

FORMER COLLEGE ATHLETES AND THEIR PERSISTENCE IN MEDICAL SCHOOL: A
PHENOMENOLOGICAL STUDY

by

Michael Woodson

Liberty University

A Dissertation Presented in Partial Fulfillment

Of the Requirements for the Degree

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APPROVED BY:

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Abstract

The purpose of this hermeneutic phenomenological study was to understand the experiences of former college-athletes who persist in medical school. The theories that guided this study were the achievement goal theory by Nicholls and the self-determination theory by Deci and Ryan, as each theory relates to the motivation to succeed in academics, as well as athletic participation. Eleven participants were purposefully selected to address the question: How do former college student-athletes describe their experiences in relation to the attributes and characteristics that allowed them to persist in medical school? The sub-research questions investigated certain experiences that may have helped them persist in medical school, the intersection of athletic motivation and medical school motivation, and their medical school experiences compared to their athletic experiences. This study attempted to provide the genuine voices of former college athletes who have persisted in medical school. Data was collected using document analysis, semi-structured interviews, a reflection essay, and focus groups. Data analysis was conducted in accordance with Moustakas, which included preparing and organizing the data, reducing the data into themes, and representing the data in a written form. Validity and trustworthiness were established by employing member checking, audit trails, and reflexivity. These student-athletes felt the experiences of playing a college sport aided them in their transition and their persistence in medical school. The research participants attributed this to their resiliency, their internal motivation, their ability to adapt, their regimented schedule, and ability to relate their medical school experience to their college athletic experience.

Keywords: persistence; athletics, motivation, medical school

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Dedication

This paper is dedicated to my wife, Jana, who has been my biggest supporter in life. When I am down on myself or I think I am not deserving, she is there to pick me up. During this process, she has understood when she had to take on a larger role in the house as I was locked away reading, researching, and writing. She never asked why or when I would be done. She always encouraged me to keep going. I am truly thankful for her.

This paper is also dedicated to my parents, Arthur and Cathy, as they have provided the foundation that has supported me throughout anything in life. They have provided words of encouragement, a listening ear, and the love that has gotten me to this point in my life.

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List of Abbreviations

Association of America Medical Colleges (AAMC)

Liaison Committee on Medical Education (LCME)

Medical College Admission Test (MCAT)

National Association of Intercollegiate Athletics (NAIA)

National Collegiate Athletic Association (NCAA)

CHAPTER ONE: INTRODUCTION

Overview

Athletics has always played an important role in our society. College athletics can provide lessons in collaboration, endurance, motivation, persistence, and dedication, which are all traits that are valued in North American society. These traits can help people well past their sport-playing days have concluded. The purpose of this phenomenological study was to understand the attributes and characteristics of former college athletes who are medical students in the United States that led to their persistence. Chapter One provides a background of the issue, which includes the historical, social, and theoretical backgrounds of the interconnection of athletics and academics. Additionally, this chapter will give the background of the medical school admissions process. Because there has been minimal research on former college athletes in medical school, the significance of this study is that it may assist in the holistic review of medical school applicants who were former college athletes, or medical school applicants who share similar attributes and characteristics. This chapter will provide the problem, purpose of the study, and the research questions for this qualitative phenomenology study.

Background

Research has been conflicted on the positive or negative relationship between athletics and academics (Coleman, 1961; Jacobsen, 1931; Newman & Miller, 1994; Robst & Keil, 2000; Yukhymenko-Lescroart, 2018). Furthermore, the literature provides a background for medical school admissions and the persistence of medical school students (Ellaway et al., 2017; Strowd et al., 2019; Talamantes et al., 2019; Weiner, 2020). Traditionally, medical schools have overlooked traits and activities that they deem not related to medical school success, but this thinking is beginning to shift to be more open to other areas that can show how an applicant can

be successful in medical school. This connection is important as the competition for medical school increases, and medical schools are trying to differentiate who will be likely to persist in medical school. At the same time, people who are thinking about applying to medical school are starting to figure out beforehand whether they have the ability to meet the challenges of medical school.

Historical Context

The phenomenon of former college athletes deciding to pursue medicine and completing medical school is not new. Early in the 20th century, Dan Fortmann, Tony Adamle, and Pat McGreer are well-known examples of former college athletes who went on to play professional sports and then decided to pursue medicine and completed medical school (Harsinay et al., 2018). More recently, Amy Chow, Myron Rolle, Mark Hamilton, and Marshall Leonard are more recognizable former college-athletes who completed medical school after their playing career (Gleeson, 2020; Harsinay et al., 2018). They were able to successfully make the transition from the athletic sphere to a highly competitive academic arena. While they all had various motivations for pursuing medicine, they credit the lessons learned in their athletic career for assisting them through the rigors of their medical school training.

Athletics and Academics

Athletics and academics have been intertwined for centuries. From the beginning of collegiate athletic competition in the 1840s, higher education institutions have used athletics to allow their students to exert excess energy and prevent them from disorderly conduct on campus (Lewis, 1970). Activities included gymnastics, football, baseball, wicket, cricket, and other versions of ball games. When schools began to compete against one another, athletics began to take on a larger role on campuses. Harvard and Yale hosted a competitive rowing event in 1852,

which is credited as the first intercollegiate athletic contest (Lewis, 1970). From there, schools began to realize the impact athletics can have on their campuses. One writer at that time noted, “The academic achievements of the British are far superior to those of American students, and the leading scholars in their institutions are often the most outstanding athletes” (Lewis, 1970, p. 225). Higher education institutions began to see athletics as a way to promote their institutional values and bring more publicity to their school. The Ivy League schools began to lead the way in intercollegiate competition. One writer from the late 1800s noted that the outcomes of intercollegiate sporting events was, “sacredly connected with the glory of Alma Mater herself” (Lewis, 1970, p. 229).

Participation in athletics at all levels began to increase in the early 1900s (Cook, 2019). The effects of the participation in school athletics on academic achievement began to generate much debate. Jacobsen (1931) cited studies that indicated athletes had lower intelligence than nonathletes. The Carnegie Corporation in the 1920s noted that athletics take away from the intellectual integrity of the colleges and universities (Newman & Miller, 1994). Coleman (1961) suggested athletics plays a role in taking away the intellectual achievement of students.

Not all people at the time saw athletics as having a negative effect on academics, however. Future Supreme Court Justice Oliver W. Holmes noted that participation in athletics improved every aspect in American life from sermons of the clergy, national pride, and the physical well-being of individuals (Lewis, 1970). In addition to public figures, research also suggested that athletic participation plays a role in academic success. The National Collegiate Athletic Association (NCAA), which governs most of the intercollegiate athletic competition, has advocated from its inception that athletics is an integral part of the dignity and high purpose of higher education (Newman & Miller, 1994). Gabbard’s (1978) research showed that after

physical exertion, students performed better on an academic test than students who did not conduct a physical exertion activity, which suggests that there is a relationship between physical exertion and mental performance. Robst and Keil (2000) noted that at the NCAA Division III level, student-athletes have higher GPAs and graduation rates than non-athletes do. Additionally, Gould and Carson (2008) mention how certain life skills such as emotional growth, decision making, and goal setting are enhanced through athletic participation. Further studies have indicated that achievement goals can be predicted by an academic-athletic identity and this identity has a strong correlation with performance academic goals (Yukhymenko-Lescroart, 2018).

Medical School Admissions

While there have been examples of athletes pursuing a medical education, the history of medical education has been reserved for a select group. Medical education in America first functioned as an apprenticeship system until the mid-1700s, when at Pennsylvania Hospital, Thomas Bond argued for bedside training and other studies before people could be qualified to care for the sick (Flexner, 1910). Gradually, the first medical school was created with the instruction not to supplant, but to supplement the apprenticeship, which included completing a bachelor's degree, an additional year of training, and a demonstrated knowledge of Latin, mathematics, and natural and experimental philosophy (Flexner, 1910). In 1876, the American Association of Medical Colleges (AAMC) was formed to begin establishing the best practices for medical training, admissions, and education (AAMC, 2021). In 1910, Abraham Flexner was commissioned by the Carnegie Foundation, and the backing of the AAMC, to determine the deficiencies of the US and Canadian medical instruction (Greer et al., 2018). Flexner released the Flexner report, which called for American medical colleges to increase their admissions

standards and improve their medical education. In the report, Flexner noted, “the majority of students attending these colleges were allowed to enroll with the ‘equivalent of a high school education’ or with educational certificates ‘from non-existent schools as well as from non-existent places’” (Greer et al., 2018, p. 79-80). After this report, a number of medical training schools were forced to close, many of which trained groups underrepresented in medicine and the less wealthy.

Later, the AAMC developed the Medical College Admission Test (MCAT) in 1947 to serve as the standardized test for medical school admissions (AAMC, 2021). While the exam has been updated over the years, it has served as the single most important factor in medical school admissions. The number of people applying to medical school has steadily increased over the years and now applications are at an all-time high (Weiner, 2020). While there has been much research into how best review applicants for acceptance to medical school and calls for the process to be updated, the admissions review practice has remained the same for the past several decades (Ellaway et al., 2017; Karlsson & Elmqvist, 2016; Kreiter & Alexson, 2013; Talamantes et al., 2019). The only major update to the review system in the past ten years was to revise the MCAT exam in 2015 to include a critical analysis and reasoning skills section.

Social Context

It is estimated that by 2033, the U.S. can be facing a physician shortfall of 139,000 physicians because of retiring doctors and the population living longer (Boyle, 2020). This will have a negative effect on healthcare and the quality of life in this country. The lack of physicians can lead to longer wait times to receive care. This can also place an undue burden on the current physician workforce who must work longer hours to make up for this shortfall, which can lead to

added stress and burnout. If the burnout becomes generalized, it may lead to an unexpected exodus of current physicians from the workforce, resulting in an even greater shortfall.

This looming shortfall is being felt now as the role of a physician is expanding and doctors are required to deal with more than medical issues. It is not uncommon for physicians to be administrators, health educators, counselors, team builders, public health advisors, and patient advocates (Alnaser, 2020; Barker, 2018; Fiscella et al., 2016; Le Glatin, 2019; Mendeleev et al., 2019). Because of this evolving role, people who are training to be physicians will have to have traits and characteristics that will allow them to be successful in their expanding future roles. Medical schools should become more targeted in their admissions process to better attract and admit applicants who will align with their stated mission and create a physician workforce that can adapt to the new roles of doctors (Evans, 2020).

In this context, medical schools would start to look closely at applicants whose backgrounds and experiences may not be like the people who traditionally have applied and been admitted to medical school. While the more mainstream thought is that former student-athletes are not as academically inclined as non-athletes, the research does not support this notion (Décamps et al., 2012; Dyer et al., 2017; Kahn et al., 2012; McElveen & Ibele, 2019; Nichols et al., 2019). The attributes gained from athletic participation are usually gradual and may not manifest themselves until later in life (Fayad, 2017; Gould & Carson, 2008; Lodewyk, 2020; Lovel, 2018). Research has shown that various disciplines of medicine desire attributes gained from athletic participation (Camp et al., 2019; Fayad, 2017; Fiscella, 2016; Koenig et al., 2013; Lodewyk, 2020; Verrier, 2017). Expanding the pool of potential physicians to these desirable traits can lead to a physician workforce with better doctor-patient relationships, which will impact public health directly (Huynh & Dicke-Bohmann, 2020; Teiner et al., 2018).

Theoretical Context

With athletic participation, the assumption seems to be that the more effort exerted, the greater the results will be. However, as with anything that involves emotion and a situational setting, there can never be a direct cause and effect, but rather only the probability that if one event happens, the outcome can be projected. In addition, while medicine is based in science, it is caught in the middle of the objective world and human experience, which may not be an exact science, as the knowledge to treat people is dependent on a multitude of perspectives (Tanlaka, 2019).

One theory that has been explored in relation to the connection of athletics and medicine is symbolic learning theory. This theory suggest that mental imagery has an effect on performance enhancement (Mowrer, 1960). This theory has been a major tenant for the idea of mental practice, which many athletes use in combination with physical practice (Suinn, 2006). Cocks et al. (2014) note that doctors who have more of a technical skillset are beginning to utilize this method to improve their skills. Other researchers have begun to use the skill acquisition theory to make comparisons between athletics and medicine. Skill acquisition theory suggests that the acquisition of a skill is similar in development from once the skill is initially learned through the process of mastering the skill (Van Patten & Williams, 2014).

Recently, researchers Oksana Babenko, Kalee Lodewyk, and Lindsay Strowd have begun to examine medical school outcomes as they relate to former college-athletes. Babenko's (2017) research was more focused on learning motivations in medical school, while Lodewyk's (2020) research was looking at the relationship between former college-athletes background and how they dealt with the stressors in medical school. Strowd's (2019) research was the first to begin to correlate being a former college-athlete and medical school performance. Each of these research

topics began to address the connection between the non-cognitive abilities someone may possess and success in medical school. While each have stopped short of advocating for former-college athletes in medical schools, they all present data that allow medical schools to evaluate potential applicants from a different viewpoint than has been traditionally used. This proposed research topic will extend the knowledge in this area of study.

Problem Statement

The problem is medical schools are not considering experiences gained from college athletic participation in the admission's review process. If the positive correlation to athletic participation and academics holds true, professional schools in higher education could use these past athletic experiences in their admission's evaluation process when trying to decide who can persist in their schools. However, many choose not to. In comparing admission practices at North American medical schools over the past several decades, the practice of heavily relying on standardized test scores and not factoring in non-cognitive factors holds true (Kreiter & Alexson, 2013, Strowd et al., 2019). By not valuing other parts of an applicant's application, medical schools may be doing a disservice to the medical field by discounting characteristics and attributes that may show persistence in medical schools. Emerging research has begun to study former athletes and their achievements in medical school (Strowd et al., 2019; Strowd et al., 2021).

Much of the research regarding the relationship between athletics and academics has been mixed. Some research suggest that athletic participation has a negative effect on academic progress and success (Coleman, 1961; Garner et al., 2006; van Raalte & Posteher, 2019; Whitner & Myers, 1986). This has led to negative connotations regarding athletes' motivation toward academics and has even led to some athletes believing the academic community has a negative

perception of them (Simons et al., 2007). Competing research suggest that athletic participation has a positive effect on one's academic progress and success (Cross & Fouke, 2019; Haslerig, 2018; Khan et al., 2012; McNaughten & Gabbard, 1993). As Simons et al. (1999) suggest,

Athletic success requires an individual to work hard, be self-disciplined, exhibit perseverance and determination, be able to concentrate, stay focused, and so forth. These qualities, if transferred to the academic domain, would seem to be important for academic success. (p. 151)

Purpose Statement

The purpose of this hermeneutic phenomenological study was to understand the experiences for former college-athletes who persist in medical school. Persistence was defined as no academic interruption of the student's continuation of medical school through their third year in medical school. The theories that guided this research study were Nicholls' (1984) achievement goal theory, and Deci and Ryan's (1985) self-determination theory, as both of these theories focus on motivation and can be applied to athletics, academics, and persistence in medical school. The phenomenological approach was used for this study because this approach seeks to focus on describing what all the participants have in common as they experience a phenomenon (Creswell & Poth, 2018). For this study, common attributes and characteristics were the topics being explored, while the phenomenon was their persistence in medical school. "The basic purpose of phenomenology is to reduce the individual experiences with a phenomenon to a description of the universal essence" (Creswell & Poth, 2018, p. 75).

Significance of the Study

Understanding the experiences of former college athletes who are in medical school and the attributes and characteristics that led to their persistence is a research study that contributes to

the theoretical and empirical knowledge base and, additionally, has practical significance. While there has been research exploring athletics and academics, there is very limited research focusing on medical students who were former college athletes. This study can provide insight into a segmented population who decide to pursue medical school and can provide momentum for medical schools to employ diverse strategies that can facilitate the admission of students with non-traditional qualities who can be successful in medical school. This has the potential to have an impact on the larger medical profession.

Theoretical Significance

This research study is also significant for expanding current theories. Both Nicholls (1984) and Deci and Ryan (1985) provide theoretical frameworks concerning goal achievement, self-determination, and motivation. Nicholls (1984) addresses someone's motivation to achieve a goal and how this motivation can determine the outcome of the goal. Someone's motivation for athletic competition and finishing medical school can be similar, which can have an impact of the determination of the goal's success. Deci and Ryan (1985) focus on human motivation and how social environments impact this motivation. The athletic environment and the medical school environment are both stressful environments (Dyrbye et al., 2019; Holden et al., 2019; Pulakos et al., 2002). These stressful environments can shape someone's self-determination and their motivation to achieve their goal. This study can contribute to what is known about motivation, self-determination, and goal completion.

Empirical Significance

The emerging research shows there is a positive correlation with former athletic participation and medical school achievement and there is a positive connection with certain attributes and medical school persistence (Babenko & Mosewich, 2017; Lodewyk et al., 2020;

Strowd et al., 2019). However, there has been little research in exploring how their previous experiences have contributed to the characteristics and attributes to be able to persist in medical school. This study is significant because this will address the lack of research with a particular group of applicants for medical school and the feasibility of their persistence in medical school. Additionally, this research will begin to add clarity to the positive correlations that previous studies have concluded by addressing the essence of these experiences.

Practical Significance

Practically, this study is significant because it has implications for the medical profession as it can help better connect the characteristics and attributes that allow someone to be successful in medical school to the research that explores the characteristics and attributes that successful physicians possess, which could help better align the goals of the medical school with the medical profession. The study is not to advocate for more athletes to be accepted into medical school, but rather to contribute to an understanding that may better identify applicants who have similar attributes and characteristics that would assist them in persisting in medical school. These findings can offer a new understanding of the skill development that could support medical school academic achievement for all medical students (Strowd et al., 2021). In addition, these findings can play an important role in the evolution of the medical school admissions process, which could make medical school an option for applicants who are traditionally rejected in the current application review process.

Research Questions

This study focused on the experiences of former college-athletes who persisted in medical school. The research questions were designed to assist in the examination of the problem and purpose of this qualitative research study. Creswell and Poth (2018) note that these questions

are “open-ended, evolving, and nondirectional” (p.137). There was one central research question and three sub-questions associated with this study.

Central Research Question

How do former college student-athletes describe their experiences in relation to the attributes and characteristics that allowed them to persist in medical school?

Increasingly, health care is becoming more of a team sport (Miller, 2019; Thompson 2019). This question addresses the overall phenomenon and explores former student athletes' perceptions of the effect their experiences as athletes had on their experiences in their medical education and their future profession.

Sub-Question One

What are the experiences that former college athletes share that help them persist in medical school?

Tinto (1998) theorizes that the more students are involved in the school and see these involvements as positive interactions, the more likely the student will persist and have academic success. This question explores the former student athlete's perceptions of their experiences as an athlete and if they perceive these experiences to assist them with their medical school experience.

Sub-Question Two

How does a former college student athlete's athletic motivation intersect with motivation in medical school?

Motivation plays a large role in task completion and goal attainment (Deci & Ryan, 1985; Nicholls, 1984). Research has supported that this is also true in sports participation (Roberts &

Ommundsen, 1996). This question explores how their motivation plays a part in the persistence in medical school.

Sub-Question Three

How do former college athletes who persisted in medical school describe their medical school experience in relation to their college athletic experience?

Medical school and athletic experiences require adaptability as they both involve situations that are ever-changing (Lodewyk et al., 2020, Morris, 2018; Thompson, 2019). Ghildiyal (2015) suggests that athletic participation develops processing skills, focus, planning, and leadership skills. This question provides an opportunity for former student athletes to talk about their shared experiences in athletics and medical school, and whether they perceive these past athletic experiences assisted them with persisting in medical school.

Definitions

The following is a list of definitions of terms important to the understanding of this study:

1. *Association of American Medical Colleges (AAMC)*- Founded in 1876, this not-for-profit organization, along with its member medical schools, teaching hospitals, and academic societies, is focused on transforming health care in medical education, medical research, and community collaborations (AAMC, 2021).
2. *Attribute*- A derivative aspect or feature of something (Reed, 2016).
3. *Characteristic*- An intrinsic part of the nature (character) of something (Reed, 2016).
4. *Diversity*- The human characteristics that make people different from one another, which can include race, gender, age, national origin, family background, and past experiences (Gomez-Mejia et al., 2007).

5. *Former College Student-Athletes*- A person who has participated in a sport on a varsity level team at the NCAA or NAIA level.
6. *Grit*- The perseverance and passion for long term goals (Duckworth et al., 2007).
7. *Medical College Admissions Test (MCAT)*- A standardized, multiple-choice examination designed to assess a medical school applicant's problem solving, critical thinking, and knowledge of natural, behavioral, and social science concepts (AAMC, 2021).
8. *Medical School Persistence*- The continuation of medical school through the third year with no academic interruption. This definition is being used because a medical student's fourth year consist mainly of electives, sub-internships, and interdisciplinary seminars that are designed to introduce students to their desired field in medicine, rather than any curricular relevance (Andrews et al., 2016; Dewan & Norcini, 2018)
9. *Motivation*- The behavior that directs, provides energy for an action, sustains the effort for the action, and possibly ends the effort for the action (Graham, 2020).
10. *Persistence*- The voluntary continuation of a goal-directed action in spite of obstacles, difficulties, or discouragement (Peterson & Seligman, 2004, p. 229).

Summary

The problem is medical schools are not considering experiences gained from college athletic participation in the admissions' review process. The purpose of this hermeneutic phenomenological study was to understand the experiences for former college-athletes who persist in medical school. Research has shown there is a positive relationship between athletic participation and academic achievement. In addition, emerging research shows there is a positive relationship between former college-athletic participation and success in medical school. However, there has been little research into the characteristics and attributes of this specific

medical school population that allows them to persist in medical school. This study sought to address the questions about former student-athletes shared experiences that allow them to persist in medical school, their motivation carrying over from athletics to medical school, strategies that former college-athletes deploy to be successful in medical school that they may have used while playing their college sport, and the common characteristics that former college athletes share with other people who have been successful in medical school. Nicholls' (1984) achievement goal theory and Deci and Ryan's (1985) self-determination theory guided this study, as both theories focus on the goal attainment and motivation for attaining those goals. Both theories can be applied to athletics and academics, with a particular focus on medical school completion.

This study can show what characteristics and attributes medical school applicants have that will allow them to persist in medical school. This can greatly benefit the medical school admissions community as it can give them another assessment tool in their admissions review process. Additionally, it can allow the medical school admissions process to begin to include a population of applicants who traditionally have been overlooked in the medical school review process, which could help diversify the medical school student population and, ultimately, the medical profession.

CHAPTER TWO: LITERATURE REVIEW

Overview

The purpose of this hermeneutic phenomenological study was to understand the experiences of former college-athletes who persist in medical school. This chapter presents a systematic review of the literature that was conducted to explore the characteristics and attributes that allow former college athletes to persist in medical school, as well as present how achievement motivation and self-determination plays a role in this success. This chapter presents a review of the historical and current literature related to the topic of study. In the first section, the theoretical framework is discussed, which includes the theories relevant to persistence in medical school, the achievement goal theory, and the self-determination theory. This is followed by a synthesis of recent literature regarding the role motivation plays in the achievement of goals for athletics, academics, and medicine. Additional synthesis of literature on the characteristics and attributes to be successful in medical school and the field of medicine is presented. In addition, literature regarding athletics as playing a role in successful academic progression is reviewed. Lastly, former college athletes having success in medical school is addressed. In the end, a gap in the literature is identified, presenting a practical need for the present study.

Theoretical Framework

Goal achievement and motivation have both been researched extensively through a variety of perspectives. Many of these viewpoints can be applied to student-athlete motivation, medical school motivation, and medical school persistence. The theoretical framework for this study was influenced by Nicholls' (1984) achievement goal theory and Deci and Ryan's (1985) self-determination theory. The key components of each theory is outlined, as well as their

relationship to the motivation to do well both in academics and athletics. Also, the evolution of these theories is connected to key components of success in medical school and medical training.

Achievement Goal Theory

Nicholls' (1984) achievement goal theory addresses someone's motivation for achieving a goal and how this motivation can determine the outcome of the goal. This theory is based on the attempts to attain a goal with two different types of motivation—task-involvement or ego-involvement (Nicholls, 1984). This theory originated from an expanded view of the achievement behavior theory, which describes how the goal of an action is to show others one's high abilities or keep from showing one's low abilities (Dennett, 1978). Nicholls expanded further on this idea and assumed that people could show ability in two different ways, determining one's behavior. If someone is more task-choice toward their goals, they are applying a high amount of effort to master a task and increase their ability. If someone has ego-involvement, this individual is focused on the performance of others, and their mastery of a task depends on comparing oneself to others. Therefore, if someone has a more task-orientation with their goal, they will compare their performance with their own past performance and work on personal improvement. If someone has more of an ego-orientation with their goal, they will compare their performance to others and their effort level will be dependent on others' perceptions. Nicholls states that the approach and motivation for the goal can determine the effort put forth toward the completion of the goal and the commitment toward the goal. Within this theory, task-involvement is considered positive, and ego-involvement is considered negative (Nicholls, 1984).

Achievement goal theory began to focus on education trying to connect with the “why” and “how” people attempt to accomplish an objective in academic settings (Stavrou et al., 2015; Wolters, 2004). A student's motivation and their behaviors related with achievement in the

academic setting can be better understood when considering a student's reasons and purposes (Wolters, 2004). In this case, personal development can be seen in the mastery of a task or a goal as the student is developing competence in a subject area (Kaplan & Maehr, 2006). Further research in this theory has shown evidence involving the ability of goal structures and orientations to predict motivational, cognitive, and achievement outcomes (Wolters, 2004). As the achievement goal theory's focus shifted to the reasons for the goal attempt, it began to be also referred to as the goal orientation theory because this shift in idea was theoretically grounded in the achievement goal theory (Stavrou et al., 2015). Currently, achievement goal theory and goal orientation theory have become synonymous with each other.

Researchers started to look beyond the initial thoughts of this theory and explore whether positive results could be obtained from pursuing both task-involvement and ego-involvement concurrently. Harackiewicz et al., (2002) note that multiple goal perspective suggests that there may be many pathways to goal-achievement. "In other words, individuals low in the need for achievement could focus on mastery goals, whereas achievement-oriented individuals could focus on performance-approach goal" (Harackiewicz et al., 2002, p. 643). In this instance, individuals can pursue multiple pathways to achieve similar goals. The researcher states this perspective is more complex but necessary, and work looking into this is preliminary. While this perspective has been discussed in later literature, the majority of the relevant literature focuses on a singular approach for goal attainment.

This theory has been further expanded upon to go beyond the original thoughts about goal motivation and focuses more on external factors (Kaplan & Maehr, 2006). These new factors position this theory within the social-cognitive framework and are more intertwined with one's notion of meaning and purpose (Kaplan & Maehr, 2006). Kaplan and Maehr (2006) state

that the implications go beyond education and can extend to other facets in life. “It is not surprising that goal orientation theory has become a major, if not the major, perspective in the study of achievement motivation, and perhaps a significant framework for the study of human motivation generally” (Kaplan & Maehr, 2006, p. 170).

Self-Determination Theory

Deci and Ryan’s (1985) self-determination theory focuses on human motivation and how social environments impact this motivation. This theory draws from early research on motivation and the ways people make sense of their own behavior and the behavior of others. The theory proposes that people have basic psychological needs of competence, relatedness, and autonomy (Deci & Ryan, 1985). Autonomy refers to a person’s sense of ownership of their actions (Ryan & Deci, 2020). Competence refers to one's sense of mastering a concept or action, and relatedness refers to a person’s feeling of connecting with others and their sense of belonging (Ryan & Deci, 2020). Once these needs are met, people will be in the best position to grow. Environmental factors can affect this internal motivation. For example, positive reinforcement can have a positive effect motivation. Cultural norms and values can also influence one’s basic needs, which would also affect their motivation. Deci and Ryan (1985) state motivations can be either extrinsic (doing something for a reward) or intrinsic (doing something for self-fulfillment).

Outside rewards and/or punishments are the main factors associated with extrinsic motivation. With this type of motivation, people are only motivated by others’ expectations or to comply with others’ demands (Vansteenkiste et al., 2017). While this motivation can be autonomous, one’s self-esteem is based on the outcome of the action, which can lead to the feeling of a lack of competence and a lack of perceived value. These in turn are shown to have a strong correlation with lack of engagement, learning, and personal wellness (Ryan & Deci,

2020). In education, this is seen when students do an activity to avoid criticism and/or gain the approval of the educator (Vansteenkiste et al., 2017).

Intrinsic motivation is the goal educators have for many of their students as this will lead to learning for the pure interest of the student, which can lead to a deeper learning of the material, the overcoming of obstacles that may present themselves, and, eventually, better grades (Vansteenkiste et al., 2017). The notion of making motivation a self-directed act becomes central to the self-determination theory. In education, as in life, ideal functioning for natural growth, constructive social development, and personal well-being are all products of this autonomous motivation (Ryan & Deci, 2000). As Ryan and Deci (2000) note, “Perhaps no single phenomenon reflects the positive potential of human nature as much as intrinsic motivation, the inherent tendency to seek out novelty and challenges, to extend and exercise one's capacities, to explore, and to learn” (p. 70). Much of the follow-up research on this theory has shown that intrinsic motivation has a great number of positive social outcomes (Wigfield et al., 2020).

Ryan and Deci (2020) have further expanded on this theory to show how external factors influence the internal process of motivation, positive developmental tendencies, and social integration. When outside influences affect the individual's basic psychological needs for competence, relatedness, and autonomy, one's natural internal motivation will be affected negatively (Ryan & Deci, 2020). These outside influences can include external support, culture, socioeconomic background, and educational settings (Ryan & Deci, 2000; Ryan & Deci, 2020). In education, as well as in life, a climate that supports autonomy, models intrinsic behaviors, and fosters the generation of self-reflection can have a positive impact on greater internal motivation (Ryan & Deci, 2000; Vansteenkiste et al., 2017). Two mini-theories, cognitive evaluation theory and organismic integration theory, have been developed from the self-determination theory,

which focuses more on the conditions under which intrinsic motivation is enhanced or undermined (Wigfield et al., 2021).

Framework Establishment

Several theoretical frameworks could be applied when exploring student-athletes, academics, and medical school. Ajzen's (1991) theory of planned behavior emphasizes that behavior can be predicted based on the attitude toward the behavior, one's intentions, and the perceived control of the behavior. This theory has been the foundation for the inclusion of professionalism training in medical training (Archer et al., 2008). Likewise, Henry (1989) attempted to apply Holland's Congruence-achievement hypothesis to a sample of premedical and premedical students. Furthermore, Hull's (1943) drive theory is often cited with sports performance as this theory focuses on behavior as a chain of events that start with a physical stimulus. "Utilizing a reductionist approach, researchers manipulated arousal levels while measuring performance in simple conditioned responses" (Mack et al., 2000, p.10). Another theory that could be applied is the theory of communities of practice (1991) developed by Jean Lave and later expanded upon by Etienne Wenger. Lave and Wenger's theory directly relates to how groups or communities learn directly or indirectly from each other as they share a common interest, which becomes a natural part of the social learning process (David, 2014). While there are no specific theories that directly focus on former college athletes in medical school, theories that focus on following a course of action despite difficulty and the motivation to continue this path are better suited for this study.

Nicholls' (1984) achievement goal theory and Deci and Ryan's (1985) self-determination theory provide the best grounding foundations for exploring the idea of motivation with an athlete and the academic motivation of a student. Both theories explain why someone chooses to

pursue a goal, the motive for the pursuit of the goal, the type of motivation that will allow someone to be successful in their goal pursuit, and how environmental factors can influence the person's mindset when pursuing their goal. All these factors have an impact on one's academic pursuits, athletic pursuits, and future occupational pursuits. Ntoumanis (2001) notes the many empirical links between these two theories. The research suggests that task orientation predicted motivational variables with low self-determination; and perceived competence predicted both high self-determination and low self-determination variables, which shows the adaptive role of task orientation in facilitating self-determined motivation.

Goal achievement and self-determination are required to reach the level of college athletic participation. This is even more true as becoming a medical student is more selective. Participation in college athletics and gaining admissions into medical school both require the ideals that the two theories suggest are factors in one's motivation and goal attainment. When discussing motivation behavior and achievement, these theories can complement each other (Ntoumanis, 2001). Together, the achievement goal theory and the self-determination theory can provide the framework to study the characteristics and attributes that allow a former college athlete to persist and be successful in medical school.

Combined, these theories guided the research question, data analysis, and the reporting of results. The research questions and sub-questions relate to the student-athlete's motivation for athletics and medicine, while also connecting with their desire to accomplish their desired goals. While being guided by the achievement goal theory and self-determination theory, the data analysis looks for the shared experiences that accurately describe the essence of the student-athletes persistence in medical school. Additionally, the results are reported in a way that conveys the themes and how they relate to the two guiding theories.

Related Literature

Achievement goal theory and self-determination theory provided the grounding framework for this research study. The following sections examine the literature that centers around the relevant themes that contributed to this research study. This review of related literature was centered around characteristics and attributes, motivation, athletic participation's effects on academics, successful characteristics and attributes of medical school, and the correlation of athletic participation and success in medical school.

Characteristics and Attributes

In some settings, the terms *characteristics* and *attributes* are thought to be synonyms and are used interchangeably. There are subtle differences that distinguish these terms and allow them to be used separately, however. A characteristic is an intrinsic part of the nature (character) of something (Reed, 2016). A characteristic usually defines a positive quality. For example, a study concluded that athletes who played team sports are more agreeable and more invested in interpersonal relationships (Etemadi & Besharat, 2010). On the other hand, not all characteristics are used to present a study's positive result. An additional example from Studdert et al. (2016) noted the characteristics of physicians who had recurring claims of malpractice tended to be male between the ages of 45-54.

An attribute is a derivative aspect or feature of something (Reed, 2016). It is considered something that has been learned or developed. An example of this is a study exploring the attributes of physicians. Sprung et al. (2015) notes that some common attributes of several different types of physicians are high levels of knowledge, great diagnostic acumen and negotiating ability, and good communication skills. An additional example of an attribute is from

Miller (2017), who notes some attributes of former athletes who pursue medicine are that they tend to be good communicators, disciplined, and have a good sense of persistence.

Motivation

Motivation is the behavior that directs, provides energy for an action, sustains the effort for the action, and possibly ends the effort for the action (Graham, 2020). It is the energy behind one's actions, applying the standards of excellence to performance (Wigfield et al., 2021). Whether it is internal or external, at the center of biological, cognitive, and social regulation is motivation (Ryan & Deci, 2000). Motivation is intertwined with education, work, health, relationships, and many more aspects in a person's life. Wigfield and Eccles (2000) explain that the level of motivation determines the tasks that people choose, persistence during those tasks, how much effort is put forth, and the levels of performance. These are outlined in four subcomponents of motivation, including attainment value, intrinsic value, utility value, and cost. Research has shown that intrinsic, or internal, motivation will lead to someone having a greater satisfaction in their actions, hold greater value in their activities, be more inclined to seek out challenges, and possess a greater sense of well-being (Alamri et al., 2020; Howard et al., 2020; Ryan & Deci, 2000).

The process that makes setting a goal and striving for a goal possible is motivation (Cox & Klinger, 2004). Achievement goal theory and self-determination theory play an important role in motivation. Both explain how external factors affect the psychological needs of individuals, which have been linked to internal and external motivation and have a correlation on the outcome of the goal (Chen et al., 2019). More specifically, they can be seen both in athletic motivation and academic motivation.

Athletic Motivation

In sporting activities, people work to prove their competence in them. Athletic motivation can be described as a strong passion for an athletic activity and developing meaning in this self-defining activity (Yukhymenko-Lescroart, 2021). The very nature of athletic competition involves the completion of a goal. This goal can be different based on the athletic competition, but in its simplest form, an athlete is trying to best a time or a score over an opponent. A runner is trying to have a faster time than the other competitors or competes with himself or herself for a faster time. A gymnast tries to perform a routine that scores more points than the other gymnasts' routines. A soccer team is trying to score more goals than the team they are playing against and in the process, prevent the other team from scoring goals. Any person or team tries to have more wins than losses. This is the foundation for athletic motivation.

Research shows that participants in athletics have a higher level a mastery approach and performance approach in relation to goal attainment and high levels of autonomous goal motivation (Gaudreau & Braaten, 2016). Additionally, research supports the positive relationship between athletic participation, and goal and achievement behaviors such as persistence, participation motivation, commitment, and task choice (Gaudreau & Braaten, 2016; Roberts & Ommundsen, 1996; Stavrou et al., 2015). A task-oriented perspective will have a positive effect on goal attainment and this is carried over in sports participation (Nicholls, 1984; Roberts & Ommundsen, 1996). Specifically with athletic participation, the deeper an athlete is focused on task-orientation, the greater the athlete is focused on mastery-orientation to determine their level of satisfaction; they are not focused on status enhancement for performance, which lends one to have greater internal motivation to accomplish a goal (Roberts and Ommundsen, 1996).

Furthermore, athletes have a positive relationship with intrinsic rewarding and highly enjoyable feelings, as well as goal-orientation, as the athletes' task-orientation is an important factor in attaining flow in competition, which results in a more positive state in goal accomplishment (Stavrou et al., 2015). Also, with sports participation and goal motivation, student-athletes have high levels of autonomous goal motivation and their perceived goal attainment is stronger, which supports the ideals of the self-determination theory (Gaudreau and Braaten, 2016). Additionally, the reasons for participating in athletics seem to be intrinsic in nature, which leads to the participant having more of an internal motivation (Deci & Ryan, 1985). While many external elements can affect an athlete's motivation, some of these elements can have a positive impact on their internal motivation. Because the life of a student-athlete lies both in the athletic domain and the academic domain, it is likely the two domains are interrelated (Yukhymenko-Lescroart, 2021).

Academic Motivation

A person's desire to learn, explore, and understand is very much a part of human nature. Maslow (1943) notes human growth is a key component to a human's needs and leaning plays an integral role in this. Learning can consist of the development of competencies or assisting other's development of competencies (Huitt 2011). This intrinsic instinct is a behavior that may be a focal point in one's motivation, as is seen a student's natural curiosity and interest in learning (Deci & Ryan, 1985).

Much like the athlete's motivation, outside influences can impact one's academic motivation. Early in one's education, the action of rewarding positive behavior and punishing negative behavior leans more toward external motivation, but as research has shown, these actions are necessary for the development of the student's internal motivation (Deci & Ryan,

1985). This is seen in early education—rewarding a student with a sticker or star on a graded assignment for a good grade, or taking away a beloved activity for a bad grade. Schunk (1995) notes academic self-efficacy and resilience are directly related to strong academic motivation and academic achievement. Positive relationships have been noted with self-efficacy for learning and motivation for learning. Furthermore, goal orientation and student achievement have been shown to be connected. Research suggests there is a correlation between goal orientation and student achievement, as well as a positive correlation between self-efficacy for learning, and performance and higher GPAs (Bullard, 2016; Güler, 2017).

Additionally, academic motivation and achievement are strongly associated with perseverance of effort, and some studies have associated one's passion for long term goals (grit) as a factor that has an effect on academic motivation and achievement (Güler, 2017; Ray & Brown, 2015). The concepts of perseverance and grit play an important role in academic persistence. Specifically with medical students, the idea of the potential “ideal” medical student and how the soft skills of hardiness, distance traveled, commitment, and endurance are just as important as prior academic accomplishments (Ray & Brown, 2015). In a setting as challenging as medical school, these are equal in importance to success. Much like athletic motivation, educational settings that have more of a focus on a mastery-goal structure positively predicted a student's learning strategy and success (Wolters, 2004).

Motivation for Medicine

The pursuit of a career in medicine is a hard and long journey. It often starts before someone begins their undergraduate studies. In the United States, a medical school program is a minimum of four years after obtaining a four-year bachelor's degree. This may also include years of research, clinical volunteering, and several post-baccalaureate classes and/or degrees

before entering medical school. After completing a MD program, graduates must complete a residency position that can last anywhere from three to seven years, depending on the medical specialty, and the passing of board exams after the completion of one's postgraduate training. Researchers note that self-determination, self-directed learning, job stability, a desire to help, and having the scientific intellectual capacity are some of the main factors for someone's motivation in pursuing a career in medicine (Mann, 1999; Sobral, 2008; Woodward et al., 2017). Others include support from family and people in the field, the prosocial motivation to help others, their faith, and the feeling that medicine fits with a certain skill set (Bott et al., 2017). Other studies have noted several interconnecting personal and contextual factors such as an interest in helping people, wanting to accept the challenge of problem solving, encouragement from external environment, and prior studies as the motivation for one's pursuits of medicine (Sobral, 2008). Additionally, other factors that have influenced people to pursue medicine are the humanistic aspects of medicine, the need for fulfillment, and a strong desire to be recognized for their usefulness (Kunanithaworn et al., 2018). Nevertheless, many of these factors influence someone's self-directed learning, which is critical to someone's ongoing motivation to learn and improve in medicine (Mann, 1999). But one of the most important motivations for pursuing medicine seems to be a sense of medicine being one's "calling" (Bott et al, 2017).

While in medical school, the type of motivation can be a factor. As Mann (1999) suggests, motivation in medical education involves one's motivation to become a physician, but that motivation is multifaceted. This motivation also includes a motivation to learn, to be altruistic, to be skillful, to be dutiful, and to become a lifelong learner (Mann, 1999). Students who have higher intrinsic motivational traits are more likely to be more determined in their

pursuit of a medical education, while amotivation or no motivation is more related to depression and a lower quality of life for medical students (Kunanithaworn et al., 2018).

The College Student-Athlete Experience

Attending college can open the door to many new and different experiences. In some circumstances, it may be the first time a student is in a new region of the country, interacting with people of different backgrounds, or even having a roommate. It can be as simple as college being the first time the student is away from their home for an extended period of time. This transition period can be very stressful for first-year college students (Pitt et al., 2017). These new situations are not limited to their physical surroundings. The university setting presents many other opportunities for students. Many clubs and organizations are available that may not have been previously available to the students.

One may think of the participation in a varsity sport as equal to the many other activities offered by a university. But the time commitment, visibility, and responsibility that come with being a student-athlete is not like any other activity offered on a college campus. Balancing the responsibilities that come with playing a college sport, along with the academic responsibilities and trying to have a social life on campus, is probably one of the most stressful experiences for college student-athletes, other than the actual game-day experience and an academic exam (Bjornsen & Dinkel, 2017). A survey of college student-athletes indicated that it is normal for student-athletes to spend as much as 40 hours per week on their athletic activities (NCAA, 2011). The time constraints that come with being a student-athlete often take away from other “normal” activities in which non-athlete college students have the opportunity to partake (Potuto & O'Hanlon, 2007). For example, college student-athletes have less time to return home to spend time with family over school breaks because of their athletic commitments. Something as trivial

as going on a spring break trip or setting up a class schedule can be restrictive for a college student-athlete (Davis, 2015). The athletic time demands can often keep a student-athlete from getting more involved in their academic major, career interest groups, volunteering, or pursuing an internship.

However, the college student-athlete experience can include an instant connection with their college and their peers, once they arrive on campus (Eiche et al., 1997). When a student-athlete is recruited for their sport, they communicate with future teammates and other campus personnel. They also make numerous visits to the campus. Unlike traditional college students, who may move into a dorm on their first day and not know anyone, a college student-athlete will have their new teammates with whom to bond and have older teammates help them with their transition to this new environment, all of which allows the student-athlete to connect better with the university, and helps ease the transition from high school to college.

In some instances, the college student-athlete may identify more with the athlete aspect of their identity rather than identifying with the student aspect, or they may identify with both identities in an equal ratio. This is especially true for the athletes who play their sport in the highest divisions of college athletics and in the sports that generate the most revenue, such as football and men's and women's basketball (Beamon, 2012; Yukhymenko-Lescroart, 2018). This is not surprising, given the time commitments and the other demands that come with playing a college sport. While, on the surface, this may seem like a mixed message that may compromise the academic mission of the school and be a detriment to the student-athlete, these dual identities can have many positive benefits for the student-athlete, such as stronger motivation and a greater connection with the university (Huml et al., 2019; Tudor & Ridpath, 2019; Yukhymenko-Lescroart, 2018).

Role of Athletic Participation on Academics

College athletics and academics are two important contexts for a student-athlete's motivation, achievement, and how their performances are developed and sustained (Yukhymenko-Lescroart, 2021). The motivation that is involved in athletics and academics has been shown to be similar in regard to task mastery, goal orientation, and intrinsic motivation in achievement (Deci & Ryan, 1985). Carl Gabbard was one of the first researchers to study the effect athletic participation has on academic success. Gabbard (1978) sought to determine the relationship between physical exertion and mental performance. This research showed that students who performed some physical exertion did better on an academic test afterwards than students who did not participate in a physical exertion activity. This study concentrated on the mental performance, soon after physical exertion. Further studies have indicated that achievement goals can be predicted by an academic-athletic identity and this identity has a strong correlation in endorsing task mastery and performance academic goals (Huml et al., 2019; McCarthy, 2011; Tudor & Ridpath, 2019; van Rens et al., 2019; Yukhymenko-Lescroart, 2018). A college athlete's athletic identity does not negatively impact their academic performance, which is contrary to popular belief (Huml et al., 2019). Additionally, student-athletes' athletic identities have a positive association with their overall identities, as well as their academic performance and life satisfaction (Van Rens et al., 2019).

Furthermore, a task-invoking climate can have an impact on an athlete's academic motivation. The task-involving climate that is associated with college athletics can have a positive impact on academic motivation (Tudor & Ridpath, 2019). The type of motivation and its positive effect on both academics and athletics are connected. However, other research has

concluded this idea exists throughout a student's academic experience from pre-college and throughout their college education (Tudor & Ridpath, 2019).

Athletic Participation in Academics, Pre-College

Research on children has shown that academic performance right after physical exertion does not have a detrimental effect on the academic performance and supports the activation arousal theory, which mentions that physical activity can have a positive impact on certain tasks (McNaughten & Gabbard, 1993). Meta-analysis reviews have shown that sports participation has a positive relationship to a student's academic achievement throughout their pre-college education (Bowen & Greene, 2012; Dyer et al., 2017). Sports participation is related to positive academic achievement and adolescent sport participation may improve academic success, no matter the age of the participants, years in school, or the country of education (Dyer et al., 2017). Additionally, high school athletics does not detract from academic success and, in some cases, a school's emphasis on athletic success correlates with higher standardized test scores and higher graduation rates (Bowen & Green, 2012).

Athletic Participation on Academics, Undergraduate Years

As the student moves up in their education and their athletic participation level, the link between athletic participation and academic achievement remains. The academic content plays a crucial role in the lives of student-athletes as not only is their academic achievement tied to their athletic participation, but their type of goal attainment identity is based on their identity as a student-athlete (Yukhymenko-Lescroart, 2018). Studies have shown a link between athletic participation at the college level and performance in the classroom in the form of improved GPAs, exam results, overall success in the classroom, and mental development (Décamps et al., 2012; Kahn et al., 2012; McElveen & Ibele, 2019; Nichols et al., 2019). The transition from a

high school academic environment to college can be very difficult. Add in the added pressure of playing a college sport, it would seem one's retention rate for new information would be lower than non-college athletes'. However, student-athletes have a higher retention rate than non-college athletes and athletic participation does not negatively impact their academic success (McElveen & Ibele, 2019).

Added stress also comes with the transition from high school to college. For many students, this may be the first time they are away from home for an extended period and their first encounter with independence. Yet, student-athletes are shown to have lower general stress and academic stress, and have better coping strategies and a higher self-efficacy than students who have not participated in college athletics (Décamps et al., 2012). Additionally, Khan et al. (2012) note that sports participation results in improved grade point averages, test results, and overall cognitive development.

Similarly, the idea of autonomy is greatly enhanced when a student athlete does well academically, thus removing some of the external motivations for academic success (study hall, academic monitoring), and moves the student athlete toward internal motivation, which has shown to have a greater impact on academic success (Deci & Ryan, 1985; Haslerig, 2018). This has a lasting impact, even after their undergraduate education is complete. Additionally, academic performance seems to have a positive effect on an athlete's athletic performance—the more athletes invest in themselves as students, the more ethical they are likely to be in their athletic competition, such as refraining from over-aggression, provoking opponents, and deliberately engaging in actions to get the official to call a foul on the opponent (Yukhymenko-Lescroart, 2018).

Also, the very nature of being involved in college athletics connects the student-athlete more with the school, students, faculty, and staff. Research has shown that the more students are involved in the school and see those as positive interactions, the more likely the student will persist and have academic success (Lew et al., 2020; Rendon, 1994; Tinto, 1998). Their identity as a student-athlete connects them with the school. Additionally, their relationship with coaches, academic advisors, professors, tutors, and athletic alumni can help to create a positive integration with the college community.

Athletic Participation on Academics, Post Undergraduate Education

After a college athlete has completed their undergraduate education, the link seems to remain with academic success. Former college athletes have been successful in academics after their undergraduate years, in graduate, and in professional school settings. In 2015, it was estimated that 2% of all college athletes were participating in college athletics as graduate students and that number has continued to rise (Haslerig, 2017). Some former college athletes who still had athletic eligibility remaining and are pursuing graduate school note that their choice for their pursuit was a conscious one to follow their career passions rather than a default option because it was available to them, as they continued to pursue their sport (Haslerig & Navarro, 2015). The USC Darla Moore School of Business (2021) suggests that with the strong work ethic, team skills, and strategic goal-setting that they possess, intercollegiate athletes can make for top MBA candidates. Law school admissions committees believe that the attributes of effective time-management skills, teamwork, drive, and discipline displayed by student-athletes possess who have established themselves academically, should be sought out for law schools (Sciola, 2021).

A former Division 1 college basketball player credits the lessons of competition, goal setting, adversity, perseverance, accepting criticism, and winning like a champion as factors for successful completion of a doctoral program in educational leadership (Scott, 2015). Nursing students who are also athletes tend to have a higher academic motivation than their nonathlete counterparts, and they feel that their time management skills and flexibility are the reasons for this high academic motivation (Forst, 2017). If other professional schools recognize that the attributes of former college athletes can be beneficial in their schools, one infers that this can be transferred to medical schools.

Successful Characteristics and Attributes in Medicine

The selection process for admissions into medical school is based on many perceived attributes that would deem someone potentially successful in medical school. A systemic review of the literature regarding these attributes suggests that previous academic performance (undergraduate grades, standardized test scores), personality tests, personal statements, and interviews are all used to determine if an applicant will be successful in medical school (Ferguson, 2002). Additionally, the attributes of hardiness and grit have been shown to influence success in medical school (Ray & Brown, 2015). Further research has detailed how core personal competencies such as ethical responsibility, reliability, dependability, social skills, resiliency, communication, teamwork, and adaptability all play a vital role in success in medical school (Koenig et al., 2013). A former student-athlete who is now a practicing physician noted how being a member of a sports team, which included aspects of work and respect for each other, made the relationship-building part of their job very easy and almost became second nature to them (Holland, 2018). Another former student-athlete who is in medical school notes how being

on an athletic team instilled many life lessons, such as altruism, prioritization, and perseverance, which are needed in medical school (Chrumka, 2017).

Medical School Training

These successful attributes are carried over in their medical school training. Not only do students have to be academically prepared for the volume of information they will be expected to learn, but they must also be prepared for the clinical training during their latter part of their medical school training. The research suggests that the student's personal makeup is a very important factor in their success in medical school (Albanese et al., 2003; Fayad, 2017; Miller-Matero, 2018; Ray & Brown, 2015; Sobowale et al., 2018). By being exposed to many distinct and wide-ranging life experiences, pre-medical students can help create a more equitable healthcare provider workforce because those social skills of empathy, cultural understanding, intellectual engagement and active thinking were acquired during their previous experiences (Zahedi, 2020).

Non-cognitive traits have an important impact on a medical student's performance during their medical training. As mentioned earlier, grit is strongly associated with academic motivation and achievement (Ray & Brown, 2015). Completing medical school in four years, higher clinical scores, and a higher class rank are all associated with medical students who have higher levels of grit (Miller-Matero et al., 2018). Additionally, certain personality traits can lead to better outcomes in the clinical years of medical school as judged by clerkship outcomes and various honor societies. The Big Five popular personality traits (neuroticism, extraversion, conscientiousness, agreeableness, openness to experience) are strongly associated with a medical student's clinical year's performance (Sobowale et al., 2018). Conscientiousness is the personality trait that is the strongest predictor of clinical success as this trait is associated with

honors in all the clerkships and memberships into the honor societies. This trait includes the attributes of diligence, impulse control, and responsibility. Conversely, neuroticism has borderline significance to poor performance in almost all clerkships as this trait includes the attributes of poor coping skills, being more anxious, and being more vulnerable to stress (Sobowale et al., 2018).

The years in medical school are filled with many internal and external stressors. Medical students are faced with not only large amounts of information they are required to retain and master and the internal pressure to complete a lifelong goal, but other outside issues that life presents may distract the students from their medical school commitments. Life does not stop once a student begins their medical school training. Medical students may have health issues with themselves or a family member. They may experience financial hardship. Additionally, some of these external issues can also include assimilating into a new academic and social environment, academic burnout, and unrealistic perceptions from premedical school social circles (Bergmann et al., 2019). Some of these issues manifest themselves starting as early as their first year in medical school and may continue throughout the medical student's education. It may seem simplistic that the goal of any medical student is to complete their training and become a practicing physician. But the desire to keep connections to their non-academic life and interests that are major domains in their life is also a major goal of a medical student, which may present many conflicts within that medical student's life and add to their medical training stress (McKerrow et al., 2020).

Furthermore, motivation becomes a large factor in their quality of work as a medical student's life begins to revolve around their studies and training. Self-determination theory and goal achievement theory can explain the factors that can lead to a student's success in medical

school (Deci & Ryan, 1985). In medical school, goal achievement plays an important role in one's task-involvement or ego-involvement motivation as this will not only affect preparation for studies, but also research opportunities, national examination outcomes, and residency matching potential (Nicholls, 1984). Following the self-determination theory, a student's needs for competence, relatedness, and autonomy are met through the growth of the student's knowledge, more connection with the medical profession, and becoming more self-sustaining in their skills (Chen et al., 2019, Deci & Ryan, 1985).

In addition to the mentioned attributes to be successful in medical school, self-directed learning plays an important part in the persistence and success in medical school. Lew et al. (2020) note how self-directed learning influences student's ability to persist in graduate-level academic programs. Often, in medical school, students may not be required to attend all lectures. Depending on what specialty they choose to pursue, they will have to seek out additional educational opportunities outside of the traditional medical school curriculum. Also, more of the medical school education is moving toward a problem-based learning (PBL) model where students are educated about a topic through their experiences with resolving an open-ended question. Having the commitment to be a self-directed learner allows the student to persist and be successful in this academic setting (Corno & Kanfer, 1993; Morris, 2018).

Post-Medical School Training

Once a student has graduated from their medical school, they take the knowledge, attributes, and skills learned into their chosen profession. Research has shown that successful integration of these attributes, such as communication, collaboration, and ethical responsibility, leads to improved patient care outcomes, patient satisfaction, and greater physician job satisfaction (Koenig et al., 2013). Not only does the research show this in the general medical

profession, but also in specific medical specialties. Within orthopedic surgery, participants possessed increased grit compared to the general population, which allows them to handle the rigors of the profession (Camp et al., 2019). Within radiology, the ideas of goal pursuit and the perceived value of those goals, especially with the pursuit of research, are important (Fayad, 2017). In primary care, the ideas of relatedness, knowing one's role in that group, and how it leads to ensuring the success of goal completion are emphasized (Fiscella et al., 2016). In an otolaryngology residency training program, physicians who excelled in team sports had higher faculty rankings and exhibited higher tendencies to thrive in team settings (Chole & Ogden, 2012). Additionally, the medical profession, much like many other occupations, lends itself to the conditions that support self-determination functioning, such as personal autonomy and personal competence that support motivations (Deci & Ryan, 1985).

Correlation of Athletic Participation and Success in Medical School

Emerging research has begun to link college athletic participation and success in medical school and other medical professional schools. Research has shown that former college athletes in pharmacy school and medical school have increased resiliency, which can lead to less burn out in their respective professional schools (Clay et al., 2020; Lodewyk et al., 2020; Strowd et al., 2019). Babenko and Mosewich (2017) have found that sports participation is associated with the desired quality of motivation and a student's well-being in medical school. Varvara (2020) notes that several medical schools value the skills of leadership, teamwork, stress tolerance, resilience, acceptance of constructive feedback, and time management that former athletes bring to their medical school experience. Strowd et al.'s (2019) is one of the first research studies to examine medical school success among former student-athletes. In this study, the researchers examined success indicators at one medical school and compared the achievement level of former student-

athletes and non-former student-athletes over a three-year span. The study concluded that former student-athletes at that medical school had higher Step 1, Step 2 CK, NBME Shelf exam scores, as well as higher clerkship performance ratings and AOA status compared to their peers who did not participate in a college sport. While the research has begun to show that former college athletes are successful in medical school, a definitive attribute or cause has not been explored. Much of the speculation surrounding this has centered around several key factors in medical school: adaptability, leadership, and the learning environment. In a follow-up study, Strowd et al. (2020) note that goal setting and performance appraisal played a perceived role in academic success by former athletes in medical school. This study included not only former college athletes in medical school, but also medical school faculty who taught former college athletes who matriculated in medical school, as well as college athletic coaches who had their former athletes matriculate into medical school.

Adaptability

Adaptability refers to the ability to solve problems, creatively, dealing with uncertainty or unpredictability, learning new tasks, handling stress, and coping with crisis situations (Pulakos et al., 2002). Additionally, adaptability can refer to the capacity to affect or be affected by unforeseen changes (Pike et al., 2010). The experiences in medical school are constantly changing and success depends on being able to keep up with evolving situations. With patient interactions, uncertainty and ambiguity are commonplace (Lodewyk et al. 2020). The ability to successfully tolerate these situations is a key trait to succeed in medical school. Research has shown that as the competitive level of the sport participation has risen, the level of tolerance within the individual has increased (Lodewyk et al. 2020). Also, being adaptable will allow someone to deal with setbacks. Current research presents the idea that athletes have a self-

perception that allows them to have greater control of their success and failures based on their preparation, and this allows them to better cope with performance failures that occur in real-time settings (Lodewyk et al. 2020, Morris, 2018). Also, medical students with a higher level of sport background, especially a team sport background, have a higher tolerance for ambiguity and uncertainty, which plays a key role in clinical training (Lodewyk et al., 2020).

Furthermore, self-directed learning and adaptability are connected. The adapting model of modes of learning (instruction, performance, with inquiry) is present in medical education, as well as athletic competition. Self-directed learning is used to aid in adult education to assist learners with adapting to the constant changes in our world, which is helpful in medical school education as the average age of a student who starts medical school is 24 (Morris, 2018). This method helps learners to be adaptive in their performance. By encouraging an enhanced learner sensitivity toward changing social contextual conditions, there is a potential for enhancing the student's motivation for self-directed learning (Morris, 2018). While particular roles should be clearly defined, they must be flexible to ensure that assistance can be given when needed for goals to be achieved (Fiscella et al., 2016). The themes presented relate to one's persistence in medical school.

Leadership

Depending on the setting, there are various definitions of leadership. In simple terms, leadership is the capability to influence others to achieve goals (Hughes, 2019). This definition can be expanded upon to include the selecting, equipping, and training of personnel, and also getting the followers to willingly and enthusiastically expend spiritual, emotional, and physical energy to focus on a certain task or mission (Winston & Patterson, 2006). Leadership entails having one's actions being driven by one's values, inspiring and communicating a shared vision,

and connecting with others (Kouzes & Posner, 2017). Leadership has an impact in all aspects of life and plays an important role in athletics and medicine.

Participation in college athletics is presumed to aid in the development of leadership skills (Forst, 2017). Athletes take cues from their coaches and more seasoned veteran athletes to hone their personal leadership traits. Whether an athlete follows lessons learned from good leaders or learn what not to do from not-so-great leaders, there are always lessons learned. Many athletes take the leadership lessons learned in their sport and apply them to their new team setting in their professional environment (Coin Flyp Media, 2019). As it relates to medicine, while there are many people involved, doctors are seen as leaders in the medical profession. A key component in a physician's skillset is leadership, and it is an important part of the healthcare field (Chen, 2018; Maddalena, 2016; Sadowski et al., 2018). Many physicians find themselves in leadership roles because of their duty for patient care, their knowledge base, and their responsibility for student and resident education (Collins-Nakai, 2006). While there are only a select few "senior leaders" in the healthcare field, doctors are leaders in their own practice and/or in their communities (Maddalena, 2016).

Maddalena (2016) notes leadership in medicine contributes to the improvement of the healthcare delivery system. Leadership attributes such as self-understanding, self-reflection, negotiation skills, management of interpersonal skills, and the ability to learn from experience provide better clinical outcomes and improved patient satisfaction (Blumenthal et al., 2012). This also relates to leadership in medical education. Physician leadership in graduate medical education leads to improved patient care (Sadowski et al., 2018).

As mentioned earlier, being able to adapt in medicine is necessary. Leaders in medicine act as change agents to assist others with the ever-evolving world of medicine (Chen, 2018;

Collins-Nakai, 2006). Leadership attributes can be obtained through experience in teamwork and working in a team setting (Chen, 2018). These leadership attributes can be focused on practicing medical professionals, and can be transferred to medical school students. Many times in a medical student's clinical training experience, they are seen as part of the patient's healthcare management leadership team.

Learning Environment

A learning environment refers to the many diverse physical locations, context, and cultures in which a student can learn (Education Reform, 2013). Learning environments are personal to the individual and their beliefs, and these can be affected by the actions of others in that environment and the environmental culture in which the learning environment is situated (Lorsbach & Jinks, 1999). The medical school learning environment consists of classroom lectures, hands-on clinical learning, and peer-to-peer interactions. The beginning parts of medical school training are more centered on a classroom learning environment. The later parts of medical school training are more centered on a clinical learning environment. The classroom learning environment can be offered in a variety of ways, such as traditional lectures, team-based problem solving, and/or self-directed lessons. The clinical learning environment takes place in actual clinical settings which can include hospital wards, clinics, and/or physical labs. While simulations can aid in the educational process, there is not a comparison to the learning that occurs from managing patients in an actual clinical setting (Nordquist et al., 2019). Gruppen et al. (2019) attempt to create a conceptual framework for a learning environment in medical school, which includes elements of ecological psychology, workplace learning, situational cognition, and socio-materiality theory. This learning environment can be thought of a complex construct that is influenced by individuals, social groups, and organizations in a setting shaped

by climate and culture (Gruppen et al., 2019). This applies to community placements for rotations, peer learning communities, and individual psychological needs.

A medical student's perception of their learning environment can have an impact on their medical school experience. Medical students who have a sports background have a high level of satisfaction of the need for relatedness in medical school, have a high perception of the medical school supporting autonomy, and have a higher rate of pursuing leisure activities that benefit well-being in medical school (Babenko et al., 2020). Having a sports background does have a positive relationship on a student's perception of their learning environment in medical school. This idea coincides with the self-determination theory, which suggests that when people perceive that their psychological needs for autonomy, competence, and relatedness are met and supported in an environment, their personal and professional well-being is enhanced (Babenko et al., 2020).

Within the medical school learning environment, coaching is being used more as a teaching method, especially in the areas of well-being and resilience along with improvement of technical skills, and this teaching method can lead to greater outcomes with medical students (Fayad, 2017; Lovell, 2018; Verrier, 2017). Specifically with radiology, the correlation with athletic coaching, which consists of a recorded account of the athlete's performance with immediate feedback and the improvement of skills, can be seen in the use of similar techniques in medical teaching to address a trainee's possible lagging performance, and touch on the psycho-social interventions that aid in the increase in overall performance (Fayed, 2017). Coaching interventions in medical school teaching can be grouped in three central themes: coaching to enhance doctor/student well-being and resiliency, coaching for non-technical skill improvement (decision making, teamwork, reflective practice), and coaching for technical skill improvement (Lovell 2018). There is strong evidence for a positive relationship between

coaching and improved technical skill while also some evidence to support a positive relationship between the improvement of well-being and the enhancement of non-technical skills (Lovell, 2018). Because athletes are more used to this style of teaching, they may be more adept to be successful in this environment.

Furthermore, medical school is seen as a workplace environment. While students are receiving their medical training, they are part of the medical profession. They are part of a medical team that is responsible for patient care. This can start as early as a medical student's first year in medical school. Motivation in the workplace environment is closely related to desirable work outcomes (Lion, 2019). The motivation an athlete had during their athletic career can transfer from the playing environment to the workplace environment (Lion, 2019). This ability to transfer their motivation may help the former athlete in this workplace environment and help them succeed in medical school. These athletic experiences and an athlete's athletic motivation can include improving in mental preparedness, increasing in confidence and motivation, strengthening the ability to be mentored, and the enhancing teamwork skills (Zwecher 2015).

Summary

Numerous researchers have examined goal achievement theory and self-determination theory and its effects on motivation and achievement across many areas. Stavrou et al. (2015), Wolters (2004), Vansteenkiste et al. (2017), and Kaplan and Maehr (2006) examined goal achievement theory and self-determination theory in relation to education, while Stavrou et al. (2015), Deci and Ryan (1985), and Gaudreau and Braaten (2016) connected these theories to sports participation. Goal achievement theory and self-determination theory intersect with athletic motivation and academic motivation and play important roles in their respective aspects

with goal purpose and accomplishment. Also, studies have shown that athletic participation has a positive effect on academic achievement from the pre-college years to the post-undergraduate years. Additionally, researchers have examined qualities such as motivation, grit, determination, adaptability, and response to instruction as positive attributes that contribute to persistence and success in medical school and in the profession of medicine. Furthermore, researchers have begun to examine former college athletic participation and its correlation to persistence and success in medical school. The research suggests that there is a positive correlation with athletic participation and medical school achievement, as well as a positive connection with certain attributes and medical school persistence. However, there has been little research exploring the relationship between former college athletic participation and these desirable characteristics and attributes for persistence in medical school. This study is significant because this will address the lack of research within this particular group of applicants for medical school and the feasibility of their persistence in medical school. Practically, this study is significant because it has implications for the medical profession as it can help better connect the characteristics and attributes that allow someone to be successful in medical school, and may also help the research that explores the characteristics and attributes that successful physicians possess, which could help better align the goals of the medical school with the medical profession.

CHAPTER THREE: METHODS

Overview

The purpose of this hermeneutic phenomenological study was to understand the experiences of former college-athletes who persist in medical school. The goal was to identify common experiences and skills, which may assist medical school enrollment administrators identify the traits in applicants that will allow them to persist in medical school. The problem is there is no research that explores the phenomenon of former college-athletes persisting in medical school and the characteristics and attributes that may allow this to occur.

This chapter provides an overview of the design of the study, the research questions, the data collection methods, and the data analysis methods. This includes comprehensive descriptions of the participants, setting, and attempts to ensure validity and reliability. Finally, this chapter includes a description of the trustworthiness and ethical considerations for this study.

Research Design

This study followed a qualitative phenomenological design. Qualitative research is best for this study as this method seeks to explore and understand the meaning individuals or groups of people attribute to an issue (Creswell & Creswell, 2018; Joyner et al., 2018). Creswell and Poth (2018) note how qualitative research is used when the issue or problem that needs to be explored does not offer variables that can be easily measured and there needs to be a more complex understanding of the subject. Hamilton and Finley (2019) suggest that, in some instances, qualitative research is better than quantitative research where more superficial information is gathered across a large sample. The key stakeholders in the study were the participants in qualitative research. Characteristics of this design began with the collection of the data in the natural setting, using the researcher as a key instrument. Additionally, multiple forms

of data were collected, and both inductive and deductive data analysis were conducted with a focus on learning the participants' meanings. As a design emerges, the researcher reflects on how their own personal experiences may shape the direction of the study and take a holistic account of the study (Creswell & Creswell, 2018).

A phenomenological approach was used for this qualitative study as it sought to understand the attributes and characteristics that former college athletes possess that allow them to persist in medical school. This type of study describes the common meaning for individuals' lived experiences, or a phenomenon and how these individuals experience common event(s) (Creswell & Poth, 2018). A phenomenon may become a starting point for a study and serve as the beginning of a scientific endeavor that seeks valid determinations (Moustakas, 1994). Phenomenology was a meaningful approach as the purpose of the study was to investigate the human experience to gain overall knowledge. (Moustakas, 1994). The essence of this methodology is to look at “what” the participants have experienced and “how” they experienced it (Creswell & Poth, 2018).

Phenomenology is popular in social and health sciences and has its origins in philosophy, which drew elements from German mathematician Edmund Husserl in the early 1900s (Creswell & Poth, 2018; Neubauer et al., 2019). There are two main approaches in phenomenology research—transcendental or descriptive and hermeneutic. The transcendental approach focuses on the description of the experience by the individual and what the individual's intuition is (Creswell & Poth, 2018; Neubauer et al., 2019). Subjective knowledge and objective knowledge are closely connected; to understand the existence of the phenomenon is to understand it as it is lived by the person experiencing it (Neubauer et al., 2019). With the hermeneutic approach, the focus is on the interpretation of the narratives of the lived experiences and how those fit within

their *lifeworld* (Creswell & Poth, 2018; Neubauer et al., 2019). A person cannot experience a phenomenon without describing their background and how it has meaning to them. Hermeneutic phenomenology tries to go below the surface awareness and understand a deeper layer of the human experience. (Neubauer et al., 2019). While I tried to take an objective approach to this study, I could not ignore my own background in athletics and medical education. Because of this, I took a hermeneutic approach to this phenomenon qualitative study. As mentioned earlier, subjective and objective knowledge are connected. Instead of separating the researcher's subjective perspective, hermeneutic phenomenology understands that the researcher, much like the research participant, cannot purge himself or herself of their lived experience or lifeworld. Instead, the researcher's past experiences and knowledge are important to the research. Oftentimes, it is the researcher's education, or own experience, that has led them to consider the phenomenon of study (Neubauer et al., 2019).

The qualitative phenomenological design method was the most appropriate for this study. This study sought to understand the experiences of former college-athletes who persist in medical school. The phenomenon for this study was former college-athletes persisting in medical school. This approach provided a description of a common experience among all the participants, as well as the ways in which they construct meaning from their experiences.

Research Questions

The following research questions formed the foundation for this phenomenological research study:

Central Research Question

How do former college student athletes describe their experiences in relation to the attributes and characteristics that allowed them to persist in medical school?

Sub-Question One

What are the experiences that former college athletes share that help them persist in medical school?

Sub-Question Two

How does a former college student-athlete's athletic motivation intersect with motivation in medical school?

Sub-Question Three

How do former college athletes who persisted in medical school describe their medical school experience in relation to their college athletic experience?

Setting and Participants

The setting for this research study was an allopathic medical school. The participants in this study were former college-athletes who were medical students from this school. The setting and participants allowed for an accurate description of the phenomenon of former college-athletes persisting in medical school.

Site

The setting for this study was an allopathic private medical school in the southern Gulf Coast region of the United States. Gulf Coast Medical School (GCMS) (a pseudonym) is affiliated with a medium-sized private university and is located in an urban setting with a population that is close to 400,000 people. The school has several affiliations with local hospitals, as well as regional hospitals. GCMS approximate enrollment is 760 students and with the goal to enroll a first-year incoming class of 190 each year. GCMS enrolls students from all

over the United States and some international students each year. The majority of students come from the region, with California being the next most popular place of residence for incoming students. While many of the students enrolled at GCMS come from the undergraduate college that is affiliated with the medical school, the school is well-represented with a number of undergraduate colleges as more than 90 undergraduate institutions have been represented in recent years (Tulane University, 2021).

The student body is relatively gender balanced. Students at GCMS tend to be Caucasian and upper to upper-middle class. In recent years, the school has made efforts to diversify the school more, and has increasingly enrolled more students from backgrounds underrepresented in medicine (URIM) which include, African American, first generation in college, Hispanic, and Vietnamese backgrounds. The average undergraduate GPA for the incoming class in the past recent years has been between 3.5 and 3.6, while the average MCAT score has been around 509-511. The majority of the incoming students have an undergraduate science major. The average age of the incoming class has remained steady in recent years at 24. About 77% of the students receive some financial assistance (Tulane University, 2021).

GCMS has a holistic admissions approach as they do not have any prerequisite classes for admissions purposes. Also, the school does not have a minimum MCAT score or GPA for admissions purposes, nor do they require a particular major for admissions. Selection factors for admissions to GCMS include academic achievement, leadership, commitment to service, scholarly activity, and a passion for medicine. Over the past several years, GCMS received more than 12,000 applications each year, for 190 spots in the incoming class, which makes for a very low acceptance rate (Tulane University School of Medicine, 2021).

Participants

Participants for this study were former college-athletes who were admitted into GCMS and persisted past their third year of medical school or graduated. This criterion for persisting is being used because a medical student's fourth year consist mainly of electives, sub-internships, and interdisciplinary seminars that are designed to introduce students more to their desired field in medicine rather than any curricular relevance (Andrews et al., 2016; Dewan & Norcini, 2018).

Researcher Positionality

My motivation for this research comes from my combined experiences in athletics and higher education admissions. I have participated in athletics for most of my life. As a child, it started with soccer, little league baseball, and Pop Warner youth football. That love of sports allowed me to continue my athletic participation in high school. From there, I knew I wanted to work in sports. My first job in athletics was as a college student-worker in the athletic marketing department. I knew from my past playing experience the work and dedication that was involved in playing a sport, but I was able to see it up close on a higher scale with college athletes. I also became close to many student-athletes and saw the time they put in on their sport and their academics.

Upon graduation, I held several jobs in athletics, such as semi-professional basketball, college athletics, and not-for-profit sports organizations, while also obtaining a degree in sports administration. When I transitioned to become a high school athletic director, I began to assist my athletes with their college preparation and higher education choices. I became intrigued with the college admissions process and the factors schools used to admit their students. Because of this curiosity, I sought out a college admissions position to assist potential college applicants on their higher educational journey. While working in admissions, I was still able to work with athletes at two of my previous institutions, as the admissions liaison between the admissions

office and the athletics department.

When I began working in medical school admissions, I found myself doing a deeper dive in the admissions review process. I began to wonder how better to evaluate the thousands of applications we would receive for the very few admission slots we had available. I began to observe that test scores were heavily used in the admissions process, while other factors would be evaluated when students would struggle during their time in medical school. I started to reflect on other non-cognitive factors that we could use that would better identify who could possibly persist in medical school. I wondered if the positive attributes I received from my participation in athletics would be an asset for students trying to get through medical school.

Interpretive Framework

The interpretive framework for this study was a postpositivist paradigm. This worldview focuses on the need to recognize the causes that influence outcomes (Creswell & Creswell, 2018). This study also has a touch of the transformative worldview. Creswell and Poth (2018) describe the framework as one that tries to advocate for change, especially for marginalized groups, which would help people and improve society. Qualitative research should encompass an action agenda for improvement that may change the lives of the participants, the participants' organization, or even the researcher's life (Creswell & Poth, 2018). While focusing on the cause-and-effect, there is a call to evolve the admissions process to include populations who may have been traditionally not admitted to medical school.

Philosophical Assumptions

I approached this research study from two assumptions, an epistemological assumption, and an axiological assumption. Creswell and Poth (2018) note that, with the epistemological assumption, the researcher tries to get as close as possible to the people being studied, so

evidence is gathered based on individual views. Having experience with athletes and currently working with medical students has allowed me to get close to the participants of this study in their natural setting. With the axiological assumption, the researcher makes their values known in the study (Creswell & Poth, 2018). My position within the admissions office lends a voice in the medical school admissions process and I recognize my personal positive biases regarding the values athletic participation instills in people.

Researcher's Role

The researcher in a phenomenological study is the key instrument (Creswell & Poth, 2018; Peterson, 2019). Neubauer et al. (2019) mention how people involved in health profession education can learn a great deal from others when utilizing this research approach. In this role, I developed the questions, recruited the participants, interviewed the participants, collected the data, and analyzed the data.

I am employed at the research site and was the sole researcher in this study. Affiliations with the research participants are solely professional in nature with much of the contact throughout their medical school career happening during their application phase and shortly after matriculation. As the result of my physical office location, I am only vaguely familiar with the participants' medical school progression, as the location is situated within the Office of Admissions and Student Affairs. I do not have any leverage with the students regarding their grades, advancement, graduation, and residency placement. I did not have a personal relationship with any of the research participants.

As noted earlier, I had a career in athletics prior to entering the higher education enrollment management profession. Also, I have stayed informed of the innerworkings of the business of athletics and was an athlete prior to matriculating into college. I am biased in

thinking that there are many positive characteristics and attributes that can be obtained from athletic participation. While I tried to set aside some of my biases while collecting the data, as mentioned earlier, I took a hermeneutical phenomenological approach to this study, and using my personal background and experiences assisted with the study. Creswell and Poth (2018) mention how bracketing personal experiences can be difficult because the interpretations of the data always include the assumptions of the researcher that come from their life experiences. Because of this, I decided beforehand how and when my personal understandings will be introduced in the study (Creswell & Poth, 2018).

Procedures

In qualitative research, procedures are necessary to educate the audience about the permissions granted for the research, the types of data collected, and the types of analysis used (Creswell & Creswell, 2018). This study began with permissions from Liberty's IRB and from GCMS. A recruitment plan was established to get a good sample size of participants. Additionally, data was collected through document review, interviews, reflection essays, and focus groups.

Permissions

The first step with this research study was obtaining IRB approval. IRB helps to ensure that all research is developed and performed ethically. Following IRB approval, I sought permission from GCMS to contact the current and graduated students through email, who fit the criteria outlined in the participant section.

Recruitment Plan

The sample pool for this study consisted of all former student-athletes who persisted beyond their third year at GCMS. The target sample size for this study was no more than 15

participants, but no fewer than 10 students. I first examined the past admissions applications of the medical students at GCMS to identify matriculated medical students who participated in collegiate athletics prior to medical school matriculation. Once identified, I consulted with the GCMS registrar to ensure that the identified applicants indeed met the criteria of medical school persistence, which is defined by the researcher as no academic interruption of progression throughout medical school. GCMS typically enrolls approximately 15-20 former college student-athletes each year.

An intentional sample, or a purposeful sampling method, was used when selecting the participants for this research project. Purposeful sampling, which is one of the primary sampling strategies in qualitative research, is the selection of participants and sites for the study because they can purposefully inform an understanding of the phenomenon being researched (Creswell & Poth, 2018). Purposeful sampling selects participants who have a broad knowledge of the topic, or they have undertaken the experience and their experience is seen as the norm (Coynne, 1997). The idea behind qualitative research is to purposefully select the participants who will best help the researcher understand the research question (Creswell & Creswell, 2018). This sampling method was used by the researcher as it provided the best group to inform the researcher about the research problem studied.

Identified students were contacted by email regarding the research study. All contacted participants were given information regarding the purpose of the study. In addition to an explanation for the purpose of the study and a consent form, an explanation that participation in the study is voluntary and participants are at liberty to withdraw from the study at any time were given to the participants.

Once I received the consent forms, an email was sent to the participants with a brief

demographic survey and instructions as to how to set up the interview. Questions for the demographic survey consisted of:

1. Name:
2. Age:
3. Gender:
4. Year graduated undergraduate institution:
5. Name of undergraduate institution:
6. Sport played in college:
7. Graduated/current year in medical school:

These demographic questions provided background information on the research participants, which yields high quality useable data and can be utilized in conjunction with other research tools (Marshall, 2005). These questions can help with the understanding of any overlapping social identities and help with the accurate representation of the experience or phenomenon (Fernandez et al., 2016).

All interviews were conducted virtually, through an internet video conferencing platform and the interviews were recorded and transcribed. To ensure confidentiality, pseudonyms were used for the participants' names and their undergraduate schools. To secure the data, all information was kept on a password-protected computer.

Data were collected through four methods: documents reviews, interviews, a reflective essay from the participants, and focus groups with the research participants. Documents to be reviewed were collected from the research participants' admission applications. The data from the semi-structured individual interviews was collected virtually, over a web-based video communication platform. Semi-structured interviews are preferred and are most beneficial when

the questions are inviting, familiar to the interviewee, and asked in a conversational style (Hamilton & Finley, 2019). All video recordings were transcribed, coded, and analyzed for themes (Creswell & Poth, 2018). Interview transcriptions were sent to the research participants to ensure the accuracy of the interview and to ensure the responses capture their lived experiences. Once the interviews were completed, the research participants received an email with a follow up reflective essay prompt to provide additional insight on the researched phenomenon. Once data from the first three collection methods was analyzed, the research participants were invited to focus groups to discuss the various themes.

Data Collection Plan

The design of this research, which includes document analysis, interviews, a reflection essay and focus groups, allows the researcher to collect information from the key stakeholders of this phenomenon (Boynton & Greenhalgh, 2004; Hamilton & Finley, 2019; Meadows, 2003). The data from the document analysis allowed the researcher to gather background information regarding the research participants' motivations for studying medicine, as well as a clearer picture of the phenomenon being researched. During the interview, I followed an interview protocol that allowed me to build a rapport with the participants, but also allowed the researcher to maximize the data being captured. This included an introduction that explained the interview process, writing notes during the interview if the recording device failed, following up with probing statements, and closing with a statement of thanks and assuring confidentiality (Creswell & Creswell, 2018). The reflection essay allowed the research participants to provide their first-hand account of their experiences within the phenomenon. Focus groups allowed the research participants to recall their experiences with their peers in a shared setting.

Document Analysis

Polkinghorne (1989) states how it can be important to gather information from the depictions of the experience outside of the context of the research study. For this, documents from the research participants' medical school application were reviewed. These documents included primary application personal statements and the GCMS secondary application. Data from previously developed descriptions from a variety of sources can provide researchers with very sensitive, rich descriptions of the phenomenon (Valle & Halling, 2013). The main advantage of this data source is that it enabled me to review information about their motivations to pursue medicine from a time before they were enrolled in medical school, which provided insight into their thinking, at that moment in time. GCMC applications are stored online and archived in a cloud-based application portal system. I reviewed these documents, electronically, through this system.

Document Analysis Data Analysis Plan

For this study, data analysis began with the document analysis, during which I reviewed the personal statements of the research participants' initial medical school applications. Each document was analyzed as a data point within this research study. Applying the steps from Moustakas (1994), statements in the personal statements were given equal value and themes started to emerge (horizontalizing). Next, data were clustered, and themes were identified, which allowed for clear textual narratives. Once themes were developed for each individual, these themes were examined to see if they applied to the group as a whole. Throughout the document analysis process, I refrained from predetermining the specific categories to allow for the development of themes to occur organically.

Interviews

Interviews play a vital role in acquiring information about the participants' lived experiences (Creswell & Creswell, 2018). A personal interview is one of the main methods for collecting data in a phenomenological research study as they provide an understanding of the world from the participant's point of view and allows them to unfold the meaning of their experience and convey their lived world (Castillo-Montoya, 2016; Creswell & Poth, 2018). While interviews can provide indirect information filtered through the views of the interviewee, they allow the participant to provide insight into the phenomenon when the researcher is unable to observe directly (Creswell & Creswell, 2018). For this study, the interviews were conducted virtually.

Individual Interview Questions

1. Discuss your initial motivation to begin playing sports. SQ2
2. Describe your college athletic experience in terms of your preparation for competition, while balancing your academic duties. SQ1
3. How did your support system play into your athletic career? SQ1
4. Discuss your motivation to become a physician. SQ2
5. Describe your journey to medical school in terms of completing all the "pre-med" duties while playing a college sport. SQ3
6. How did your support system play into you pursuing medical school? CRQ
7. Discuss what you perceive are some qualities/characteristics that allow students to get through medical school. CRQ
8. Describe how someone transfers their athletic motivation to medical school. SQ2
9. Describe the similarities of your athletics' experience to your medical school experience. SQ3

10. Compare the qualities that enabled you to play sports in college and helped you in medical school. CRQ

The interview questions were open ended to explore the topic in depth; they were general and focused to aid in understanding the phenomenon being studied, but also written in the everyday language of the interviewee (Castillo-Montoya, 2016; Creswell & Poth, 2018; Weller et al., 2018). Because people have intricate experiences that do not unravel neatly before the researcher, the questions that are asked should be necessary and intentional (Castillo-Montoya, 2016). The questions were arranged into three subject groups: athletic environment questions, medical-school environment questions, and athletic background as it affects medical school questions. It is recommended that the number of questions be kept between 5-10 and they be grouped by topic (Creswell & Creswell, 2018; Meadows, 2003).

The first three questions allow the participant to reveal more about their background in athletics, and begin to collect experiences and review attributes and traits that former college athletes possess, which is addressed in the main research question. Question one begins to address the participant's motivations and goals in their athletic participation. Question two begins to gather information about their athletic experience. These first two questions refer to their athletic motivation as sports participation lends itself to being intrinsic in nature, and participants tend to have more of an internal motivation (Deci & Ryan, 1985). Question three explores the participant's environment and background and how it has affected participation in sports. A person's environment can affect their pursuit of attainment of certain goals (Ryan & Deci, 2020).

The next group of four questions allows the participant to reveal more about their pursuit of medicine and medical school, and begins to collect data on their experiences in persisting in

medical school. They also continue the theme of motivation and specifically, their motivation in medical school. Much like athletic motivation, educational settings that have more of a focus on a mastery-goal structure positively predict a student's learning strategy (Wolters, 2004).

Question four addresses their motivation for wanting to pursue medical school. Questions five and six each addresses the topic of persistence and goal attainment in medical school. Deci and Ryan (1985) note how external circumstances can directly affect internal motivation. Question seven is related to the central research question as it begins to explore the characteristics and traits that allow someone to persist in medical school. Given the stress that is related to persisting in medical school (Albanese et al., 2003; Fayad, 2017; Ray & Brown, 2015), it will be important to gather their perceptions of traits that allow someone to successfully navigate this stress and persist.

The final section of questions allows the participants to reflect on their experience of being a former college athlete and their perceptions on its effect on their medical school experience. Question eight directly relates to sub-question two regarding athletic motivation and how it is transferred to medical school. As mentioned earlier, motivation plays a large role in the completion of task and attainment of goals (Deci & Ryan, 1985; Nicholls, 1984). Question nine directly relates to sub-question three regarding experiences that can help someone persist in medical school. Question ten directly relates to the main research question concerning certain student-athlete characteristics and attributes in relation to their experiences that they perceived to assist them in persisting in medical school. All interview questions were designed to allow the research participant to choose their own terms when answering and speak to the participant's environment (Turner, 2010). While the interviewer prepared questions designed to solicit a comprehensive account of the phenomenon, these questions could be altered or not used at all if

the participant shared a full account of their experiences (Moustakas, 1994). All interview questions were reviewed by the committee members.

Interview Analysis Data Analysis Plan

The primary source for the interview analysis data analysis plan comes from the framework of Moustakas (1994). Creswell and Poth (2018) suggest beginning with the researcher's own experience of the phenomenon in an attempt to set aside the researcher's personal experiences, which may not be easily done, so the attention can be targeted to the participants of the study. Moustakas's (1994) suggested an approach of being open, receptive, and even naive in listening and hearing during data collection. Because I took meaningful notes during the interviews, there were opportunities to identify potential themes and additional areas of examination easier. After the interview, I watched the interview recording while the interview was being transcribed. From here, the coding process began. Coding is the process of grouping chunks of data together and writing a word that describes that category of data collected (Creswell & Creswell, 2018). Reviewing the codes that were developed, I began to review to see if new codes of categories were developed and certain categories were interrelated. Significant themes were grouped, and a description of "what" the participants experienced and "how" the experience happened was drafted to capture the essence of the experience, which is the concluding aspect of a phenomenological study (Creswell & Poth, 2018). As with the document analysis plan, for the interview data analysis, I refrained from predetermining the specific categories to allow for the development of themes to occur organically.

Reflection Essay

While data gathered from interviews is the main component of phenomenological qualitative research, having the participant provide a first-person description of their experience

in the phenomenon can provide valuable data (Adams & van Manen, 2017). Reflecting on one's lived experiences and giving the meaning of one's lived experiences in one's own words turns abstract concepts into something concrete, which captures the living thoroughness of the pre-theoretical and prereflective immediacy of the phenomenon (Adams & van Manen, 2017). A reflective essay can capture this important data point.

The prompt for this reflective essay was as follows:

Please reflect on your journey to medical school, including primarily, your experience with college athletics. Describe the hardest part about being a college student-athlete making the transition to medical school and why this transition was successful for you.

This reflective essay was asked in a follow up email after the interview. The research participants had the option to either write their response or respond with an audio or video recording to the essay prompt. This reflective essay prompt allowed the research participant to reflect on their lived experiences more in depth and provide a more personal recollection of their experiences. The data collected from the essays could provide more of the “essence” of the phenomenon, which is a culminating aspect of a phenomenological research study (Creswell & Poth, 2018).

Reflection Essay Data Analysis Plan

Exactly like the document analysis, I reviewed the collected essays submitted from the participants. Each essay was analyzed as an additional data point within this research study. Applying the steps from Moustakas (1994), statements in the reflection essays were given equal value and themes started to be formulated or horizontalizing. Next, data was clustered, and themes were identified, which allowed for clear textual narratives. Once themes were developed for each participant, these themes were examined to see if they applied to the group as a whole.

As with the document analysis and the interview analysis, I refrained from predetermining the specific categories to allow for the development of themes to occur organically.

Focus Group

Focus groups are used in qualitative research to increase the depth of the researcher's inquiry from data is obtained not only from the interaction with the researcher, but the interactions between the research participants as they question and comment on each other's experiences (Lambert & Loiselle, 2008). After data was collected and synthesized from the first three data collection methods, the themes developed from them, along with the three research sub-questions, guided the direction for the focus group. The focus group also served as part of the member checking process to ensure trustworthiness. Lambert and Loiselle (2008) note that focus groups can be used for data completeness and confirmation.

Focus Group Data Analysis Plan

For this study, the data from the focus group was the last pieces of data collected. Much like the data analysis plans of the previous three data collection methods, data from the focus group responses were transcribed and reviewed for themes. Themes were coded and grouped by liked themes using the steps suggested by Moustakas (1994). Significant themes were grouped to help capture the essence of the experience of the phenomenon.

Data Synthesis

With qualitative research, data analysis consists of preparing and organizing the data, reducing the data into themes, and representing the data in a written form (Creswell & Poth, 2018). Moustakas (1994) suggest two main methods of data analysis for phenomenological research, which are modifications of methods from van Kaam and Stevick-Colaizzi-Keen. The van Kaam method consists of grouping all expressions relevant to the experience to develop a description of

the meanings and essences of the experiences which represent the group as a whole (Moustakas, 1994). The Stevick-Colaizzi-Keen method starts with the researcher developing their own description of their experience of the phenomenon and, from that description, start to review the experiences of all the participants to develop a universal description of the phenomenon that represents the group as a whole (Moustakas, 1994). In each of these methods, an individual's textural experience is being developed and then moved to a larger composite textural description, where the meanings and themes of each of the research participants are studied. This is done by using exactly what the research participants said by relaying verbatim the excerpts from the collected data. By doing this, the researcher can give the participants' viewpoints of the phenomenon.

Moustakas (1994) suggests once data is collected, researchers should apply horizontalization, which is where the researcher acknowledges that every statement has equal value. This is followed by delimiting to invariant horizons or defining the meaning units of the statements, or coding. Coding can assist in the process of the construction of individual textural and individual structural descriptions. Saldana (2013) mentions how emotional coding is appropriate for qualitative research, especially for studies that involve intrapersonal and interpersonal participant experiences which will provide a deep insight into the participant's perspectives and life conditions. When the phenomenon is fairly complex or occurs across a relatively lengthy time period, such as one's personal university education experiences, emotional codes could be sub-coded or categorized in such a way that permits the researcher to identify which experience happened with a specific time period during the phenomenon (Saldana, 2013).

Once a topic or emergent theme is relayed, initial codes will be produced along with a simultaneous code that can convey the description, process, or value of the initial code. Next, the researcher will take the meaning units that were developed in coding and begin to construct themes of the experience by using imaginative variation, with the aim to grasp the essences of the experience in order to construct a description that represents the whole group (Moustakas, 1994). Following this step, Moustakas (1994) suggests the construction of individual textural and individual structural descriptions as this will begin to give a clear picture of the phenomenon. The underlying dynamics of the experiences, themes, and qualities that account for the “how” in the phenomenon are provided through the individual structural descriptions and their vivid accounts (Moustakas, 1994). From there, Moustakas (1994) notes the researcher will develop composite textural and composite structural descriptions from the individual textural experiences, in which the themes of the individuals are studied and described as the experience for the entire group. The final step of data analysis that Moustakas (1994) suggests is the synthesis of textural and structural meanings and essences, which is the integration of the textural and structural descriptions. This grouping will assist with the final step of the data analysis that Moustakas (1994) describes as the synthesis of meanings of the phenomenon.

Trustworthiness

In any research study, the researcher should establish protocols and procedures, so the readers of the study have a degree of confidence in the data, interpretation of the data, and the methods used to collect the data, which includes credibility, dependability, conformability, and transferability (Connelly, 2016; Peterson, 2019; Shenton, 2004). Creswell and Poth (2018) suggest that any qualitative study should engage in at least two validation strategies. For this research study, methods to increase trustworthiness included clarifying my bias and member

checking. In clarifying my biases, I revealed the experiences and values that I bring to the study so the reader of the study can better understand the position of the researcher within the study (Creswell & Poth, 2018). Member checking refers to taking the data and findings back to the participants to ensure their accounts are accurate (Creswell & Poth, 2018). Creswell and Poth (2018) note that participants should play a critical role as this allows them to tell the researcher how the data accurately represents their experience.

Credibility

Credibility is one of the most important aspects of any research study as it lends confidence in the truth of the study and establishes trustworthiness (Connelly, 2016; Lincoln & Guba, 1986; Shenton, 2004). Credibility helps to ensure validity, which is one of the strengths of qualitative research (Creswell & Creswell, 2018). To increase credibility in this study, the research questions were tested by former student-athletes who did not participate in the study. This was done to help establish questions that will help the researcher “obtain robust and detailed interview data necessary to address research questions” (Castillo-Montoya, 2016, p. 812). Additionally, triangulation will be achieved through the use of various data sources. Data sources included document analysis, interviews, reflection essays, and focus groups. Furthermore, the research will have prolonged engagement in the field. This offered the researcher a better understanding of the setting and allowed for a greater trust between the researcher and the participants (Lincoln & Guba, 1986).

Transferability

Transferability refers to the extent the findings of one study can be applied to other situations or be useful to people in other settings (Connelly, 2016; Shenton, 2004). One way to

ensure transferability is to provide thick descriptions (Creswell & Poth, 2018). This is important because it allows the reader to have a proper understanding of the phenomenon, thereby enabling them to compare the instances of the phenomenon described in the research report with those that they have seen emerge in their own situations (Shenton, 2004). With this study, all definitions and procedures were clearly defined and outlined to ensure other researchers can replicate this study in the future.

Dependability

Dependability and confirmability refer to the stability of the data if it were repeated, over time (Connelly, 2016). Dependability issues are addressed within research studies by reporting on the research study's processes, which allows a future researcher to repeat the work, if not necessarily to gain the same results (Shenton, 2004). To ensure dependability, as mentioned earlier, member-checks were done to ensure the accuracy of the experiences. Additionally, an audit trail of all the activities that took place during the research study were kept and later reviewed by a third-party.

Confirmability

Confirmability refers to the degree the findings are consistent and could be repeated (Connelly, 2016). During a research study, steps must be taken to help ensure as much as possible that the research findings are the result of the experiences and ideas of the research participants and not the preferences of the researcher (Shenton, 2004). To ensure confirmability and decrease the researcher's biases, I employed reflexivity, which means that I made known my background and how it informed the interpretation of the information in the study (Creswell & Poth, 2018). Creswell and Poth (2018) mention that the readers of the research study have the right to know about the background of the researcher, as it will indicate what prompts their

interest on the topic and what the researcher can, personally, stand to gain from the study.

Memos were kept throughout the study that helped me reflect on the process or that helped shape themes (Creswell & Creswell, 2018).

Ethical Considerations

As with any research project, the researcher should consider any ethical implications. The researcher should consider how the representation of the data relates to the protection of the research participants (Creswell & Poth, 2018). I was clear with the readers of the study about my background in athletics and medical school admissions and how that may impact some of the interpretations of the data obtained. IRB approval helps to ensure the protection of the research participants. Additionally, approval was gained through signed consents of the participants and approval was granted by GCMS. Participants were willing to be part of the study and were told they could withdraw from the study at any time. Pseudonyms were used for all research participants and their undergraduate institutions. Also, I made sure there were no conflicts of interest, as I am not involved in the progression or promotion of the medical students. Furthermore, all paper data was securely stored, and electronic data was stored in a password-protected electronic device. In keeping with federal regulations, data will be retained for at least three years from the completion of the research study.

Summary

This chapter explains the methods that were used in this hermeneutic phenomenological qualitative research study to understand the experiences of former college-athletes who persist in medical school. The chapter begins with details regarding the design of the study. Additionally, the setting, the participants, the procedures, and the researcher's role, were described. Furthermore, this chapter discusses the data collection methods, which included document

analysis, personal interviews, reflection essays, and focus groups, and the data analysis plans for each. The chapter concludes with outlining the trustworthiness, which includes the credibility, transferability, dependability, confirmability, and the ethical considerations for this study in order to carry out a future successful reproduction of this study, if desired.

CHAPTER FOUR: FINDINGS

Overview

The purpose of this hermeneutic phenomenological study is to understand the experiences of former college-athletes who persist in medical school. The problem that formed the basis for this research study was medical schools are not considering experiences gained from college athletic participation in the admission's review process. If the positive correlation to athletic participation and academics holds true, professional schools in higher education, including medical schools, could use these past athletic experiences in their admission's evaluation process when trying to decide who can persist in their schools. This chapter presents the findings of the data obtained from the document review, interviews, reflective essay, and focus groups. This includes a list and descriptions of the participants, data presented in the form of narrative themes, outlier data, and research question responses.

Participants

The participants for the study came from a purposeful sample pool of former student-athletes who have persisted beyond their third year of medical school at GCMS. Seven of the participants were females. Two of the participants were African American, one was Asian, and one was Pacific Islander/Hawaiian. All the participants were ages 25-30. At GCMS, there are slightly more male students than female students; there is also a much higher percentage of Caucasians than any other race or ethnicity.

For this study, 24 possible participants were contacted to secure 12 participants for this study. Pseudonyms were used to protect the confidentiality of participants. Realistic pseudonyms were chosen and were reflective of the culture of the participants, but not so much as to compromise their anonymity. Also, descriptions of the participants' undergraduate university

were used as an added layer of confidentiality of the research participants. Participant descriptions are listed in tabular form below (Table 1).

Table 1

Former College-Athlete who Persisted in Medical School Participants

Participant	Gender	Sport Played	Level Played	Undergrad School Description	Current Status
Adam	Male	Football	NCAA, Division 1	Large, Private, Mid-west	1st Year Resident
Annie	Female	Soccer	NCAA, Division 2	Small, Public, East Coast	2 nd Year Resident
Bob	Male	Football	NCAA, Division 1	Large, Private, Mid-west	1st Year Resident
Callie	Female	Cross Country	NCAA, Division 3	Small, Private, East Coast	1st Year Resident
Corrine	Female	Soccer	NCAA, Division 1	Mid-Size, Private, East Coast	1st Year Resident
Elizabeth	Female	Cross Country	NCAA, Division 1	Small, Private, South	4 th Year Student
Kelly	Female	Basketball	NCAA, Division 1	Mid-Size, Public, East Coast	3 rd Year Resident
Malcolm	Male	Football	NCAA, Division 3	Large, Private, East Coast	2nd Year Resident
Matt	Male	Soccer	NCAA, Division 1	Mid-Size, Public, West	3rd Year Resident
Linda	Female	Gymnastics	NCAA, Division 1	Large, Private, West Coast	3rd Year Resident
Leigha	Female	Soccer	NCAA Division 1	Large, Private, East Coast	4 th year Student

Will	Male	Football	NCAA Division 1	Small, Private, East Coast	4 th year Student
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Results

There were five primary themes that emerged from the data collected. Additionally, multiple sub-themes emerged that were related to the primary themes. Also included in this section is one unexpected outlier. The themes and sub-themes were discovered during the coding of the data collected through the document analysis, interviews, reflective essays, and focus groups. Table 2 includes the data analysis from the document analysis from the research participant's personal statement. Table 3 includes the frequency of themes data sets. Also, included with the themes and sub-themes are the significant participant statements and quotes and associated meanings from the interviews, focus groups and their writing from their reflective essays.

Table 2

Document Analysis

Participant	Personal Statement
Adam	Strong mentions of college athletics playing a role in his medical pursuits.
Annie	College athletics played a large role in developing characteristics in a good physician.
Bob	Connected skills learned in college athletics to being a good physician.
Callie	Did not mention college athletics in personal statement.
Corrine	Made strong connections to college athletics and pursuing medical school.
Elizabeth	Did not mention college athletics in personal statement.
Kelly	Briefly mentioned playing a college sport but was not a major point in their personal statement.
Malcolm	Briefly mentioned playing a college sport but was not a major point in their personal statement.

Matt	Made a connection with playing college athletics and pursuing medicine.
Linda	Athletics exposed her to medicine at an early age and helped her develop soft skills.
Leigha	College athletics played a large role in her leadership development and connecting it to life outside of sports
Will	Briefly mentioned playing college athletics and learning about fighting for teammates.

Table 3

Frequency of Themes Data Sets

Theme	Frequency (mentioned)	Participants Mentioning Concept
Resiliency <i>Includes:</i> <i>Grit</i> <i>Accepting challenges</i> <i>Drive</i>	36	12
Internal Motivation <i>Includes:</i> <i>Competing with yourself</i> <i>Persistence</i> <i>Failure leading to greater motivation</i>	26	12
Adaptability <i>Includes:</i> <i>Humility (asking for help)</i> <i>Not getting stuck in a rut</i> <i>Relationships with a variety of people</i>	24	10
Regimented Life <i>Includes:</i> <i>Time Management</i> <i>Not procrastinating</i>	20	11
Connection to Athletics <i>Includes:</i> <i>Social aspects</i> <i>Game day prep/med school prep</i> <i>Physically exhausting</i> <i>Being on a team</i> <i>Character development</i>	32	12

Resilience is a Necessity

By far, the most mentioned concept in the interviews, reflective essays, and focus groups was resiliency. The research participants revealed resiliency was a major factor in reaching an elite level in their college athletic careers and persisting in medical school. When speaking of the traits that helps someone get through medical school and comparing them to what helped her reach the level of playing college soccer, Leigha recalled, “Definitely resilience, because medical school is very difficult. And almost always, you have to be really resilient to be able to make it through... yeah, just a whole lot of resilience.” Will also echoed this sentiment. “You got to be resilient. And I put that before anything like discipline or whatever.” Malcolm related this concept to staying the course and knowing it will be a delayed gratification. He noted:

Delayed gratification, this idea that you're in for the long haul, so like, why all your other friends are being promoted and making money ... you've got to just mentally kind of put that to the side and like, okay, but like, this is, this is a 10-year game... and be okay with doing that.

Grit

Within the theme of resiliency, the notion of grit always was mentioned. Grit is the perseverance and passion for long term goals (Duckworth et al., 2007). When discussing how athletes transfers their athletic motivation to medical school, Corrine discussed the how grit is involved. She noted:

I think, typically, people who end up playing college athletics at a college or at a higher level, you have some level of discipline and like grit and motivation that ends up translating into in a kind of drive to do well. That ends up translating to medical school

and helping you push through when you don't want to study or, you know, do things that you might not otherwise want to do.

Bob had similar thoughts about grit: “If I had to identify one singular quality that predicts success in medical school is grit... How seriously you take the work that's required to accomplish your goal. And what do you do in the face of adversity.” Bob mentioned that grit got him through tough football practices, and he took that mentality to medical school. When comparing his medical school experiences to his football experiences, he emphasized, “It really just boiled down to determination and grit.”

Accepting the Challenge

An additional sub-theme that became apparent was the notion of accepting the challenge. College athletics and medical school both present challenges. But the challenges that both present, the research participants saw them as positive. When speaking about transferring his athletic motivation to his medical school motivation, Malcolm mentioned how he looked forward to the challenge and saw it as a task that needed to be accomplished to reach his ultimate goal. “You just take ownership of them [challenges], like, hey, this is what I gotta do the to make it work. And that's what I did. So, I think that whole just mindset...was directly transferable.” Kelly noted, “Despite the challenge, it was always a privilege to be able to go to practice and to do those things.” With accepting the challenges and persisting in both college athletics and medical school, the accomplishment of the goal became more satisfying and gratifying. Adam noted, “Definitely no regrets that more and more I've gone on, I am 100% certain that, oh, this is what I'm supposed to do and couldn't be happier.”

Drive

Many of the participants mentioned the concept of drive as important for them in college athletics and persisting in medical school. They used this drive to accept the challenges that came with being a college-athlete and with being a medical student. Leigha mentioned, “One of the biggest things in our athletic drive is like, the desire to achieve a goal, I think, and I think for me, personally, that definitely translates to my medical school experience.” Malcolm explained this notion of drive as “always wanting it more.” Adam described this drive as, “doing anything to achieve your goals.” Linda summed up many of the research participants thoughts on drive, athletics, and medicine when she noted:

Most people who are athletes have [it] and, most people in general going into medicine, but a lot of people who are athletes have this like innate sense of determination and drive. And you're just not going to kind of stop them from doing what they want to do. Regardless of where that is in their life, in medicine or not.

Internal Motivation

As stated earlier, Nicholls’ (1984), and Deci and Ryan’s (1985) mention the importance of motivation when pursuing any goal, and how intrinsic or internal motivation helps one achieve their goals. While an athlete’s motivation can come from a variety of sources, a majority of the research participants mentioned how much internal motivation played a part in their athletic and medical school success. When talking about intrinsic motivation, Anne emphasized her success came from, “wanting to just be the best version of yourself.” Kelly added:

Internal motivation...wanting something badly enough to do it. When I’m tired, show up when I don't want to, you know, that kind of I guess, just having that internal

commitment. And knowing that, even if someone else isn't watching, I'm not gonna get a pat on the back. I'm there and I'm doing it.

Adding to the concept of internal motivation with athletics and medical school, Leigha added, “Believing in yourself to be able to do hard things and accomplish them.”

Competitive Mindset with Oneself

Participants regularly mentioned while in athletic competition, they were competing against others. But for them to become a better athlete, they mainly competed with themselves to get better. Many took that competitive mindset with themselves and used that in medical school. Linda mentioned, “I think a lot of athletes have that type of like, competitive mindset... they're competitive with others, they're more so competitive with themselves, so trying to be the best they can be and outdo themselves....” Malcolm added that things became clearer to him when he changed his mindset from doing this journey for others to following this path for himself. He revealed, “It helped motivate me even more to be like, ‘Hey, this is, this is what I want’. I'm not doing this for anybody else but myself.”

Persistence

Within the context of internal motivation, persistence was often mentioned. Much like their pursuit of their athletic goals, persistence was vital in their medical school goals. “It's really that kind of persistent like drive to a goal and the enjoyment that comes with it, my enjoyment that comes with the successes on the soccer field or successes in the classroom, but really, the whole process...,” Matt noted. Kelly added, “To like stay the course and do what works for you in order to be successful.” Linda followed up on the persistence concept with remembering her “why.” “When you're experiencing, you know... keep the mouth-on-the-firehose type of thing, just having [the ability] to remember, and, you know, circle back to why you wanted to do that.”

Setbacks and Failure Leads to Greater Motivation

Much like in the athletic realm, failure and setbacks are common in medical school. Many times, students struggle with the added academic load that comes with being a medical student and not obtaining the grades one is accustomed to obtaining is common. But for many of the research participants, that struggle fueled their motivation to be better. Will mentioned how everyone has a different definition of failure, but everyone will experience it sometime in sports and medical school and one cannot let it overcome oneself. “You can’t let failure weigh you down.”

Linda noted how in medical school, she focused on her shortcomings to make her a better student, much like she did in gymnastics. “So, kind of the same thing with med school, you know, you don't do well on something, or you realize that you have a shortcoming. You work on that, instead of working on something that you're good at.” Matt summarized many of the research participants sentiments well when talking about how he handled failure. He noted:

I think additionally, just I think athletics really helped me with, like, learning how to deal with failure, where we lost a lot of games, less prior to college. But in college, we lost games. And it's disappointing. And it's frustrating, especially when you think you're prepared or even if you think you were better than the other team. And being able to quickly, 24 hours, come back next day and be ready to turn the page and practice and then learn from it and practice differently, so that you can be more prepared than next time. So, it's the same thing with medical school. And I thought that really helped me in the beginning... where I didn't do very well on tests in the beginning. And being able to not be too disappointed, like disappointed, but disappointed in a motivated way that I knew that, and I also had that confidence from sports that hey, I've failed before. And I

know that I'm going to fail again. But yes, it's okay to be upset about it, and I'm not happy with the result, but I'm going to take this kind of as a lesson and I'm going to learn from it and I'm going to be better because of it.

Adam added, “You have to be okay with failing and learning from your mistakes, because that's the only way that you can get better and learn new things. I think athletes have a really good understanding of that.”

Adaptability is Essential

As mentioned earlier, adaptability refers to the ability to solve problems, creatively, dealing with uncertainty or unpredictability, learning new tasks, handling stress, and coping with crisis situations (Pulakos et al., 2002). Athletes are constantly adapting to different experiences. They can be a playing environment, an opponent, or a situation with one's own team. Comparatively, the medical school learning requires a student to be adaptable. Corrine notes, “I think that one of the biggest characteristics that I realized that I didn't know coming in [to be successful in medical school] was to be very adaptable.” Callie added, “Medical school is so incredibly difficult and requires, to some degree, a new set, of call it, coping mechanisms... So, I think being able to adapt and grow as a person is important.” Adam described it as being “comfortable with being uncomfortable” and using that for motivation. Leigha continued with this concept noting how it helped her in medical school. “Definitely think flexibility is important in like not being, not being thrown off when things don't go exactly as planned.” Will echoed many of these ideals, noting how fitting in new surroundings requires a lot of adaptability. “I think adaptability is a good word to describe what is required to walk into those different environments, and, you know, see who's on your team and see how you can best use your skills to complement those other people.”

Humility (Asking for help)

Many medical students were very successful in most of their activities and experiences before medical school and, in most cases, help was not needed. But being a medical school student comes with new challenges. Corrine mentioned:

Being willing to, you know, ask for help when you need it. Because you don't have enough time to just sit with a concept and struggle with it for hours and hours and hours, you have to go to someone else, go to a study group, or resident or an attending, your professor and ask them to help you and explain it ... And that was something that I struggled with in undergrad that I realized like it just was not going to fly in med school, you have to ask for help and rely on the people around you to help you.

Kelly added, "Having humility enough to be like, 'Hey, I needed additional help', not just academic help, but I needed someone to sort through why all of this stuff is so challenging, and why it feels so burdensome." Most explained that this concept comes from the athletic realm as no matter how great an athlete thinks they are, there are moments that they are humbled and need help from others. Anne noted, "Knowing when you need to reach out to your teammates and reach out for help. That is huge... in athletics and in life in general."

Not Getting Stuck in a Rut

Much like in athletics, in medical school, it can be easy to get stuck in a rut. There may be long periods where things may seem stagnant, and a student may not see improvement. Callie noted, "To just somehow get through it. I think it's just that sometimes when things get tough, and you're stuck in a rut for a long period of time, which is what medical school feels like, which can also happen in sports. You know, if you're not improving, or if you, if somebody has an injury, you know, you have to be able to deal with long periods of feeling like you're going

nowhere.” Many said this causes a lot of burnout with students in medical school. But many relied on the lessons learned in sports to push through these times. Adam notes, “Always trying to be the best version of myself and constantly improving, that helped me on the field [also] helped me, you know, play football, one of the most historic programs in the country.... It helped me get through medical school, as well.”

Dealing with a Variety of People

Beginning in a new setting like medical school requires someone to learn how to deal with a variety of different people. While all have the goal of becoming a doctor, a student enters a class with others with different backgrounds, experiences, and motivations. Sometimes, this part of medical school can be the most difficult for students. Corrine noted, “I was used to belonging to a community of student-athletes and in a year, I was surrounded by a new community of medical trainees—a different culture with different values.” But she credited her sports background to help with this transition. She added, “Because I have grown up playing team sports, I was used to joining different teams with different values and finding my new role in these situations. I felt that my athletic background helped, yet again, in medical school because I used the ‘people skills’ you get from team sports.” Callie expressed this feeling also with dealing with “difficult” people. “Specifically, to my experience on my team and college was dealing with not nice people. And being able to speak up when you see something is wrong. And being okay with getting push back.”

Life of a Medical Student and an Athlete is Regimented

Every student-athlete will say that their experience playing a sport in college was very regimented and that was not any different with the research participants. Because so much time is devoted to playing a chosen sport along with keeping up with one’s academic responsibilities,

time is valuable. This is also true with being a medical student. Playing football at his college, Bob described his time as “being told to you” and being very regimented.

It's pretty rigorous level of being a pre-medical student, you have a full course load my whole time there. You balance that with now, eight hours plus every day of football related activities, whether that's lifts at five or six AM in the morning, meetings for an hour, hour and a half, starting about 3:30 for two and a half hours of practice, film and team meal, after. And then homework when I get home, after that. Oh, I do it all over again, the next day.

This type of day was not just contained to college football. Callie, a cross-country runner, detailed her day consisting of two hours a day for practice, along with time in the training room for injury prevention and strength training sessions in the weight room. This is not counting travel time on competition days. “I had commitments pretty much every day of the week to run and do other activities for cross training or injury prevention.”

Time Management

Because of this regimented schedule, all of the research participants learned that their time was valuable, and they had to structure their time to accomplish things outside of their sport. Matt described the regimented structure from playing soccer as laying the foundation for how he would structure his time in medical school. “That's [regimented athletic structure] been a similarity. And it's been something that has that, I liked that structure in my life. So, it [medical school planning] has provided that structure again, which is nice.” Bob noted how the rigors of balancing his academic duties while playing a college sport helped him in medical school:

I had never had to study for that long. But I'd also had a lot of experience working and giving my all, all the time. So, I, in my head, I like to think, you know, I went from

having two full-time jobs in college to having one full-time job that was equally as time intensive, but the commitment, the time commitment, and, like energy commitment was not unfamiliar to me. So, I kind of just adopted that same mentality. And that definitely helped me be successful.

Adam agreed with the idea that his athletic experience helped him in persisting in medical school. “It kind of forces you to be really efficient with your time... And so, it was difficult, but it definitely made me a better student, definitely helped prepare me for medical school.”

Anti-Procrastination

Following the theme of time-management, it was not only important to be able to manage one’s time well, but to also prioritize time and not put off things. Kelly emphasized this concept helped her juggle all the commitments that come with being a student-athlete. “I am an anti-procrastinator. I really tried to get ahead of any small academic tasks that I could.” Anne continued with this notion of not procrastinating and described how it is one of the main similarities between being a college-athlete and persisting in medical school.

That’s [being a college-athlete] exactly like medical school; you are doing so many things. You have clinical duties, you have tests, you have other requirements, problem-based learning, team based-learning, things like that. And learning how to prioritize your time is one thing that was just so darn similar.

Adam concurred with the idea of not procrastinating and prioritizing one’s time and learning that through sports. “I’ve known how to sacrifice. I’ve known how to, you know, give up things, prioritize things in order to achieve my goal... That’s the number one thing that’s gotten me through medical school.”

Relatability to Athletics

All the participants mentioned how medical school was relatable to their athletic playing days. Whether it was the social aspects of being a part of a team, game day preparations, the physical aspect, or understanding one's role on a team, they could relate medical school and practicing medicine to their college athletic playing days. Some research participants went as far as having the same music playlist for exams as they did for athletic workouts or practices to help them get into that mode. Malcolm noted, "There were times where like I said, I just went, I just had, like flipping a switch, like, Hey, this is, this is game day!" And while many compared their medical school experience to a specific athletic experience, Leigha had a broader perspective:

I think everybody kind of learns who they are through their athletic experience and like the things that motivates them and the things that kind of gets them out of the proper headspace that they need to be in. Like, we kind of get to know ourselves in those ways, in different athletic situations, and then getting into other, like challenging things in our lives, like medical school, we're then able to apply those strategies for success. So, I think that I think we carry the things that we learn through athletics into difficult things like medical school.

Social Aspects of Being on a Team

One of the concepts that was often mentioned with relatability with their college-athlete playing experience was the social aspect with their teammates and their medical school classmates. While there can be isolating times in medical school, supportive classmates help students get through the tough times in medical school, much like supportive teammates helps athletes get through hard practices or tough losses. Anne noted, "Just like when you enter athletics, you have a family. Your medical school class is your family and all going through the

same thing. And you know, you make friends from day one, just because you're in the trenches together.” Adam added, “I think the camaraderie that you have with the people you're working with, that's definitely something that when I'm comparing being an athlete and being a medical student.” Corrine credited her athletic playing experience in supporting with this notion of creating your *team* once she entered medical school. “I felt that my athletic background helped yet again in medical school because I used the ‘people skills’ you get from team sports to find my community in this new setting.” Matt added to this notion when he mentioned, “The importance of building a team of people with like-minded values, aspirations, and dreams to learn from and undertake challenges together made medical school enjoyable and provided daily motivation to better myself.”

Preparation for Game Day

Many of the research participants mentioned how they equated their preparation for various aspects on their medical school training to their athletic preparation, and, specifically, their game day preparation. Sometimes, getting ready for big medical teaching moments takes them back to getting mentally psyched up for playing games. Many mentioned the hours of studying for an exam and compared that to the hours of practice for game day. Malcolm associated the mentality of starting medical school with fall football camp before the season starts. “I took that same kind of mentality of just understanding that hey, this is gonna suck... But this is what's required of me, I don't have a choice... I'm going to do the best I can to make the most of it.” Anne compared walking into a surgery with getting into a game. She noted:

Getting ready for those games is one of the most fun times and that kind of translates to, I mean, like, I would say, especially for surgeons, like that's almost like your game time. Like when you're geared up to go into, or you kind of feel like, “Hey, I'm about to play a

game.” You get the butterflies in your stomach. And, you know, for me, that's how I feel like when I'm in the ICU, because you know, something big is about to happen, you'd be prepared.

Corrine also noted this concept when preparing for her clerkship rotations. She mentioned:

You wouldn't show up to a game without having practiced and having like, scouted your opponent, you would not show up to your first day of your new rotation without like, knowing who your team is going to be... kind of reviewing some materials about what you're going to be doing.

Physically Taxing

Following the theme of relating their medical school experience to their former athletic experience, many of the research participants mentioned how physically taxing parts of their medical school education was and how they relied on past physical taxing athletic experiences to get through those times. The examples ranged from early morning activities, long hours, and being on your feet for a long period of time. Adam recalled long on-call days:

Sometimes when you're on call, it's pretty physically exhausting. I can definitely relate to that. Sometimes, like we did a case one time, it was like 12 hours long, and my hamstrings are feeling like after a week of a triple option practice; I definitely remember that.

“Being able to pace yourself is important [in medical school],” Callie mentions. Leigha echoed this sentiment. “Being able to recognize when it's time to work, and also time to rest was important.”

Sometimes, those physical taxing times turn into emotional taxing times. In these instances, the research participants still relied on their former athletic experience. Adam recalled:

Because you're going to be put in a lot of situations that you've never been in before. Especially, you know, involved with patient care, it can be really uncomfortable, and awkward. And, you know, anxious, I guess. But you have to learn to embrace that, and kind of use it to motivate you. So, think that was big for me in wrestling, I thought, you know, the whole time you're uncomfortable. You have to you just learn to work and maneuver through those emotions and use it to your own benefit. I think something that helps in the latter two years when you're working in the hospital.

Elizabeth echoed this sentiment when she stated, "If you're just like super tired and super busy, just like pushing yourself to keep going. I think like, running taught me a lot about that."

Understanding Role on the Team

Realizing and adapting to one's role on a team was another mentioned sub-theme for relating their medical school experience to their athletic experience. There are many instances in medicine where one has to understand their role on the team. Corrine explained, "[In residency] you always have to figure out how your role fits within the team and it can change overnight." Many of the research participants acknowledged their abilities to be a good teammate helped them in medical school. Corrie noted:

Like college athletics forces you to have some level of people skills that you have to be, you know, a good teammate, and you have to learn how to play with people with strong personalities and such. And the same thing goes for medicine. It's like you have to learn how to deal with people and meet them at different levels and find your own place, in your own niche within the team.

Kelly reiterated this sentiment:

[In medical school] you are constantly forming new teams, initially with peers, then with residents, attendings, nurses, techs, and social workers just to name a few parts of a hospital patient team.... For me, college basketball was the perfect environment to learn those skills, make mistakes, experiment with adjustments in communication and team roles.

Adam summed up this notion when relating working on a new hospital team with his early college playing days. He mentioned:

You have to learn to be a part of a team, working with your attending, the residents, and also the support staff, nurses, PAs and stuff like that. And that can be challenging, I think, if you've never played a team sport, because you're working with people and you don't even know their name. But you know, after a while, you start to learn all the moving parts. And the most important thing above all is to make sure you do your job and to have accountability for what you can do and what you're supposed to do.

Developing Character Outside of Athletics

A majority of the research participants noted that participation in college athletics has helped them develop good character traits that helped them later in life, specifically medical school. While playing a sport may not give someone these characteristics, athletics can be a tool to help someone develop them. Will stated:

It doesn't have to be athletics that teaches you that the power of resilience and the power of learning from failure, the strength that you can find in discipline and putting your head down and just working day in and day out on the little reps, and how that translates into larger steps forward in the long term. I think athletics just happens to be a really good conduit for that.

One trait that was mentioned was improved confidence. Kelly recalled, “athletics laid a foundation for me to build confidence in a skill, have a voice, and advocate for my teammates. Another trait that was mentioned by many of the research participants was greater communication skills. Kelly emphasized this point when she stated:

I think one of the biggest things for me, I keep saying it is just good clear communication. That's been something that I've worked on, as a basketball player, as a leader on the court, and then in med school. And then with patients, with colleagues, all kinds of things. But communication is very much key to success in whatever situation. Specifically on a basketball court or in any field, as well as in the hospital setting.

Corrine added to this point when she explained, “Figuring out how to best relate to people, how do people like to be communicated with is really important characteristic that I think translated almost directly from athletics.”

An additional trait mentioned by many is worth noting: the concept of bettering oneself for the greater good. Many of the research participants noted that, during their college athletic careers, self-sacrifice and being the best person one can be was important for the greater good of the team. While Bob realized this concept is not unique to athletics, he noted, “I think if you translate that same desire to be the best athlete you can be into being the best medical student you can be. You can be really successful... it's a way you can live your life more broadly.”

Outlier Data and Findings

While many of the research participants experienced very similar experiences in regard to their journey to pursue medicine and athletics, there were unexpected findings and themes that did not align with specific research questions or themes that were discovered. The first was the omission of one's athletic experience in one's personal statement in several participants'

applications. The other was a research participant having such a negative college athletic experience that it impacted her outlook compared to the other research participants.

Omission of Athletic Playing Experience from Person Statements

Getting to the level of a college athlete takes a lot of time and dedication. During their interviews, all the research participants mentioned how many hours they had to devote to their chosen sport and how much it was a large part of their college experience. But one of the research participants only briefly mentioned that they played a college sport, and three of the research participants never mentioned their college-athlete experience in their personal statements. An applicant's medical school personal statement usually not only mentions their desire to pursue medicine, but usually mentions major aspects of their life. Playing a college sport is a major portion of a college athlete's college experience. It would seem to reason that an applicant would want to mention something about himself or herself that played a large role in shaping their college experience. All the other research participants mentioned their college athletic experience numerous times in their personal statement. Callie noted that she only mentioned her college athletic experience in her personal statement because her medical school advisor told her to mention it.

Negative Playing Experience

All the research participants talked glowingly about their college athletic playing experiences, except one. One research participant noted a negative college playing experience which they admitted could have clouded their belief that their college athletic experience played any part in their medical school persistence. Callie recalls how she did not feel support from her teammates during her time as a college athlete and never used those experiences to help her persist in medical school. "So, when I would try to reflect and apply past experiences to help me

get through medical school, it wasn't honestly that often, thinking back to cross country... I just don't see myself reflecting back on sports as much, or at all, when I'm thinking about how to get through med school." Callie reflected on this, and followed up with, "maybe in my subconscious, there's something pushing me from like a competitive nature." But she continued, "The most formative experiences of my college career that I felt like helped me mature to get ready for medical school were not sports... it's honestly an experience I don't look back fondly on."

Research Question Responses

The research questions developed for this study were designed to help understand the lived experiences of former college-athletes and their persistence through medical school. This includes the intersecting motivations as a college-athlete and a medical student. The following section offers answers to the specific research questions that guided this research study. All queries aided the researcher assemble information to address each research question.

Central Research Question

How do former college student-athletes describe their experiences in relation to the attributes and characteristics that allowed them to persist in medical school?

The research participants described their experience as medical students as hard, time consuming, and challenging. But they all, either consciously or subconsciously, relied on their past athletic experiences not only to get them through the tough times in medical school, but to embrace the challenge, and be successful. Bob said:

This [athletics] environment fostered massive improvements in my time management and teamworking skills and taught me how to prioritize my responsibilities on a daily basis. I also had to learn how to deal with the occasional setback when I simply could not dedicate enough time to a certain pursuit, whether that was football or academics... there

is no doubt in my mind that my experience as a college student-athlete played an integral role in my success in medical school.

Sub-Question One

What are the experiences that former college student-athletes share that help them persist in medical school?

Almost universally, the research participants describe the relationship with teammates, the regimented life of an athlete, the internal drive to be better at their craft, and getting through the physically tough times as a large reason for their persistence in medical school. Adam stated:

Playing football in college while completing premedical coursework was truly a unique experience; it afforded me both challenges and opportunities that were unique to the student-athlete, and I believe it definitely molded me into an ideal candidate for medical school... Much like physical conditioning and football practice improved our performance on the field, having a lesser amount of time to study improved my efficiency in learning material and completing classwork... The determination and grit I developed by playing football in college allowed me to adapt my dietary habits and persevere through physically challenging times...

Sub-Question Two

How does a former college student-athlete's athletic motivation intersect with motivation in medical school?

Almost unanimously, the research participants describe their athletic motivation was transferred to their medical school experience. Their internal drive and desire for self-improvement played a major role in this conversion of their motivation in medical school. Elizabeth said:

The whole resiliency and willingness to fail, which is definitely something I didn't learn until college track... But I was like, the best in New Hampshire and I was really used to that coming into college, and then you're thrown into like, National League running, and I was like, oh, I'm not the fastest anymore, like at all. And that was sort of the same thing that I experienced in med school, like I had always been within the top, like, you know, 10%, probably of academic things. And then coming in, obviously, everyone is just as smart or usually more smart than me. And I think just kind of the willingness to like, take that in your stride and be like, oh, okay, like I have to work now. And continuing to go [stay motivated] is definitely something that for me, took a while to learn, but I'm glad I did because I think it's really useful for other aspects of life, as well.

Sub-Question Three

How do former college athletes in medical school describe their medical school experience in relation to their college athletic experience?

All of the research participants connected many of their medical school experiences to their college athletic experiences. They compared the pursuit of a common goal with a team, the dedication necessary to be successful in their sport, and embracing the challenges that are presented as very relatable to their medical school experiences. Matt said:

Although, the experience of competitive athletics provided the foundation and habits to succeed. Applying the dedication to consistency in practice and preparation to medical school made the transition to an increased pace and complexity of learning doable. The importance of building a team of people with like-minded values, aspirations, and dreams to learn from and undertake challenges together made medical school enjoyable and provided daily motivation to better myself.

Summary

In this chapter, the data presented came from evaluations of documents, personal interviews, provided essays, and focus groups collected from twelve research participants from one medical school. Descriptions of the participants' background were provided. Frequently mentioned phrases and words were coded to establish the main themes. The themes revealed from the data drew attention to the positive influences a former college-athlete athletic experiences had on their persistence in medical school. Not only did their athletic experience provide them with a foundation to persist in medical school, but also provide them with many of the qualities and characteristics that set them up to be successful in the medical profession. There were five primary themes identified from the data collection: resiliency is a necessity, internal motivation, adaptability is essential, life of a medical student and an athlete is regimented, and the relatability to athletics. Within these primary themes, several sub-themes also emerged. Additionally, one outlier data finding was discovered. The main research question and the three research sub-questions were addressed and answered from the research participants' quotes, which were extracted from the obtained data.

CHAPTER FIVE: CONCLUSION

Overview

The purpose of this hermeneutic phenomenological study was to understand the experiences for former college-athletes who persist in medical school. In this final chapter, I will discuss the interpretation of the findings, mainly that adversity can reinforce internal motivation, past examples of persistence can help with persistence in future endeavors, and various support structures help during difficult times. Additionally, I will discuss the theoretical and empirical implications of the study, referencing Nicholls's (1984) achievement goal theory, and Deci and Ryan's (1985) self-determination theory. Furthermore, I will discuss implications for policy and practice, theoretical and methodological implications, limitations and delimitations, and recommendations for future research. This chapter will conclude with a concise summary of the entire study.

Discussion

This research study data was obtained from document analysis, individual interviews, reflective essay prompts, and focus group interviews. Along with the five primary themes, this research study findings reveal three major interpretations. These major interpretations are: (1) adversity can reinforce internal motivation; (2) past examples of persistence can help with persistence in future endeavors; and (3) various support structures help during difficult times.

Interpretation of Findings

As a seasoned higher-education admissions personnel with specific experience with medical school admissions, along with an earlier background in athletics, the opportunity to listen to the journey of former college-athletes to medical school and their experiences in medical school was invaluable. The emerging quantitative research that has begun to study the

persistence of this group in medical school has suggested a link between the two. But there is little insight into the former college-athlete medical students' own perceptions of their journey and how it has impacted their medical school experiences. This study has allowed the research participants to share their lived experiences through this phenomenon. While I tried to set aside some of my biases while collecting the data, I took a hermeneutical phenomenological approach to this study; using my personal background and experiences aided the study. Creswell and Poth (2018) mention how bracketing personal experiences can be difficult because the interpretations of the data always include the assumptions of the researcher that come from their life experiences. Notwithstanding, these four interpretations are important for medical school stakeholders to consider.

Summary of Thematic Findings

The 12 research participants who took part in this study were genuine and willing to open up about their experiences, but also enthusiastic about the topic, which allowed for a substantial amount of information to be collected. Many of the research participants took pleasure in talking about the process of getting through the tough times in athletics, looked back on those times very fondly, and were glad that those experiences helped them in medical school. The following section contains three significant interpretations from the five major themes of this study.

Adversity Can Reinforce Internal Motivation. College athletics and medical school comes with much adversity. Participants have similar experiences along the journey to college athletic participation and in medical school, as well as when they accomplish the goal of participating in both endeavors. This adversity can be seen with greater physical demands, lack of personal time, imposter syndrome, and the many setbacks that will occur. From this adversity, the research participants discovered an internal motivation and resilience that allowed them not

to be overcome by it and succeed in their chosen activities. Adversity propelled them to want to be better, academically, athletically, and in medical school. This common theme is corroborated in research that suggests that being exposed to stressful situations earlier in life can help individuals become less physiologically vulnerable to subsequent stressful situations (Obradović, 2012). The ideas of “rising to the challenge” and “nothing is going to stop me” are seen throughout the findings.

Many of the research participants describe the numerous setbacks they have experienced, not being admitted to their first-choice undergraduate institution, competition losses, injuries, and not being admitted to medical school initially. And in each of those instances, they found the resilience to make a conscious effort to self-reflect and determine a path to accomplish their goal. Resilience is the process to come back from adversity and setbacks to take on the challenges of any life experience (Van Kessel, 2013). As mentioned earlier, resiliency was mentioned by all the research participants as the factor in their persistence in their chosen college sport and medical school. Each participant described a different story, but there were many similarities. Whether they described rising to the challenge, staying the course, overcoming mental and physical challenges, or accomplishing things that they thought were not obtainable, the research participants relied on this resiliency that came from their internal motivation and, in many cases, even increased their internal motivation.

While it was not unexpected for athletes to have a sense of accepting any challenge that is put in front of them, it appeared that these challenges played an integral role in their character development as an athlete and a medical student. Many said that they think they would not be in the position they are in now without those challenges because they know how to deal with them

and overcome them. This internal motivation gave them the ability to dig deep and stand up in the face of setbacks.

Past Examples of Persistence Can Help with Persistence in Future Endeavors. A majority of the research participants credited their past college athletic experiences as the reason they were able to persist in medical school. All but one of the research participants looked back on their college athletic experience as favorable. Whether it was a conscious choice or a subconscious choice, the recollection of past athletic experiences played a pivotal role in persisting in their medical school experience. When there was a difficult situation in medical school, there was a thought back to their athletic playing experiences to get the students through their tough times. Whether it was comparing getting through long early morning rotations to long early morning practice sessions, or just relying to the notion of “better practice will equal better results,” the relatability permeated through much of the data collected. There was even one instance where a research participant still hears their coach’s voice in their head when they are pushing through difficult times.

While the concept of learning from past experiences is not a new concept, many of the research participants not only learned from past experiences, but leaned heavily on them to help them persist in their future experiences. Studies indicate a positive correlation to recalling positive and relevant past experiences to imagining positive future outcomes (Wang et al., 2014). Their various experiences all pointed toward this concept, and the connection did not stop with their medical school experience. It applied to their residency experience after medical school graduation and other aspects of their life. Many recalled the relatability of preparing for a game day to the preparation to do a surgery. Others recalled the idea of putting in extra work when no one asks to better oneself. Many connected the ability to deal with different teammates to dealing

with different medical school classmates and medical personnel. Through the reflective responses from the research participants, past college athletic experiences may assist with persistence in future experiences.

Various Support Structures Help During Difficult Times. Teammates are there to help the team achieve a particular goal. Even in individual sports, teammates are important; but they also help each other in off-the-field/court matters. Seeking out teammates for help not only leads to resolving any issues there may be, but it can also add to improved creative improvement and have a positive impact on intrinsic motivation (Mueller & Kamdar, 2011). Also, the ability to have and maintain a social support group is important in overcoming adversity (Van Kessel, 2013).

When discussing their past college athletic experiences and their medical school experiences, many of the research participants mentioned relying on their teammates and classmates to help them get through the difficult situations. This reliance acknowledges the important role support structures play in persistence. The interaction with teammates on their college athletic teams aided in the participants' understanding of people with different backgrounds and perspectives, their ability to handle conflict, the concept of giving of oneself for a greater good, and having empathy to be there for others when needed. The ability to transfer these ideals to medical school and other parts of their life proved invaluable.

Many assume medical school is an individual endeavor. And some who matriculate into medical school go into their new environment with this assumption. Medical school is hard enough and it is even harder when students try to go it alone and not reach out for help. Many medical students credit support systems at the school, such as faculty, peer groups, as well as relationships outside of the medical school, such as counseling services, as factors in aiding them

with their mental health and preventing the “burn-out” feelings that are associated with highly stressful situations in medical schools (Chang et al., 2012). Many of the former college-athletes saw their medical school classmates as their teammates—they are all trying to accomplish a singular goal of persistence in medical school. It is clear that the connections with others and creating a support system may play an important role in getting through life challenges, such as medical school.

Implications for Policy or Practice

Stakeholders in the medical school enrollment management process can gain valuable insights from the research participants’ experiences. When considering the findings from this research study, the various stakeholders can be proactive in their approaches to medical school admissions, medical training, and their interactions with this population of aspiring medical school students. The stakeholders are not limited to the medical school admissions personnel, but can include medical school student affairs personnel, medical school physician trainers, medical school wellness persons, and the AAMC. Outside of the medical school realm, stakeholders can include college athletes, college athletic coaches, college athletics support staff, college pre-medical school advisors, and other professional graduate programs.

Implications for Policy

The AAMC provides guidance to all medical schools in the United States and Canada, while the Liaison Committee on Medical Education (LCME) is the accreditation organization for all medical schools. Although the AAMC provides “best practice” guidance in regard to the admissions process for these teaching institutions and the LCME can implement directives about the formation and operations of an admissions committee, neither can implement a standard admissions policy for all medical schools. Each medical school establishes their own admissions

policy based on the school's mission and core values. In recent years, the AAMC has tried to encourage medical schools to implement more holistic admission standards and have even produced results from studies that show the benefit of a more holistic admission process; however, they have stopped short of creating a standard admissions policy because of antitrust law considerations.

Implications for Practice

The findings from this research study are potentially transferable to medical school admissions practices. As mentioned earlier, the AAMC and the LCME cannot mandate a specific admissions policy for all medical schools. The AAMC does distribute "best practice" recommendations for admissions to all medical schools. These recommendations are based on previous research about admission practices and the criteria used to guide these practices. As mentioned in an earlier chapter, the purpose of this research study is not to advocate for more former college-athletes to be admitted in medical school, but rather to look at the characteristics and attributes that allow this population of students to persist in medical school. Not relying solely on academic metrics but noting certain items in a student's application that show whether they are resilient, adaptable, can perform under stress, can work well with others, and have other characteristics and attributes that allow them to persist in medical school and in the medical profession can be beneficial in a medical school's admission process. The findings of this research study can be included in the literature regarding holistic admissions practices and be distributed to those medical schools that may be looking for the benefits of a more holistic admissions process.

Likewise, current medical school students can learn to use past experiences of resiliency to help them through difficult times in medical school. These experiences are not limited to

former college-athletes. Many medical school students have backgrounds with common attributes that are relatable, showing that recalling these experiences and how a student overcame them can aid in their perseverance in medical school.

Furthermore, whether it is working a job while in school, being in the military, or overcoming a difficult upbringing to be admitted into college, these experiences can all yield a sense of determination in a student. Many times, hardships, setbacks, and failures are frowned upon in post-graduate school applications (Hammonds & Purgason, 2022; Nakae et al., 2020). Instead, they should be looked at in the context of the entire application and evaluated in terms of potential for success in medical school. Adversity and the ability to bounce back should be seen as a positive and not a negative. This not only applies to the people making medical school admission decisions, but also the people advising potential medical school applicants. Certain deviations from the traditional medical school path should not be a reason for someone not to apply. These findings may be applicable to a larger population of potential medical school applicants.

Finally, the findings of this research study have the potential to be applicable to higher education as a whole. Colleges and universities can begin to assess the importance of the characteristics and attributes that these research participants feel allowed them to persist in medical school and evaluate their importance in all admissions processes. If this segment of medical school students attributes their present persistence to lessons learned from past experiences, it may be also relevant to other graduate professional schools. Also, it may be applicable to undergraduate admission practices as the admissions profession, overall, is moving toward a more holistic approach. Having non-cognitive attributes evaluated along with academic metrics has the potential to open higher education to a larger population of students.

Theoretical and Empirical Implications

This research study was approached through the lenses of Nicholls' (1984) achievement goal theory, and Deci and Ryan's (1985) self-determination theory. Both of these theories seek to understand goal attainment and the motivation behind goal attainment. Nicholls' (1984) achievement goal theory focuses more on the type of motivation that is involved in goal attainment with task-involvement motivation being the preferred method for positive goal attainment. Deci and Ryan's (1985) self-determination theory focuses on how intrinsic motivation is the preferred method for positive goal attainment.

This study corroborates both theories. First, the findings of this study suggest that the very nature of being a college-athlete involves a focus on mastering a skill for self-improvement, which is in line with the achievement goal theory. The theory notes how one's motivation can be task-involvement or ego-involvement, which is when someone compares oneself to others to accomplish a goal. While athletic competition involves the element of competing against others, all of the research participants describe their motivation more about self-improvement and competing with oneself to better himself or herself. Getting better at their chosen sport was a direct result of looking at their own past performances and developing a plan to improve on those past performances, rather than trying to improve because they were comparing their performance to others'. This mindset was carried over to their medical school experience as they worked to accomplish their goal through persistence in medical school. The focus was not comparing their medical school performance to other medical students, but rather competing with themselves and mastering the task at hand to be the best medical student they could be.

Additionally, the findings of this study suggest that intrinsic motivation or internal motivation plays a large role in the success of a college-athlete, which is in line with the self-

determination theory. The theory notes how someone's motivation can be intrinsic or extrinsic—the latter implies motivation by an external reward (Deci & Ryan, 1985). Athletic competition does involve external rewards such as trophies, individual accolades, team championships, but the research participants never mentioned these outside awards as the main motivation for wanting to get better at their sport. Many participants mentioned how they were motivated by being the best athletic version of themselves. The accomplishment of this goal may have been team wins, but the driving force behind it was the internal drive to become better at their sport. This type of motivation was carried over to medical school as their goal was not to be a good medical student to achieve accolades, but rather to become the best medical personnel they can be to better serve their patients and the medical community. In addition to intrinsic motivation, the self-determination theory notes that goal achievement can happen when basic psychological needs of competence, relatedness, and autonomy are met (Deci & Ryan, 1985). The research participants indirectly connected their goal attainment in athletics and medical school to the mastering of an action, their connection to others (teammates and medical students), and their ownership of their actions.

Overall, the positive impact of past athletic participation is supported in many research studies (Décamps et al., 2012; Forst, 2017; Kahn et al., 2012; Yukhymenko-Lescroart, 2018). These studies suggested athletic participants performed better academically, had better coping mechanisms for stress, had better time management skills, and had a greater ability to adapt to various situations. Many of these studies are quantitative in nature. This research study provides further evidence for the positive impacts of past athletic participation in future endeavors in a qualitative setting. Additionally, this study adds to the conversation regarding certain characteristics and attributes that allow someone to persist in medical school. Much of the

studies that surround success in medical school have been focused on quantifiable data such as MCAT scores and prior GPAs. This study adds another layer to discussions regarding what enables someone to persist in medical school.

Limitations and Delimitations

The limitations of this study were the setting of one medical school. I would have liked to have access to a larger sample of research participants from various medical schools. While the research participants came from various undergraduate colleges and diverse backgrounds, the reason for deciding on this particular medical school could have created a homogeneous population sample. Additionally, many of the research participants were White, so the study lacked the ethnic balance I would have liked to achieve. Furthermore, most of the research participants were female. I would have liked to have more gender balance as well. The population of people contacted for the study would have created the desired gender balance, but many did not respond to my request to participate in the study.

The delimitation that defined the boundaries of this study was the decision to only include participants who progressed past their third year of medical school with no academic interruptions in medical school. The design of this qualitative study was hermeneutic phenomenology of the bias I have derived from my own lived experiences. The rationale behind this approach is that, while I would try to take an objective approach with this study, I cannot ignore my own background in athletics and medical education. Additionally, the setting of the study was GCMS and the rationale for choosing this setting was based on my access and background. I used the progression of going through the third year of medical school as the definition of persistence in medical school because anything earlier would not have allowed the research participants to have enough experience in medical school to have a full grasp of the

phenomenon. With the hermeneutic approach, the focus is on interpretation of the narratives of the lived experiences and how those fit within their lifeworld (Creswell & Poth, 2018; Neubauer et al., 2019). A person cannot experience a phenomenon without describing their background and how it has meaning to them.

Recommendations for Future Research

As mentioned in the previous section, this study was limited to one medical school. While the sampling of research participants spanned various points of progression in this group's medical education and career, it only focused on one school's population. Future similar studies at other medical schools can help determine if this phenomenon can be generalized to all former college-athletes in medical school.

Additionally, more research participants can help determine if this phenomenon holds true for an undergraduate institution of the size the research participants attended. While this was not the direction of the study, the research participants who attended larger schools talked about the many resources they had while playing their sport. They mentioned how this helped with their structure and their ability to get through a rigorous curriculum while playing a college sport. It might be beneficial to compare that to the resources the student-athletes received at smaller institutions and whether that had any impact on the experience of participating in a college sport while pursuing medical school.

Moreover, it would be interesting to explore whether there were any differences by a particular sport or the level of competition they played. Certain sports may have different time demands, which may also be true for different levels of competition. Also, the resources used by a school at a higher level will differ from those used by a school that competes at a lower level. NCAA Division I schools, on average, have more resources for advisors, learning specialist,

counseling services, and dedicated learning spaces for athletes, versus NCAA Division III schools or NAIA schools. Different levels of support may have an impact on their perceptions on how much collegiate athletic experience had on their medical school experiences.

Furthermore, a mixed-methods study combining the quantitative data of former student-athletes persisting in medical school with the qualitative data as possible factors for this persistence can really show the whole story of this phenomenon. Strowd et al.'s (2019) was one of the first research studies to quantitatively examine medical school success among former student-athletes. Adding a qualitative component so this population of medical students have a chance to tell the story of the numbers with their lived experiences can enhance the research findings.

Finally, applying the findings of this research study to other medical school populations, whose pre-medical school activities require similar physical and time commitments as college-athletes, can shed more insight into the persistence of students in medical school. Examples of other medical school populations can include students who were in the military before entering medical school or students who participated in the college marching band. Both populations of students experienced physical demands from their activities and the time commitment from both activities did not allow students to follow a traditional path for medical school preparation.

Conclusion

The purpose of this study was to understand the experiences for former college-athletes who persist in medical school. Emerging research has begun to quantifiably study this topic, but this study focuses on the lived experiences and provides insight into former college-athletes' own perceptions regarding this persistence. The theories that provided the foundation for this study were Nicholls' (1984) achievement goal theory and Deci and Ryan's (1985) self-

determination theory, as these provided the framework for the concepts of goal attainment and motivation and, more specifically, how one chooses their motivation to pursue a goal. Largely, the research participants indicated a tough, although positive experience when preparing for medical school while participating in a college sport. They felt the experiences of playing a college sport aided them in their transition in medical school and, ultimately, their persistence in medical school. The research participants attributed this persistence to their resiliency, their internal motivation, their ability to adapt, their regimented schedule, and the ability to relate their medical school experience to their college athletic experience. While this study focused on former college-athletes in medical school, it has the potential to be applicable to other areas of higher education, especially enrollment management. Furthermore, important takeaways from this study were that (1) adversity can reinforce internal motivation; (2) past examples of persistence can help with persistence in future endeavors; and (3) various support structures help during difficult times.

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Appendix A: IRB Approval Letter

LIBERTY UNIVERSITY

INSTITUTIONAL REVIEW BOARD

May 3, 2022

Michael Woodson
Marsha Coker

Re: IRB Exemption - IRB-FY21-22-790 Former College Athletes and Their Persistence in Medical School: A Phenomenological Study

Dear Michael Woodson, Marsha Coker,

The Liberty University Institutional Review Board (IRB) has reviewed your application in accordance with the Office for Human Research Protections (OHRP) and Food and Drug Administration (FDA) regulations and finds your study to be exempt from further IRB review. This means you may begin your research with the data safeguarding methods mentioned in your approved application, and no further IRB oversight is required.

Your study falls under the following exemption category, which identifies specific situations in which human participants research is exempt from the policy set forth in 45 CFR 46:104(d):

Category 2.(iii). Research that only includes interactions involving educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures, or observation of public behavior (including visual or auditory recording) if at least one of the following criteria is met:

The information obtained is recorded by the investigator in such a manner that the identity of the human subjects can readily be ascertained, directly or through identifiers linked to the subjects, and an IRB conducts a limited IRB review to make the determination required by §46.111(a)(7).

Your stamped consent form(s) and final versions of your study documents can be found under the Attachments tab within the Submission Details section of your study on Cayuse IRB. Your stamped consent form(s) should be copied and used to gain the consent of your research participants. If you plan to provide your consent information electronically, the contents of the attached consent document(s) should be made available without alteration.

Please note that this exemption only applies to your current research application, and any modifications to your protocol must be reported to the Liberty University IRB for verification of continued exemption status. You may report these changes by completing a modification submission through your Cayuse IRB account.

If you have any questions about this exemption or need assistance in determining whether possible modifications to your protocol would change your exemption status, please email us at irb@liberty.edu.

Sincerely,

G. Michele Baker, MA, CIP
Administrative Chair of Institutional Research
Research Ethics Office

Appendix B: Initial Recruitment Email

Dear [Recipient]:

As a Ph.D. candidate in the School of Education at Liberty University, I am conducting research as part of the graduation requirements for a doctoral degree. The purpose of my research is to understand the experiences of former college-athletes who persist in medical school, and I am writing to invite eligible participants to join my study.

Participants must be 18 years of age or older, former college student-athletes, have persisted past their third year in medical school or graduated medical school, and currently are or, if graduated, were previously admitted to University of Tulane School of Medicine. Participants, if willing, will be asked to provide the researcher permission to access their initial, secondary application to medical school; participate in a recorded, virtual interview; submit a reflection essay; and participate in one of two recorded, virtual focus groups. It should take approximately one-and-a-half hours total to complete all the procedures listed. Names and other identifying information will be requested as part of this study, but the information will remain confidential.

To participate, please contact me at [REDACTED] for more information and/or to schedule an interview time.

A consent document is attached to this email. The consent document contains additional information about my research. If you choose to participate, you will need to sign the consent document (electronic signature will suffice) and email the completed form to me before your interview time.

Sincerely,

Mike Woodson
Liberty University Doctoral Candidate
[REDACTED]

Appendix C: Recruitment Email Follow Up

Dear [Recipient]:

As a Ph.D. candidate in the School of Education at Liberty University, I am conducting research as part of the graduation requirements for a doctoral degree. The purpose of my research is to understand the experiences of former college-athletes who persist in medical school. Last week an email was sent to you inviting you to participate in this research study. This follow-up email is being sent to remind you to respond if you would like to participate and have not already done so. The deadline for participation is [Date].

Participants must be 18 years of age or older, former college student-athletes, have persisted past their third year in medical school or graduated medical school, and currently are or, if graduated, were admitted to University of Tulane School of Medicine. Participants, if willing, will be asked to provide the researcher permission to access their initial, secondary application to medical school; participate in a recorded, virtual interview; submit a reflection essay; and participate in one of two recorded, virtual focus groups. It should take approximately one-and-a-half hours total to complete all the procedures listed. Names and other identifying information will be requested as part of this study, but the information will remain confidential.

To participate, please contact me at [REDACTED] for more information and/or to schedule an interview time.

A consent document is attached to this email. The consent document contains additional information about my research. If you choose to participate, you will need to sign the consent document (electronic signature will suffice) and email the completed form to me before your interview time.

Sincerely,

Mike Woodson
Liberty University Doctoral Candidate
[REDACTED]

Appendix D: Consent Form

Consent

Title of the Project: Former College Athletes and Their Persistence in Medical School

Principal Investigator: Mike Woodson, Ph.D. Candidate, Liberty University

Invitation to be Part of a Research Study

You are invited to participate in a research study. To participate, you must be 18 years of age or older, former college student-athletes, have persisted past your third year in medical school or graduated medical school, and currently be or, if graduated, were admitted to University of Tulane School of Medicine. Taking part in this research project is voluntary.

Please take time to read this entire form and ask questions before deciding whether to take part in this research.

What is the study about and why is it being done?

The purpose of the study is to understand the experiences of former college-athletes who persist in medical school. Participants will be selected to address the research question: How do former college student-athletes describe their experiences in relation to the attributes and characteristics that allowed them to persist in medical school? The sub-research questions will investigate certain experiences that may have helped them persist in medical school, the intersection of athletic motivation and medical school motivation, and their medical school experiences compared to their athletic experiences.

What will happen if you take part in this study?

If you agree to be in this study, I will ask you to do the following things:

1. Provide permission for me to access your Tulane University School of Medicine secondary application. A review of this document will provide some insight into your motivation for medicine and if you mentioned whether athletics was important to you when pursuing medicine. It would be good to examine this thought process before you started medical school. This will take approximately 30 minutes.
2. Participate in a virtual, recorded interview. This interview will take approximately 30 minutes of your time.
3. Respond to an essay prompt and email your response back to me. This will take approximately 5 minutes of your time.
4. Participate in a follow-up, recorded, virtual focus group with other research participants. Participants can choose between one of two groups (depending on availability). This will take approximately 30 minutes.

How could you or others benefit from this study?

Participants should not expect to receive a direct benefit from taking part in this study.

Benefits to society include possible insights into a segmented population who decide to pursue medical school and can provide momentum for medical schools to employ diverse strategies that

can facilitate the admission of students with non-traditional qualities who can be successful in medical school.

What risks might you experience from being in this study?

The risks involved in this study are minimal, which means they are equal to the risks you would encounter in everyday life.

How will personal information be protected?

The records of this study will be kept private. Published reports will not include any information that will make it possible to identify a subject. Research records will be stored securely, and only the researcher will have access to the records. Data collected from you may be shared for use in future research studies or with other researchers. If data collected from you is shared, any information that could identify you, if applicable, will be removed before the data is shared.

- Participant responses will be kept confidential through the use of pseudonyms. Interviews and focus groups will be conducted in a location where others will not easily overhear the conversation.
- Data will be stored on a password-locked computer and may be used in future presentations. After three years, all electronic records will be deleted.
- Interviews and focus groups will be video recorded and transcribed. Recordings will be stored on a password locked computer for three years and then erased. Only the researcher will have access to these recordings.
- Confidentiality cannot be guaranteed in focus group settings. While discouraged, other members of the focus group may share what was discussed with persons outside of the group.

Is study participation voluntary?

Participation in this study is voluntary. Your decision whether or not to participate will not affect your current or future relations with Liberty University or Tulane University School of Medicine. If you decide to participate, you are free to not answer any question or withdraw at any time without affecting those relationships.

What should you do if you decide to withdraw from the study?

If you choose to withdraw from the study, please contact the researcher at the email address/phone number included in the next paragraph. Should you choose to withdraw, data collected from you, apart from focus group data, will be destroyed immediately and will not be included in this study. Focus group data will not be destroyed, but your contributions to the focus group will not be included in the study if you choose to withdraw.

Whom do you contact if you have questions or concerns about the study?

The researcher conducting this study is Mike Woodson. You may ask any questions you have now. If you have questions later, **you are encouraged** to contact him at [REDACTED] or [REDACTED]. You may also contact the researcher's faculty sponsor, Dr. Marsha Coker, at [REDACTED].

Whom do you contact if you have questions about your rights as a research participant?

If you have any questions or concerns regarding this study and would like to talk to someone other than the researcher, **you are encouraged** to contact the Institutional Review Board, 1971 University Blvd., Green Hall Ste. 2845, Lynchburg, VA 24515 or email at irb@liberty.edu.

Disclaimer: The Institutional Review Board (IRB) is tasked with ensuring that human subjects research will be conducted in an ethical manner as defined and required by federal regulations. The topics covered and viewpoints expressed or alluded to by student and faculty researchers are those of the researchers and do not necessarily reflect the official policies or positions of Liberty University.

Your Consent

By signing this document, you are agreeing to be in this study. Make sure you understand what the study is about before you sign. You will be given a copy of this document for your records. The researcher will keep a copy with the study records. If you have any questions about the study after you sign this document, you can contact the study team using the information provided above.

I have read and understood the above information. I have asked questions and have received answers. I consent to participate in the study.

The researcher has my permission to video record me as part of my participation in this study.

Printed Subject Name

Signature & Date

Appendix E: Interview Questions

1. Discuss your initial motivation to begin playing sports?
2. Describe your college athletic experience in terms of your preparation for competition, while balancing your academic duties.
3. How did your support system play into your athletic career?
4. Discuss your motivation to become a physician.
5. Describe your journey to medical school in terms of completing all the “pre-med” duties while playing a college sport.
6. How did your support system play into you pursuing medical school?
7. Discuss what you perceive are some qualities/characteristics that allow students to get through medical school.
8. Describe how someone transfers their athletic motivation to medical school.
9. Describe the similarities of your athletics’ experience to your medical school experience.
10. Compare the qualities that enabled you to play sports in college and helped you in medical school.

Appendix F: Reflection Essay Question

Please reflect on your journey to medical school, including primarily, your experience with college athletics. Describe the hardest part about being a college student-athlete making the transition to medical school and why this transition was successful for you.

Appendix G: Focus Group Questions

1. Discuss your initial motivation while playing college sports and in medical school?
2. Resiliency seems to be a large factor in persistence in medical school. How as resiliency impacted your persistence in medical school?
3. Many of the research participants mentioned many of their medical school experiences are relatable to their college athletic experience. What are some examples of this for you?
4. It seems adaptability was important in one's college athletic experience and in medical school. How has this played out in your medical school experience?