Orlando College of Osteopathic Medicine plans to evaluate the first year's curriculum through empowerment evaluation. Faculty and critical stakeholders will conduct evaluations on each course. Based on feedback, the course will be evaluated and modified for the next academic year.

Wellness in Medical Students

The path to becoming a physician is long and full of challenges. Medical school is a dream that students set forth to achieve. The road to medical school admissions is competitive, curricularly challenging, and full of extracurricular activities, certifications, and experiences. Once a student is admitted into medical school, they start working toward achieving what is

often a lifelong dream and passion of becoming a physician. The transition between college and professional school is marked by anxiety, stress, and financial upheaval. “Thus, students may feel more vulnerable than ever as they begin their professional education in a new environment in which they are unaware of available mental health resources, leading to isolation and unnecessary suffering” (Klein & McCarthy, 2022, p. 3). Unfortunately, students often become overwhelmed, depressed, and burned out during the medical school experience due to high demands, both self-imposed and curricularly expected. In recent years, there has been an increased recognition that “medical students suffer from higher rates of depression, anxiety, and suicidal ideation compared to the general population” (Ruiz, 2024, p. 137). According to McGrady and colleagues (2012), “medical students are good candidates for wellness programs because of the stress associated with medical school, which often leads to depressive symptoms and anxiety (p. 254). Depressed and anxious medical students go on to become depressed and anxious physicians, entering a demanding and stressful occupation. Research conducted by Burr and Beck Dallaghan (2019), “high rates of burnout are concerning because medical students’ emotions are negatively affected at a time when they are learning to care for others, with these emotions affecting learning achievements” (p. 479). According to a national study published in the Journal of the American Medical Association, the risk of suicide was higher for healthcare workers than for non-healthcare workers (Olfson et al., 2023). The physician suicide rate in America is about 300-400 physicians die by suicide each year (American College of Emergency Physicians, n.d.). Physician wellness is a pandemic that needs a solution. The solution can be to start formation in medical school within the medical school experience. “Even without a pandemic, medical school curricula are often viewed as challenging for student health, with nearly half of all students experiencing an increase in stress, depression, isolation, or burnout”

(Ruiz et al., 2024, p, 137). This section of the literature review defines wellness in the medical profession, what the research says about current wellness programs within medical schools, what is needed to create a culture of wellness in medical schools, and how this inquiry will impact future wellness initiatives.

Wellness

At the root of most wellness definitions, wellness is often defined by its characteristics, “absence of disease and presence of health” (Klein & McCarthy, 2022, p. 2). If individuals are physically healthy, therefore, they are well. However, through years of research on wellness-focused, natural, and holistic approaches, wellness is now defined as the active pursuit of activities, choices, and lifestyles that lead to holistic health (Klein & McCarthy, 2022). Wellness is a dynamic process of awareness and making choices that lead to optimal holistic health and well-being (Global Wellness Institute, 2019). Bill Hettler, co-founder of the National Wellness Institute, defined wellness as “an active process through which people become aware of and make choices toward a successful existence” (Hardie, 2015, p. 2). Wellness means people are physically, emotionally, mentally, and socially healthy. Wellness is multi-dimensional while actively seeking balance in the various stressors, expectations, and responsibilities a person faces daily.

Wellness in the Medical Profession

According to Slavin et al. (2014), in the medical profession:

Physician depression and burnout are significant problems in the United States. They may be rightly viewed as a substantial public health problem, particularly given the evidence of the negative impact that mental health problems can have on clinical care by reducing physician empathy and increasing rates of medical errors (p. 576).

The current medical profession is built on reactive approaches; if someone gets sick, a physician treats the illness. In contrast, wellness is built on proactive approaches to prevention; a patient practices a healthy lifestyle and potentially prevents an illness or is better equipped to deal with the illness collaboratively with the physician. The medical and wellness paradigms are built on a continuum. A continuum gradually changes over time, growing and metamorphizing throughout the process. Medical and wellness paradigms are slowly evolving and extending through the changes in the healthcare profession. Wellness is a journey and continuum of a person's experiences. The American Osteopathic Association has defined wellness as "the balance of a physician's emotional, financial, social, spiritual, occupational, physical, intellectual, and environmental health" (Achieving Wellness, n.d., p. 1). Osteopathic physicians are trained to treat the "whole" patient. They are taught to find the root causes of presenting symptoms, listen, answer questions, and treat patients with dignity and respect. A core component of osteopathic medicine lies in the humanistic teachings of medical students. Medical students need to develop rapport with patients, establish trust, and serve as patient advocates. "Professional identity formation must cultivate the development of students' emotional and spiritual dimensions in addition to their intellect by promoting self-reflection, emotional wellness, and valuing resiliency and well-being" (Houseknecht et al., 2019, p. 493). The goal of redefining wellness, framing it as multidimensional, shifts the paradigm of physicians' approach to wellness. It becomes vitally essential that wellness becomes an integral component of the culture in medical education, ultimately leading to the medical profession.

Research Related to Wellness in Medical Literature

Current research in the medical community discusses, evaluates, and emphasizes the need for wellness. Recent research generally measures specific interventions with specific populations

to measure the effectiveness of the intervention with the population. Research supports mindfulness-based stress reduction approaches as an effective intervention to foster wellness within medical students (Slavin et al., 2014). Developed by Jon Kabat-Zinn in the late 1970s, Mindfulness-Based Stress Reduction (MBSR) is “self-regulated attention characterized by nonjudgmental awareness and acceptance of internal and external stimuli” (Slavin et al., 2014, p. 350). While MBSR is a promising intervention to help diminish stress in medical students, the more significant impact of total student wellness remains an issue. Despite the limitations of current research, the medical education literature “demonstrates the importance of supporting medical student wellness and reducing stress throughout the entire educational experience given the established link between burnout and suicidal ideation and increased suicide rates among doctors relative to the general population” (Lynch et al., 2022, p. 804). Medical students are the physicians of the future. Interventions must start at the beginning to change the paradigm currently facing our healthcare professionals. The medical community collectively agrees that wellness is a problem that must be addressed. Individuals must be taught how to be well and practice wellness within their own lives. Strategies for wellness are everchanging based on circumstances and the continuum of personal growth. Research supports the need for continued study and development of wellness initiatives and programming within medical schools. “There is a clear rationale for preventative services and curricular tools to foster wellness and improve stress management for medical students, and whereas there have been encouraging studies, there are yet no agreed-upon methods to address their competencies” (Erogul et al., 2014, p. 350). As medical schools create a culture and build curricula, evaluation of the interventions is vital for the validity of the methods and interventions.

Creating a Culture of Wellness

The Global Wellness Institute (2019) defines wellness as an “individual pursuit – we have self-responsibility for our own choices, behaviors, and lifestyles – but it is also significantly influenced by the physical, social, and cultural environments in which we live” (2019). In an educational setting, particularly medical schools, wellness morphs into student wellness within the academic environment. Wellness becomes contextual based on the circumstances surrounding the student. Creating a culture of wellness within a medical school is a collective approach between curriculum and student life. The medical school environment is vital to a student’s success. The wellness programming should include mentoring and advising, student leadership, and personal growth. Students must be supported across the eight defined dimensions of wellness recognized by the American Osteopathic Association (AOA): emotional, financial, social, spiritual, occupational, physical, intellectual, and environmental. Medical schools need to ensure that their programming has a plan to address each dimension of wellness in a timely, proactive manner. As part of the wellness culture, medical school curriculums should integrate wellness as a core component, not an auxiliary program. If a student is supported and provided adequate and appropriate resources, the student’s ability to mitigate the rigor and demands of medical school should be increased. “If a student maintains enjoyable hobbies, cultivating social support networks, and developing resiliency decrease distress in medical students on an individual level” (Klein & McCarthy, 2022, p. 1).

Early Interventions in Medical School

Medical students need to be supported in every arena of total wellness for optimal academic performance. Academic performance is one indicator of a student’s ability to be successful in medical school. Early detection and targeted assistance of poor academic achievement should lower the number of failures and lessen the number of students needing to

remediate a course. Through the implementation of an Early Alert system, as part of a comprehensive student approach focusing on student academic achievement, the specific interventions will target and produce improved academic achievement in first-year medical students. I propose that medical students who receive early intervention and targeted interventions will be more academically successful than those who do not receive or accept interventions. As a result of the inquiry, the institution should see a decrease in academic failures, an increase in student retention, and a decrease in the need for student leave of absence and withdrawals. This portion of the literature review will explore academic achievement, early interventions, and current research regarding academic success in medical school.

Academic Achievement

Academic achievement is often defined by the individual student's mindset of self-performance and expectations. Institutions represent passing percentages or grades as a measure of academic success. Medical students historically have had high academic achievement. Research shows that medical school is “pervasively stressful, and students who enroll need help to cope with the unfamiliar territory of poor academic performance. As a result, the transition can be frustrating and highly stressful on the students” (West & Sadoski, 2011, p. 697). The language of at-risk is often used in academic circles. An at-risk student is:

likelier to fail to graduate through dropout or dismissal. At-risk student's academic performance lies at the threshold or below the acceptable competence determined by relevant institutions. Research shows that consistently identifying and preventing failure for at-risk students is challenging, and failing courses is costly to all stakeholders. There is support across the literature that reinforces the need for more research into the structure of

interventions (Winston et al., 2013, p. 30).

Further research is required surrounding academic assistance and early intervention for medical students. Developing an Early Alert system will provide a systematic and structural assistance approach that will be readily available to students struggling with the adjustment to medical school.

Early Intervention

In the research conducted by Kötter and Niebuhr (2016), the controlled study's conclusions showed ample evidence that the years spent acquiring medical education are a stressful and challenging period in the life of many students. Unfortunately, medical students who start medical education at a reasonable level regarding their wellness seem to deteriorate throughout their education, resulting in high rates of, for example, burnout and depression by the time of graduation and residency. In addition to humanitarian reasons for this concern, high-stress levels may negatively affect mastery of the academic curriculum (Stewart et al., 1999). The idea behind early intervention is to intercede with students on an intellectual and personal level.

Early intervention means working with a student at a pre-determined marker or indicator, which allows a student to receive assistance before failure. Burr and Beck Dallaghan's (2019) research supports that providing students with academic coaching coupled with guidance on how to master material may develop an incremental mindset, which will help them identify strategies to achieve goals and overcome negative emotions (p. 483). The findings agree that the 'early detection' diagnosis of these problems can help redirect students and put them back on the path to success. Early intervention must include the whole idea of a student's well-being (Hays et al., 2011). Successful programs establish a systemic process to address and help meet every area of

need of each student. Butcher et al.'s (2021) research shows that areas targeted for change included curriculum/academic and overall wellness, including relationships, communication, and healthy living. This inquiry will show that a total intervention program available and tailored to each first-year medical student will foster a supportive overall student experience. Fostering a school environment that focuses on student wellness while promoting academic support optimizes the structural learning environment (Butcher et al., 2021). The Early Alert system will serve as an institution's plan of response to individual students to address the needs and concerns of each student. As supported by the research, students who are made aware of readily available resources will be more likely to use the resources appropriately and, as a result, have a better overall experience while enrolled in medical school (Butcher et al., 2021).

Academic Interventions

Academic performance is one indicator of a student's ability to be successful in the medical school curriculum and on National Board licensing examinations. Students who enroll have met previous performance markers required for successful admittance into a medical school program. Early academic intervention and a student's self-directed learning strategies will enhance problem-finding skills via problem-based learning. Yoshioka and colleagues (2005) share that using strategic interventions to facilitate problem-finding significantly improved problem-extraction skills in first-year medical school. Students who focused on problem-finding skills via problem-based learning were better able to distinguish individual problems than their peers (2005). Teaching students study skills can also be a necessary part of medical education. For instance, in the Hajiabaeli et al. (2022) study, course-specific self-regulated learning interventions produced favorable outcomes for low-achieving students. According to scholars such as Yoshioka et al. (2005) and Hajiabaeli et al. (2022), using an academic intervention like

the Early Alert system will help students access various educational resources. Learning specialists, academic advisors, course directors, and online learning resources are a few of the resources available to all students. Learning specialists are individuals with a background in academic coaching who work with students to address study skills and techniques and provide resources to help student improvement. Academic advisors work at the institution, serve as advocates for students throughout their medical education, and guide them through the process. Course directors are the faculty in charge of the course and serve as subject matter experts for students.

Need-Based Interventions

If a student's barrier is not academically related, students should have access to various resources to address the point of concern. Implementing an Early Alert system as part of a comprehensive student approach will drive critical stakeholders such as faculty, staff, mental health counselors, academic advisors, and learning specialists to form authentic mentoring relationships with students. Stakeholders and students will drive towards the same goal of student success. According to Burch et al. (2013), “If key stakeholders and administration of the institution are aware/trained for observation and have adequate resources at their disposal, perhaps potential pitfalls could be avoided, and interventions could happen sooner and be more individually tailored” (p. 1075). Therefore, meaningful stakeholder relationships with a common interest may produce less hesitation when soliciting help regarding a student’s wellness. Similarly, the Early Alert system proposed in this inquiry will allow academic advisors to collaborate with students who may be struggling to receive the assistance needed to address individual student’s needs. Through collaboration, appropriate interventions will be put into place for each student.

Research on Early Intervention

“Medical students are generally known to have higher levels of stress, depression, and anxiety than the general population due to the high-pressure environment of medical school and training” (Shindeep et al., 2022, p. 3). Research on early intervention with medical students needs to be improved. While it is collectively agreed that medical school is stressful and medical students need and benefit from earlier assistance, more research must be conducted to state with reasonable assurance that early intervention produces positive results without barriers. The research that has been conducted has shown the effectiveness of early interventions and improved academic performance within the measured context. Measuring effectiveness without inconsistency and sporadic interventions is vital for research validity. The research in this section of the literature review supports the idea that academic achievement in first-year medical students will improve through an early alert system.

Summary

Medical school education and the medical school experience form the catalysts for change. A critical component of this inquiry will include the learning environment and the wellness culture being implemented at the institution. Through curricular reforms such as flipped classrooms, case-based group learning, and the use of technology tools for learning and exploration, i.e., virtual reality, the medical school curriculum will guide the learning environment and culture of the institution. Wellness is integral to successful medical school students, and wellness programming is integral to a successful medical school experience. This inquiry will focus on the impact of an early intervention system and its effectiveness in helping to improve student’s academic achievement. The early intervention system is a collective approach that factors all targeted areas of student wellness into the approach with individual

students. Through the implementation of an Early Alert system, as part of a comprehensive student approach focusing on student academic achievement, the specific interventions will target and produce improved academic achievement in first-year medical students.

The medical school experience section of the literature review focused on what challenges medical education is currently facing, the need for curricular reform in medical education, what curricula reform could look like in a medical school, how to create an optimal learning environment within a medical school, and the importance of evaluating the curricular reform. This inquiry will evaluate patterns of student academic performance based on interventions implemented because of intentional curricular reforms and implementations.

The wellness section of the literature review defines wellness in the medical profession, what the research says about current wellness programs within medical schools, what is needed to create a culture of wellness in medical schools, and how this study will impact future wellness initiatives. As we understand what wellness and stress look like throughout medical school, further study directions include “examining interventions including curricular changes and focused wellness, programming that reduces stress and improves ethical and emotional health. This involves understanding which resources students will access, at what time in training, and the frequency they do so” (McKerrow et al., 2020, p. 7). The program will focus on the eight dimensions of wellness as defined by the American Osteopathic Association (AOA) by providing active programming and support for each dimension. The eight dimensions of wellness, as defined by the AOA, are emotional, financial, social, spiritual, occupational, physical, intellectual, and environmental. Emotional wellness is about developing a positive self-concept and dealing with feelings constructively. Financial wellness is satisfaction with current and future financial situations. Social wellness is developing a sense of connection, belonging,

and a well-developed support system. Spiritual wellness is expanding a sense of purpose and meaning in life. Occupational wellness is personal satisfaction and enrichment from one's work. Physical wellness recognizes the need for physical activity, healthy foods, and sleep. Intellectual wellness is recognizing creative abilities and finding ways to expand knowledge and skills. Environmental wellness is occupying pleasant, stimulating environments that support well-being (American Osteopathic Association, n.d.). For example, for emotional wellness, there will be mental health counselors; for occupational wellness, there will be programs such as Careers in Medicine and assigned clinical advisors; for physical wellness, there will be a gym on campus that is free for student use. Intentional interventions and programs are necessary for successful wellness programming. As medical schools are developing and creating their program's culture, "beginning programs early in medical education can ingrain good habits as part of regular daily activities and may prevent the common decline in health seen during medical school" (Drolet & Rodgers, 2010, p. 103). Courageous conversations with medical school administration, faculty, and staff and student-centered change driven by students' voices are essential for medical students' future. Wellness is integral to successful medical school students, and wellness programming is integral to a successful medical school experience.

The early intervention section of the literature review explored academic achievement, early interventions, and current research regarding academic success in medical school. The early intervention system has a three-tier approach: faculty, curriculum, and students through faculty advising, curriculum changes, and the CARE team. The early intervention system is a collective approach that factors all targeted areas of student wellness into the approach with individual students. This inquiry will focus on the impact of an early intervention system and its effectiveness in helping to improve students' academic achievement. At the same time, the

inquiry focuses on improving students' academic achievement; a student's overall wellness impacts, if not dictates, their academic performance. Through the implementation of an Early Alert system, as part of a comprehensive student approach focusing on student academic achievement, the specific interventions will target and produce improved academic achievement in first-year medical students. Targeted students will be more academically successful through early intervention than students who do not receive or accept interventions. This study hopes that through an Early Intervention System, students' needs will be addressed promptly and proactively to diminish the negative impacts of medical school.

Collectively, the areas of literature reviewed here explore the relationship between academic success, wellness initiatives, and effective interventions for medical students and how they could improve student academic achievement. Chapter 3 will provide the comprehensive research design of this inquiry.

CHAPTER 3: METHODS OF INQUIRY

The focus of this inquiry was to explore the influence of interventions on the success of first-year medical students by assessing student academic achievement designed around curricular reformation and wellness programming implemented through an early intervention system. My focus of practice assessed the first-year medical students during the inaugural first semester of the institution, the implementation of interventions, and students' academic success. As noted in chapter one, the timeframe changed due to events unrelated to the inquiry. This inquiry focused on the impact of an early intervention system and its effectiveness in helping to improve student's academic achievement and overall wellness. The early intervention system, collective, factored all targeted areas of student wellness into the approach with individual students. Through the implementation of an Early Alert System, a comprehensive student approach, focused on student academic achievement. The specific interventions targeted improved academic achievement in first-year medical students. The context of this inquiry was at the Orlando College of Osteopathic Medicine (OCOM) in Winter Garden, Florida. OCOM enrolled its first cohort of students in August 2024. OCOM focuses on training caring and competent physicians focused on service and wellness. As indicated in Figure 1, Method of Inquiry, the inquiry took place in three phases over the academic year from August until April. Phase I took place during orientation. Phase II was the implementation of interventions from August to January. Phase III concluded the inquiry by evaluating each student's performance and results, comparing them with their Maslach Burnout Inventory (pre and post-test).

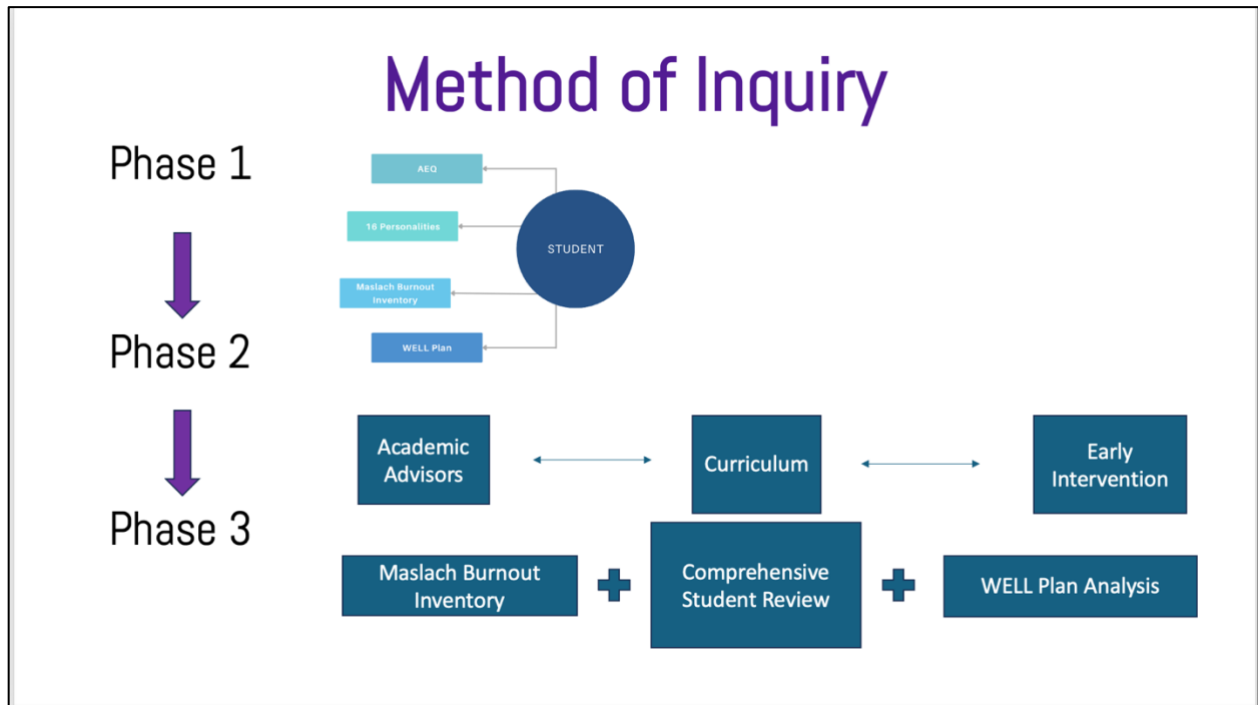


Figure 1. Method of inquiry

Inquiry Guiding Questions

The following questions guided this inquiry:

1. What effect does the intervention have on the academic success among first-year medical students?
2. What effect does the intervention have on the personal wellness among first-year medical students?
3. Assess whether the level of student wellness has a relationship with the level of academic performance.

The focus of practice was to implement an Early Alert system as part of a comprehensive student approach focused on student academic achievement; the specific interventions targeted academic achievement in first-year medical students. Operational measures and areas of practice aligned with each inquiry guiding question.

The first question was, *what effect does the intervention have on the academic success among first-year medical students at OCOM?* Students' academic ability was assessed through various inventories, resource usage, and academic performance to support academic success through early interventions. Students who were not performing well academically were identified early, and the interventions readily implemented to foster academic success. The second question was, *what effect does the intervention have on the personal wellness among first-year medical students at OCOM?* Student wellness was measured through student development of individual wellness plans. Student W.E.L.L. plans were discussed in academic advisor sessions and student self-evaluation. The third question was, *assess whether the level of student wellness has a relationship with the level of academic performance.* Using the lens of reflection with a connection to improvement, analyzing the FoP through student self-reports on wellness,

evaluating the Maslach Burnout Inventory (pre-and post-test results), and assessing resource utilization provided a picture of student total resource utilization.

Inquiry Design and Rationale

Context of the Inquiry

This study occurred at Orlando College of Osteopathic Medicine (OCOM) in Winter Garden, Florida. OCOM, a newly established osteopathic medicine higher education institution, admitted students in the fall of 2024. Orlando College of Osteopathic Medicine (OCOM) was granted pre-accreditation in August 2023 and able to start recruiting, interviewing, and accepting students to the Doctor of Osteopathy (DO) program. The inaugural class had 97 students. The DO program is a four-year program with two years of didactic and two years of clinical education. The mission and values of OCOM reflect the importance of research diversity, equity, inclusion, and implementation in the college. The mission of Orlando College of Osteopathic Medicine is to train caring and competent osteopathic physicians who will impact the Central Florida community, our nation, and our global community. OCOM's core values are innovation and continuous improvement, inclusivity and diversity, integrity, wellness, caring, and service. The first cohort of students consisted of 97 students. The average age of the students was 24. The oldest student was 48, and the youngest student was 20. The class was 54% female and 46% male. Students identified the following ethnicities: 38 White, 17 Hispanic, 36 Asian, five Black, and one American Indian. 21% of the students were first-generation college students. Economically, 9% of the students received fee waivers for the application process to medical school, 34% of students received free/reduced services during school, 14% of students' families receive government assistance, and 22% of students' families are considered economically disadvantaged. Culturally, 15% of students do not speak English as their first language.

Inquiry Partners

The critical inquiry partners were EAB, the CARE Team, a Learning Specialist, Academic Advisors, the Associate Dean for Pre-Clinical Education, the office of Medical Education Operations, a Mental Health Counselor, and the Director of Student Affairs. Each inquiry partner played a significant role in ensuring students' success.

- *EAB* – EAB, a CRM student support software, utilized at OCOM for all students, faculty, and staff. The specific program was Navigate360+. EAB worked collaboratively with the Student Information System and the Learning Management System to comprehensively examine all student profiles. EAB provided all inquiry partners and key stakeholders with the information needed to assess a student's well-being. The Navigate360+ program was the repository that held the case notes, as well as meeting documentation with any stakeholder. It allowed for alert flags to be raised on students as well as case development and management.
- *CARE Team* - OCOM CARE Team was comprised of the critical inquiry partners. The members of the team established that CARE stands for Connection, Access, Resources, Evaluation. The CARE team reviewed student data and made recommendations of potential resources for each student. The team handled case management and evaluation for all identified students.
- *Learning Specialist* - a full-time learning specialist with academic credentials in advanced education and experience advising students was available to help guide students through adjustments in time management, academic difficulties, and learning strategies. The learning specialist played an integral role as part of the intervention team. The learning specialist was available to work with all students. The learning specialist

met with any student who was flagged as not meeting academic performance expectations. Data was tracked for the inquiry regarding the specialist's usage within the EAB system.

- *Academic Advisors* - the Academic Advisor Program played a vital role at OCOM. The Academic Advisor-Advisee relationship provided insight or direction to a student about academic, professional, scholarly, and career planning issues. The nature of the direction was to inform, suggest, counsel, discipline, coach, mentor, or even teach. The OCOM advising process ensured that both biomedical science and clinical faculty were involved in student advising and establishing relationships that created an atmosphere of trust and meaningful dialogue. The Advisor-Advisee relationship ensured consistent feedback regarding academic performance and directed the student to additional resources within the institution as needed. All Advisors were essential in identifying students experiencing academic, personal, or behavioral health problems and providing them with referrals to OCOM's Office of Student Affairs, Student Support Services, and/or Behavioral Health Services. Students and faculty worked closely together in the academic arena. Students were encouraged to use the advice, expertise, and help of the faculty through the Advisor program. Students contacted their assigned Advisor frequently for guidance, encouragement, and support. Advisors assumed a proactive role and become involved with their students when performance levels failed to meet minimum academic standards. The Office of Student Affairs assigned advisors. The Director of Student Affairs appointed academic advisors to each incoming OCOM student, with input and approval from the Associate Dean for Pre-Clinical Education. All Academic Advisors were provided with the Appreciative Advising training. The Appreciative Advising model was

the framework for all the advising structure. First-year students were encouraged to see the student's assigned advisor at least twice each semester. Data tracking along with notes about meetings and referrals were housed in the Navigate360+ platform. In the platform, Academic Advisors could only access their assigned advisee students and advising notes were only visible to case managers.

- *Associate Dean for Pre-Clinical Education* - the Associate Dean for Pre-Clinical Education oversaw the pre-clinical (Years 1 & 2) of the medical school curriculum. The Associate Dean played an integral role in the delivery and structure of the curriculum. The Associate Dean for Pre-Clinical Education identified the academic metrics that indicated poor academic performance and provided data to the office of Medical Education Operations.
- *Medical Education Operations* - the Office of Medical Education Operations interfaced daily with medical students. They managed the Learning Management System and entered all grades. Once the Associate Dean for Pre-Clinical Education had identified the metrics for various assessments, the office of Medical Education Operations identified all students who were performing at or below the indicators that reflected poor academic performance and provided the information to the CARE team that allowed for data tracking through the Early Intervention System.
- *Mental Health Counselor* - for mental health counseling, OCOM kept resources for in-person and virtual visits confidential to support the student's needs. A Licensed Behavioral Health Clinician served on staff at OCOM and with students struggling academically, emotionally, or behaviorally. The role of the mental health counselor, as it

related to the inquiry, was to serve as a vital member of the CARE team. De-identified usage of behavioral health resources provided data tracking for the inquiry.

- *Director of Student Affairs* - the Director of Student Affairs oversaw all student life. They served an integral role with all students. The Director served as a member of the CARE team. They met with students who expressed concern and helped allocate appropriate resources.

The inquiry partners played a crucial role in the overall success of the focus of practice, and each inquiry partner served a unique role in the overall success of students.

Ethical Consideration

The Ethical Considerations statement serves as a commitment by the researchers to uphold ethical standards and ensure the integrity of the research process. It demonstrates a clear commitment to the participants' welfare and the research's ethical conduct. The following was the statement of ethical considerations that was used for this inquiry. All student data was deidentified.

1. *Informed Consent*: Before participating, all participants will be fully informed about the purpose, procedures, potential risks, and benefits of the research. They will receive an informed consent form detailing this information, and their voluntary participation will be explicitly obtained. The informed consent form can be found in Appendix B.
2. *Confidentiality*: All data collected during the inquiry will be kept confidential and will only be accessible to the research team. Participants' identities will be protected, and any personal information will be anonymized in any reports or publications resulting from the research.

3. *Privacy*: Participants' privacy will be respected throughout the inquiry. Any personal information collected will be stored securely and used only for the research. Participants will not be personally identifiable in any materials or presentations related to the inquiry.
4. *Minimization of Harm*: All efforts will be made to minimize potential harm or discomfort to participants. Any risks associated with participation will be thoroughly assessed, and appropriate measures will be implemented to mitigate these risks. Participants will be free to withdraw from the inquiry without penalty.
5. *Beneficence*: The research aims to advance knowledge in medical education while ensuring the well-being of participants. Potential benefits will be carefully weighed against any risks, and steps will be taken to maximize the positive impact of the inquiry on both participants and medical education.
6. *Respect for Participants*: Participants will be treated with respect and dignity throughout the research process. Their autonomy will be upheld, and they will have the opportunity to ask questions, seek clarification, and withdraw from the inquiry, if they choose, without facing any negative consequences.
7. *Compliance with Regulations*: This research will be conducted in accordance with all relevant laws, regulations, and guidelines governing research ethics. Before the commencement of the study, any necessary approvals will be obtained from institutional review boards or ethics committees. Appendix A is the IRB approval letter.

Inquiry Procedures

The inquiry was tiered into three phases as was illustrated in Figure 1, Method of Inquiry. The investigation provided an overview of a first-year osteopathic medical school student. Phase

1 occurred during orientation in August, at the beginning of the academic year. Phase 2 took place from August to January. Phase 3 was the evaluation of the intervention.

Phase I

Phase 1 addressed the guiding questions of academic success and wellness by establishing baseline data on personality type, achievement emotions, burnout, and wellness. Collaborative inquiry partners were provided with the data to help construct a personal profile for each student, which guided individual interventions.

Description of Participants and Recruitment Strategies

The participants were first-year osteopathic medical students at Orlando College of Osteopathic Medicine. Students who were willing opted to participate in the comprehensive analysis process. The first phase of the inquiry occurred with all the students during Orientation at the beginning of August. By including the instrumentation early in the curriculum, students were provided with an overview of personal awareness that could be integrated throughout the academic year.

Instrumentation

16 Personalities

Building upon Carl Jung's theory of personality typology and the Myers-Briggs Type Indicator (MBTI) developed by Katherine Briggs and Isabel Briggs Myers, the *16 Personalities* framework was created as a contemporary, research-informed model of personality assessment. Unlike traditional type-based systems, *16 Personalities* employs a trait-based approach, which "studies the degree to which people exhibit certain traits and is easier to reliably measure relationships between personality traits and other characteristics" (16Personalities, n.d.).

Grounded in the Big Five personality dimensions, which dominate modern psychological and social research, this model identifies personality types based on five independent spectrums, with each letter in the type of code representing one of two poles on each spectrum. The assessment contains 60 questions using a scale of agree to disagree. The NERIS Type Explorer, the assessment instrument used within *16 Personalities*, provides high test accuracy while maintaining the ability to define and describe distinct personality types (16Personalities, n.d.).

Personality is a key factor influencing an individual's behavior, environment, experiences, goals, and overall actions. The statistical analysis supporting *16 Personalities* confirms its reliability and validity as an assessment tool. Internal consistency has been demonstrated through Cronbach's alpha, which measures whether items on the same scale yield similar scores. Alpha values between 0.70 and 0.90 indicate strong reliability and confirm that the assessment measures all its scales effectively (16Personalities, n.d.). Additionally, results demonstrate strong test–retest reliability, discriminant validity, and internal consistency, supporting the instrument's use in educational and developmental contexts.

At student orientation, the *16 Personalities* assessment was administered to incoming students. The results provided valuable insight into individual personality profiles, promoting intentional growth and self-awareness as students engage in both curriculum and lab-based experiences. Because students are placed in small case-based learning groups throughout the program, understanding one's personality style can enhance communication, collaboration, and problem-solving within these teams. This self-knowledge offers practical tools for success—enabling students to navigate academic challenges effectively and contribute meaningfully to group dynamics. Ultimately, successful performance within case-based learning environments

will indicate that students can apply self-awareness to translate learned material into collaborative, evidence-based practice.

Achievement Emotions Questionnaire (AEQ)

The *Achievement Emotions Questionnaire (AEQ)* is a multidimensional self-report instrument designed to assess college students' achievement-related emotions. Developed through an extensive quantitative and qualitative research program, the *AEQ* examines students' emotional experiences in academic achievement contexts (Burr & Beck Dallaghan, 2019). Specifically, it measures emotions experienced across three academic settings: class-related, learning-related, and test-related environments (Goetz et al., 2011). The *AEQ* is available in Appendix C.

The *AEQ* captures a comprehensive range of major achievement emotions through 24 scales assessing nine distinct emotions—enjoyment, hope, pride, relief, anger, anxiety, shame, hopelessness, and boredom—across the three settings (Goetz et al., 2011). Instrument development was informed by theoretical models of emotion assessment, particularly those used to measure test anxiety. Consistent with contemporary conceptions of emotion, the *AEQ* is grounded in a multi-component definition of achievement emotion that incorporates affective, cognitive, motivational, and physiological processes (Goetz et al., 2011).

The conceptual framework underlying the *AEQ* is the Control-Value Theory of Achievement Emotions (Goetz et al., 2011). According to this theory, achievement emotions arise when individuals perceive themselves as in control of—or lacking control over—activities and outcomes that hold personal importance. Appraisals of control (perceived influence over outcomes) and value (subjective significance of those outcomes) serve as the proximal

determinants of these emotions. Because academic contexts vary in structure and social function, emotional experiences are expected to differ across settings.

Control-Value Theory further classifies emotions along two dimensions: valence (positive or negative) and activation (activating or deactivating). The four resulting categories are:

- Positive activating: enjoyment, hope, pride
- Positive deactivating: relief
- Negative activating: anger, anxiety, shame
- Negative deactivating: hopelessness, boredom

In this inquiry, students completed the *AEQ* and receive individualized results. These results are used to facilitate intentional discussions about emotional experiences and academic success with key stakeholders, including academic advisors, learning specialists, course directors, and behavioral health counselors. Through this process, the *AEQ* results will support the development of students' self-awareness, resilience, and emotional regulation within a rigorous medical education curriculum.

Maslach Burnout Inventory (MBI) – Student Survey

The *Maslach Burnout Inventory (MBI)* measures burnout as defined by the World Health Organization (WHO) and the International Classification of Diseases (ICD-11) as an occupational phenomenon. Burnout is a syndrome conceptualized as resulting from chronic workplace stress that has yet to be successfully managed. It is characterized by three dimensions: 1) feelings of energy depletion or exhaustion; 2) increased mental distance from one's job, or feelings of negativism or cynicism related to one's job; and 3) reduced professional efficacy (Maslach et al., 2024). Herbert Freudenberger first described burnout in 1974 as a "state of

mental and physical exhaustion caused by one's professional life" (Obregon et al., 2020, p. 20). According to Obregon et al., the rate of self-reported burnout among physicians in the United States increased from 40-51% from 2013 to 2017, respectively (2020).

Acquiring a better understanding of the predictors of burnout may allow for resolutions to be developed that target the most severe cases. If the most significant cases are addressed, it may be possible to reduce the rate of burnout and improve the well-being of future physicians throughout their undergraduate and graduate medical education. The 15-item *MBI-SS* is a validated tool that can assess burnout in medical students and recognized as the leading measure of burnout (Obregon, 2020). The *MBI-SS* is available in Appendix D.

The medical students took the *MBI-SS* during orientation for baseline data of entering students at the beginning of the academic year. The students retook the *MBI-SS* at the end of the first academic semester to determine the level of burnout. As a result, students who took the *MBI* were able to identify their level of burnout and, as necessary, sought out the appropriate student-support resources.

National Wellness Institute (NWI) Six Dimensions of Wellness: Defining and Assessing Wellness

The *National Wellness Institute (NWI) Six Dimensions of Wellness: Defining and Assessing Wellness* is a multidimensional wellness approach that considers the whole person can be helpful in every human endeavor. The NWI Six Dimensions of Wellness model raises awareness of the interconnectedness of each dimension and how they contribute to living a healthy life (NWI, 2023). Self-awareness paves the way to understanding why how individuals feel what they feel and behave in ways with awareness. Individuals are equipped to accept things about themselves that they cannot change and change what they can to create the life they want.

By mindfully focusing on wellness, individuals can build resilience and enable themselves to thrive amidst life's inevitable personal and professional challenges.

Students had the opportunity during orientation to craft their individual W.E.L.L. Plan. Each student received the *NWI Six Dimensions of Wellness Defining and Assessing Wellness* manual to correspond with their W.E.L.L. Plan. By crafting a W.E.L.L. plan, students were equipped to overcome obstacles better, face challenges head-on, manage stress, understand others, develop greater compassion and empathy, and build their wellness, well-being, and resilience skills. Awareness is a valuable tool that helps one evaluate whether they are, identify where they want to be, set achievable goals, and navigate their journey more easily. The end of semester evaluation was a student survey assessing all areas of student wellness domains. The W.E.L.L. Plan is in Appendix E.

Baseline Data Collection

The first instrumentation phase occurred during orientation week at the beginning of the academic year. Students who chose to complete the various instruments, were provided an opportunity for personal reflection and shape each student's most successful learning modality.

Summary of Phase I

The assessments provided to students during Phase I established baseline findings about individual students. The hope was that students became more self-aware and in turn helped promote better resource utilization, ultimately leading to academic success. All assessments were specifically chosen for this phase due to each's validity and use in education populations. Each assessment allowed for students' growth and development in their professional identity formation as new medical students. A part of setting students up for success was encouraging wellness as a core component in their foundation. A part of a student's wellbeing is

understanding who they are, how they interact with others, and how others receive and respond to them.

Summary of Phase II

Phase II took place from August to January and encompassed the totality of the inquiry's interventions. Research by Klein and McCarthy (2023) supports the idea that the medical school environment can profoundly impact a student's mental health. Phase II of the inquiry included the early intervention system. "Reasons for struggling are not always clear cut and usually a mixture of academic, personal, social, financial and health factors" (Picton et al., 2022, p. 2). A core aspect of the early intervention system includes a student-centered approach of tiered alerts and case management. Case management includes critical stakeholders to ensure struggling students' needs are appropriately addressed. Academic staff strive to identify struggling students at an early stage. Early identification of these issues could lead to provision of targeted academic support, giving each student their best opportunity to succeed in medical school (Picton et al., 2022).

The tiered alert system was set as a three-prong approach. Tier 1 was a caution alert. A student had performed below the expected academic threshold on a quiz. They were considered an academic risk. The student was encouraged to seek assistance from the learning specialist. The student's advisor was notified. Tier 2 was triggered when a student failed a quiz or exam. A case was opened, and the student was discussed by the CARE team. The student was assigned to the learning specialist and encouraged to meet with the specialist and an academic advisor. The student was notified of the concerns, and a record of case notes and appointments were logged in Navigate 360+. Tier 3 was considered after a case has been opened on a student and student was

still in extreme risk of failing a course, had failed the course, or was at risk from a social emotional perspective.

Phase II used the early intervention system Navigate 360+ to monitor students' progress. Developing early intervention metrics within the system allowed for appropriate monitoring of each student. Key stakeholders raised alerts, created cases, and created care-tiered-level response plans for each student, depending on their needs. Students could also self-identify and ask for help from various resources. The CARE Team worked with each student to meet all needs. Phase II worked collaboratively across the curriculum and student support structure to help students succeed academically.

Summary of Phase III

Phase III was the evaluative phase of the inquiry. The ultimate value of assessment must be measured by its contribution to student success and its impact on improved academic success. Academic success at this stage was defined by a student passing the medical school courses. Through evaluation, “a common, understandable language is being developed to communicate to internal and external groups the value of evidence of student learning and its potentially consequential impact” (Kuh et al., 2015, p.8). The inquiry looked at the total success of the student throughout their first semester of medical school. Students completed the *MBI-SS* again to provide a pre and post-test result of the inventory for each student. The students also completed a self-assessment of their W.E.L.L. plan after one semester. The students evaluated and set goals for spring semester regarding their wellness plans.

Evaluation can provide deeper learning for students. “The process can be powerful, giving students a greater sense of agency and contributing to changes that will make the

institution more effective for other students now and in the future” (Kuh et al., 2015, p. 114).

Phase III provided a comprehensive view of each student’s first semester of medical school.

Inquiry Design Rigor

Delimitations, Limitations, and Assumptions

Delimitations and Scope

The inquiry's scope was a medical school with 97 students in its first year of operation. The inquiry focused on student success and monitored with tools like EAB Navigate 360+ software, a learning management system, academic advising reports, and student self-reports.

Limitations

The framework for my inquiry, had no pre-existing data surrounding the site, created limitations. Various resources for data tracking and student assessments collaboratively formed a picture of student performance and wellness at the end of the first academic semester. Only having one semester of data presented difficulty in displaying the ability of the inquiry for long-term success. The findings' generalizability was limited due to the unique culture, curriculum, and resources available at the site. However, efforts were made to provide sufficient detail and context to support the transferability of results (Lincoln & Guba, 1985) to other sites.

Assumptions

Several assumptions were incorporated into the inquiry. The students must be first-year medical students and receive the same curriculum. They must have had access to the same resources. Students were assigned an Academic Advisor and actively participated in the Navigate 360+ system.

Role of the Scholarly Practitioner

As a scholarly practitioner, I bridge the gap between theory and practice, ensuring that academic insights translate into practical real-world applications. My experiences have profoundly influenced my professional journey in student services in medical education, shaping my understanding of the diverse needs and challenges students face. I recognize that my educational background shapes my perspectives. Working in educational settings, I became keenly aware of the systemic barriers that can impede student success. This awareness drives my commitment to equity and inclusion in all aspects of my work. My belief in the transformative power of education is central to my practice. I am guided by the conviction that every student deserves access to the resources and support necessary to thrive academically and personally. This belief informs my approach to developing and implementing student support systems like Navigate360+. However, I am also aware of the potential biases that stem from my positionality. My strong sense of student advocacy may influence my judgment. To mitigate this, I continuously self-reflect and seek diverse perspectives to inform my practice. I am committed to listening to and learning from the voices of students, colleagues, and community members to ensure that Navigate360+ is responsive to their needs and realities. In my scholarly work, I aim to contribute to the body of knowledge that informs best practices in student support. I aim to leverage my positionality to advocate for policies and practices that promote equity, access, and success for all students. By remaining mindful of my positionality, I aspire to be a reflective and effective practitioner who impacts the educational experiences and outcomes of the students I serve.

Summary

This inquiry focused on the impact of an early intervention system and its effectiveness in helping to improve student's academic achievement and overall wellness. The study took place

in three phases over the academic year from August until January. Phase I took place in August. Phase II was the implementation of interventions from August to January. Phase III was the final phase of evaluating the overall inquiry. Guided by the inquiry's guiding questions, the research provided a comprehensive view of early intervention and student success in a student's first semester in medical school. Chapter 4 will provide the data collected through the study.

CHAPTER 4: RESULTS

The focus of practice for this inquiry was to implement an early intervention system as part of a comprehensive student approach focused on student academic achievement and wellness. The specific interventions targeted were intended to produce improved academic achievement in first year medical students. The research questions for this inquiry explored what effect the intervention had on academic success among first-year medical students; explored what effect the intervention had on the personal wellness among first year students; and assessed the relationship with the level of student wellness and the level of academic performance. The research design was a mixed methods with both qualitative and quantitative analysis of various instrumentation tools, charts of student performance, and survey of well plans. Chapter 4 presents the collected data from the inquiry and results of the data analysis.

Data Collection

Phase I data collection started during orientation week. The information about the research inquiry was presented to the students along with the research consent for participation. Students also received an email with an overview of the research consent and the QR code. Students could opt into participation. Each assessment was presented and described to students before the QR codes were presented to ask for participation in each assessment. Students had the option to participate and the number of students who completed each assessment varied. The assessments were meant to provide insights to answer each of the three research questions. The *16 Personalities* and the *Achievement Emotions Questionnaire* provided insight for research question 1. The pre-test of the *Maslach Burnout Inventory-Student Survey* and the *W.E.L.L. plan* provided insight for research question 2. The post-test of *Maslach Burnout Inventory-Student Survey* and the evaluation of the *W.E.L.L. plan* provided insight for research question 3. During

Phase I of the inquiry, 27 students completed the *16 Personalities* assessment, 95 students completed the *AEQ*, 27 students completed the *MBI-SS*, and 97 students completed their *W.E.L.L.* plans. For the post-assessments during Phase III, 45 students completed the *MBI-SS* and 19 students completed the self-reflection survey about their *W.E.L.L.* plans.

As mentioned in Chapter 1, due to unforeseen circumstances not related to my inquiry, the timeline of data collection was reduced from the entire academic year (August to May) to first semester only (August to January). Data was collected on each participating student from August through the end of January. The *Maslach Burnout Inventory Student Survey (MBI-SS)* pre-test was given in August during Orientation and the post-test in December near the end of first semester. The *National Wellness Institute (W.E.L.L.)* plan was established during orientation and a student reflection survey about their *W.E.L.L.* plan was provided in December near the end of the first semester.

Appreciative Advising and Leadership Summit

Additional items that contributed to the inquiry, but not tracked, were training all academic advisors in the Appreciate Advising model (Bloom et al., 2008) and conducted a leadership summit for all student leaders of student organizations.

Appreciative Advising

Appreciative Advising is a model for academic advising. It is a comprehensive theory based on “empirically proven conceptualization of advising” (Bloom, et al., 2008, p. 6). Academic advisors received the appreciative advising training at the beginning of the academic year by a certified facilitator during a faculty development workshop. Advisors were trained on the tools needed to implement strategies effectively and with fidelity. Many faculty serving as advisors were clinical faculty, and as such, did not have a great deal of academic advising

experience and training. The Appreciative Advising model provided the construct for successful advising strategies. The heart of appreciative advising is the student. “As a social constructivist advising philosophy that provides a framework for optimizing advisor interactions with students in both individual and group settings” (Bloom et al., 2008, p. 111). The Appreciative Advising training allowed faculty, with no previous experience with student academic advising, with the training and tools that provided meaningful advising services using common language in the advising sessions with all students. Academic advisors played a crucial role in the fidelity and implementation of interventions in tracking student success. Each academic advisor was assigned 7-8 students.

Leadership Summit

The Leadership Summit was a four-week leadership series provided by various leaders at the school for all students serving in a leadership role in a student organization. The summit was held in January and required for all leaders to participate. 89 out of 97 students participated in the leadership development series. Student organizations were a large portion of student life and engagement. Before the summit, each student was given the *DISC* Assessment and based on results was grouped accordingly for each session. The series focused on leadership formation and development for each student. Students focused on strengths and weaknesses, interaction styles, reflective role-playing, and scenario-based skill building. The summit allowed for students to grow as a leader and future medical professional.

Demographics

The demographics of the cohort provided a comprehensive view of the student body for the Class of 2028. All participants in the inquiry were first-year medical students at Orlando College of Osteopathic Medicine. The first cohort of students consisted of 97 students. The

Admissions Dashboard for the Class of 2028 is featured in Figure 2. The average age of the students was 24. The oldest student was 48, and the youngest student was 20. The class was 54% female and 46% male. Students identified the following ethnicities: 38 White, 17 Hispanic, 36 Asian, five Black, and one American Indian. 21% of the students were first-generation college students. Economically, 9% of the students received fee waivers for the application process to medical school, 34% of students received free/reduced services during school, 14% of students' families receive government assistance, and 22% of students' families were considered economically disadvantaged. Culturally, 15% of students do not speak English as their first language.

Data

Phase I

Phase I was completed during Orientation in July of 2024. Phase I included students participating in the *16 Personalities* Assessment, *Achievement Emotions Questionnaire*, *Maslach Burnout Inventory – Student Survey*, and the National Wellness Institute *W.E.L.L.* plan. As part of orientation, students completed the *16 Personalities* assessment and participated in guided discussions to explore how their personality type influences learning, collaboration, and communication. Understanding these differences promotes self-awareness and supports the development of a supportive, inclusive learning community. Additional information about personality and personality types was presented to deepen students' understanding of how personality shapes interactions and dynamics within the educational environment. The *Achievement Emotions Questionnaire (AEQ)* was used to examine changes in medical students' emotional experiences across three phases of the academic cycle: before beginning coursework,

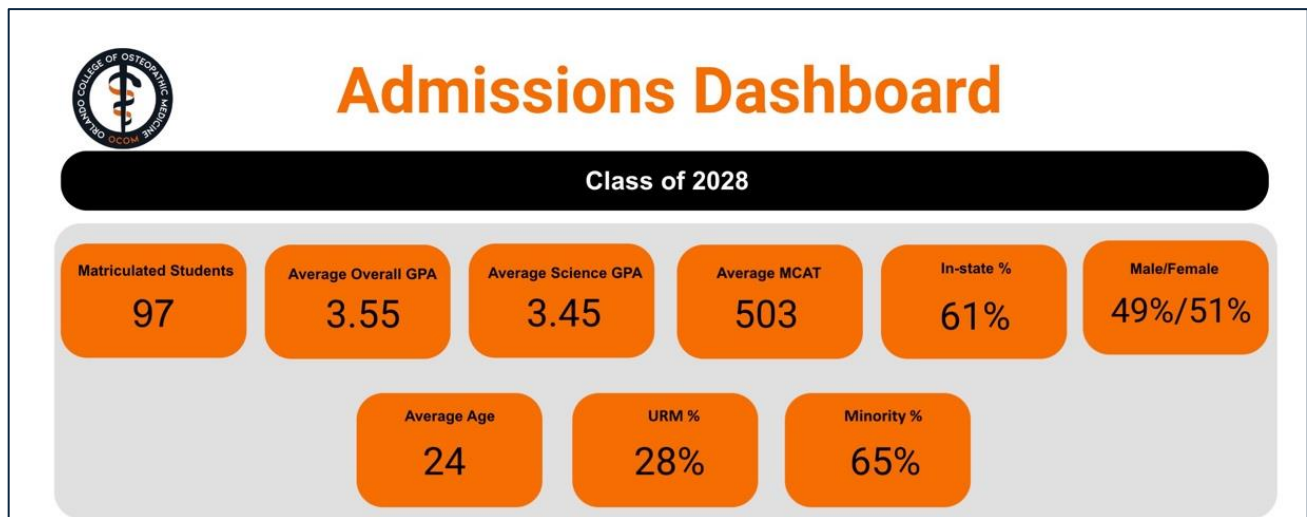


Figure 2. Admissions dashboard

during active study, and after course completion. *Maslach Burnout Inventory – Student Survey*, was given as a pre-test to measure the levels of burnout students felt prior to medical school beginning. Students received information about the importance of wellness for maintaining balance and preventing burnout while navigating a rigorous medical curriculum and provided with a *W.E.L.L.* plan for individual development.

Data Collection

Qualtrics was the primary tool used to support analysis of the data for Phase I of the inquiry. The research consent form, the *AEQ*, and the *MBI-SS* data was stored within the Qualtrics software under administrator log-in. The *16 Personalities* assessment was kept under administrator login on the *16 Personalities* website. The *W.E.L.L.* plan was kept individually by students. Each student was handed a paper copy of the NWI *W.E.L.L.* plan.

Data Analysis

The *16 Personalities* assessment was completed by 27 participants to examine the range of personality preferences present in the cohort. As featured in Table 1, Distribution of Personality Types Among Participants, the analysis revealed four major temperament groups—Diplomats, Analysts, Sentinels, and Explorers—and fourteen individual personality types. For the *AEQ*, quantitative analysis was conducted on responses from 86–93 participants per phase. Descriptive and reliability statistics were computed to evaluate internal consistency and identify trends across five core emotion domains—enjoyment, hope, anxiety, hopelessness, and anger. Scores were rated on a 5-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree). Mean composite scores for each emotion domain are displayed in Table 2. Table 2 shows the Mean Achievement Emotion Scores Across Phases of Medical Training. Descriptive analysis of the *Maslach Burnout Inventory–Student Survey (MBI-SS)* revealed that students reported moderate

Table 1

Distribution of Personality Types Among Participants

Personality Type	Group Classification	Frequency	Percentage
Logician (INTP-A)	Analyst	1	33.3%
Commander (ENTJ-A/T)	Analyst	5	
Debater (ENTP-A)	Analyst	3	
Advocate (INFJ-T)	Diplomat	1	51.9%
Mediator (INFP-T)	Diplomat	1	
Protagonist (ENFJ-A/T)	Diplomat	8	
Campaigner (ENFP-A/T)	Diplomat	4	
Executive (ESTJ-A/T)	Sentinel	2	11.1%
Consul (ESFJ-T)	Sentinel	1	
Entertainer (ISFP-T)	Explorer	1	3.7%

Note. Results reflect responses from 27 participants who completed the *16 Personalities* assessment.

Personality types are categorized into four primary groups—Analysts, Diplomats, Sentinels, and Explorers—based on the NERIS Type Explorer framework. Diplomats represented the largest group (51.9%), followed by Analysts (33.3%), Sentinels (11.1%), and Explorers (3.7%). The most frequently occurring individual types were ENFJ (Protagonist) and ENTJ (Commander).

Table 2

Mean Achievement Emotion Scores Across Phases of Medical Training

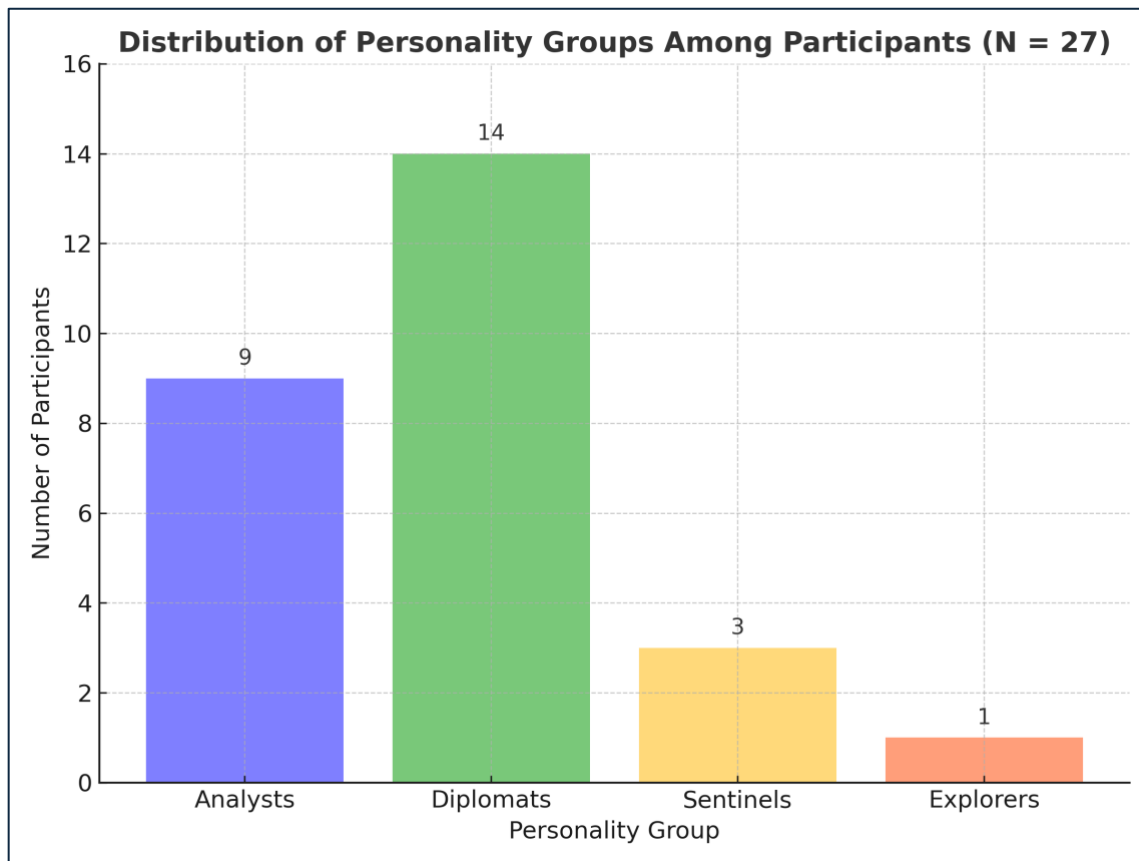
Emotion Domain	Before School	During School	After School
Enjoyment	3.67	3.53	4.21
Hope	3.39	3.00	4.05
Anxiety	3.66	2.94	3.43
Hopelessness	3.36	2.81	2.56
Anger	3.12	1.79	2.67

Note. Values represent mean composite scores (1 = Strongly Disagree, 5 = Strongly Agree) for five AEQ emotion domains—enjoyment, hope, anxiety, hopelessness, and anger—at three phases of the medical-education experience (Before School, During School, and After School). Higher values indicate greater endorsement of that emotion. Positive emotions (enjoyment, hope) increased across time, while negative emotions (anger, anxiety, hopelessness) decreased, demonstrating an overall pattern of emotional growth and adaptation among medical students.

emotional exhaustion and low cynicism, coupled with high perceived academic efficacy. 97 students participated in the National Wellness Institute (W.E.L.L.) program, which guided them in developing individualized wellness plans. Each plan addressed the six domains of wellness outlined in the NWI model—physical, intellectual, emotional, social, spiritual, and occupational (NWI, 2023). Students were encouraged to integrate their wellness strategies into their daily routines and to dedicate at least 20 minutes each day to a wellness-focused activity.

Results

For *16 Personalities*, as shown in Table 1, Distribution of Personality Types Among Participants, and Figure 3, Distribution of Personality Groups Among Participants, Diplomats comprised the largest portion of the sample ($n = 14$, 51.9%), followed by Analysts ($n = 9$, 33.3%), Sentinels ($n = 3$, 11.1%), and Explorers ($n = 1$, 3.7%). Within the Diplomat group, Protagonists (ENFJ) were most common ($n = 8$), reflecting individuals who are empathetic, persuasive, and guided by shared purpose—traits conducive to leadership and service in healthcare. Analysts included five Commanders (ENTJ) and three Debaters (ENTP), representing strategic, decisive, and visionary thinkers who often assume leadership roles. The smaller Sentinel subset (Executives [ESTJ] and Consul [ESFJ]) contributed structure, dependability, and organizational strength, while the single Explorer (ISFP – Entertainer) added adaptability and creative energy to the cohort dynamic. Across all personality codes, both Assertive (A) and Turbulent (T) variants were represented. Turbulent types were slightly more prevalent, suggesting that students may lean toward self-reflective, improvement-oriented tendencies—qualities aligned with conscientiousness and self-awareness in demanding academic environments. Overall, this distribution highlights a cohort dominated by people-centered



Note. Bar chart illustrates the proportional representation of each personality group based on the 16 Personalities model (N = 27). Diplomats were the most prevalent, followed by Analysts, with smaller numbers of Sentinels and Explorers.

Figure 3. Distribution of personality groups among participants.

Diplomats and goal-oriented Analysts, supported by smaller but complementary groups of Sentinels and Explorers.

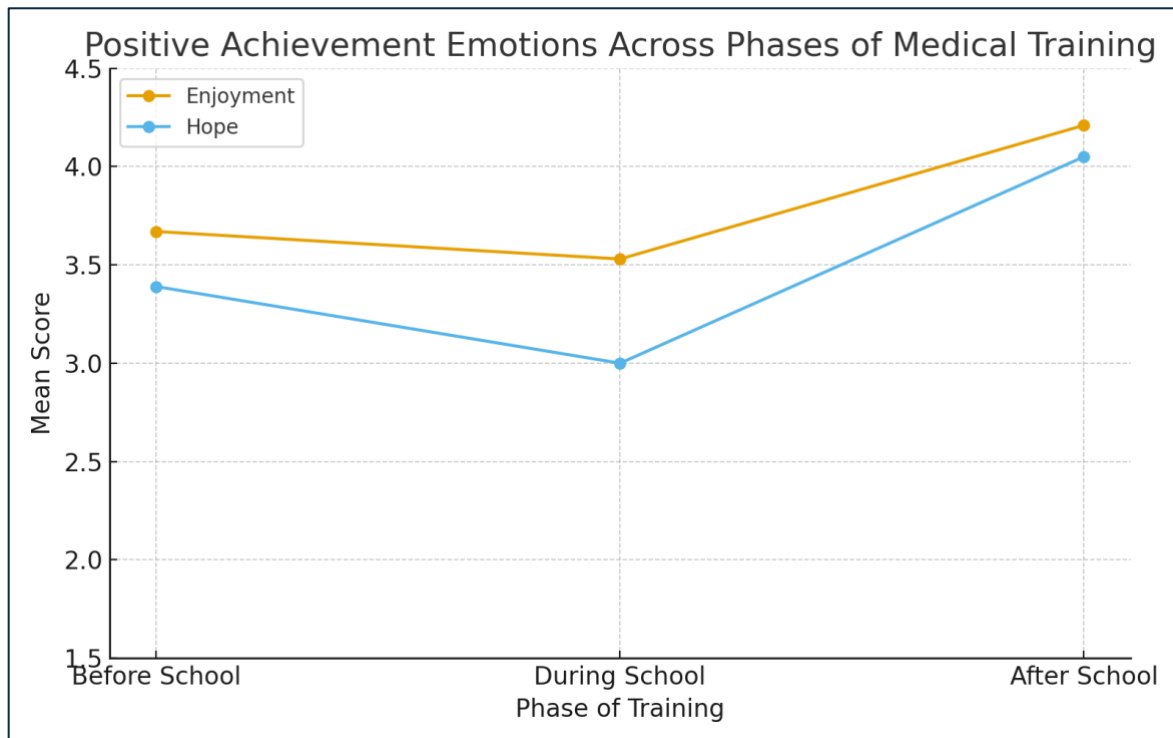
The results from the *AEQ* showed, prior to matriculation, students reported moderately high enjoyment ($M = 3.67$) and hope ($M = 3.39$), coupled with modest levels of anxiety ($M = 3.66$). During coursework, enjoyment and hope remained relatively stable, while anger and hopelessness decreased. Following course completion, all positive emotions increased and negative emotions declined, suggesting the development of emotional resilience and a sense of accomplishment. These longitudinal patterns are visualized in Figure 4, Positive Achievement Emotions Across Phases of Medical School Training, and 5, Negative Achievement Emotions Across Phases of Medical Training, which depict upward trends in enjoyment and hope and downward trends in hopelessness and anger across the three time points.

For the *Maslach Burnout Inventory – Student Survey*, as shown in Table 3, Descriptive Statistics for *MBI-SS* Subscales, the mean emotional exhaustion score ($M = 2.51$) suggests occasional experiences of fatigue and stress, whereas cynicism ($M = 1.95$) was notably lower, indicating maintained academic engagement. High academic efficacy ($M = 5.09$) reflects students' strong sense of competence and resilience in managing study demands. Together, these findings indicate that, at the beginning of the academic year, participants demonstrated healthy levels of motivation and self-efficacy.

As the *W.E.L.L.* plans were individualized, no data was collected at the time of initial creation.

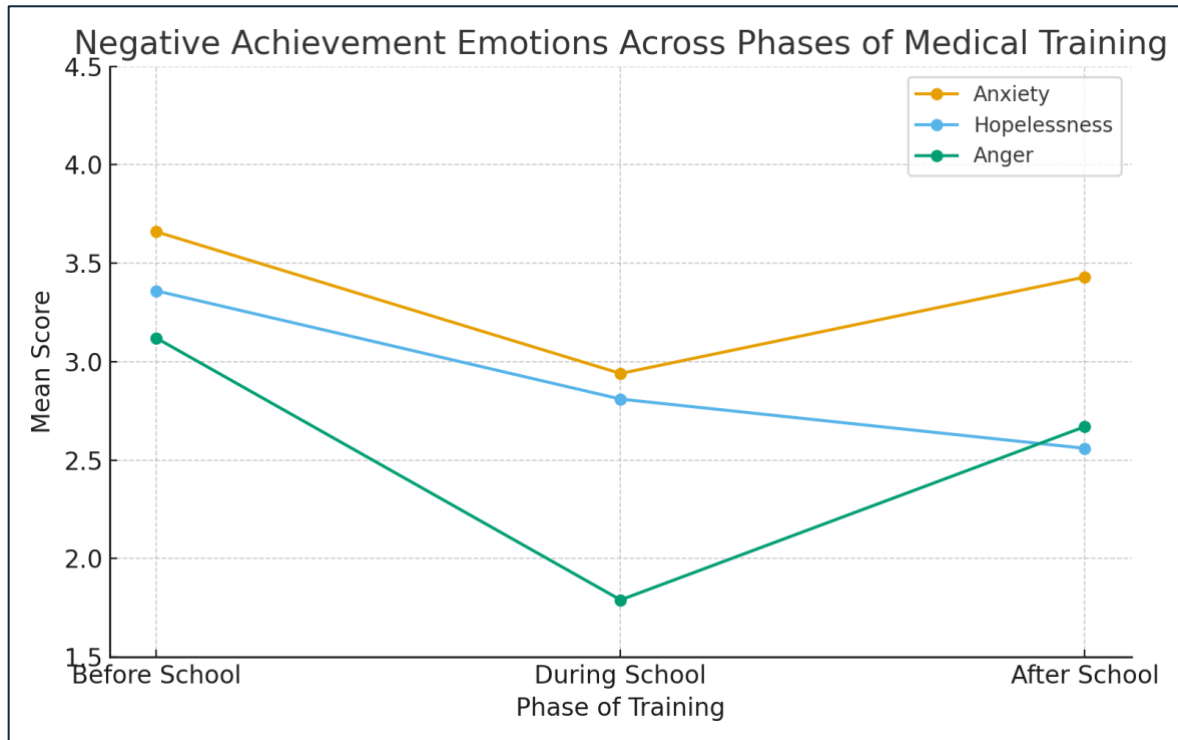
Phase II

During the first semester, each student was enrolled in four individual systems-based courses and five longitudinal courses. The curriculum style of the medical school emphasized the



Note. Mean scores for five emotion domains—enjoyment, hope, anxiety, hopelessness, and anger—were measured using the Achievement Emotions Questionnaire (AEQ) at three time points: before, during, and after coursework. Scores were rated on a 5-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree). Students reported higher enjoyment and hope and lower hopelessness and anger over time, reflecting increased emotional adaptation and resilience across the medical-training continuum.

Figure 4. Positive achievement emotions across phases of medical training.



Note. Mean scores for five emotion domains—enjoyment, hope, anxiety, hopelessness, and anger—were measured using the Achievement Emotions Questionnaire (AEQ) at three time points: before, during, and after coursework. Scores were rated on a 5-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree). Students reported higher enjoyment and hope and lower hopelessness and anger over time, reflecting increased emotional adaptation and resilience across the medical-training continuum.

Figure 5. Negative achievement emotions across phases of medical training

Table 3

Descriptive Statistics for MBI-SS Subscales

Subscale	Mean	SD	Min	Max	N
Emotional Exhaustion	2.51	1.29	0.00	5.00	27
Cynicism	1.95	0.92	0.33	3.67	27
Academic Efficacy	5.09	0.80	3.00	6.00	27

Note. Values represent mean composite scores (0 = Never, 6 = Every day) for each of the three MBI-SS subscales. Higher scores on Emotional Exhaustion and Cynicism indicate greater burnout, whereas higher scores on Academic Efficacy indicate greater perceived competence.

importance of self-learning approach and the student's ability to recognize individual needs. An early intervention system was implemented to support medical students through proactive monitoring and outreach. The OCOM Care Team established processes and procedures that ensured that student confidentiality was protected and FERPA was taken into consideration.

Data Collection

Each Monday, students completed a weekly assessment in the form of a quiz or examination. Assessment results were compiled by the Office of Medical Education Operations and shared with the Registrar. Following each assessment, the Registrar generated a list of students who either failed or were identified as academically at risk. The results were entered into a master tracking spreadsheet, where student performance was visually coded: green for passing, yellow for at-risk, and red for failing. Data was then uploaded into the Navigate360+ system. The software Navigate 360+ was the repository for the student academic data and interventions received. The software was launched and throughout the semester, students and advisors attended training and gained familiarity with the software and its uses. The inquiry partners and students received notifications via email and text message.

Data Analysis

Systems-based courses ranged from 4 – 8 weeks in length and longitudinal courses lasted the entire semester. Course grades were on a pass/fail grading scale. Remediation for any course failures happened at the end of the semester during December prior to the students' holiday break. Depending on the student's performance category, an alert or case was created to initiate appropriate follow-up actions. Key academic and student support inquiry partners were notified within the system, and relevant notes were documented to track outreach and response. Students received timely communication outlining their status and recommended next steps for academic

improvement or support. Students had the ability to schedule appointments with appropriate resources.

As indicated in Table 4, Course-Level Outcomes, course-level analyses of the first semester osteopathic medical school curriculum demonstrated consistently strong academic performance, reflecting the effectiveness of early identification and targeted support. Most courses reported universal or near-universal pass rates on final assessments, with small early pockets of “At-Risk” or “Fail” students resolved through proactive intervention. Courses such as Infectious Disease and Foundations initially displayed the highest proportion of at-risk students (approximately 12–15%), but these students ultimately achieved passing outcomes following Navigate360+ alerts and coordinated faculty follow-up. Other courses—including Clinical Skills, Medical Humanities, Learning Consolidation, OMM, and Research Fundamentals—maintained 100% pass rates, which suggested consistent mastery and stable course design. The pattern of improvement across courses aligned with the early-intervention model implemented through the Navigate360+ system.

Navigate 360+ provided analytic reports of usage of the software. Reports of communication usage indicated that 82 communications were sent first semester – 65 emails and 17 text messages. The appointments report indicated that 133 appointments were created with 63 distinct students. The distinct student’s category indicated students who made appointments frequently. Attendance categories included scheduled appointments, drop-in visits, no-show appointments, and canceled appointments. There were 82 scheduled appointments, 30 drop-in visits, 3 no-show appointments, and 20 canceled appointments. The attendance dashboard included kiosk visits, so the appointment and student numbers did not match those in the appointment report.

Table 4

Course-Level Outcomes

Course Name	Course Type	N	N Pass	N Fail
Foundations	Systems-based	97	96	1
Infectious Disease	Systems-based	96	92	4
Hematology/Oncology	Systems-based	96	94	2
Dermatology	Systems-based	96	95	1
OMM	Longitudinal	96	96	0
Research Fundamentals	Longitudinal	96	96	0
Clinical Skills	Longitudinal	96	96	0
Medical Humanities	Longitudinal	96	96	0
Learning Consolidation	Longitudinal	96	96	0

Results

Student academic performance was tracked on the 97 first-year students. After the first course, Foundations, one student did withdraw from the program due to personal reasons. The number of participants reduced to 96 students. Weekly monitoring, rapid data entry, and cross-departmental communication allowed the learning specialist, the assigned academic advisor, and as needed the mental health counselor to respond quickly to student needs. This data-driven workflow transformed isolated performance indicators into actionable cases, ensuring that academic, behavioral, and wellness supports were deployed early and effectively. By the end of the term, all students who were previously flagged as at risk had successfully remediated and passed, underscoring the value of a coordinated early-alert infrastructure in promoting persistence and academic success within the medical curriculum.

Phase III

At the end of the semester, students had the ability to take the *MBI-SS* assessment again to gauge their level of burnout after a semester of medical school and were offered the opportunity to complete a self-reflection survey on their W.E.L.L. plan.

Data Collection

The *Maslach Burnout Inventory - Student Survey (MBI-SS)* was provided as a post-test to the students and results were housed in the Qualtrics software under administrator log-in. For individual wellness evaluations, students were given a survey through Wufoo. The data was stored within the Wufoo platform under administrator log-in.

Data Analysis

As shown in Table 5, Descriptive Statistics for Post-Test *MBI-SS* Subscales, the participants demonstrated moderate emotional exhaustion ($M = 3.01$, $SD = 1.47$) and low-to-moderate cynicism ($M = 2.42$, $SD = 1.08$), suggesting that while academic strain increased slightly, it did not reach critical burnout levels. Academic efficacy ($M = 4.51$, $SD = 0.83$) remained relatively high, indicating that most students retained confidence in their academic capabilities despite increased fatigue and stress. As shown in Table 6, Pre- and Post-Test Descriptive Statistics for *MBI-SS* Subscales, at the beginning of the academic year, students demonstrated moderate emotional exhaustion ($M = 2.51$), low cynicism ($M = 1.95$), and high academic efficacy ($M = 5.09$), suggesting healthy engagement and confidence. By the end of the semester, scores indicated a mild upward shift in emotional exhaustion ($M = 3.01$) and cynicism ($M = 2.42$), accompanied by a decline in academic efficacy ($M = 4.51$). This pattern suggests that students experienced increased stress and fatigue as coursework progressed, likely reflecting adjustment to academic rigor and cumulative workload. Figure 6 depicts the mean scores for the *MBI-SS* administered during Orientation and Figure 7 depicts the mean scores for the *MBI-SS* post-test. Figure 8 is a visual bar graph representation of pre vs post-test mean scores for the *MBI-SS*. Despite these shifts, overall burnout levels remained moderate, indicating relative emotional stability during the first semester of training.

Nineteen students completed the end-of-semester wellness self-evaluation. Responses were analyzed using the *National Wellness Institute's* six-domain model—Physical, Emotional, Social, Spiritual, Occupational, and Intellectual. Quantitative selections of wellness strengths and improvement areas were tallied, and open-ended reflections were thematically coded to these domains. Students' end-of-semester reflections illustrated a balanced but evolving sense of wellness across domains. The majority identified intellectual and financial wellness as current

Table 5

Descriptive Statistics for Post-Test MBI-SS Subscales

Subscale	Mean	SD	Min	Max	N
Emotional Exhaustion	3.01	1.47	0.4	5.4	40
Cynicism	2.42	1.08	0.33	4.67	40
Academic Efficacy	4.51	0.83	2.2	6.0	40

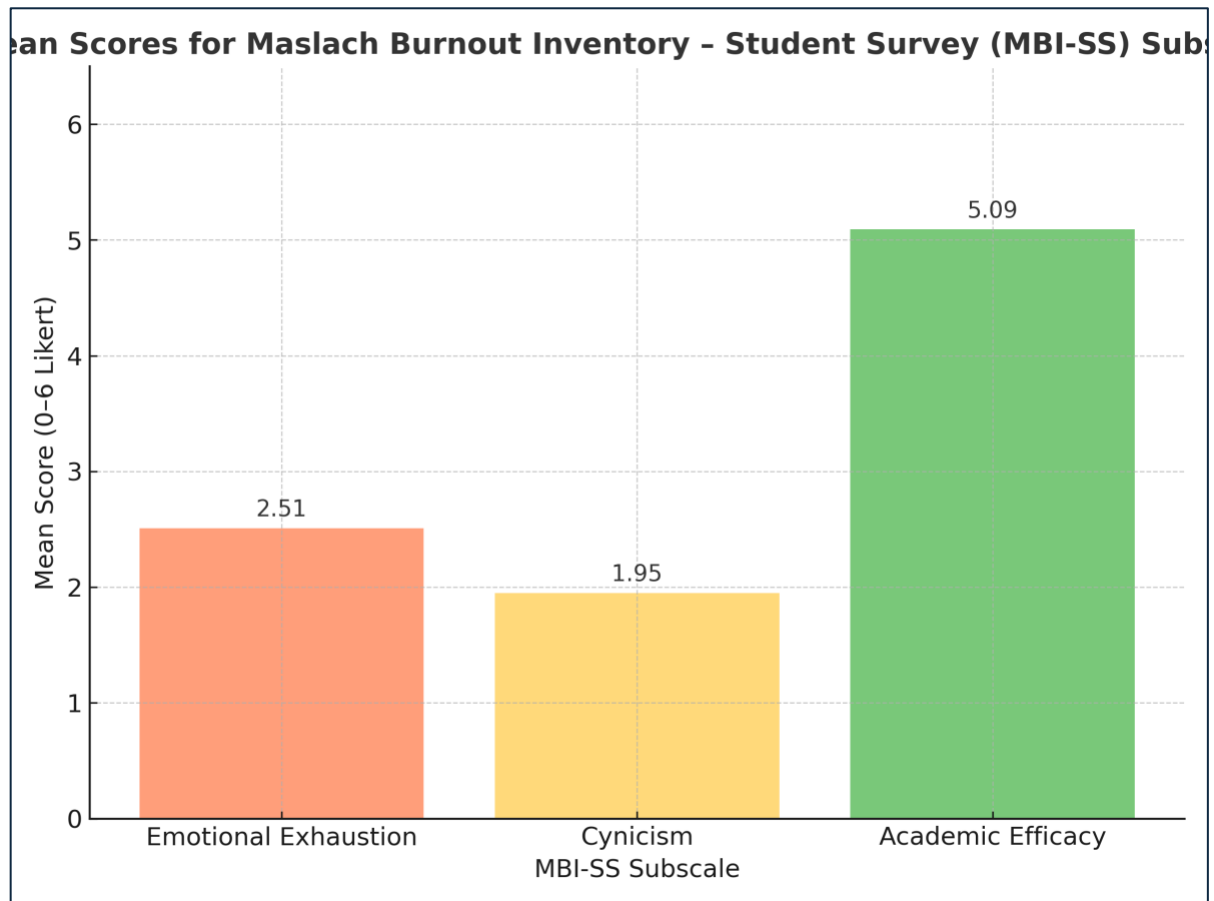
Note. Values represent mean composite scores (0 = Never, 6 = Every day) for each of the three MBI-SS subscales. Higher scores on Emotional Exhaustion and Cynicism indicate greater burnout, whereas higher scores on Academic Efficacy indicate greater perceived competence.

Table 6

Pre- and Post-Test Descriptive Statistics for MBI-SS Subscales

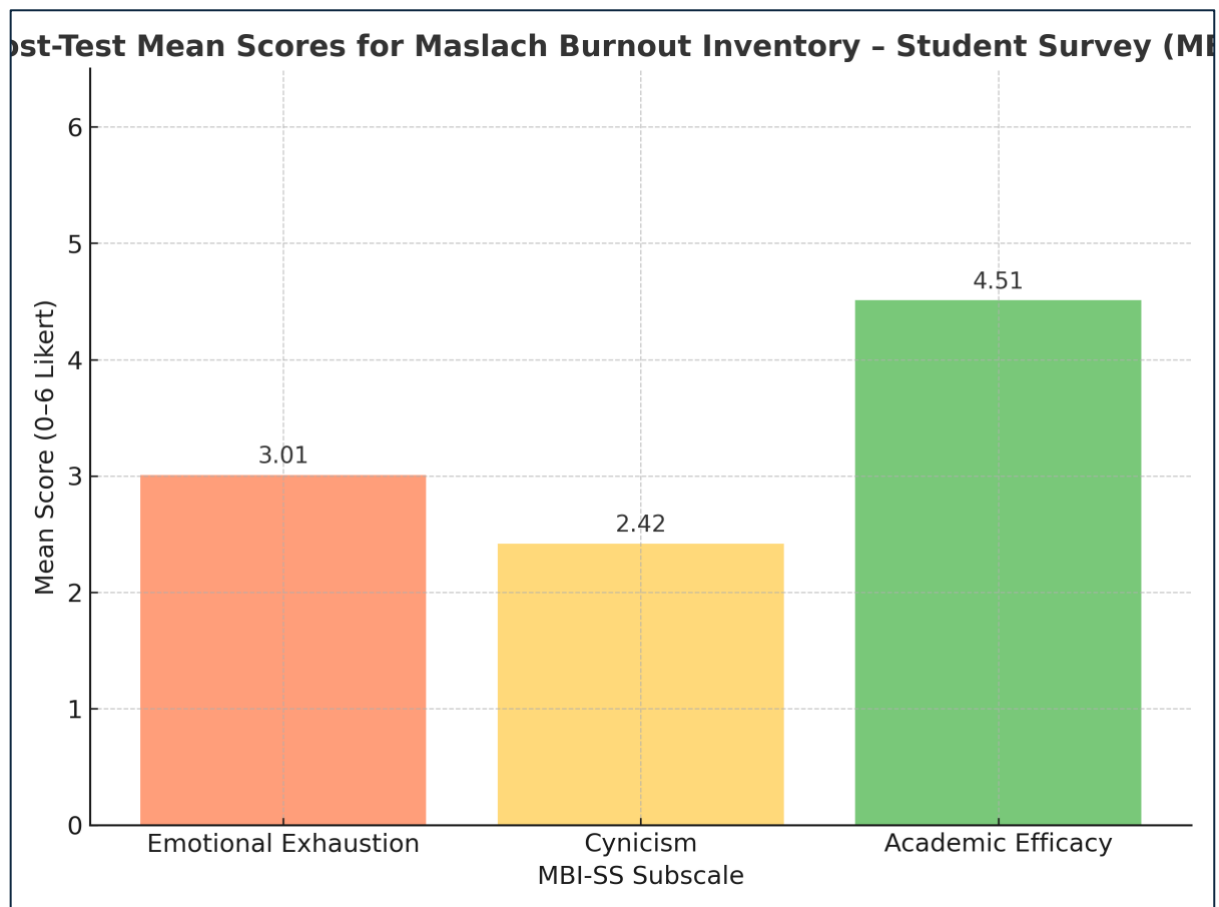
Subscale	Pre Mean	Post Mean	Change (Post–Pre)	Interpretation
Emotional Exhaustion	2.51	3.01	0.5	Slight increase in fatigue and emotional strain
Cynicism	1.95	2.42	0.47	Moderate increase in detachment or disengagement
Academic Efficacy	5.09	4.51	-0.58	Noticeable decline in perceived academic competence

Note. Values represent mean composite scores (0 = Never, 6 = Every day) for each of the three MBI-SS subscales. Higher scores on Emotional Exhaustion and Cynicism indicate greater burnout, whereas higher scores on Academic Efficacy indicate greater perceived competence.



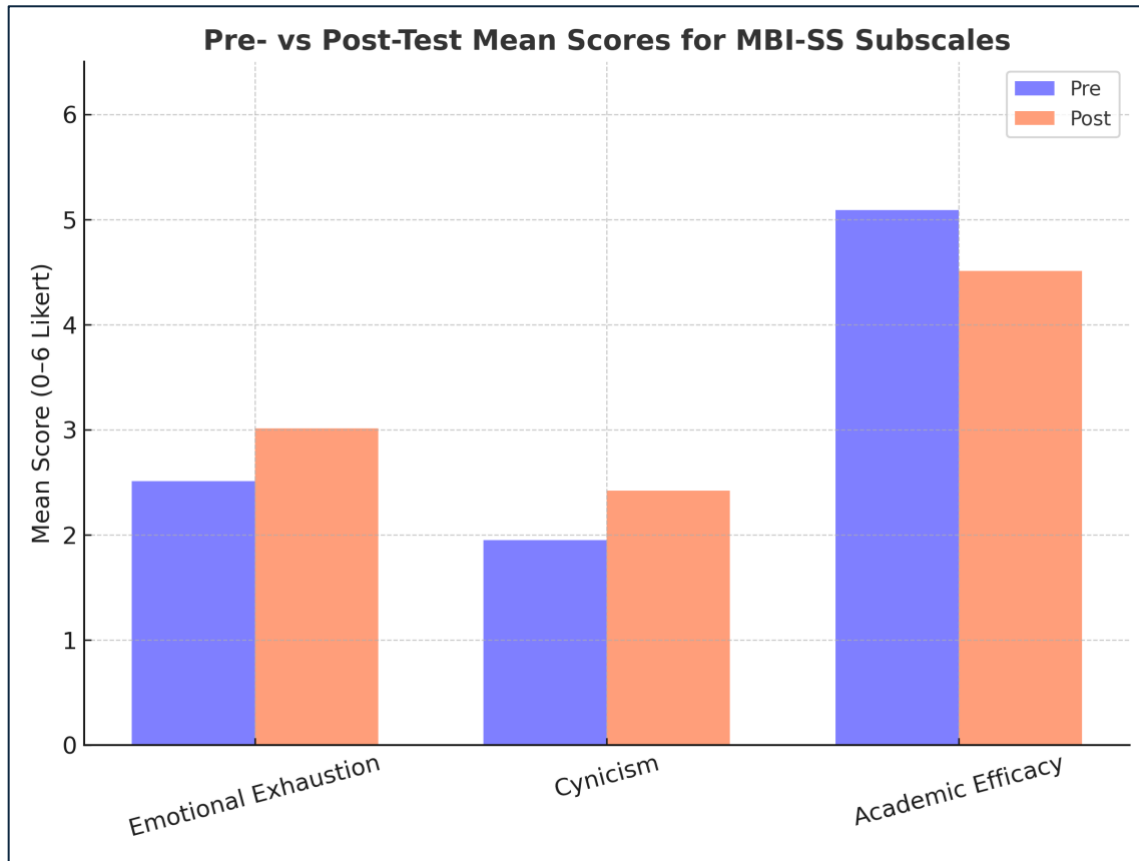
Note. Mean scores for the three MBI-SS subscales (Emotional Exhaustion, Cynicism, and Academic Efficacy) are presented on a 0–6 Likert scale (0 = Never, 6 = Every day). Students reported moderate Emotional Exhaustion, low Cynicism, and high Academic Efficacy, indicating low overall burnout and strong perceptions of academic competence at the beginning of the academic year.

Figure 6. Mean scores for Maslach Burnout Inventory – student survey (MBI-SS) subscales



Note. Bar chart illustrates mean scores for the three MBI-SS subscales (Emotional Exhaustion, Cynicism, and Academic Efficacy) on a 0–6 Likert scale. Students reported moderate Emotional Exhaustion, low-to-moderate Cynicism, and relatively high Academic Efficacy, reflecting manageable levels of academic burnout at the end of the semester.

Figure 7. Post-test mean scores for Maslach Burnout Inventory – student survey (MBI-SS).



Note. Bar chart illustrates pre- and post-test mean scores for the three MBI-SS subscales (Emotional Exhaustion, Cynicism, and Academic Efficacy) on a 0–6 Likert scale. Increases in Emotional Exhaustion and Cynicism and a decline in Academic Efficacy reflect mild growth in burnout tendencies over the semester while maintaining moderate overall levels.

Figure 8. Pre- and post-test mean scores for MBI-SS subscales.

strengths, reflecting confidence in academic routines and resource management. Conversely, physical wellness emerged as the primary growth area, with students frequently referencing the need for improved sleep, exercise, and consistency. Social and emotional wellness were both widely discussed, students celebrated new friendships and community involvement while acknowledging ongoing challenges with stress management and time balance. Table 7 and Figure 9, depict Wellness Domains Reported as Strengths and Areas for Improvement. Thematic analysis of open-ended responses revealed that students were most proud of their academic persistence, adaptability, and relational growth. As featured in Table 8, Representative Themes and Quotes by Wellness Domains, they described accomplishments such as building community, maintaining faith practices, and improving study habits. Requests for future support centered on stress management, consistency, and physical activity, suggesting the need for continued emphasis on proactive wellness programming.

Results

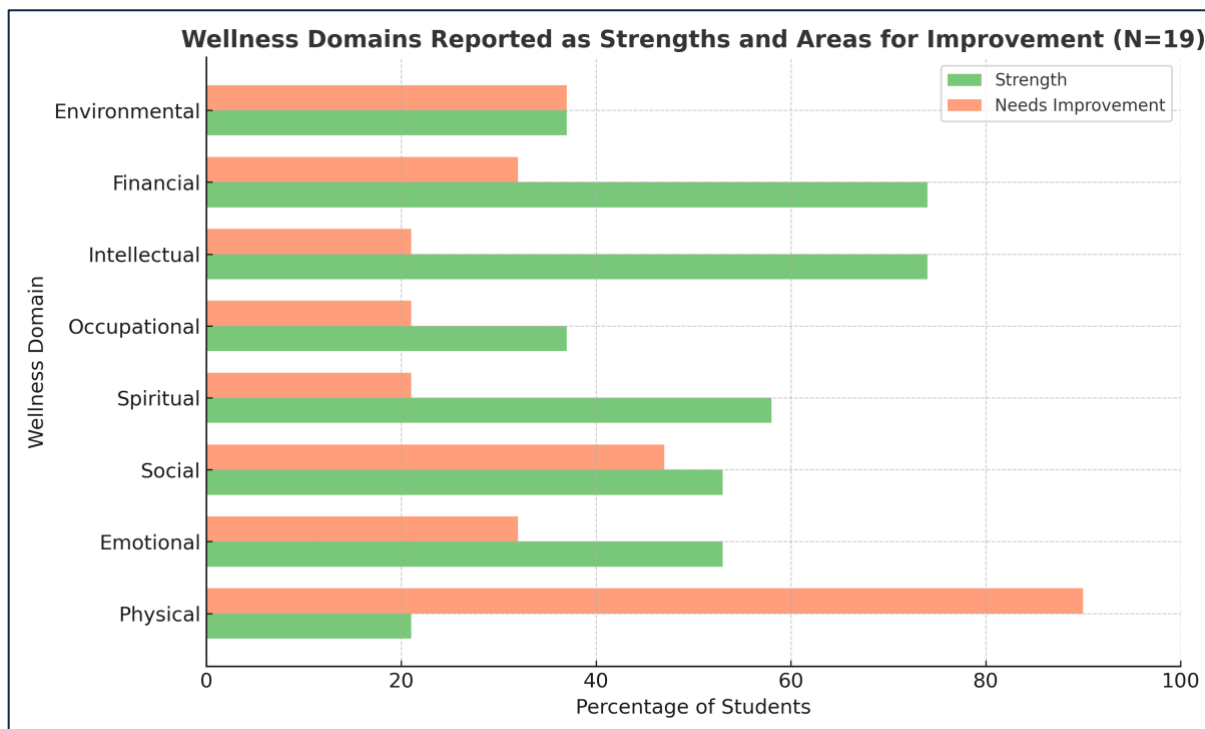
The Maslach Burnout Inventory – Student Survey (MBI-SS) post-test results reflected a pattern of manageable emotional fatigue paired with continued self-efficacy, aligning with previous literature on early medical student adjustment and resilience. These findings are consistent with previous research suggesting that early medical learners experience heightened academic stress over time while maintaining motivation and self-efficacy. Overall, the student wellness reflections depicted strong engagement, emerging resilience, and an awareness of the habits required to sustain well-being within a demanding academic environment.

Table 7

Wellness Domains Reported as Strengths and Areas for Improvement

Domain	Strength (% of respondents)	Needs Improvement (% of respondents)
Physical	21%	90%
Emotional	53%	32%
Social	53%	47%
Spiritual	58%	21%
Occupational	37%	21%
Intellectual	74%	21%
Financial	74%	32%
Environmental	37%	37%

Note. Percentages represent the proportion of 19 students selecting each wellness domain as a strength or area for improvement. Physical wellness emerged as the most common area for growth, while intellectual and financial wellness were reported as primary strengths.



Note. Bar chart displays the percentage of students (N = 19) identifying each wellness domain as a strength (green) or an area for improvement (orange). Intellectual and financial wellness were most frequently reported as strengths, while physical wellness emerged as the predominant growth area. This visualization highlights overall balance across emotional, social, and spiritual dimensions, suggesting awareness of holistic well-being.

Figure 9. Wellness domains reported as strengths and areas for improvement.

Table 8

Representative Themes and Quotes by Wellness Domain

Domain	Summary Theme	Representative Quote
Physical	Students expressed a desire to improve consistency in exercise, sleep, and self-care routines.	"I hope to get more active and consistent with a schedule."
Emotional	Reflections centered on managing stress and maintaining balance.	"I am proud of myself for not overcommitting and feeling less burned out."
Social	Many cited friendships and community as major successes.	"Making my circle of friends and finding support has been the best part of the semester."
Spiritual	Several referenced faith and connection as sources of resilience.	"Building a strong Christian community and staying connected to my faith has helped me."
Occupational	Some mentioned service, leadership, or volunteerism as meaningful.	"Taking on leadership positions helped me feel more purposeful."
Intellectual	Most common strength area—students highlighted time management and study routines.	"Establishing good study routines and believing in my abilities."

Integrated Quantitative and Qualitative Findings

Phase III integrated quantitative and qualitative data provided a comprehensive understanding of students' well-being and adaptation at the end of their first semester. The posttest MBI-SS data and wellness reflections portrayed medical students who were cognitively engaged but physically and emotionally taxed. Students exhibited strong self-efficacy and reflective awareness, key indicators of emotional intelligence and early professional identity formation. Although measurable exhaustion increased, students articulated strategies for self-regulation and recognized the importance of balance.

Summary

During Phase I, students demonstrated a strong foundation of emotional wellness, motivation, and self-efficacy at the beginning of the academic year. Results from the *Achievement Emotions Questionnaire (AEQ)* indicated high levels of enjoyment and hope and low levels of hopelessness and anger, suggesting that students entered medical school with optimism and enthusiasm. Positive emotions increased and negative emotions decreased across time points, reflecting adaptive emotional regulation and resilience consistent with the control-value theory of achievement emotions (Pekrun et al., 2002). Personality results from the *16 Personalities* assessment showed a cohort dominated by Diplomats (51.9%) and Analysts (33.3%), led primarily by Protagonist (ENFJ) and Commander (ENTJ) types. This composition reflected a balance between empathetic, people-centered motivators and strategic, leadership-oriented thinkers—an ideal blend for professional growth in medical education. The presence of turbulent variants (T) across many types suggested a reflective, improvement-oriented mindset that aligns with the demands of self-regulated learning and professional identity formation. Findings from the *Maslach Burnout Inventory–Student Survey (MBI-SS)* further reinforced this

pattern of emotional strength. Students reported moderate emotional exhaustion, low cynicism, and high academic efficacy, reflecting high motivation and confidence in their academic abilities with limited signs of burnout. High reliability for Emotional Exhaustion and Academic Efficacy scales supported the internal consistency of these patterns. The combined results portrayed a cohort of students characterized by high engagement, strong emotional intelligence, and emerging professional resilience. Students appeared both motivated and self-aware, balanced ambition with empathy and demonstrated the affective and cognitive attributes that supported success in a rigorous medical curriculum. These findings provided a valuable baseline for understanding emotional, personality, and burnout trajectories as students progressed through their medical training.

During Phase II, the early intervention system proved successful with monitoring and working with students as they progressed through the academic curriculum. The number of at-risk students and failures continued to decline each course.

During Phase III, findings suggested that wellness is multidimensional and dynamically balanced. Intellectual growth and social connection acted as stabilizing influences amid rising academic strain, while physical care remained the most vulnerable domain. These results suggested that structured wellness programming – integrating time-management coaching, physical activities initiatives, and relational support networks – could reinforce resilience and sustain engagement as students’ progress through the medical school curriculum. Phase III integrated qualitative and quantitative data provided a comprehensive understanding of students’ well-being and adaptation to the first semester of medical school. Together, the pre- and post-*Maslach Burnout Inventory (MBI)* results and the end-of-semester wellness reflections revealed a

picture of growing academic strain accompanied by sustained motivation, self-awareness, and emerging resilience.

Chapter 5 will provide a summary of the inquiry along with the conclusions drawn and recommendations.

CHAPTER 5: SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

The inquiry focused on a holistic model of medical student academic and personal wellness. The Focus of Practice (FoP) - *supporting student academic wellness while supporting student social and emotional well-being* – was delivered through wellness models and early interventions. Chapter 5 will discuss the summary of findings, implications, and recommendations.

Summary of the Findings

The focus of practice for this inquiry was to implement an early intervention system as part of a comprehensive student approach focusing on student academic achievement and wellness during the first year of medical school. The specific interventions targeted were intended to produce improved academic achievement in first year medical students. The following questions guided this inquiry:

1. What effect does the intervention have on the academic success among first-year medical students?
2. What effect does the intervention have on the personal wellness among first-year medical students?
3. Assess whether the level of student wellness has a relationship with the level of academic performance.

Phase I analyzed the emotional baseline of students at the beginning of the academic year using the *AEQ*, *MBI*, and *16 Personalities* assessments. Students also completed a *NWI* W.E.L.L. plan. During Phase I, students demonstrated a strong foundation of emotional wellness, motivation, and self-efficacy at the beginning of the academic year. Results from the *AEQ* indicated high levels of enjoyment and hope and low levels of hopelessness and anger,

suggesting that students entered medical school with optimism and enthusiasm. Positive emotions increased and negative emotions decreased across time points, reflecting adaptive emotional regulation and resilience consistent with the control-value theory of achievement emotions (Pekrun et al., 2002). Personality results from the *16 Personalities* assessment showed a cohort dominated by Diplomats (51.9%) and Analysts (33.3%), led primarily by Protagonist (ENFJ) and Commander (ENTJ) types. This composition reflected a balance between empathetic, people-centered motivators and strategic, leadership-oriented thinkers – an ideal blend for professional growth in medical education. The presence of turbulent variants (T) across many types suggested a reflective, improvement-oriented mindset that aligned with the demands of self-regulated learning and professional identity formation. Findings from the *Maslach Burnout Inventory - Student Survey (MBI-SS)* further reinforced this pattern of emotional strength. Students reported moderate emotional exhaustion, low cynicism, and high academic efficacy, reflecting high motivation and confidence in their academic abilities with limited signs of burnout. High reliability for Emotional Exhaustion and Academic Efficacy scales supported the internal consistency of these patterns. The combined results portrayed a cohort of students characterized by high engagement, strong emotional intelligence, and emerging professional resilience. Students appeared both motivated and self-aware, balanced ambition with empathy and demonstrated the affective and cognitive attributes that supported successes in a rigorous medical curriculum. These findings provided a valuable baseline for understanding emotional, personality, and burnout trajectories as students progressed through their medical training. The prevalence of Protagonist and Commander types indicated a class characterized by collaborative leadership, empathy, and motivation to make a meaningful impact, aligning well with the interpersonal and service-driven values of medical education.

Phase II was the implementation of the early intervention system with monitoring while students participated in the academic curriculum of the first-year medical school. During Phase II, the early intervention system proved successful with monitoring and working with students as they progressed through the academic curriculum. Using the *Navigate 360+* software and diligence of the CARE team, the number of at-risk students and failures continued to decline each course.

Phase III was the analysis of student wellness and post-test *MBI* to assess the level of burnout while students participated in the medical school curriculum. During Phase III, findings suggested that wellness is multidimensional and dynamically balanced. Intellectual growth and social connection acted as stabilizing influences amid rising academic strain, while physical care remained the most vulnerable domain. These findings suggested that structured wellness programming – integrating time-management coaching, physical activities initiatives, and relational support networks – reinforced resilience and sustained engagement as students progressed through the medical school curriculum. Phase III integrated qualitative and quantitative data which provided a comprehensive understanding of students' well-being and adaptation to the first semester of medical school. Together, the pre- and post-*MBI* results and the end-of-semester wellness reflections revealed a picture of growing academic strain accompanied by sustained motivation, self-awareness, and emerging resilience. After the implementation of the inquiry, the analysis of data showed a positive relationship that the interventions implemented during Phase II produced positive academic results along with stability in burnout and focused on personal wellness shown during Phase III.

The research questions for this inquiry explored what effect the intervention has on academic success among first-year medical students; explored what effect the intervention has on

the personal wellness among first year students; and assessed the relationship of student wellness with academic performance. The research design was mixed methods with both qualitative and quantitative analysis of various instrumentation tools, charts of student performance, and survey of well plans.

For research question 1, findings from the academic monitoring process suggested that the implementation of a structured early intervention system supported the early identification of students experiencing academic challenges. Weekly assessments were monitored throughout the semester, and student performance was categorized as pass, at-risk, or fail. These categorizations allowed advisors and academic support personnel to identify potential concerns shortly after assessments occurred rather than waiting until the accumulation of multiple poor performances. When students were identified as at-risk or failing, alerts were entered into the Navigate360+ system and appropriate follow-up actions were initiated. Advisors and academic support staff contacted students to schedule meetings, discuss academic strategies, and connect them with institutional resources when necessary. The structured monitoring process created a predictable and transparent framework for intervention, allowing students to receive support early in the academic term. The findings indicated that the intervention strengthened institutional capacity to monitor student performance and respond proactively to academic concerns. Rather than relying on informal communication or delayed identification of difficulties, the structured early alert process provided a consistent mechanism for identifying students who might benefit from additional academic support. This approach contributed to a culture of proactive engagement with students and reinforced the institution's commitment to academic success. Overall, the results suggest that systematic early identification and advising interventions can play a

meaningful role in supporting first-year medical students as they adjust to the rigor of medical education.

To measure research question 2, to better understand students' emotional and psychological experiences throughout the semester, wellness-related data were collected through the *Achievement Emotions Questionnaire (AEQ)* and the *Maslach Burnout Inventory–Student Survey (MBI-SS)*. These instruments provided insight into how students experienced both positive and negative emotions during different phases of the academic term. The *AEQ* results demonstrated that students experienced fluctuations in emotional responses over time. Positive emotions such as enjoyment and hope showed modest decreases during the academic term compared to pre-semester levels, reflecting the increased demands associated with beginning medical school. However, these positive emotions increased again after the completion of the semester, suggesting that students were able to regain a sense of accomplishment and motivation following the completion of major academic milestones. Negative emotional indicators, including anxiety, hopelessness, and anger, demonstrated varied patterns across the semester. Anxiety levels decreased slightly during the semester compared to initial pre-semester levels, which may indicate that students gradually adapted to the academic environment. Measures of hopelessness and anger also declined across the observed time periods, suggesting that students may have developed coping mechanisms as they navigated the academic challenges of the first semester. Burnout indicators remained within moderate ranges throughout the semester. While students reported increased fatigue and stress as coursework progressed, the findings did not indicate extreme levels of burnout within the cohort. This pattern suggested that the wellness-focused programming and advising engagement introduced during orientation may have helped students develop strategies to manage academic pressures. In addition to assessment data,

students were introduced to Hettler's six dimensions of wellness and were encouraged to develop individualized W.E.L.L. plans addressing physical, intellectual, emotional, social, spiritual, and occupational wellness. These activities emphasized the importance of maintaining balance while engaging in a rigorous curriculum and encouraged students to incorporate wellness practices into their daily routines. Collectively, the findings suggested that while medical school presented significant academic and emotional demands, structured wellness initiatives and intentional conversations about well-being may support students in maintaining emotional stability and resilience.

The final research question explored whether student wellness indicators demonstrated a relationship with academic performance during the first semester of medical school. Analysis of the collected data suggested that emotional experiences and academic engagement may be interconnected. Students who maintained higher levels of positive emotions, such as enjoyment and hope, generally demonstrated greater engagement with the learning process. Positive academic emotions have been associated with increased motivation, persistence, and cognitive engagement, which may contribute to stronger academic performance. Conversely, negative emotional experiences such as anxiety or frustration could influence concentration, learning strategies, and academic confidence. Although students experienced fluctuations in emotional states during the semester, the moderate levels of burnout and declining levels of hopelessness suggested that many students were able to adapt to the academic environment over time. The integration of advising conversations, wellness planning, and early academic intervention may have contributed to this adjustment by providing students with both academic and personal support. While the findings did not establish a direct causal relationship between wellness levels and academic performance, the results suggested that emotional well-being and academic success

are closely related within the medical education environment. Students who are better able to manage stress and maintain positive engagement with their academic work may be more likely to sustain academic progress over time. These findings reinforced the importance of addressing both academic and wellness factors within medical education. Supporting student success requires not only monitoring academic performance but also creating structures that encourage resilience, self-awareness, and healthy coping strategies

Interpretation of the Findings

The goal of the inquiry was to establish a positive relationship between students' academic performance and the early identification of learning challenges followed by timely intervention. The implementation of the *Navigate360+* system formalized the processes for academic monitoring and early alert response, creating a structured and legitimized framework for proactive student support. Phase II data demonstrated that consistent weekly assessment review, systematic performance categorization, and structured advisor follow-up procedures established predictable and transparent mechanisms for identifying emerging concerns and responding to student needs. The post-test *MBI* findings also suggest that students experienced increasing levels of stress and fatigue as the semester progressed, likely reflecting adjustment to the intensity of the curriculum and cumulative academic demands. However, despite these fluctuations, overall burnout scores remained within a moderate range, indicating relative emotional stability during the first semester of medical training. With appropriate support and dedicated resources students can thrive academically and maintain wellness during medical school.

Literature Connection

The review of literature for this inquiry collectively highlighted the interconnected relationship between academic success, wellness initiatives, and the effectiveness of targeted interventions for medical students. Across studies, scholars consistently emphasized the need for continued research focused on supporting medical students throughout their education. Although the literature affirms the essential nature of wellness, it also underscores that the current culture of medical education is not always conducive to sustained student well-being or academic success. Hettler firmly believed that every institution of higher learning has one mission: “to encourage each student to assess and improve their lifestyle” (Hettler, 1984, p. 17). This inquiry sought to address that gap by intentionally cultivating a culture that foregrounds wellness and by implementing an early intervention system that identifies academic markers and other indicators of concern as quickly as possible. Research by Burr and Beck Dallaghan (2019) supported that “providing students with academic coaching coupled with guidance on how to master material may develop an incremental mindset, which will help them identify strategies to achieve goals and overcome negative emotions” (p. 483). Additionally, research by Butcher et al., Yoshioka and colleagues, also supported that using strategic interventions through fostering a school environment focused on student wellness optimized academic performance. Through these integrated efforts, the inquiry aimed to enhance overall student academic performance and strengthen the institutional approach to student support.

Negative or Divergent Findings

While the findings of this inquiry generally supported the relationship between early identification, intervention, and student academic success, several divergent or unexpected patterns emerged during the analysis. These findings provided important context for interpreting the results and highlighted areas for future exploration. One notable divergence appeared in the

emotional experience data collected through the *Academic Emotions Questionnaire (AEQ)*. Although the implementation of structured academic monitoring and advising was expected to reduce negative academic emotions over time, some students continued to report moderate levels of anxiety and stress throughout the semester. Anxiety levels remained relatively stable despite the presence of early alerts and advisor follow-up. This suggests that while early intervention systems may assist with academic awareness and support, they may not fully mitigate the emotional pressures associated with the rigor and pace of medical education. The persistence of anxiety may reflect the inherently demanding nature of medical training rather than shortcomings in the intervention itself. A second divergent pattern emerged in the wellness and burnout measures. While overall burnout levels remained within moderate ranges, the data indicated fluctuations in fatigue and emotional exhaustion as coursework progressed. Rather than demonstrating a consistent improvement following the implementation of wellness planning and advising interventions, some students reported increased fatigue during peak academic periods. This finding suggested that the impact of wellness initiatives may be influenced by external factors such as workload intensity, exam frequency, and adjustment to professional school expectations. Additionally, the variability in student engagement with support resources presented another unexpected outcome. Although the early intervention system identified students in at-risk categories and prompted outreach from advisors, not all students were fully engaged with recommended support strategies. Some students who were identified as academically at-risk demonstrated improvement without substantial engagement in advising or formal intervention processes. Taken together, these divergent findings highlighted the complexity of student success within medical education environments. Academic performance, emotional well-being, and engagement with support systems were influenced by a range of

institutional, personal, and contextual factors. While early identification and structured intervention appeared to provide valuable support mechanisms, the findings suggested that no single intervention fully addressed the multifaceted challenges students encountered during their transition into medical training.

Limitations of the Study

Several limitations should be considered when interpreting the findings of this inquiry. These include the timeline of data collection, number of participants, the use of self-reported measures, and the institutional context in which the study occurred.

Timeline of Data Collection

Data collection occurred during the first semester of the medical school curriculum (August–January). Although collecting data across the full academic year (August–May) would have provided a more comprehensive understanding of first-year medical students’ academic performance and wellness experiences, this was not feasible due to circumstances beyond the researcher’s control.

Number of Participants

The maximum population for the inquiry consisted of 97 first-year medical students; however, participation in each assessment instrument was voluntary. Consequently, not all students completed every measure, resulting in varied and relatively small sample sizes. This limits statistical power and reduces the generalizability of the findings.

Self-Reporting Bias

All assessment instruments relied on self-reported responses from participants. Because self-report measures are subject to personal perception, social desirability, and potential inaccuracies in self-assessment, the results must be interpreted with caution.

Context of the Inquiry

The inquiry took place within a single medical school with a distinct institutional culture, curriculum structure, academic support processes, and student demographic profile. These contextual characteristics may limit the transferability of the findings to other medical education environments. As there was only one cohort of students, there were no comparison groups and as such, the needs of the current class were only taken into consideration.

Implications of the Findings for Practice

There are several implications from this inquiry that can be considered good practice in medical education. Systematic early intervention, advisor development, cross-department collaboration, and the integration of wellness into the curriculum are a few of those implications.

Systematic Early Intervention

The findings in Phase II underscore the importance of implementing a structured and systematic early intervention process within medical education. The use of Navigate360+ demonstrated that consistent academic monitoring, timely categorization of student performance, and structured follow-up create a predictable and transparent support system. When early identification is paired with proactive advisor outreach, students receive timely guidance before academic challenges escalate. Embedding such systems into standard academic operations supports equitable oversight, minimizes variation across advisors or departments, and institutionalizes a culture of early, rather than reactive, support. These findings suggest that medical schools should formalize monitoring protocols, adopt unified performance thresholds, and ensure technological tools are optimized to trigger appropriate interventions.

Advisor Development

The results highlight the central role of academic advisors in shaping student outcomes, particularly when early alerts and wellness concerns converge. Advisors benefit from structured professional development focused on Appreciative Advising, trauma-informed communication, documentation standards, and strategies for facilitating meaningful conversations with stressed or fatigued students. The findings emphasize the need for continuous advisor training to ensure consistent advising experiences across learning communities. Additionally, equipping advisors with skills to interpret assessment trends, recognize early signs of student distress, and integrate wellness into advising sessions enhances their capacity to support holistic student development.

Cross-Department Collaboration

The data reinforce the necessity of collaboration among key units—Student Services, Academic Affairs, Behavioral Health, and the Office of Medical Education. Because students' academic challenges often overlap with wellness, social, or personal factors, siloed approaches limit institutional effectiveness. The early intervention model used in this inquiry demonstrated that when departments share information, coordinate follow-up strategies, and maintain consistent communication, students experience a seamless support network. Strengthening cross-department workflows, clarifying roles, and establishing shared communication protocols are essential for sustained improvement in academic performance and student well-being.

Integration of Wellness in the Curriculum

Findings related to student stress, fatigue, and moderate burnout—even in the context of strong academic performance—illustrate the need to embed wellness as a curricular priority rather than a supplemental offering. Integrating the National Wellness Institute's domains into orientation, advising, and course design can help normalize conversations about self-care,

resilience, and balance. Schools should consider aligning wellness programming with curricular milestones, providing faculty with strategies to model wellness behaviors, and evaluating student well-being on a recurring basis. This integration supports development of professional habits that extend into students' clinical years and future practice.

Recommendations for Future Study

This inquiry provided a solid foundation for a medical school or a graduate-level healthcare professional program to mirror as their base for their institution. Future research should continue to build on the findings of this inquiry by incorporating more rigorous and comprehensive methodologies that capture the complexity of medical student development.

Longitudinal Tracking

First, longitudinal tracking is recommended to examine how early intervention systems influence academic performance, wellness, and professional identity formation over multiple semesters or across all four years of medical school. Tracking students over time would allow researchers to identify long-term patterns, determine the durability of early intervention effects, and explore whether early supports contribute to improved outcomes during clinical rotations, preparation for licensure exams, and eventual residency placement. During Phase II, the monitoring of students allowed for intentional and strategic interventions tailored to individual student needs. Student needs could vary with available services such as academic support, behavioral health support, or financial support.

Comparison Groups

Future studies would benefit from the use of comparison groups. Including cohorts who experience differing levels or types of early intervention—such as pre-intervention classes, institutions without a formal early alert system, or groups advised under different advising

models—would enhance the ability to measure the direct impact of *Navigate360+* and similar systems. Comparative research designs would strengthen internal validity and help determine which components of early intervention are most influential on academic and wellness outcomes.

Qualitative Interviews

Qualitative interviews or focus groups should be incorporated to deepen understanding of how students perceive early intervention efforts, what barriers they encounter, and how advisor interactions shape their sense of support and belonging. Qualitative data would provide rich insight into the lived experiences behind the quantitative performance metrics and may highlight unintended consequences or areas for improvement within the advising and early alert process. Interviews with Academic Advisors would also provide a viewpoint from the administrator that would allow for the implementation of necessary changes.

Integration of Wellness into Medical School Curriculum

Future research should examine the impact of intentional integration of wellness into the medical school curriculum. Embedding structured wellness modules—aligned with the National Wellness Institute’s domains—may support students’ ability to manage stress, develop resilience, and sustain well-being throughout their training. Studying how wellness programming interacts with early intervention processes could reveal synergistic benefits and lead to more holistic, student-centered support frameworks.

Model for Overall Medical School Integration

This inquiry provided an initial baseline for understanding the academic performance and wellness of first-semester medical students within the context of an early intervention and wellness framework. While the findings offered insight into the effectiveness of structured monitoring and support during the first semester, the development of a comprehensive model for

integration across the entirety of the medical school experience remains an important next step. Medical education is characterized by distinct developmental phases, each of which introduces unique academic demands, professional expectations, and personal stressors that may influence student success and well-being. As students' progress through the medical curriculum, the nature of these challenges evolves. During the second year of medical school, students often experience heightened academic pressure associated with increased coursework intensity and preparation for national board examinations. The transition into the third year introduces a new set of stressors as students enter clinical rotations, adapt to clinical environments, and begin developing professional identities within patient care settings. By the fourth year, students are navigating residency applications and the residency match process, which can bring uncertainty, performance pressure, and career decision-making challenges. Given these evolving demands, a comprehensive student support model should extend beyond the first semester and be intentionally designed to align with each phase of medical training. Such a model would incorporate adaptive early intervention strategies, proactive advising, and wellness initiatives that respond to the developmental and academic needs of students at each stage of the curriculum. For example, second-year interventions may focus on academic coaching and board preparation support, while third-year strategies may emphasize clinical performance feedback, professional identity formation, and stress management in clinical environments. Fourth-year programming may prioritize career advising, residency preparation, and transition-to-residency readiness. Developing a longitudinal model of support would allow institutions to implement a coordinated system that integrates academic monitoring, wellness programming, and advising structures throughout all four years of medical school. By aligning interventions with the developmental trajectory of medical students, institutions can foster a culture that supports both academic

achievement and holistic well-being across the continuum of medical education. Future program development should therefore focus on expanding the early intervention framework identified in this inquiry into a comprehensive, longitudinal model that systematically supports students throughout their medical training.

Collectively, these recommendations aim to expand the evidence base surrounding early intervention, advising, and wellness initiatives in medical education, ultimately strengthening institutions' ability to support student success and foster healthy learning environments.

Conclusions

Although the study was limited by its context, sample size, and the relatively short timeframe of data collection, the findings offered valuable insight into the relationship between early identification, academic performance, and student well-being in medical education. The inquiry demonstrated that a structured early intervention model—supported by systematic academic monitoring and advisor follow-up—could provide a transparent and predictable framework for supporting students during the demanding preclinical phase of training. When paired with a wellness framework, this model reinforced the importance of addressing both academic and emotional needs as interconnected components of student success. The study also highlighted that medical students experienced changes in stress, fatigue, and emotional functioning as coursework progresses, underscoring the need for institutions to adopt proactive and holistic strategies that extended beyond academic remediation. By integrating wellness principles with early intervention processes, medical schools could better anticipate student needs, reduce the stigma associated with seeking help, and create environments that promote resilience, self-awareness, and balance. Furthermore, the blended approach used in this inquiry provided a replicable model for other institutions seeking to formalize their support systems. The

findings pointed to clear opportunities for enhanced advisor development, cross-department collaboration, and the intentional integration of wellness initiatives into the curriculum. Future studies employing longitudinal designs, comparison groups, and qualitative methods can deepen understanding and help refine these practices. In sum, this inquiry contributed to the growing body of literature emphasizing that academic success and student well-being are mutually reinforcing. The combined early intervention and wellness framework offered a practical pathway for medical schools committed to fostering both strong academic outcomes and the holistic development of future physicians.

Scholarly Practitioner Reflections on Leadership

The DiP process has been a significant period of personal and professional growth. On a personal level, the journey was often challenging. My family made substantial sacrifices to support my ability to complete this degree, including living in two separate states for seven months. Life continued outside of the program, and over the past three years, my family and I faced several situations that required resilience and adjustment. Staying dedicated to the process required deep reflection on my “why” and the purpose behind pursuing this degree.

Professionally, the growth I have experienced has been profound. I have expanded my leadership capacity and developed new skills that have opened opportunities for advancement, including promotions that align with my long-term career goals. One of the most meaningful areas of growth has been the development of reflective and intentional leadership. I strengthened my ability to navigate complexity within the medical education environment, where collaboration with academic affairs, student services, faculty, and institutional leadership is essential. Through this collaborative work, I improved my communication, transparency, and consensus-building skills. These experiences enhanced my understanding of shared leadership and highlighted the importance of structures that promote cross-departmental alignment to support student success. A second area of professional growth is the increased confidence I now have in my abilities as a scholarly practitioner. I believe in the work I have completed through this DiP and plan to implement and refine this early intervention and wellness structure at my new medical school. I feel well prepared to rally like-minded colleagues, build effective systems, and position the institution for success. Thinking more critically, engaging with scholarship, and producing higher-quality deliverables will continue to strengthen my leadership practice and my contributions to the field.

Overall, this process, while challenging, has been affirming. I have pushed myself to the limits personally and professionally. I accomplished something in my family that no one has ever accomplished and set an example for my kids to follow.

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APPENDIX A: IRB APPROVAL LETTER



EAST CAROLINA UNIVERSITY
University & Medical Center Institutional Review Board
Willis Building · Mail Stop 682
600 Moye Boulevard · Greenville, NC 27834
Office 252-744-2914 · Fax 252-744-2284
rede.ecu.edu/umcibr/

Notification of Exempt Certification

From: Social/Behavioral IRB
To: [Jennifer O'Dell](#)
CC: [Jerry Johnson](#)
Date: 5/23/2024
Re: [UMCIRB 24-000815](#)
Early Intervention with Medical Students

I am pleased to inform you that your research submission has been certified as exempt on 5/22/2024. This study is eligible for Exempt Certification under category # 1,2 AB.

It is your responsibility to ensure that this research is conducted in the manner reported in your application and/or protocol, as well as being consistent with the ethical principles of the Belmont Report and your profession.

This research study does not require any additional interaction with the UMCIRB unless there are proposed changes to this study. Any change, prior to implementing that change, must be submitted to the UMCIRB for review and approval. The UMCIRB will determine if the change impacts the eligibility of the research for exempt status. If more substantive review is required, you will be notified within five business days.

Document	Description
16 Personalities(0.01)	Standardized/Non-Standardized Instruments/Measures
16 Personalities(0.01)	Surveys and Questionnaires
Academic Advisor Packet(0.01)	Interview/Focus Group Scripts/Questions
Academic Advisor Packet(0.01)	Surveys and Questionnaires
AEQ(0.01)	Standardized/Non-Standardized Instruments/Measures
AEQ(0.01)	Surveys and Questionnaires
Consent Form for Academic Advisors.docx(0.01)	Recruitment Documents/Scripts

pirate.ecu.edu/App/sd/Doc/0/JIHGJV0OV88UV3TAHQVPOLIG00/fromString.html

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Document
Consent Form for Academic Advisors.docx(0.01)
Dissertation - Work in Progress(0.01)
Maslach Burnout Inventory(0.01)
Maslach Burnout Inventory(0.01)
NWI Wellness Inventory(0.01)
NWI Wellness Inventory(0.01)
Research Consent Form(0.01)
Research Protocol(0.01)
Research Recruitment Script(0.02)
REVISED Research Consent Form(0.01)
REVISED Research Consent Form(0.01)
Student Data Collection Sheet(0.01)

pirate.ecu.edu/App/sd/Doc/0/JIHGJV0OV88UV3TAHQVPOLIG00/fromString.html

Description
Consent Forms
Study Protocol or Grant Application
Surveys and Questionnaires
Standardized/Non-Standardized Instruments/Measures
Standardized/Non-Standardized Instruments/Measures
Surveys and Questionnaires
Consent Forms
Study Protocol or Grant Application
Recruitment Documents/Scripts
Consent Forms
Surveys and Questionnaires
Data Collection Sheet

For research studies where a waiver or alteration of HIPAA Authorization has been approved, the IRB states that each of the waiver criteria in 45 CFR 164.512(i)(1)(i)(A) and (2)(i) through (v) have been met. Additionally, the elements of PHI to be collected as described in items 1 and 2 of the Application for Waiver of Authorization have been determined to be the minimal necessary for the specified research.

The Chairperson (or designee) does not have a potential for conflict of interest on this study.

APPENDIX B: INFORMED CONSENT FORM

Research Consent Form

Title of the Study:

Early Intervention: A Holistic Model of Medical Student Academic and Personal Wellness

Introduction: You are invited to participate in a research study being conducted by Jennifer O'Dell, Associate Dean for Student Services at Orlando College of Osteopathic Medicine (OCOM). This study aims to explore first-year medical students' success by assessing student academic achievement designed around curricular reformation and wellness programming implemented through an early intervention system. The early intervention system is a collective approach that factors all targeted areas of student wellness into the approach with individual students. Through the implementation of an Early Alert System, as part of a comprehensive student approach focusing on student academic achievement, the specific interventions will target and produce improved academic achievement in first-year medical students.

Your Participation: Your participation in this study is voluntary. You have the right to withdraw from the study at any time without penalty. Your decision to participate or not to participate will not affect your current or future relationship with OCOM.

Procedures: You will be asked to participate by asking you to complete a few inventories and surveys to help establish a study baseline. We will ask you to complete the 16 Personalities Inventory, the Achievements Emotions Questionnaire, the Maslach Burnout Inventory, and the Six Dimensions of Wellness individual plans. These inventories and plans will establish a baseline for the study and allow you to get to know yourself better as a person and student. As part of each student profile, we will collect student academic grades and GPAs. The estimated time for participation is one academic year. Research starts in August and concludes in April.

Risks and Benefits: There are no anticipated risks associated with participating in this study beyond those encountered daily. By participating in this study, you will have the opportunity to contribute to the advancement of medical school culture. The results of this study may contribute to creating a transformational culture in medical school and medical education. Direct benefits of participants will be reflected in student success rates. Additionally, you may gain valuable insights into who you are as a learner and a person.

Confidentiality: Your responses will be kept confidential to the extent permitted by law. Data collected during this study will be stored securely and accessed only by the research team. Your name will not be associated with any published results.

Contact Information: If you have any questions or concerns about the study, contact Jennifer O'Dell at jodell@ocom.org.

Consent: By signing this form, you acknowledge that you have read and understood the information provided above and voluntarily agree to participate in this research study.

Signature of Participant

Date

