Factors Influencing Physical Therapy Career Choice

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FACTORS INFLUENCING PHYSICAL THERAPY CAREER CHOICE

A Dissertation
presented in partial fulfillment of requirements for the degree of Doctor of Philosophy
in Higher Education
In the Department of Higher Education
The University of Mississippi

by
RYAN M. BABL
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ABSTRACT

Introduction: The physical therapy (PT) profession has a tradition of growth driven by interest and societal needs. Recent discrepancies in workforce modeling suggest looming issues impacted by declining application rates. Modern facilitators and barriers for entering the PT profession need exploration to assist key stakeholders in making informed decisions in recruitment.

Study Purpose: To explore how factors identified to influence individual’s choice of entering a healthcare career impact self-perceived likelihood of applying to an entry-level graduate PT program.

Methods: A univariate correlational research design was used to examine the extent of the relationship between predictive factors and students’ self-perceived likelihood of applying to an entry-level graduate PT program. Open-ended questions exploring additional aspects of career decision-making were implemented to further explore respondents’ views on PT career choice.

Results: A total of 182 survey responses were collected with 170 included in multiple regression analysis following examination of casewise diagnostics and exclusion of standard residuals greater than two. A statistically significant relationship was found, \( F(6, 163) = 8.38, p < 0.001 \). A moderate approaching large effect size was noted with approximately 24% of the variance accounted for in the model, \( R^2 = 0.24 \) (95% CI [.11, .33]). Personal interest \( (p = 0.003) \), previous exposure \( (p < 0.001) \), and job prospects \( (p = 0.014) \) were all found to be significant predictors accounting for 4.4%, 6.8%, and 2.9% of variance in the model respectively. Responses to open-ended questions supported model findings with additional insights on PT career decision-making from prospective students.
Discussion/Conclusions: Findings highlight the importance that prior exposure and personal interest contributes to pursuing PT as a career. Job prospects also play a key role supporting needs to address financial barriers for entering the profession as well as ROI issues reaching prospective students and making impacts on career decision-making. Prospective students are asking for increased levels of information and support with undergraduate programs, observation opportunities, application processes, and financial help needed to make pursuing PT as a career more attainable. Identified barriers may be disproportionally affecting minority groups traditionally underrepresented in the workforce but expressing interest in PT as a career.
DEDICATION

I dedicate this dissertation to my beloved wife, Jenny, and our two incredible boys, Jonah and Jude. Throughout this challenging journey, you have been my unwavering source of love, strength, and inspiration. This accomplishment would not have been possible without your constant support, understanding, and sacrifices. Thank you for providing me with motivation and my greatest source of happiness. This achievement is as much yours as it is mine, and I am forever grateful to be able to share in it with you.

Jenny, you have been my rock, my confidante, and my partner in every sense of the word. Your unwavering belief in my abilities and your tireless encouragement have propelled me forward, even during the most difficulty times. Your patience and understanding during the countless hours I spent immersed in study and writing have been remarkable. You have shouldered additional responsibilities, carried our family through challenges, and provided a loving home, all while empowering me to pursue my academic aspirations and fulfill my potential. Thank you for being my pillar of strength, for your unconditional love, and for always believing in me.

To my boys, I hope that this achievement serves as a reminder that with dedication, perseverance, and a thirst for knowledge, you can accomplish anything you set your minds to. May this inspire you to explore your own passions and embark on journeys of discovery and adventure, always knowing that your dad is here to support and encourage you every step of the way.
LIST OF ABBRIVATIONS

AACN - American Association of Colleges of Nursing
AAMC - Association of American Medical Colleges
ADA - Americans with Disabilities Act
ACAPT - American Council of Academic Physical Therapy
AOTA - American Occupational Therapy Association
APTA - American Physical Therapy Association
CAPTE - Commission on Accreditation in Physical Therapy Education
CHEA - Council for Higher Education Accreditation
CODA - Commission on Dental Accreditation
DPT - Doctor of Physical Therapy
FSBPT - Federation of State Boards of Physical Therapy
HOD - House of Delegates, governing body of the American Physical Therapy Association
HRSA - Health Resources & Services Administration
IDEA - Individuals with Disabilities Education Act
NCHWA - National Center for Health Workforce Analysis
PTCAS - Physical Therapy Central Application Service
OSHA - Occupational Safety and Health Administration
ROI - Return on Investment
SCCT - Social Cognitive Career Theory
USDE - United States Department of Education

v
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# TABLE OF CONTENTS

ABSTRACT .................................................................................................................................... ii

DEDICATION ................................................................................................................................ iv

LIST OF ABBREVIATIONS ..........................................................................................................v

ACKNOWLEDGMENTS ............................................................................................................. vi

LIST OF TABLES ........................................................................................................................ x

LIST OF FIGURES ....................................................................................................................... xi

CHAPTER I: INTRODUCTION .....................................................................................................1

  Statement of the Problem ................................................................................................... 11

  Purpose of the Study .......................................................................................................... 14

  Significance of the Study ................................................................................................... 15

  Potential Contributions ...................................................................................................... 16

  Limitations ......................................................................................................................... 16

  Research Questions ............................................................................................................ 18

  Researcher’s Perspective ................................................................................................... 18

  Key Definitions .................................................................................................................. 18
CHAPTER II: BACKGROUND .................................................................20

Physical Therapy Workforce Modeling ..................................................20
Recent Enrollment Trends in Physical Therapy Education .........................31
Recent Enrollment Trends in Undergraduate and Graduate Higher Education ........35
Recent Enrollment Trends in Other Healthcare Profession Education ..........40
Career Choice Research in Physical Therapy ...........................................45
Career Choice Theory ............................................................................47
Frank Parson’s Choosing a Vocation .......................................................47
Holland’s Theory of Personalities in Work Environments .........................47
Social Cognitive Career Choice Theory (SCCT) ......................................50
Healthcare Career Choice (HCC) Questionnaire .......................................57

CHAPTER III: METHODOLOGY ...........................................................60

Participants ...........................................................................................60
Design .....................................................................................................61
Measures ...............................................................................................62
Procedure ..............................................................................................64
LIST OF TABLES

1. PTCAS Program, Applicant, and Application Trends (2008-2019) ...........................................33

2. PharmCAS Participation, Applicant, and Application Trends (2004-2021) ............................43

3. Frequencies for Reported Sex/Gender ......................................................................................67

4. Frequencies for Race/Ethnic .....................................................................................................68

5. Frequencies for Institution Type ...............................................................................................69

6. Descriptive Statistics for Anticipated PT Education Cost, Anticipated Entry Level PT Salary, and Current Level of Student Debt (In U.S. Dollars) ...............................................................69

7. Frequentist Scale Reliability Statistics of Survey Instrument ...................................................71

8. Descriptive Statistics for Criterion Variable .............................................................................73

9. Pearson's Correlations of Predictor Variables ...........................................................................73

10. Model Summary – Likelihood ................................................................................................78

11. ANOVA ..................................................................................................................................78

12. Descriptives for Criterion and Predictor Variables Post Casewise Diagnostics .....................78

13. Part and Partial Correlations ................................................................................................78

14. Coefficients .............................................................................................................................79

15. Collinearity Diagnostics .........................................................................................................79
LIST OF FIGURES

1. PT supply and demand workforce model representation, (2010–2020) ......................... 21
2. APTA supply and demand 2016 model projection, 3.5% attrition rate ......................... 22
3. APTA supply and demand 2016 model projection, 2.5% attrition rate ......................... 22
4. APTA supply and demand 2016 model projection, 1.5% attrition rate ......................... 23
5. PT supply and demand projections from 2020 APTA workforce analysis ...................... 24
6. PT percent change in employment, projected 2020-30 ................................................ 25
7. PT workforce supply & demand 2016-2030 projections ............................................. 27
8. PT workforce supply & demand 2016-2030 demand scenario projections .................. 28
9. PT workforce supply & demand 2016-2030 supply scenario projections ..................... 28
11. SCCT model of how basic career interests develop over time .................................. 54
12. SCCT model of person, contextual, and experiential factors affecting career-related choice behavior ................................................................. 56
13. SCCT model of task performance .............................................................................. 57
14. Reported Undergraduate Degree Majors .................................................................. 70
15. Distribution Plots of Criterion Variable ..................................................................... 71
16. Boxplots of Criterion Variable ........................................................................................................72
17. Q-Q Plot of Criterion Variable .....................................................................................................72
18. Boxplots of Criterion Variable Following Casewise Removals .......................................................74
19. Q-Q Plot of Criterion Variable Following Casewise Removals .......................................................74
20. Residuals vs. Predicted ......................................................................................................................75
21. Q-Q Plot Standardized Residuals ...................................................................................................75
22. Partial Regression Plots ....................................................................................................................76
CHAPTER I: INTRODUCTION

Development of physical therapy as a professional healthcare career within the United States (U.S.) has been a story in the making for over one hundred years. Pioneer practitioners in the U.S. grew primarily out of medical community and societal needs in response to the devastating effects of the poliomyelitis (polio) epidemic spanning from 1894 all the way to 1957 when a large-scale vaccination campaign significantly reduced incidence (Moffat, 2003; Plack & Wong, 2002). Practitioners in the profession’s early development, almost exclusively women, were commonly referred to as physical reconstructive aids¹ due to influences from the U.S. Army’s newly established Division of Physical Reconstruction and its training programs. In the period before World War I, the appointed Surgeon General Merritte W. Ireland, MD, with support from the U.S. Army’s Division of Orthopedic Surgery, and the Division of Physical Reconstruction, advocated for the creation of military hospitals and training institutions with the aim of providing reconstruction for soldiers with injuries and/or disabilities (Moffat, 2003).

In addition to the military’s recognition for the rehabilitative needs of soldiers, the U.S. medical community at large recognized the growing rehabilitation needs for survivors of polio. Medical help for survivors was needed to restore functional therapeutic potential and establish new methods of treatment in place of current standards of care primarily involving isolation, long-term splinting/casting, best rest, and at times, surgery. These standard treatments were associated with extreme functional deficits following recovery from disease, often resulting in

¹ Physical reconstruction aid was a common name for a practitioner at that time. Practitioners, especially in civilian facilities, were also referred to as physiotherapy technicians, physical therapy aides, or even physician’s assistants prior to the eventual adopted primary title of physical therapist (Plack & Wong, 2002).
long term negative effects and potentially preventable decreases in mobility and quality of life beyond the lasting effects of polio itself.

The needs of society, the military, physicians, caregivers, families, and individual patients fueled the creation of training institutions focused on physical training and allied therapies (Moffat, 2003). Training schools, primarily associated with individual hospitals or hospital systems, were established throughout the U.S. with the purpose of instructing physical rehabilitative aids in how to operate under the direction of and alongside with physicians for the care of patients requiring rehabilitative services. Rehabilitative aids were often nurses or other individuals having studied the physical sciences and driven by the recognized and altruistic need to help others regain life and functional ability after recovering from debilitating disease or injury.

In 2021, the American Physical Therapy Association, or APTA, celebrated its centennial year as a professional organization highlighting its growth, accomplishments, and influence since formal establishment in 1921 (APTA, 2022b). The organization was initially named the American Women’s Physical Therapeutic Association but became the American Physiotherapy Association one year later intending to be more inclusive and allowing men to join the organization. Initial formation of the APTA occurred following the end of World War I which served as the second major historical event, following the polio epidemic, to significantly influence formation of the physical therapy profession during its infancy in the U.S. (Plack & Wong, 2002). The role of reconstruction aids in helping soldiers recover from war injuries

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2 Physiotherapy is a term with European roots, the original birthplace of the profession. It is still used throughout the world today and is synonymous with the term physical therapy more commonly used in the United States. Physiotherapist is also synonymous with physical therapist and all terms may be used interchangeably throughout this document (Shaik & Shemjaz, 2014).
further expanded society’s needs, fueling growth in the physical therapy profession including formation and development of its professional organization.

From the profession’s beginning all the way up to the early 2000s, physical therapy continued to expand through historical influences such as World War II, the Korean War, continuation of the polio epidemic, and the Vietnam War, among others. Key federal legislative initiatives such as development of Medicare, Medicaid, the Occupational Safety and Health Administration (OSHA), Individuals with Disabilities Education Act (IDEA), and Americans with Disabilities Act (ADA) also played significant roles in expanding demand for critical rehabilitation services (Moffat, 2003). As a result of these historical influences and more, the physical therapy profession flourished in the U.S.; expanding into new areas of care and expertise, influenced heavily by external forces, and guided by visions for the profession from within its own ranks. Expansion of the profession over the years has resulted in the branching and creation of new areas of practice and professional services from the original foundations of therapy including cardiovascular & pulmonary, clinical electrophysiology, geriatrics, orthopaedics, sports medicine, pediatrics, oncology, and women’s health, among others. Continued professional expansion has, in large part, been driven by the interests and passions of working professionals called upon to apply their knowledge and skills in new clinical areas with intentions of helping a variety of patients benefit from physical therapy’s unique skill set and services. Expansions in the physical therapy professional scope of practice has steadily increased demand for services, helping to continually fuel career interests of prospective students attracted by growth and opportunities offered by the profession.

Changes and expansion of physical therapy education have closely evolved alongside and in response to the profession’s own growth and changing needs. In the initial stages, physical
therapy education operated primarily through hospital-based certificate programs, with the first four-year bachelor’s degree program implemented in 1927 at New York University (APTA, 2022b; Plack & Wong, 2002). In the 1940s, the profession transitioned at large to majority baccalaureate degree programs offered in university settings demonstrating a major shift in physical therapy education at that time (APTA, 2022b; Plack & Wong, 2002). Increased education requirements for licensure were influenced by physical therapy leaders and insiders advocating for increased education and training for entry level practitioners (APTA, 2022b; Plack & Wong, 2002). The transition was also influenced by historical trends in professional industries increasingly forming partnerships with college and university institutions for structured education and training based on higher education and accreditation expansion, popularity, and support in the U.S. (Plack & Wong, 2002; Thelin, 2019).

In the mid-1940s, Stanford University pioneered a post-entry-level certificate program in physical therapy, shortly followed by other colleges and universities. In 1979, Western Reserve University, now known as Case Western Reserve University in Cleveland, Ohio, was the first to develop a formal two-year graduate degree program (APTA, 2022b; Plack & Wong, 2002). In 1979, the APTA House of Delegates (HOD), which serves as the physical therapy professional association’s policymaking body, adopted a policy setting December 31, 1990, as the target date for all PT academic programs to move to a post-baccalaureate degree (APTA, 2022b; Plack & Wong, 2002). As early as 1986, even prior to the complete transition of academic programs from the baccalaureate to post-baccalaureate master’s degree, discussions were already underway surrounding the development of Doctor of Physical Therapy (DPT) clinical education programs (APTA, 2022b; Plack & Wong, 2002). Academicians and practitioners were consulted regarding the feasibility and ethical considerations of physical therapy moving to a clinical doctorate.
degree and in September 1993, Creighton University in Omaha, Nebraska inaugurated the first DPT degree and graduated their first class on August 16, 1996 (APTA, 2022b; Plack & Wong, 2002). In 2013, the APTA’s HOD adopted Vision 2020, establishing their view of a new path forward for the profession. The vision included six primary elements with goals that APTA leadership hoped to achieve by the year 2020 including: 1) Direct access, 2) evidence-based practice, 3) professionalism, 4) doctoring profession, 5) autonomous practice, and 6) being practitioners of choice for movement system dysfunctions (APTA, 2022b).

The establishment of Vision 2020 by the APTA leadership signaled to educational institutions and the profession at large APTA’s desire to move exclusively towards the requirements of a clinical doctorate as the profession’s entry level degree laying the foundation for the Commission on Accreditation in Physical Therapy Education, or CAPTE, establishing the DPT as the only degree conferred by accredited institutions as of January 2016 (APTA, 2022b). CAPTE, launched in 1978, continues to serve as the accrediting agency for the APTA and is nationally recognized by the U.S. Department of Education (USDE) and the Council for Higher Education Accreditation (CHEA), overseeing all physical therapy accreditation standards.

Arguments made in favor of the transition exclusively to a DPT degree purport it was necessary to allow physical therapists to become autonomous healthcare providers and achieve direct patient access now often referred to as patient choice access (Mathur, 2011; Plack & Wong, 2002). Critics of the move to the DPT pointed to issues of increased time spent in educational training for aspiring professionals, significant increases in educational costs for students, effects on interactions and professional relationships of new graduates with practicing physical therapy clinicians, and the effects on interactions and professional relationships between physical therapy practitioners and other healthcare disciplines (Jannenga, 2018; Plack & Wong, 2002). Since
moving to the DPT, a rapid expansion of accredited education programs has occurred (CAPTE, 2021b; CAPTE, 2021c; CAPTE, 2023), particularly amongst private higher education institutions wishing to add a DPT program to existing healthcare program lists or initiate often profitable healthcare post-secondary education programs on their campuses. Physical therapy program expansions have been successful in large part due to continued popularity of the profession by prospective students and continued growth in public demand for physical therapy services. This has been a point of controversy and concern discussed in detail later in this document.

Growth in public demand, professional opportunities, and educational opportunities have historically influenced the popularity and professional development of physical therapy as a career choice. The popularity of physical therapy as a career has held true throughout much of its history but in the 1990s, vested stakeholders experienced concerns when private insurance companies and legislative changes related to payment regulation significantly influenced payment and payment structures for physical therapy services (Moffat, 2003). In 1997, as part of the Balanced Budget Act (BBA), Congress imposed a $1,500 cap on Medicare coverage of outpatient physical therapist services. This along with changes in reimbursement imposed by private insurance companies following Medicare’s lead affected the profession’s outlook related to balances of supply and demand as media and corporate America continued to tout physical therapy as one of the top healthcare related professions maintaining its popularity among career seekers interested in working in healthcare, fitness, and/or sports medicine fields. Despite media and corporations advertising physical therapy as a top healthcare career choice, mixed messaging and doubt began to emerge for individuals deciding whether the profession was offering the same historical opportunities and growth that it had in the past. Despite the profession’s
continued popularity and positive media image, job numbers and job security were impacted by changes in reimbursement practices affecting primary sources of revenue, therefore limiting job prospects for seasoned professionals and new professionals alike. An APTA workforce study in the late 1990s known as the “Vector Study” predicted by 2005, supply would exceed demand by 50,000 physical therapists (Landry et al., 2016). Despite predictions of excessive supply, steady increases in demand began to once again occur, thought to be associated with the growth and advancement of services offered, growth in public awareness of physical therapy and its benefits, continued supply deficits in specific geographical regions of the U.S., and continued readjustments in physical therapy business practices. These changes and more stimulated growth in demand of physical therapy services making projections for excess supply of professionals short lived. The resulting demand outpaced supply within five years of the report, once again stimulating growth in job opportunities. Due to the workforce concerns seen with changes enacted with the BBA, health resource professionals began looking at planning efforts for the future, acknowledging growth in supply of physical therapists does not in itself inform the profession and stakeholders whether supply increases will meet, exceed, or fall short of current, or future, population demand (Landry et al., 2016). This signaled the importance for key stakeholders to establish methods of predicting physical therapy supply needs based on anticipated demands. In the period that followed, workforce projections primarily reported shortages in workforce supply through 2030 (APTA, 2017; Landry et al., 2016; Zimbelman et al., 2010).

Research projections of physical therapy professional supply shortages along with projections for continued service needs growth by the U.S. Bureau of Labor Statistics has stimulated steady expansion of education programs across the country for years (Bureau of
Labor Statistics, 2022b; CAPTE, 2021c). Continued reports of physical therapy shortages, especially in rural portions of the country and areas with consistent shortages of all varieties of healthcare professionals, has promoted expansion of established programs in the form of admitting larger class sizes and the continued opening of additional programs. This pattern has successfully continued even during a decade that has seen across the board increases in higher education costs (Boyington et al., 2021) and stagnant or decreases in national higher education enrollment (Hanson, 2022). In a recent turn of narrative, the APTA published a 2020 Workforce Analysis Report for physical therapy projecting by 2030, supplies of licensed physical therapy professionals will outnumber demand by more than 25,000 individuals. The 2020 Workforce Analysis Report veered significantly from previous workforce models and has once again placed uncertainty surrounding what the physical therapy workforce and career outlook through 2030 will be. This uncertainty has ignited stakeholders to begin speculating, asking important questions, and investigating appropriate actions moving forward.

The physical therapy related education body, the American Council of Academic Physical Therapy, or ACAPT, expressed their concerns over the APTA 2020 Workforce Analysis Report in a 2020 letter to university leaders (ACAPT, 2020). ACAPT is a component of the American Physical Therapy Association (APTA) with the established core purpose of leading physical therapy in the pursuit of academic excellence. ACAPT supports a membership that includes 95% of accredited U.S. physical therapy programs. In the letter to university leadership, ACAPT Board of Directors cited increased class sizes and increases in number of physical therapy programs opening as a growing concern and potential contributing factor for the anticipated surplus of physical therapy professionals. The ACAPT Board of Directors sent a follow up letter to CAPTE on March 30, 2021, again outlining concerns including the number of
new and developing DPT programs and expansions of established programs (ACAPT, 2021). Noted concerns include the supply of available national seats growing at a rate exceeding prospective student demand (ACAPT, 2021). The letter points to the 2020 released APTA Workforce Analysis Report (APTA, 2020a) as an indication that further educational expansion may not be ideal and with the ACAPT Board of Directors providing suggestions directly to CAPTE to consider revising new program opening standards or further expansion of established programs.

A point of view publication by Childs et al. (2021) appearing in the Physical Therapy & Rehabilitation Journal (PTJ) directly challenges the concerns laid out in the APTA 2020 Workforce Analysis Report and ACAPT Board of Directors letters. Childs et al. (2021) pointed to what they believed to be methodological faults used in the 2020 published APTA Workforce Analysis, specifically setting supply and demand levels the same in 2019 at the start of model projections. The authors pointed to differences between this most recent workforce analysis and that of previous APTA supply and demand reports accounting for baseline shortages as part of model calculations. Criticisms also included what Childs et al. (2021) felt to be miscalculations surrounding unaccounted supply and demand contributing factors. The authors point to the APTA’s workforce model projections significantly differing from projections by the U.S. Bureau of Labor Statistics (2022c), which has continually predicted levels of growth much faster than that of other professions for physical therapy within the United States.

The APTA’s workforce model projections also significantly differ from that of the National Center for Healthcare Workforce Analysis (NCHWA, 2019a). Part of the NCHWA workforce model projections for physical therapy includes predictions based on changes to projected attrition rates for licensed professionals and changes in student graduation numbers,
modeling those two factors as having the most influential effects on future projections for workforce supply. Currently, projections by the NCHWA have workforce supply just slightly exceeding workforce demand given no significant changes in projection factors (NCHWA, 2019a). Interestingly, both the APTA workforce model and the NCHWA produced workforce model utilize the Health Resources & Services Administration, or HRSA’s Health Workforce Simulation Model but arrived at differing projections (APTA, 2020a; NCHWA, 2019a).

A more recent point of view article by Deusigner & Landers (2022), defended the APTA Physical Therapy Workforce Analysis report in direct response to criticisms by Childs et al. (2021), stating the methodology used was in line with current workforce modeling best practice as designed by the HRSA’s Health Workforce Simulation Model (HRSA, 2022). Deusigner & Landers (2022) further expanded on supply and demand imbalance issues not addressed by Childs et al. (2021), highlighting negative value propositions of the physical therapy profession brought on by worsening economic conditions (Ambler et al., 2020a; Ambler, 2020b, APTA, 2020b; Berry, 2021; Dickson et al., 2020; Jette, 2016; Pabian et al., 2018; Shields & Dudley-Javoroski, 2018), and the decreased number and quality of applicants in recent years (CAPTE, 2021a; PTCAS, 2020). Deusigner & Landers referred to these issues as “perils of unconstrained academic growth in physical therapist education.” The author’s concerns were in line with ACAPT in that continued growth in physical therapy education programs coupled with economic restrictions related to reimbursement and payment for physical therapy services are potential recipes for either an excessive supply of newly graduating professionals having difficulty finding employment, financial hardship for new professionals with debilitating debt-to-income ratios because of rising education costs with little growth in income potentials (APTA, 2020b), or
declining prospective students entering the profession because of an unfavorable career environment and value of the physical therapy degree.

**Statement of the Problem**

Discussion of recent decreases in physical therapy education demand and the number of qualified applicants is supported in the literature. Decreases in DPT higher education program applications have been reported, with fewer total number of applicants (PTCAS, 2023). Declining application rates are occurring at a time when CAPTE accredited DPT higher education programs are projected to grow by 27.44% in the next few years with the addition of 76 developing programs to the 277 current accredited programs for a total of 353 U.S. programs (CAPTE, 2021b). Recent workforce analysis modeling as previously discussed has produced mixed results, but educational programs have been increasingly applying for and opening programs accredited through CAPTE citing need assessments based on U.S. Bureau of Labor Statistics Occupational Outlook Reports (Bureau of Labor Statistics, 2022c) as well as prospective student demand numbers (CAPTE, 2021c; PTCAS, 2020). In a letter to the editor appearing in in the Physical Therapy and Rehabilitation Journal (PTJ) by Gordon & Tilson (2022), CAPTE has accredited 56 out of 58 programs that have applied since 2013. Changes in student graduation rates are projected to have a significant impact on future workforce supply numbers (NCHWA, 2019b). Dwindling application numbers from prospective students coupled with continued increases in CAPTE accredited program class sizes and development of recent programs poses a significant problem to both existing and newly developing programs as they will face increasing difficulties in filling their program’s seats with the possibility of not all national program seats being filled. The decreased number of graduates also poses a problem for the profession and its ability to meet society’s physical therapy healthcare, fitness/wellness, and
sports medicine needs affecting healthcare outcomes. This will be occurring at a time when the U.S. population is continually aging (PRB, 2015), experiencing co-morbidities at higher rates and younger ages (CDC, 2022), and experiencing increased health concerns often affecting mobility and function for which physical therapists are uniquely trained and qualified to address.

Speculations have been made as to why declining application rates from perspective students have been occurring. Increasing education costs, time requirements for obtaining a DPT degree, and unfavorable debt-to-income ratios have been cited (Ambler et al., 2020a; Ambler 2020b; Berry, 2021; APTA, 2020b; Dickson et al., 2020; Dunn, 2019; ELP, 2020; Jette, 2016; Pabian et al., 2018; Shields & Dudley-Javoroski, 2018). Concerns have also been raised related to changes in physical therapy practice over the years that often places what would be considered ideal physical therapy patient care by practitioners and educators in opposition to evolving business practices, healthcare regulations, and insurance provider requirements (Richardson, 2015). These changes, among others, have placed increasing demands on physical therapy providers to meet established productivity standards and have been acknowledged to be a primary concern among practicing professionals. Concerns over healthcare regulation, insurance provider requirements, documentation, and productivity standards are often cited as top sources of stress and dissatisfaction with their jobs and careers as physical therapists (Castin, n.d.). This may be serving as a deterrent to prospective students who are actively investigating and engaging with current physical therapy professionals through research, clinical site shadowing, and internships often required as part of their undergraduate degree programs as they investigate various healthcare career choices they are considering.

To date, limited research has explored identification of which factors are most relevant to why individuals in the U.S. choose to pursue a career in physical therapy and what factors may
be contributing to why a prospective student may decide not to pursue physical therapy as a career choice during their career exploration phase. Previous sporadic research into physical therapy career choice and development has been conducted but primarily during periods prior to the transition to the DPT degree and more recent healthcare practice changes within the United States. Changes in healthcare and the U.S. job markets include the growth and expansion of various other allied healthcare specialties or similar professions expanding upon their scope of practice into areas traditionally associated with the physical therapy profession, thus allowing increased professional opportunities for individuals interested in similar fields outside of physical therapy. Growth and expansion of other professions includes occupational therapy, speech language pathologists, physician assistants, nurse practitioners, athletic trainers, chiropractors, exercise physiologists, and recreational therapists, among others. Increased opportunities for similar careers may also be influencing physical therapy recruitment. A better understanding of what other careers that individuals considering physical therapy are investigating could provide initial insights into identifying reasons for why students may be choosing alternative career paths.

On August 2021, the APTA, APTA Academy of Education, and ACAPT published a joint report that came out of efforts made by a developed Education Leadership Partnership between the three organizations entitled, “A Vision for Excellence in Physical Therapy Education” (Education Leadership Partnership, 2021). Within the document, the partnership established a vision sentence, vision statement, six guiding pillars to achievement of the vision along with guiding principles for each pillar. The first pillar is the accessibility of education which strives to improve accessibility to the profession for individuals from diverse backgrounds, experiences, and identities (Education Leadership Partnership, 2021). Portions of
this pillar include improving financial knowledge and accessibility of physical therapy higher
education as well as pre-professional education awareness and recruitment efforts for individuals
to ensure the continuation of prospective individuals needed to sustain advancement of the
profession. One way in which the APTA is attempting to achieve the goal of improving pre-
professional education awareness is through the recent establishment of the “PT Moves Me”
Student Recruitment Campaign. The campaign was established with the intention of recruiting
the next generation of physical therapists and physical therapy assistants through various
awareness efforts and an Ambassador Program. Establishment of the campaign demonstrates that
the APTA has recognized the need for increased physical therapy career awareness among
students as early as elementary school all the way to late college with the intention to increase
application numbers needed to sustain workforce needs. Vital to this effort is the need to
establish what healthcare career choice factors are most influential in facilitating, as well as what
is deterring, prospective students pursuing physical therapy, which can assist in more targeted
efforts amongst interested stakeholders.

Purpose of the Study

The purpose of this investigation is to explore how factors identified to influence
individual’s choice of entering a healthcare career impact undergraduate student’s self-perceived
likelihood of pursuing physical therapy as a career through application to an entry-level
profession graduate physical therapy education program. The study will also serve to gather
basic demographic information of students who have considered or are actively considering
physical therapy as a career choice among higher education institutions located in the CAPTE
established East South-Central Region States of the U.S. consisting of Alabama, Kentucky,
Mississippi, and Tennessee. Information related to self-perceived facilitating factors for
undergraduate students considering a career in physical therapy, self-perceived barriers to pursuing a career in physical therapy, as well as what other careers or professions the student may be considering will be solicited. Finally, information related to perceptions of total cost of attending a physical therapy program, starting salaries as a physical therapist, and current student loan debt levels will be explored.

Significance of the Study

Internal and/or external factors for why prospective students may choose to pursue physical therapy as a career choice have most likely changed since previous research has investigated similar topics. Decreased physical therapy education program application rates may be related to these factors but are unknown until key factors are identified and thoroughly explored. The importance for educational programs and physical therapy leadership understanding of what factors are most contributing to pre-professional program students’ decision making as to whether they will or will not apply to a physical therapy program is important for future recruitment strategies and workforce planning. This includes which factors may hold more significant impacts than others to help guide physical therapy education programs in evidence-guided decision making to best accommodate for local or national enrollment trends. Similarly, if there are negative factors in place that may be deterring individuals from pursuing physical therapy as a career choice it is important for professional physical therapy leadership and physical therapy education administrators to identify those factors necessary to prevent unwanted barriers to the profession’s continued growth related to declining prospective student interest for entering the profession. Positive external or internal factors that have higher positive correlations with choice in pursuing physical therapy as a
profession may require further opportunities to be fostered or further supported for undergraduate students to encourage continued interest and ensure an adequate future workforce.

**Potential Contributions**

Contributions specific to the physical therapy education literature includes gaining knowledge concerning what factors most closely correlate to an undergraduate student’s decision to apply to a physical therapy education program and its ability to inform key stakeholders and policy makers on potential points of focus when providing vocational guidance to students during the pre-professional education phase of learning. Namely, physical therapy organizations such as the APTA, APTA Academy of Education, and ACAPT will be able to use the information to improve efforts and methods of professional recruitment such as the “PT Moves Me” student recruitment campaign. Additionally, educational programs and higher education administrators will have additional knowledge related to factors contributing to undergraduate student’s decisions to apply to their physical therapy education programs.

**Limitations**

This study will seek to explore the relationship between factors identified to influence healthcare career choice and undergraduate students’ self-perceived likelihood of applying to a physical therapy program. Due to the time constraints associated with conducting and completing a dissertation project, measurements of the student’s self-perceived future intentions to apply to a physical therapy program will be collected, but not data on whether the applicant did in fact apply to a program. The hope is this research effort will lead to further examination of students in all phases of pre-professional education and the reasoning as to why they pursue a career in physical therapy as well as why they may not, even if they had considered it based on personal interests, prior exposures, career goals, or academic capabilities. It may also be
discovered that healthcare career choice factors previously identified in the literature are not applicable to physical therapy as a career choice within the United States. Future subjectivist inductive research, with the intent to refine or develop theory specific to physical therapy career choice, may be needed to better understand and direct future research exploration in this area (Varpio et al., 2020).

Finally, this research study will utilize quantitative methodology derived from objectivist deductive research strategies (Varpio et al., 2020). To date, limited research has explored and formally established healthcare career choice theories. There have been multiple career or vocational choice theories proposed in the literature, but little to no specific theories leading to developed scales with intention to measure factors specific to physical therapy career choice. There have been recent developments of healthcare career choice related scales primarily related to nursing education but were developed through inclusion of multiple allied health profession students, such as physical therapy. Despite the inclusion of multiple healthcare careers, the factors may not be specific or sensitive enough to the current state of the physical therapy profession needed to help identify differences between undergraduate students who self-report a low likelihood of applying to a physical therapy program vs. those that self-report a high likelihood of applying to a physical therapy program.

If not sensitive or inclusive of all factors influencing career decisions leading to physical therapy, results of the study may not be able to distinguish between student differences. Healthcare career scales have also been developed related to the nursing profession and allied health professions in other nations who have differently structured healthcare delivery. Identified factors for students in other nations may have differences from that of students in the U. S.
because of a variety of factors in healthcare delivery structures, higher education structure, physical therapy degree requirements, and sociocultural differences.

**Research Questions**

What is the extent of the relationship between factors identified to influence healthcare career choice (i.e., personal interest, prior healthcare exposure, self-efficacy, perceived nature of work, job prospects, social influences) and an individual’s self-perceived likelihood of applying to a physical therapy program for those individuals at least 18 years of age actively considering or who have previously considered a career in physical therapy?

**Researcher’s Perspective**

The working research hypothesis is that factors identified to influence career choice in healthcare careers (i.e., personal interest, prior healthcare exposure, self-efficacy, perceived nature of work, job prospects, social influences) will be relevant to and positively correlated with student’s self-perceived likelihood of applying to a physical therapy program. Factors will most likely contribute to physical therapy career consideration to differing degrees, which is important to identify for future career development and recruitment practices among the profession.

**Key Definitions**

**Career choice** - the selection of a vocation, usually based on such factors as parental guidance, vocational guidance, identification with admired figures, trial or part-time jobs, training opportunities, personal interests, and ability tests (APA Dictionary of Psychology, n.d.).

**Healthcare** – efforts made to maintain or restore physical, mental, or emotional well-being especially by trained and licensed professionals (Merriam-Webster, n.d.).
**Healthcare professional** – a person associated with either a specialty or a discipline and who is qualified and allowed by regulatory bodies to provide a healthcare service to a patient (Segen’s Medical Dictionary, 2011).

**Vocational guidance or counseling** – the process of helping an individual to choose an appropriate vocation through such means as (a) in-depth interviews; (b) administration of aptitude, interest, and personality tests; and (c) discussion of the nature and requirements of specific types of work in which the individual expresses an interest (APA Dictionary of Psychology, n.d.).

**Workforce** – the workers engaged in a specific activity or enterprise (Merriam-Webster, n.d.).

**Workforce modeling** – the process by which the need for skilled workers at a particular point in time (demand) is matched directly with the availability and preference of skilled workers (supply). Workforce modeling utilizes scenarios to create future models and assess gaps, considering variables such as customer perspective, overall predicted demand levels, technology changes enabling changes in processes or demand, employee’s current skill set, employee wants and needs, predictable legislative changes, attrition rates, the skills of future employees (Miller, 2020).

**Workforce planning** – the process of analyzing, forecasting, and planning workforce supply and demand, assessing gaps, and determining target talent management interventions to ensure that an organization has the right people, with the right skills in the right places at the right time, to fulfill its mandate and strategic objectives (Office of Human Resources, n.d.).
CHAPTER II: BACKGROUND

Physical Therapy Workforce Modeling

As previously discussed, initial physical therapy workforce modeling occurred following changes in reimbursements from the 1997 Balanced Budget Act causing a shakeup to the profession in the late 1990’s and early 2000’s (Moffat, 2003). The APTA workforce study in the late 1990’s known as the “Vector Study” predicted by 2005, supply would exceed demand by as many as 50,000 physical therapists (Landry et al., 2016). Within a ten-year period following the Vector Study, workforce modeling changed directions with predictions of physical therapy workforce supply deficits in place of previously modeled surpluses. Research by Zimbelman et al. (2010) forecasted continued national shortages in supply of physical therapy professionals through 2030. Projections for national shortages were substantiated by a 2010-2020 workforce projection modeling study conducted by Landry et al. (2016) in addition to an APTA supply and demand model developed in 2011 by a APTA Workforce Task Force. The APTA supply and demand model first established in 2011 was updated annually with the last update occurring on April 17, 2017 (APTA, 2017). Both Landry et al. (2016) and the developed APTA supply and demand model by the APTA Workforce Task Force used similar methods for physical therapy supply predictions, which considered current number of professionals, approximations of new graduates, immigration of foreign professionals, minus graduates who never pass the licensure exam, and estimated attrition rates for the profession (APTA, 2017; Landry et al., 2016). Demand was calculated within the model by factoring in anticipated population growth and the
population with health insurance and taking current shortages or surplus of professionals into consideration when comparing differences in supply and demand (see Figure 1).

Established goals for supply and demand predictions included determining the number of physical therapists required to meet the health care demands of the population through informing health human resource policy and workforce planning (APTA, 2017; Landry et al., 2016). Both models reported using 3.5%, 2.5%, and 1.5% estimates for attrition rates within their calculations. Attrition rates were reported to have one of the largest effects on variance in estimates and therefore the three different rates were used in projections based on previous published research in healthcare profession workforce planning (APTA, 2017; Landry et al., 2016). Projections reported in the last published 2017 APTA model projection of supply and demand of physical therapists can be viewed in Figures 2, 3, and 4.

**Figure 1**

*Physical therapist supply and demand workforce model representation, (2010–2020).*

*Note.* As drawn with the STELLA software, to predict the numbers of physical therapists (PTs) required to meet the health care demands in the United States (2010–2020). FTE=full-time equivalent. Figure source: Landry et al. (2016).
Figure 2

APTA supply and demand 2016 model projection, 3.5% attrition rate

Note. Figure source: APTA (2017).

Figure 3

APTA supply and demand 2016 model projection, 2.5% attrition rate

Note. Figure source: APTA (2017).
A new APTA Workforce Analysis report was released in December of 2020 which forecasted vastly diverse workforce modeling predictions from that of previous models. According to the analysis, as of 2019 there were 223,751 licensed physical therapists in the U.S. (APTA, 2020a). This figure is consistent with employment numbers of 225,350 physical therapy professionals provided by the U.S. Bureau of Labor Statistics Occupational Employment and Wage Statistics Report as of May 2021 (Bureau of Labor Statistics, 2022d), but fewer than numbers reported in the Bureau of Labor Statistics Occupational Outlook Handbook of 239,200 (Bureau of Labor Statistics, 2022c). The APTA Workforce Analysis report projected an increase in the national supply of physical therapists outpacing growth in demand for services based on anticipated changes in the U.S. population with health insurance and access to healthcare (APTA, 2020a). Considering current graduation, licensing, and attrition trends, the model used in the report predicts an estimated surplus of 25,235 physical therapists by 2030 (See Figure 5). It is
important to note the projection model used in the latest APTA Workforce Analysis Report (APTA, 2020a) differed from the model used in previous APTA reports. The latest APTA workforce model utilized the Health Resources & Services Administration’s (HRSA) Health Workforce Simulation Model which places supply and demand the same at the beginning of projection modeling.

**Figure 5**

*PT supply and demand projections from 2020 APTA workforce analysis*

*Note. Figure source: APTA (2020b).*
Physical therapy continues to be listed as a top healthcare profession career choice, ranked #10 in best healthcare jobs by U.S News & World Report 2022 and #28 in one hundred best jobs overall (U.S. News & World Report, 2022). According to the Bureau of Labor Statistics, physical therapy is expected to grow by 21% (see Figure 6), much faster than average for the 2020-2030 period (Bureau of Labor Statistics, 2022d). This is projected to result in an increase of 49,100 physical therapists from a current estimated employment number of 239,200 professionals as of 2020 for a total of 288,300 employed physical therapists predicted by 2030. This projection model takes into consideration a loss of 15,600 professionals each year during the decade due to workers who transfer to different occupations or exit the labor workforce, such as retiring (Bureau of Labor Statistics, 2022d).

Figure 6

*PT percent change in employment, projected 2020-30*

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Percent Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical therapists</td>
<td>21%</td>
</tr>
<tr>
<td>Healthcare diagnosing or treating practitioners</td>
<td>12%</td>
</tr>
<tr>
<td>Total, all occupations</td>
<td>8%</td>
</tr>
</tbody>
</table>

*Note.* “All occupations” include all occupations in the U.S. Economy. Figure source: U.S. Bureau of Labor Statistics, Employment Projections program (Bureau of Labor Statistics, 2022d).
The National Center for Health Workforce Analysis (NCHWA), an organizational branch of HRSA, also provides healthcare workforce information related to supply and demand projections. NCHWA’s mission is to help public and private organizations understand how changes in population will affect future workforce demands. By estimating supply, demand, and distribution of health care workers, their aim is to inform public policy to help prevent shortages and surpluses (NCHWA, 2022). According to NCHWA, using HRSA’s Health Workforce Simulation Model, in 2016 the physical therapy workforce consisted of 237,550 professionals with a projected increase of 64,810 (27%) by 2030 for a total of 302,360 physical therapists (NCHWA, 2022). Projections for changes in total demand are similar for the period, with the starting value of 237,550 professionals needed in 2016 growing to a projected 298,820 (26%) by 2030 (see Figure 7). Projection of need is based on the status quo of health care demand and does not take into consideration changes in need based or increases in insurance coverage for the population, improved racial equity of access to healthcare, geographic parity, improved population health initiatives, or improved general access to healthcare from the 2016 date of initial analysis (NCHWA, 2022).

The NCHWA model predicts the addition of 135,940 new professionals and an attrition of -71,130 professionals during the 2016-2030 period. The supply and demand calculations would result in a 101% adequacy for coverage of need by 2030 (NCHWA, 2022) with all calculated factors remaining unchanged. Projections are provided for demand (see Figure 8) and various scenarios resulting in altered supply of professionals (see Figure 9). Altered supply calculations include projection changes accounting for early retirement of current professionals, late retirement, fewer graduates, or increased graduate levels. Fewer levels of new graduates carry the largest impact on projected supply resulting in a deficit of 8,850 professionals by 2030.
given all other factors remaining the same with no changes in demand. Increased levels of graduates are projected to result in a surplus of 15,790 physical therapy professionals (NCHWA, 2022).

**Figure 7**

*PT workforce supply & demand 2016-2030 projections*

*Note.* Figure source: NCHWA (2022)
Figure 8

**PT workforce supply & demand 2016-2030 demand scenario projections**

![Demand Scenario Graph]

*Note. Figure source: NCHWA (2022)*

Figure 9

**PT workforce supply & demand 2016-2030 supply scenario projections**

![Supply Scenario Graph]

*Note. Figure source: NCHWA (2022)*
Supply and demand projections by NCHWA and APTA models each used projection methods provided by HRSA’s Health Workforce Simulation Model but varied in both current and projected numbers. Potential reasons for discrepancies may include the APTA’s use of current licensed physical therapists as reported by the Federation of State Boards of Physical Therapy, or FSBPT (APTA, 2020a). The FSBPT serves as the regulatory body that coordinates all state and other regulatory bodies responsible for issuing and regulating physical therapy licenses in the U.S. including regulation of physical therapy board examinations. The FSBPT maintains records of the number of licensed physical therapists in all states as well as numbers of license renewals and new graduate board pass rates. Having an active, unrestricted license is a requirement for clinically practicing physical therapy in each state, regulated by the respective state’s physical therapy licensing board, but may not represent all individuals with a physical therapy degree working in jobs not requiring an active license. Difficulties and discrepancies in prediction modeling also exist due to the number of professionals working in prn, or pro re nata, positions, which are individuals working in part-time or as-needed capacities. Most job demand projections are calculated on a full-time basis with prn positions being converted to full-time equivalency numbers, which is difficult given the considerable number and variety of prn professionals that work in healthcare professions and settings.

The difficulties in coordination of workforce analysis projections between different interested stakeholders were discussed in the 2020 APTA Workforce Analysis Report (APTA, 2020a). Mention of a collaboration between the APTA, FSBPT, and HRSA beginning in 2012 was made in the APTA Workforce Report discussing the difficulties encountered when working to develop a “minimum data set” due to lack of support from state agencies, the unwillingness or lack of ability for state licensing boards to ask questions on licensure renewal beyond those
required, lack of resources, confidentiality concerns, and changes in HRSA staffing which all
serve as barriers to efficient and effective collaboration efforts. (APTA, 2020a). Despite
differences reported and the barriers to collaboration that exist, factors demonstrating the largest
impacts to changes in projection models have included changes in attrition rates of professionals
and variation in the number of new graduates entering the profession (APTA, 2017; APTA,
2020a, Landrey et al., 2016; NCHWA, 2022; Zimbelman et al, 2010). Attrition rate calculations
used in physical therapy have primarily originated from research in other healthcare fields
(APTA, 2017; Landrey et al., 2016; Zimbelman et al., 2010) and have not been directly
measured at this time of writing to the knowledge of the author. As previously mentioned,
declining rates of physical therapy applicants have been noted by the agencies tracking the
information which includes CAPTE and PTCAS. If application numbers to physical therapy
education programs continue to decline, current projection numbers from all interested
stakeholders for anticipated supply stand to be significantly affected. This in turn will make it
difficult to determine if supply will meet demand in the future and the potential risk for a deficit
of key healthcare professionals to take care of the aging population. A risk of deficit would be
especially true with any future healthcare policy changes allowing greater healthcare access and
for a U.S. population that is getting older, increasingly sedentary, increasingly developing
medical co-morbidities, and surviving disease conditions that are increasingly treatable given
advances in healthcare technology and care. Current projections of demand are based on
percentages of the population with health insurance and have the potential for significant
changes if legislative policies increased access to health insurance or healthcare coverage to
members of the population that do not currently benefit from adequate access to healthcare or
may be experiencing discrepancies in healthcare services.
Recent Enrollment Trends in Physical Therapy Education

According to the 2018 CAPTE aggregate data report, the 2016-2017 application cycle mean total number of applicants per program was 500, with 336 of those individuals meeting program qualifications (CAPTE, 2020c). By the 2022-2023 admissions cycle, those numbers dropped to 346 and 243 respectively representing a 30.8% decline in mean program applicants and a 27.7% decline in mean program qualified applicants (CAPTE, 2023). Mean application numbers to each program may have been affected by the addition of recent programs, with fewer applicants to each program because of the higher number of available programs. Published program numbers in 2016 report 241 accredited or developing programs (CAPTE, 2021c) with an increase to 273 accredited or developing programs reported in 2022 (CAPTE, 2021a) demonstrating an increase of only 13.28% during the six-year period. This suggests a potentially disproportionate decline in mean program applications when compared to increases in program numbers indicating fewer total applicants seeking admissions into physical therapy higher education programs.

Latest available published information from the PTCAS 2021-2022 applicant data report collaborates indications from the CAPTE aggregate data reports with fewer total number of applicants reported from 2016 to 2022. Application and applicant numbers are published in applicant data reports developed by the PTCAS for each admissions cycle. According to the PTCAS 2021-2022 applicant data report, applications declined by 5.3% and total applicants by 3.5% during the 2017-2018 cycle, a decline of 12.1% for applications and total applicants by 2.9% during the 2017-2018 cycle, followed by an additional decline of 6.6% in total applications again and a change of only 0.1% in total applicants during the 2019-2020 cycle (PTCAS, 2023). There was a 6.0% increase in applications during the 2020-2021 cycle following COVID-19,
likely representing students that had delayed application due to restrictions during that time, but with a decline of 2.9% in the following year and with the total number of applicants remaining much the same (PTCAS, 2023). In addition, the 2021-2022 CAPTE Aggregate Data Report indicates that planned class sizes have increased just in the past few years from a mean of 45 in 2019-2020 to 48 in 2022-2023. The number of applicants offered a place has increased from 92 to 104 during the same short period.

PTCAS is a centralized application service provided by the APTA, which allows physical therapy applicants an opportunity to use a single web-based application process with the capability to apply to multiple programs all at once within the U.S. (PTCAS, 2022a). Physical therapy programs are not required to participate, but numbers have steadily increased since PTCAS launched on August 1, 2008. In the 2008-2009 admissions cycle, a total of seventy-two programs participated in PTCAS (PTCAS, 2020) from a potential pool of 222 accredited or developing U.S. programs (CAPTE, 2021c) for a participation rate of 32.43%. By the 2016-2017 PTCAS admissions cycle, a total of 214 programs participated, from a pool of 260 accredited or developing programs (CAPTE, 2021c) for a participation rate of 83.27%. In the latest available reported admissions cycle of 2021-2022, there were 284 programs that participated in PTCAS from a pool of 296 total accredited or developing programs (PTCAS, 2023) for a participation rate of 95.95%, representing a substantial number of the accredited or developing physical therapy programs and their admissions information (See Table 1). According to the PTCAS website, currently there are 301 participating programs in the PTCAS application service and only 12 non-participating programs (PTCAS, 2022b). The most recent published data on the number of PT programs includes 277 accredited programs and seventy-six programs in varying
stages of development for a total of 353 CAPTE accredited physical therapy programs projected in the next few years (CAPTE, 2021b).

Table 1

*PTCAS Program, Applicant, and Application Trends (2008–2022)*

<table>
<thead>
<tr>
<th>Admissions Cycle</th>
<th># Of Programs in PTCAS</th>
<th># Of PTCAS Applications</th>
<th>% Change</th>
<th># Of PTCAS Applicants</th>
<th>% Change</th>
<th>Applications to Applicant Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008-09</td>
<td>72</td>
<td>24,293</td>
<td></td>
<td>6,112</td>
<td></td>
<td>4.0</td>
</tr>
<tr>
<td>2009-10</td>
<td>107</td>
<td>40,566</td>
<td>67.0%</td>
<td>9,297</td>
<td>52.1%</td>
<td>4.4</td>
</tr>
<tr>
<td>2010-11</td>
<td>128</td>
<td>56,859</td>
<td>40.2%</td>
<td>11,604</td>
<td>24.8%</td>
<td>4.9</td>
</tr>
<tr>
<td>2011-12</td>
<td>146</td>
<td>73,917</td>
<td>30.0%</td>
<td>13,462</td>
<td>16.0%</td>
<td>5.5</td>
</tr>
<tr>
<td>2012-13</td>
<td>160</td>
<td>87,235</td>
<td>18.0%</td>
<td>15,616</td>
<td>16.0%</td>
<td>5.6</td>
</tr>
<tr>
<td>2013-14</td>
<td>167</td>
<td>96,264</td>
<td>10.4%</td>
<td>16,828</td>
<td>7.8%</td>
<td>5.7</td>
</tr>
<tr>
<td>2014-15</td>
<td>180</td>
<td>104,579</td>
<td>8.6%</td>
<td>17,587</td>
<td>4.5%</td>
<td>5.9</td>
</tr>
<tr>
<td>2015-16</td>
<td>200</td>
<td>114,027</td>
<td>9.0%</td>
<td>18,475</td>
<td>5.0%</td>
<td>6.2</td>
</tr>
<tr>
<td>2016-17</td>
<td>214</td>
<td>118,620</td>
<td>4.0%</td>
<td>19,025</td>
<td>3.0%</td>
<td>6.2</td>
</tr>
<tr>
<td>2017-18</td>
<td>236</td>
<td>112,373</td>
<td>-5.3%</td>
<td>18,359</td>
<td>-3.5%</td>
<td>6.1</td>
</tr>
<tr>
<td>2018-19</td>
<td>240</td>
<td>98,773</td>
<td>-12.1%</td>
<td>17,834</td>
<td>-2.9%</td>
<td>5.5</td>
</tr>
<tr>
<td>2019-20</td>
<td>249</td>
<td>92,225</td>
<td>-6.6%</td>
<td>17,843</td>
<td>0.1%</td>
<td>5.2</td>
</tr>
<tr>
<td>2020-21</td>
<td>257</td>
<td>97,786</td>
<td>6.0%</td>
<td>17,806</td>
<td>-0.2%</td>
<td>5.5</td>
</tr>
<tr>
<td>2021-22</td>
<td>284</td>
<td>94,977</td>
<td>-2.9%</td>
<td>17,862</td>
<td>0.3%</td>
<td>5.3</td>
</tr>
</tbody>
</table>

*Note.* Table sources: ACAPT (2022); PTCAS (2020); PTCAS (2023)
The number of PTCAS applicants in the 2016-2017 application cycle of 19,025 dropping to 17,834 in 2018-2019 represents a decline of 6.26%. This decline in total applicant numbers following a peak of 118,620 in 2016-2017 has held steady since that time. The decrease in total program applications from 118,620 to 94,977 in 2021-2022 represents a decline of 19.93%. With programs increasingly participating in PTCAS for their application process, this suggests in the past few years there has been a decline in the total number of national applicants and total number of programs each applicant is applying to. When examining the trends data (see Table 1), the number of applications and applicants began slowing as early as 2013-2014. The decline in applications and applicant rates in the 2017-2018 admissions cycle occurred near simultaneously with the Commission on Accreditation in Physical Therapy Education (CAPTE) making the Doctor of Physical Therapy Degree, or DPT, the only degree conferred by CAPTE accredited educational institutions in January 2016 adding both time and expense in most cases to acquiring an entry-level degree in physical therapy.

Previously stated opposition to moving to the DPT degree included the increased time commitment to education but primarily focusing on how the increased time commitment of education would increase cost and debt burdens for new professionals. Issues surrounding education costs have come under scrutiny by physical therapy professionals, researchers, and other interest groups. Investigations have primarily focused on unfavorable education cost-to-income ratios and return on investment (ROI) analyses for young professionals while in school or when first entering the workforce (Ambler et al., 2020a; Ambler, 2020b; Berry, 2021; APTA, 2020b; Dickson et al., 2020; Dunn, 2019; ELP, 2020; Jette, 2016; Pabian et al., 2018; Shields & Dudley-Javoroski, 2018). Discussions concerning physical therapy education costs had been occurring for years (Redman-Bentley, 2004) but steadily began increasing in 2007-2008.
following the fiscal crisis and global economic recession (Jette, 2016, Mitchell et al., 2019; Zumeta et al., 2012). Student debt related to obtaining a physical therapy degree has been shown to impact graduates’ choice of employment and professional development post-graduation (Ambler, 2020b) but to the knowledge of the author, it has not been established how rising education costs, or other economic factors, along with non-economic factors (e.g., personal interest, prior healthcare exposure, self-efficacy, etc.) are impacting pre-professional students and their choice as to whether they pursue a career in physical therapy during their career exploration phase. Ambler et al. (2020a) suggests the importance of evaluating how economic factors and non-economic factors interact with one another related to the return on investment (ROI) of becoming and staying a physical therapist. The authors go on to recommend a research agenda specifically to investigate ROI factors, both economic and non-economic, that contribute to why a person becomes a physical therapist and remains in the profession to better understand how these factors interact with one another on both individual and systematic levels (Ambler et al., 2020a).

**Recent Enrollment Trends in Undergraduate and Graduate Higher Education**

Higher education administrators regularly focus on undergraduate and graduate higher education enrollment trends as they are vital to the survival and financial success of their respective institutions as well as necessary in meeting institutional altruistic academic missions (Weisbrod et al., 2008; Zumeta et al., 2012). This has been especially true since the 2007-2009 fiscal crisis resulting in substantial decreases in state funding for public two- and four-year institutions. Enrollment numbers related to undergraduate students have been on the decline since the 2009-2010 academic year as college tuition has increased in response to decreases in state funding for public institutions. Between fall 2009 and fall 2020, total undergraduate
enrollment in degree-granting postsecondary institutions decreased by nine percent, from approximately 17.5 million to 15.9 million students (NCES, 2022).

Post-secondary enrollment was further affected by the recent COVID-19 worldwide pandemic. The pandemic caused a sudden and rapid shift to online forms of education and even closure of institutions that found themselves in unresolvable financial situations during the height of the pandemic. Lasting effects of decreased enrollment have been experienced across many institutions despite having mostly returned to previous in-person education formats (Conley & Massa, 2022). The shift to online education caused by COVID-19 resulted in sudden and substantial drops in student enrollment numbers across varying higher education institutions (NSCH, 2022). Enrollment estimates provided by the National Student Clearinghouse Research Center demonstrated declines across all institution types following the spring of 2020 (NSCH, 2022). Percent changes in enrollment from 2018 until 2022 by institutional sector can be viewed in Figure 10. Total post-secondary enrollment, including both undergraduate and graduate students, fell approximately four percent or by 685,000 students in spring 2022 compared to spring 2021 (NSCH, 2022). Declines in enrollment primarily consisted of reductions in undergraduate enrollment numbers. The undergraduate student body is now 9.4 percent or 1.4 million students smaller than prior to the pandemic. Trends in undergraduate enrollment are important to note when examining enrollment trends in physical therapy education programs. Fewer total number of undergraduate students enrolled in higher education reduces the total applicant pool from which potential graduate physical therapy professional students may originate. Total undergraduate enrollment is projected by the NCES (2022) to increase eight percent between 2020 and 2030 but may not reach levels pre-COVID for an extended period, which is concerning to many administrators that rely heavily on tuition funds for the financial
success of their institutions. This also has the potential to affect graduate program application rates and attendance further down the line from the decrease in potential applicant pool.

In contrast to undergraduate enrollment, graduate program enrollment numbers have held steady and even increased in areas over the past 10 years or more (NCES, 2022; NSCH, 2022). Enrollment increases were even observed during the first year of the pandemic, fueled by increases in non-traditional students and students from traditionally underrepresented minority groups accessing graduate higher education at numbers compensating for the decline in normal international student enrollments (Redden, 2021). In spring 2021, graduate/professional enrollment for all sectors increased by 4.6 percent (NSCH, 2022). In spring 2022, a slight decline of 0.8 percent was seen indicating there may be some slowdown in graduate/professional enrollment post COVID-19 (NSCH, 2022). Steady and even increasing graduate program enrollment is in opposition to what has been seen in graduate physical therapy enrollment trends over the past few years prior to the pandemic and is important to note. Steady rates and increases in graduate student enrollment numbers have been supported by the increase in untraditional students who desire flexibility in their graduate degree programs such as remote learning.

Increases in higher education flexibility has become increasingly possible with advances in technology so that busy, non-traditional students can more effectively balance work and personal life factors such as family or geographic location and access to educational programs fitting their needs. Graduate physical therapy programs, among most graduate healthcare programs, traditionally require full-time and in-person student attendance, therefore not usually allowing much in terms of flexibility. Online and hybrid programs in physical therapy have been emerging with at least eight online programs for entry level physical therapy degrees (Online Physical Therapy Programs, 2022). Formation and increases in non-traditional programs in physical
therapy offering increased flexibility for learners may affect future national enrollment numbers but have only been a factor for a limited period. More research, including the effects on national enrollment trends, will be needed after online programs have become further established, but sources within the physical therapy education arena are discussing the potential benefits of embracing more hybrid education models (Gagnon et al., 2020).
Figure 10

Percent Change in Enrollment by Institutional Sector, (2018-2022)

Note. Figure source: NSCH (2022)
Recent Enrollment Trends in Other Healthcare Profession Education

Other healthcare fields outside of physical therapy have experienced varying trends in student enrollment over the past few years, with a collection having experienced growth even in the wake of COVID-19. Information released on April 5, 2022, by the American Association of Colleges of Nursing (AACN) reported in 2021, student enrollment in entry-level baccalaureate nursing programs increased by 3.3% despite concerns the pandemic might discourage career seekers from entering the profession (AACN, 2022). Reports of healthcare worker burnout in response to the pandemic was widespread, especially amongst nursing professionals (Leo et al., 2021; Office of the U.S. Surgeon General, 2022; CDC, 2021). Concerns have been reports of healthcare worker burnout could potentially be influencing pre-professional students’ decisions on pursuing a career in all areas of healthcare.

Increases in nursing baccalaureate program enrollment numbers have been seen for each year starting in 2001. Increases in nursing enrollment have continued both during and following the COVID-19 pandemic. Enrollment for Doctor of Nursing Practice (DNP) programs increased by 4.0% continuing upward trends in place since 2002. Decreases of 3.8% were reported for nursing master’s program enrollment along with a 0.7% decline in PhD nursing program enrollment (AACN, 2022). Decreases in master’s program enrollment occurred for the first time since 2001, while enrollment in nursing PhD programs started a slow decline in 2013. Decreased numbers in nursing PhD enrollment primarily affects nursing education programs and their ability to hire qualified faculty to fill positions with little direct impact on clinical practice except for the ability of nursing education programs to maintain appropriate levels of faculty needed for program accreditation purposes and the training of future clinical professionals. The U.S. Bureau of Labor Statistics projects the job outlook for nurse anesthetists, nurse midwives, and nurse
practitioners will grow by 45% (much faster than average) with an addition of 121,400 professionals by 2030 (Bureau of Labor Statistics, 2022a).

Total applicant numbers to medical school programs within the U. S. published by the Association of American Medical Colleges (AAMC) demonstrated increases in all but four years since 2002. There was a 0.6% decline in total applicants that occurred in 2020 during the initial COVID-19 pandemic but then rebounded by 17.8% in 2021 for a total of 62,443 applicants, up from 53,030 the previous year (AAMC, 2021). The number of medical school enrollments has also increased in each year since 2002, with a +36.9% increase for the 2002-2021 period (AAMC, 2021). First year dental education enrollment trends in Commission on Dental Accreditation (CODA) accredited dental schools in the U. S. have increased by 2.8% from 2017-2021 with total enrollment increasing by 4.9% during the same period (ADA, 2022).

The occupational therapy profession, like physical therapy, has experienced declines in total applicants and application rates. The American Occupational Therapy Association (AOTA) reports a 23% decline in total applications for occupational therapy over the past six years (Harvison, 2022). Occupational therapy is experiencing the transition from primarily graduate master’s degree programs to doctorate programs with a current national blend of the two. During the past six years, master’s degree program seats decreased by 445 with 18,572 fewer applications while doctorate program seats grew by 2,116 with 7295 additional applications indicating the general trend in transitioning to doctorate degree granting programs. The available seats from combined master’s and doctorate programs increased by 21% over the past six years but combined admitted students have only increased by 10% (Harvison, 2022). For the 2021-2022 applicant year, the projected number of applicants was 8,468 which would be down approximately 17.79% from the previous admissions cycle (Harvison, 2022). The OT/OTA
enrollment report provided at the AOTA Academic Leadership Council Meeting reported continued declines in pharmacy application numbers, modest growth in physician assistant numbers, and massive growth in medicine, nursing, and public health application rates (Harvison, 2022). According to healthcare workforce modeling conducted by NCHWA (2019a), there is a projected OT supply surplus of 23,550 professionals by 2030 despite a projected increase in demand of 22% or 22,970 professionals.

Historical application rates in pharmacy education may provide information, insights, and foreshadowing into the declining physical therapy application rates at a time when education programs are opening in increasing numbers. In 2000, there were approximately 80 schools of pharmacy in the United States. According to the latest American Association of Colleges of Pharmacy (AACP) profile report, there are currently 142 accredited pharmacy programs representing a 177.5% increase in programs over the 21-year period (AACP, 2021). In addition to the expansion of recent programs, existing programs increased average class sizes leading to significant increases in the national pharmacy school seats available (Brown, 2020). Current workforce modeling by the NCHWA for the period of 2016-2030 predicts a surplus of 50,720 pharmacists if the status quo of patient care is maintained and a surplus of 18,640 pharmacists if an evolving care delivery system is initiated (NCHWA, 2019b). This demonstrates the pharmacy profession’s supply exceeding the job market, or demand, and its potential growth (Brown, 2020). The U.S. Bureau of Labor Statistics projects a two percent decline in the job outlook with a 7,000 job decrease from 2020-30 (Bureau of Labor Statistics, 2022b). Rapid expansion of pharmacy education programs feeding supplies of pharmacist professionals came at a time of popularity for pharmacy as a career field with colleges and universities wanting to take advantage of students seeking pharmacy graduate programs. The profession’s popularity has
been impacted in recent years reportedly due to increases in costs to obtain a degree, stagnant wage growth, and decreased growth of job opportunities for graduates including desirable jobs and job markets (Brown, 2020). Applicant and application rates numbers from PharmCAS starting in the 2003-04 application cycle can be viewed in Table 2.

Table 2

**PharmCAS Participation, Applicant, and Application Trends (2004-2021)**

<table>
<thead>
<tr>
<th>Cycle</th>
<th># Of Schools in PharmCAS</th>
<th># Of PharmCAS Applications</th>
<th>% Change</th>
<th># Of PharmCAS Applicants</th>
<th>% Change</th>
<th>Applications to Applicant Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>2003-04</td>
<td>43</td>
<td>43,055</td>
<td>--</td>
<td>13,722</td>
<td>--</td>
<td>3.14</td>
</tr>
<tr>
<td>2004-05</td>
<td>43</td>
<td>47,358</td>
<td>10.0%</td>
<td>14,433</td>
<td>5.2%</td>
<td>3.28</td>
</tr>
<tr>
<td>2005-06</td>
<td>45</td>
<td>56,396</td>
<td>19.1%</td>
<td>14,650</td>
<td>1.5%</td>
<td>3.85</td>
</tr>
<tr>
<td>2006-07</td>
<td>47</td>
<td>60,193</td>
<td>6.7%</td>
<td>14,869</td>
<td>1.5%</td>
<td>4.05</td>
</tr>
<tr>
<td>2007-08</td>
<td>59</td>
<td>71,403</td>
<td>18.6%</td>
<td>15,908</td>
<td>7.0%</td>
<td>4.49</td>
</tr>
<tr>
<td>2008-09</td>
<td>72</td>
<td>79,091</td>
<td>10.8%</td>
<td>16,246</td>
<td>2.1%</td>
<td>4.87</td>
</tr>
<tr>
<td>2009-10</td>
<td>86</td>
<td>86,350</td>
<td>9.2%</td>
<td>17,328</td>
<td>6.7%</td>
<td>4.98</td>
</tr>
<tr>
<td>2010-11</td>
<td>96</td>
<td>85,253</td>
<td>-1.3%</td>
<td>17,451</td>
<td>0.7%</td>
<td>4.89</td>
</tr>
<tr>
<td>2011-12</td>
<td>103</td>
<td>80,977</td>
<td>-5.0%</td>
<td>17,405</td>
<td>-0.3%</td>
<td>4.65</td>
</tr>
<tr>
<td>2012-13</td>
<td>110</td>
<td>80,497</td>
<td>-0.6%</td>
<td>17,617</td>
<td>1.2%</td>
<td>4.57</td>
</tr>
<tr>
<td>2013-14</td>
<td>116</td>
<td>79,313</td>
<td>-1.5%</td>
<td>17,225</td>
<td>-2.2%</td>
<td>4.60</td>
</tr>
<tr>
<td>2014-15</td>
<td>119</td>
<td>72,654</td>
<td>-8.4%</td>
<td>16,858</td>
<td>-2.1%</td>
<td>4.31</td>
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<tr>
<td>2015-16</td>
<td>124</td>
<td>68,918</td>
<td>-5.1%</td>
<td>16,369</td>
<td>-2.9%</td>
<td>4.21</td>
</tr>
<tr>
<td>2016-17</td>
<td>126</td>
<td>63,888</td>
<td>-7.3%</td>
<td>16,204</td>
<td>-1.0%</td>
<td>3.94</td>
</tr>
<tr>
<td>2017-18</td>
<td>129</td>
<td>51,020</td>
<td>-20.1%</td>
<td>15,886</td>
<td>-2.0%</td>
<td>3.21</td>
</tr>
<tr>
<td>Year</td>
<td>Applications</td>
<td>Acceptances</td>
<td>Acceptance Rate</td>
<td>Applicants</td>
<td>Acceptance Rate</td>
<td></td>
</tr>
<tr>
<td>-----------</td>
<td>--------------</td>
<td>-------------</td>
<td>----------------</td>
<td>------------</td>
<td>----------------</td>
<td></td>
</tr>
<tr>
<td>2018-19</td>
<td>133</td>
<td>43,268</td>
<td>-15.2%</td>
<td>15,335</td>
<td>-3.5%</td>
<td></td>
</tr>
<tr>
<td>2019-20</td>
<td>135</td>
<td>35,947</td>
<td>-16.9%</td>
<td>13,988</td>
<td>-8.8%</td>
<td></td>
</tr>
<tr>
<td>2020-21</td>
<td>134</td>
<td>36,006</td>
<td>0.2%</td>
<td>13,324</td>
<td>-4.7%</td>
<td></td>
</tr>
</tbody>
</table>

Note. Table source: PharmCAS (2020)

The AACP developed a central pharmacy application service similar in most regard to PTCAS. Like PTCAS, the PharmCAS service does not represent all application numbers but has grown in use throughout the years. For the 2020-2021 application cycle, PharmCAS was used by 134 out of the 142 accredited programs in the United States. The application trends provided by PharmCAS demonstrate growth through the early 2000s but then a decline in the total number of applications starting with the 2010-11 application cycle and the total number of applicants declining with the 2013-14 application cycle. The average enrollment of an entering class has dropped annually since 2012, from 124 to 102 (Brown, 2020).

In the 2020-21 admissions cycle, 88.6% of applicants were accepted into a pharmacy program which has led to many concerns from faculty about the quality of applicants and concerns on whether admission standards will be lowered in response to decreased application rates (Brown, 2020). The attrition rate for the class of 2021 increased to 13.1% compared to 12.5% in 2020 which may support this concern and could become a continued issue for program pass rates as well as rates of graduates that pass the national pharmacy licensure examination call the NAPLEX. Decreased graduation rates and national licensure pass rates often determine a program’s success and ability to maintain accreditation. Conversely, decreased enrollment rates mean budget shortfalls and difficulty in maintaining program needs including facilities, equipment, supplies, and faculty.
Potential lessons learned from the pharmacy profession’s rapid expansion of educational programs demonstrates the importance and the need of controlled growth and balance with the current healthcare job market demand. Another important factor is for a profession to work hard to maintain the value of the degree of career within their field otherwise potential students may not be willing to pursue it as a career and thus potentially affecting the supply, regardless of demand, through the inability to recruit needed students with the academic ability and skills to be successful in the education programs and professional practice (Brown, 2020).

Career Choice Research in Physical Therapy

To date, limited research has explored reasonings or factors related to pre-professional students choosing physical therapy as a career. Research has explored the reasons for why students who already had decided to pursue a career in physical therapy chose the program(s) in which they apply and ultimately attended such as exploring program selection factor differences between sexes (Johanson, 2007; Rozier et al., 1998a; Rozier et al., 1998b; Rozier et al., 2001) and between racial/ethnic or minority groups (Johanson, 2007; Wilcox et al., 2005). Other points of research have focused on predictors of academic performance once in a professional physical therapy program, success in completion of the physical therapy program, successful passing the board licensure examination, and predictors of attrition rates (Andrews et al., 2006; Fell et al., 2015; Noonan et al., 2012; Wheeler et al., 2018). Additionally, areas of research have explored factors contributing to why physical therapy students or new graduates develop interest in certain areas of physical therapy practice including pursuit of residency programs and factors leading to development of professional career identities (Osborne et al., 2020; Pearl, 1990). Finally, research has explored factors contributing to satisfaction of job and career choice amongst already licensed therapists (Briggs et al., 2022). A study conducted by Tsuda et al. (1982)
explored factors influencing high school students’ knowledge of the physical therapy profession. Stated study objectives included helping to improve efforts of recruitment through introduction of the physical therapy career during late adolescence when students often begin contemplating careers. Tsuda et al., (1982) focused on awareness factors and did not explore factors contributing to students’ interests in the profession or decision to pursue it as a career option. This research was also conducted at a time before the entry-level degree in physical therapy was primarily at a graduate level.

A recent study conducted by Fuente-Vidal et al., (2021) did explore factors influencing student choice of physiotherapy as a career for pre-professional students in Catalonia, Spain. Results pointed to primary determinant factors being a desire to help others, the relationship between physiotherapy and sports, physiotherapy involving manual work, and it being perceived as providing multiple job opportunities (Fuente-Vidal et al., 2021). A similar study conducted years earlier explored factors influencing Zimbabwean physiotherapy students in choosing physiotherapy as a career. Authors found students’ previous performance in school, job availability, and the desire to help others to be important to their decision making (T. Mkondo et al., 2007). Both studies contain areas of insight into reasoning for pre-professional student choices in physical therapy but involved pre-professional student populations outside of the U. S., therefore exposed to differences in social, economic, educational, and professional factors when investigating physical therapy as a potential career choice. Both studies highlighted similar reasonings for students pursuing a career in physical therapy which included job availability, career opportunities, and the desire to help others.
Career Choice Theory

*Frank Parson’s Choosing a Vocation*

Multiple career theories have been proposed throughout the years guiding the career planning and counseling professions. The roots of career development theory and vocational guidance initially emerged with Frank Parson’s book, *Choosing a Vocation* (1909), in which Parson introduced one of the first ever conceptual frameworks for career decision making and advocated for the need for more methodical and scientific approaches to vocational selection. Parson argued the selection of a vocation was one of the most important choices in one’s life and guidance was needed to help young individuals choose their career for which they would be best suited based on careful analysis of crucial factors to improve both their job satisfaction and success. Parson advocated for the need of individuals to develop a sense of their aptitudes and abilities and compare them with that of their interests, ambitions, resources, and limitations regarding employment (Parson, 1909). The work by Frank Parson laid the foundation of what is now known as Trait and Factor Theories of occupational or career choice. Since the initial work by Parson, multiple career theories have been developed with some focusing on what factors contribute to career choice and others focusing on the outcomes that career choice have had on a person’s job satisfaction and success in life.

*Holland’s Theory of Personalities in Work Environments*

One of the most well-known career development theories is characterized as a trait and factor or typological theory developed by John Holland and first presented in 1959 (Brown et al., 2002, Chapter 9). Holland’s theory of differing interest personalities and work environments is one of the most researched and influential career development theories ever developed. Holland has been one of the principal proponents of the person-environment interaction position in
vocational psychology. Holland pursued this by primarily researching how different personality interest types influence the choice of one’s career, which in large part consists of the job environment they choose to participate in based on their own hierarchy of adjustive orientations or their person-environment fit (Brown et al., 2002, Chapter 9). Holland’s theory put forth six primary personality interest types that influence career selection: Realistic, investigative, artistic, social, enterprising, and conventional along with six model work environments by the same six names. Holland theorizes that people search for environments that will let them exercise their skills and abilities, express their attitudes and values, and take on agreeable problems and roles with behavior being determined by an interaction between personality and environment (Brown et al., 2002, Chapter 9). Further, the theory predicts that the higher the degree of congruence between individual and occupational characteristics, the better the potential for positive career-related outcomes including satisfaction, persistence, and achievement.

The research resulting from Holland’s theory has led to easy-to-use assessment tools that can be implemented by career or guidance counselors and educators when helping guide young students first exploring their own interests and preferences on what careers or career environments, they may have a higher affinity for. The straightforward application and pragmatic nature of the developed tools has made it an extremely popular career choice theory and used in a variety of settings. One popular scale called the Vocational Preference Inventory, or VPI, is made up of eleven scales that provide information regarding the test taker’s interests, self-conceptions, interpersonal relationships, and coping behaviors. Six of the scales measure Holland’s vocational personality types and make up what is commonly referred to as the ‘RIASEC’ hexagonal dimensional model of personality and environments central to Holland’s theory. The scoring results in a three-letter code standing for the three personality interest types
most representing the individual’s areas of interests, with the highest scored interest appearing first. According to information found on O*NET OnLine, a career exploration and job analysis tool sponsored by the U.S. Department of Labor Employment & Training Administration, physical therapy’s interest code is SIR (O*NET OnLine, 2022). This stands for the personality interest types of social, investigative, and realistic. This is supported by the two studies mentioned previously (Fuente-Vidal et al., 2021; T. Mkondo et al., 2007) which found working with others and being in a heavily manual job were principal factors in the selection of physical therapy as a career. The O*NET OnLine website also supplies information on abilities, skills, knowledge, education, work values, and work styles corresponding to physical therapy that have all been based on vocational career information, heavily influenced by Holland’s theory and research.

Despite the popularity and widespread use of Holland’s theory and vocational selection tools, criticism does exist as to the global utility and applicability of the theory. Holland’s theory argues that the person-environment interaction dictates behavior, acknowledging as the theory has developed over time, along with the contributing influences of family, friends, and other sources influencing the environment and overall development of the person. More recent sociologically based theories have pointed to the possibility of one’s behavior also contributing to changes in the person and environment instead of itself only being an outcome of the interaction between person and their environment (Brown et al., 2002, Chapter 1). Sociological based theories have investigated concepts that individuals continually change due to their behaviors and cognitive thought processes concerning their current situations with these changes playing key roles in development including interests and career choices (Brown et al., 2002, Chapter 1). The increasing focus on cognitive variables and processes that help govern
career behavior have influenced recent theories. Unlike the more static personality interest and work environment assumptions central to Holland’s theory and similar career choice theories, various newer theories have explored factors contributing to career choice that may be more fluid and continuously changing. These changes may often be found in background and contextual factors, how the individual reacts to those variables, and their experiences making individuals an active shaper of their career development. Concepts of self-efficacy and outcome expectations have been recognized to be important and influential for interests, choice goals, choice actions, and performance which then go on to affect learning experiences and thus self-concepts on personality and interests (Brown et al., 2002, Chapter 1). The cultural utility of Holland’s theory, among others, have also come into question since many of these theories were based on the research of career choice related primarily to Caucasian males (Brown et al., 2002, Chapter 1). More recent theories have tried to develop constructs intending to acknowledge historically underrepresented groups allowing for wider utility for multiple populations when exploring career choice.

Social Cognitive Career Choice Theory (SCCT)

Despite such a variety of career or vocational theories, it is recognized that many have commonalities but differ in focus and language used to describe numerous but often similar constructs. This has been especially true since the major theories have continually changed and evolved over the years intending to account for research advances made in vocational psychology and sociology. Multiple of the more influential theories have the common aim of predicting the degree of fit or congruence between people’s personalities and their occupations (Brown et al., 2002, Chapter 7). Osipow (1990) suggested that if certain bridging constructs between and among the influential theories could be identified and similarly defined, an
integrated theory of career choice and development may appear. Increased discussion and focus among career development researchers have surrounded the idea of theory convergence, as they have continually evolved and adapted more similar constructs and the advantages it may bring to vocational research (Lent & Savickas, 1994). One theory, called social cognitive career theory or SCCT, developed by Robert Lent, Steven Brown, and Gail Hackett in 1994 (Lent et al., 1994) has attempted to do just that through integration of the more influential theories.

During development, SCCT was inspired by the focus on theoretical convergence discussions in vocational psychology by attempting to complement, or build conceptual linkages, with other theories of career development. SCCT was inspired and influenced by vocational psychology, various psychological and counseling domains, and the cognitive sciences (Brown et al., 2002, Chapter 7). Development of the theory worked to trace the complex connections between persons and their career related contexts, between cognitive and interpersonal factors, and between self-directed and externally imposed influence on career behavior and therefore offering a potential unifying framework (Brown et al., 2002, Chapter 7).

The roots of SCCT are credited to be from the innovative work by Albert Bandura and his general social cognitive theory (Bandura, 1986). Bandura’s work has been used in applications for a wide range of psychosocial domains by emphasizing the interplay between self-referent thought and social processes in guiding human behavior (Brown et al., 2002, Chapter 7). The basic building blocks used in SCCT from the general social cognitive theory developed by Bandura are: 1) Self-efficacy, 2) outcome expectations, and 3) personal goals. Self-efficacy refers to a person’s beliefs about their capabilities to perform certain behaviors or courses of action. Self-efficacy is not static, nor can it be taken out of situational context, but involves a dynamic set of self-beliefs about one’s own abilities in a particular situation or
attempt at a specific activity and the complex interactions of the person, behavior, and environment that has taken place to develop those self-beliefs (Brown et al., 2002, Chapter 7). Self-efficacy beliefs are gained and shaped through specific types of learning experiences such as: 1) Personal performance accomplishments, 2) vicarious learning (e.g., observing others), 3) social persuasion, and 4) physiological and affective states (Bandura, 1997). SCCT assumes that individuals are more likely to become interested in and choose to pursue a particular career path if the career involves activities in which they have strong self-efficacy beliefs and if they have the knowledge, skills, and environmental support needed to pursue that chosen career.

Outcome expectations are described as personal beliefs about consequences or outcomes of performing behaviors in situations (e.g., what will happen if I do this?) (Brown et al., 2002, Chapter 7). The choices about what activities or interests a person will engage in are often made in relation to their outcome expectations and what will happen if they engage in that activity. Individuals are more likely to engage in an activity if they view their participation will lead to positive outcomes including a mix of both intrinsic and extrinsic reinforcements (e.g., social and/or self-approval, monitory gains, desirable work conditions, improved quality of life, etc.). Like self-efficacy, outcome expectations are gained through learning experiences. Individuals’ engagement in activities, including the degree of effort and persistence placed in taking part in them, are in large part determined by combinations of self-efficacy beliefs and outcome expectations. Personal goals are defined as the determination to engage in a particular activity, affect a particular future outcome, or reach a certain level of performance (Bandura, 1986). By setting goals, individuals organize, guide, and sustain their behaviors over short or extended periods of time. This demonstrates that self-efficacy, outcome expectations, personal inputs, background environmental influences, and behavioral choices may not always be determined by
short term positive or negative feedback loops and that individuals may sustain more long-term goals in the absence of reinforcement and in the occurrence of setbacks.

SCCT includes two types of goals referred to as intention goals for activity involvement, or choice goals, and performance attainment goals that include performance outcomes expectations. Choice goals are made based on the person’s interests and are affected by proximal environmental influences that include both support and barriers that occur during choice-making (Brown et al., 2002, Chapter 7). Performance outcome expectations are decided by individual’s following their choice goals and choice actions which then provide feedback which either positively or negatively affects a learning experience and therefore future self-efficacy and outcome expectations related to the activity.

SCCT framework has three separate but interlocking models for development of: 1) Career-related or academic interest, 2) career-related or academic choice, and 3) career-related or academic performance. Interests related to a person’s likes, dislikes, and indifferences of an activity or occupation are important determinants of career choice. The SCCT career interest model (see Figure 11) emphasizes both the experiential and cognitive factors that give rise to career-related interest, while also demonstrating interest’s role in helping motivate choice behaviors including skill and knowledge attainment. The interest development model demonstrates that interests arise jointly from self-efficacy beliefs and outcome expectations, meaning people most often develop interests in certain career and academic pursuits if they think they will do well in them, and participation will lead to desirable outcomes. Primarily throughout adolescence and young adulthood, but also beyond, individuals are exposed to a variety of activities heavily influenced or dependent on their own individual environmental situations and context. Development of interest and participation in these activities is mediated by the person’s
self-efficacy and outcome expectations related to the activities and how participation and outcomes influence further interest and continued involvement. Continued activity involvement, practice, and feedback causes the individual to refine their skills, develop personal performance standards, form their sense of self efficacy, and develop expectations about outcomes. Interests are unlikely to develop in areas where individuals have low self-efficacy, expect negative outcomes, or in environments that do not support the development of their self-efficacy or outcome expectations even if they have a level of talent or potential for talent. Aptitudes can only be fostered if there is environmental support for its development and is theorized to affect the development of self-efficacy expectations under SCCT (Brown et al., 2002, chapter 7). Past experiences also come into effect with influencing self-efficacy development. Work expectations or desires for work environments and/or conditions are theorized to affect outcome expectations which in turn affects interest development along with goal and performance outcome expectations.

**Figure 11**

*SCCT model of how basic career interests develop over time.*

*Note:* Figure source: Lent et al. (1994).
The career choice model (see Figure 12) highlights the diverse person, contextual, and learning influences on choice behavior. Like the interest development model, self-efficacy and outcome expectations combine to promote career-related interests. Interests then serve as important influences on goals or choice goals, and choice goals stimulate actions designed to implement those goals called choice actions. SCCT, like Holland’s theory, hypothesizes individuals will choose occupations in which they have developed interests. When in the development phase of career choice, interests influence choice goals and actions which then supplies performance feedback for learning experiences that either positively or negatively affects the individual’s self-efficacy and outcome expectations continually directing career interest and corresponding goals. The career choice model also hypothesizes that choices are heavily influenced by contextual influences, in other words interest development, the person’s environment, and context may direct career choice. If an individual wishes to pursue a particular career but does not have crucial factors such as social support, financial support, or physical access, those conditions may prevent the person from pursuing that career path. When people perceive a need to compromise their career interests because of limited or a lack of opportunities, barriers, or a non-supportive environment, their choices may more likely be made due to necessity, job availability, self-efficacy beliefs, and outcome expectations (Brown et al., 2002, chapter 7).
The final model, SCCT’s model of task performance (see Figure 13), is concerned with the quality of individual’s activity accomplishments and persistence of behavior in career-related pursuits (Brown et al., 2002, chapter 7). As with previous models, a strong correlation exists between a person’s ability in performing certain activity and their self-efficacy, outcome expectations, and goals related to that activity. Ability itself affects performance, both directly and indirectly, through its impact on self-efficacy and outcome expectations. Self-efficacy and outcome expectations in turn affect the level of performance goals that people set for themselves; with performance of the activity then providing feedback that affects self-efficacy and outcome expectations. Self-efficacy can uniquely affect task performance in that an individual may have adequate ability but if their self-efficacy does not match that ability, they may be reluctant to attempt performance in unfamiliar or challenging situations. When individuals underestimate their abilities, they are more likely to give up more easily, set lower performance goal
expectations, experience performance anxiety, and avoid challenges even when they are capable (Brown et al., 2002, chapter 7). On the other side, individuals who overestimate their self-efficacy may try challenges they are unprepared for resulting in failure and discouragement from future attempts or participation. The most beneficial self-efficacy beliefs are those that modestly exceed one’s current ability level (Bandura, 1986). Performance is important to interest development and career choice behaviors because of its heavy influence on self-efficacy development and outcome expectations.

Figure 13

*SCCT model of task performance*

![SCCT model of task performance](image)

*Note:* Figure source: Lent et al. (1994).

**Healthcare Career Choice (HCC) Questionnaire**

The Healthcare Career Choice (HCC) scale was developed by Liaw et al. (2017) with the intention of creating an instrument that could compare factors influencing healthcare career choice and then compare those with perceptions of nursing as a career choice. The intention was to investigate key factors important for stakeholders to consider when developing recruitment.
strategies with the goal of maintaining supply equal to that of demand. Liaw et al. (2017) stated that various healthcare career students have been found to be motivated by differing factors and those differences were important to consider when working to recruit and retain new professionals within healthcare career fields such as nursing. The authors also created a Nursing Career Choice (NCC) scale that would be used in comparisons with the HCC, with the comparisons modeled after a similarly structured and validated instrument called the ‘Indiana Instrument.’ The ‘Indiana Instrument’ is an instrument designed to compare differences in attitudes between an ‘ideal career’ and ‘nursing as a career’ (Liaw et al., 2017). Both the HCC and the NCC scales were initially developed through a qualitative exploratory descriptive study involving fifty-nine first-year healthcare students from dentistry, dental hygiene, medicine, nursing, pharmacy, physiotherapy, and occupational therapy. Six themes emerged from the qualitative analysis including: 1) personal interest, 2) prior healthcare exposure, 3) academic performance, 4) perceived nature of work, 5) job prospects, and 6) social influences.

The HCC and NCC authors did not specifically discuss social cognitive career theory or any other career decision theory supplying the conceptual framework from which the scales were developed. When the themes and developed subscales that make up both questionnaires are examined, they correlate with the primary components of SCCT and fit well within the three interlocking models. Prior healthcare exposure and social influences can be likened to personal background or contextual influences identified as important to career decision making. Academic performance is a component of self-efficacy beliefs and their impact on the interest development, career decision making process, and task performance. The perceived nature of work and job prospects can be explained by the outcome expectations component of the SCCT and how they contribute to interest development, career choice, and task performance. Finally, personal
interests are shaped by self-efficacy beliefs and outcome expectations and are a large component of career choice dependent upon contextual factors and support available. Again, even though SCCT was not formally identified by Liaw et al. (2017), the constructs identified through their qualitative exploratory descriptive analysis are supported by the key constructs that make up social cognitive career theory.
CHAPTER III: METHODOLOGY

The research question for this investigation aims to explore what is the extent of the relationship between factors identified to influence healthcare career choice (i.e., personal interest, prior healthcare exposure, academic self-efficacy, perceived nature of work, job prospects, social influences) and an individual’s self-perceived likelihood of applying to a physical therapy program? The current research hypothesis under consideration is the existence of a positive correlation between identified factors influencing healthcare career choice and a student’s self-perceived likelihood of applying to a physical therapy program. Identified factors may correlate to varying degrees, thus potentially having a greater or lesser relationship with individuals’ decisions to pursue physical therapy as a career. Differences in potential factors influencing the likelihood, or intention, to apply is important at a time when national application rates to physical therapy programs are on the decline while the number of accredited programs are on the rise (CAPTE, 2021a). Education programs need to be aware of what factors may be playing a role, and to what extent, in influencing individuals to pursue a career within the field of physical therapy while still in the fluid career contemplation or decision-making phase. This will allow education programs to better market themselves as well as direct potential initiatives intended to interest and recruit future professionals to ensure continued growth and advancement of the profession.

Participants

Participants will be undergraduate college students at various two- or four-year higher education institutions located in the east south-central region of the U.S. (i.e., AL, KY,
MS, TN) currently considering or having previously considered physical therapy as a potential career choice. Application, attendance, and graduation from an accredited graduate physical therapy education program is necessary for eligibility to sit for a state practice licensure within the U.S. therefore a necessity for anyone wishing to pursue being a physical therapist as a career. Students will be sent a participation email and link through their health career professions advisor offices, program advisor offices, or faculty for those degree programs from which physical therapy applicants most commonly originate at their respective institutions (e.g., exercise science, kinesiology, biomechanics, pre-physical therapy, etc.) or in courses in which many potential healthcare students take as part of their undergraduate preparation (e.g., biology, physiology, anatomy, etc.). The email will have information on the study aim and a link to a survey that includes informed consent and IRB information important for participant knowledge.

Prior to the conduction of the study, an a priori power analysis for linear multiple regression was conducted using six pre-identified predictors (i.e., personal interest, prior healthcare exposure, academic self-efficacy, perceived nature of work, job prospects, and social influences), a medium effect size ($f^2 = 0.15$), alpha level of .05, and power level of .80 indicating the need for a total sample size of 98 participants. An a priori power analysis was calculated through use of G*Power 3.1 statistical power analysis tool (Faul et al., 2009; Faul et al., 2007).

Design

A univariate correlational research design will be used to examine the extent of the relationship between factors identified to influence healthcare career choice (i.e., personal interest, prior healthcare exposure, academic self-efficacy, perceived nature of work, job prospects, social influences) and an individual’s self-perceived likelihood of applying to a physical therapy program. The criterion variable used will be the participants self-perception
scoring on a 0- to 10-point scale in 1-point increments representing the likelihood that they will be applying to a physical therapy program. Predictor variables represent key factors in healthcare career choice identified through literature search and measured through use of a modified version of the Healthcare Career Choice (HCC) scale instrument developed by Liaw et al. (2017).

Measures

As mentioned above, the criterion variable will be measured using a 0- to 10-point scale (0 = extremely unlikely, 10 = extremely likely) presented in 1-point increments asking the student to rate their current likelihood of applying to a graduate physical therapy program. Using a single item variable is often viewed as not being ideal due to potential issues of low content evidence or validity, lowered sensitivity, and lack of internal-consistency reliability. The construct in this instance is the student’s self-perceived likelihood to apply to a physical therapy program in the future, which is simplistic, unambiguous, and narrow enough in scope to allow the use of the single item 0-10 measure to adequately represent the student’s own self-reported current likelihood of applying based on their current perceptions, feelings, and attitudes (Allen et al., 2022; Fuches & Diamantopoulos, 2009).

The predictor variables will be measured using a modified version of the Healthcare Career Choice (HCC) scale instrument developed by Liaw et al. (2017). The instrument was developed first through exploration of themes influencing career choice and perception of nursing and other healthcare students through a qualitative exploratory descriptive study. After themes were established, specific items related to each theme were developed from participant wording during qualitative study focus group discussions, broad literature review including existing instruments, and the developers’ own experiences and inferential learning. The items were then shared with content experts that were invited to evaluate and provide feedback.
Following content expert suggested changes, the instrument was piloted to ensure clarity of items, formatting, establish estimated completion times, and performance of preliminary checks on internal consistency of the scale. The instrument used for this investigation will be slightly modified in wording from the original measure to better adapt its usage for students considering a career in physical therapy. Measures of instrument internal consistency following alternations will be examined through calculations of Cronbach’s alpha.

The instrument is made up of six developed themes, or subscales, in the areas of: 1) Personal interest, 2) prior healthcare exposure, 3) academic self-efficacy, 4) perceived nature of work, 5) job prospects, and 6) social influences. The scale has thirty-five items total with each subscale theme being made up of 4-8 items. Each item is measured using a 5-point Likert type scale (1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree) with higher scores indicating a more influential career attribute. Each subscale begins with a statement primer such as “I have made my current career choice because” followed by a completion statement for each item such as “I desire to help others” which appears under the personal interest subscale. For purposes of this investigation, subscale sentence primers will be slightly altered to fit the intended research purpose. An example using the previously mentioned sentence primer, “I have made my current career choice because” would be changed to say, “I am considering or have previously considered physical therapy as a career choice because” to better reflect the intended constructs desired to be measured based on research target population.

The internal structure of the original measure was analyzed first through principal component analysis (PCA), with removal of factors, and then through exploratory factor analysis (EFA) to arrive at the six factors included within the measure. EFA demonstrated strong factor loadings ranging from 0.48 to 0.82. Factor one, personal interest, consisted of five items with
factor loadings of 0.57 to 0.84 and accounted for 12.60% of the variance in the model. Factor two, prior healthcare exposure, consisted of six items with factor loadings of 0.55 to 0.78 and accounted for 12.11% of the variance. Factor three, academic self-efficacy, composed of four items with factor loadings of 0.49 to 0.73 and accounting for 10.71% of the variance. Factor four, perceived nature of work, consisted of six items with factor loadings of 0.41 to 0.77 and accounted for 10.21% of the variance. Factor five, job prospects, consisted of seven items with factor loadings of 0.44 to 0.79 and accounted for 7.78% of the variance. Factor six, social influences, consisted of eight items with factor loadings of 0.45 to 0.79 and accounted for 6.32% of the model.

Internal consistency and inter-item correlations were analyzed through calculations of Cronbach’s alpha. The Cronbach’s alpha of the six subscales ranged from 0.71 to 0.89. The correlation coefficients between items and their respective subscales ranged between 0.39 and 0.78. The overall Cronbach’s alpha for all thirty-five items was 0.93. The test-retest reliability was examined with the intraclass correlation coefficient (ICC) and found to be 0.63 [95% CI (0.267, 0.813)] demonstrating moderate reliability.

Procedure

Prior to any data collection, Institutional Review Board approval through the University of Mississippi IRB and the University of Mississippi Medical Center IRB will be sought and granted to ensure all ethical questions and considerations of human subject research will have been addressed. Part of the process will be approval of the participant informed consent process to ensure participants are aware of the study purpose as well as their individual rights regarding participation along with the participant recruitment process. Once approved, data will be collected through development of a survey instrument using Qualtrics online survey software.
The survey will include basic demographic information including gender, race/ethnicity, age, and undergraduate degree program, but also additional information potentially correlating to a likelihood of applying to a physical therapy program based on recent concerns in the literature, namely the participants self-perceived projection for total costs related to obtaining a physical therapy degree and expected starting salaries for physical therapists directly out of school. Additional open-ended questions will include opportunities for the participant to discuss and add depth to the exploration of identified healthcare career choice factors by discussing how they first learned about the physical therapy profession, self-perceived facilitators and barriers to pursuing physical therapy as a career, whether they have completed any observations, job-shadowing, or internships within physical therapy, and what additional pieces of information do they wish were more available when making decisions regarding pursuit of physical therapy as a career. An open-ended question on what other career choices in addition to physical therapy the participant has or is considering will be included to establish what other career options may be most directly competing with potential applicants.

The finalized survey instrument will be distributed to contacts in healthcare career advising offices at the identified higher education institutions that have contact with undergraduate students considering multiple or specific healthcare careers. Degree program advisors for those degrees commonly meeting all inclusion criteria for application into physical therapy programs will also be contacted and asked to distribute the survey link to students that may be considering physical therapy as a career choice.

**Data Analysis**

Multiple regression will be used for statistical analysis since there is one criterion variable with two or more predictor variables to be included (Pituch & Stevens, 2016).
Descriptive statistics (i.e., mean, standard deviation, Pearson $r$) for each variable will be reported. Multicollinearity will be investigated by examining the variance inflation factor or VIF. If VIFs greater than five are found, resolution will be sought through combination of the predictor variables. Evaluation of the model will be reported along with statistical significance, or $p$-value, through use of the $F$-test statistic and evaluated at the $p = 0.05$ statistical significance level. The practical significance, or effect size, of the model will be evaluated through reporting of the $R^2$ statistic, representing the amount of variance accounted for in the model. Evaluation of $R^2$ will follow recommendations by Cohen (1992), with effect size interpretations of: small = 0.02, medium = 0.13, and large = 0.26. If the model is found to be statistically significant ($p < 0.05$), then evaluation of the relationship of each predictor variable to the criterion variable through statistical significance as well as practical significant will be reported to determine which predictor variables are contributing to the model. Statistical significance will be evaluated through $t$-tests of the beta weights and evaluated at the $p = 0.05$ level. Practical significance for each predictor variable will be reported through squared semi-partial correlation coefficients ($sr^2$) which calculates the unique amount of variance in the model from each predictor variable, considering error. All statistical analysis will be conducted using JASP version 17.1 software (JASP Team, 2023).
CHAPTER IV: RESULTS

A multiple regression analysis was conducted on self-reported likelihood of applying to a graduate Doctor of Physical Therapy program based on factors identified to influence healthcare career choice (i.e., personal interest, prior healthcare exposure, academic self-efficacy, perceived nature of work, job prospects, social influences). An alpha level of .05 was utilized for this analysis. A total of 182 responses to the survey instrument were received from various higher education institutions located in the states of Alabama, Mississippi, Kentucky, and Tennessee. Respondents were higher education undergraduate students ($M_{age} = 21.78$, $SD = 4.51$) ranging from 18-45 years of age. Participants identified as male ($n = 51$, 28.02%), and female ($n = 130$, 71.43%), with some respondents preferring not to say ($n = 1$, 0.55%) (see Table 3). Respondents described themselves as American Indian/Alaska Native ($n = 1$, 0.55%), Asian ($n = 1$, 0.55%), Black or African American, non-Hispanic ($n = 46$, 25.27%), Hispanic or Latino or Spanish Origin of any race ($n = 9$, 4.95%), White/Caucasian, non-Hispanic ($n = 115$, 63.19%), and multi-racial ($n = 8$, 4.49%), with some participants preferring not to say ($n = 2$, 1.10%) (see Table 4).

Table 3 - Frequencies for Reported Sex/Gender

<table>
<thead>
<tr>
<th>Sex/Gender</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>51</td>
<td>28.02</td>
<td>28.02</td>
<td>28.02</td>
</tr>
<tr>
<td>Female</td>
<td>130</td>
<td>71.43</td>
<td>71.3</td>
<td>99.45</td>
</tr>
<tr>
<td>Prefer not to say</td>
<td>1</td>
<td>0.55</td>
<td>0.55</td>
<td>100.00</td>
</tr>
<tr>
<td>Missing</td>
<td>0</td>
<td>0.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>182</td>
<td>100.00</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 4 - Frequencies for Race/Ethnicity

<table>
<thead>
<tr>
<th>Race/Ethnicity</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>American Indian/Alaska Native</td>
<td>1</td>
<td>0.55</td>
<td>0.55</td>
<td>0.55</td>
</tr>
<tr>
<td>Asian</td>
<td>1</td>
<td>0.55</td>
<td>0.55</td>
<td>1.10</td>
</tr>
<tr>
<td>Black or African American, non-Hispanic</td>
<td>46</td>
<td>25.27</td>
<td>25.27</td>
<td>26.37</td>
</tr>
<tr>
<td>Hispanic or Latino or Spanish Origin</td>
<td>9</td>
<td>4.95</td>
<td>4.95</td>
<td>31.32</td>
</tr>
<tr>
<td>White/Caucasian, non-Hispanic</td>
<td>115</td>
<td>63.19</td>
<td>63.19</td>
<td>94.51</td>
</tr>
<tr>
<td>Multi-racial</td>
<td>8</td>
<td>4.39</td>
<td>4.39</td>
<td>98.90</td>
</tr>
<tr>
<td>Prefer not to say</td>
<td>2</td>
<td>1.01</td>
<td>1.01</td>
<td>100.00</td>
</tr>
<tr>
<td>Missing</td>
<td>0</td>
<td>0.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>182</td>
<td>100.00</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Most respondents reported attending 4-year public institutions \((n = 131, 71.99\%)\), followed by 4-year private institutions \((n = 37, 20.32\%)\), and finally community colleges \((n = 14, 7.69\%)\) (see Table 5). Respondents reported a wide variety of current undergraduate degree majors. Most degree programs were related to the sciences, with kinesiology being the most widely reported \((n = 86)\), followed by exercise science/physiology \((n = 12)\), sports analytics/business/management \((n = 10)\), and pre-physical therapy \((n = 8)\) rounding off the top four majors (see Figure 14). Close to two-thirds of respondents reported having participated in some form of physical therapy career observation, shadowing, or internship to date \((n = 115, 63.19\%)\) with the remainder reporting having not yet done so \((n = 67, 36.81\%)\). Median respondent’s anticipated cost of attending a Doctor of Physical Therapy program was calculated as $158,989.00 with the median anticipated entry level salary being $84,251.00. For those respondents that reported their current level of student debt \((n = 179)\), the median debt level was calculated at $18,248 (see Table 6). Medians are reported for the anticipated cost of attendance, entry level salaries, and current debt due to both the low and high extreme values recorded for each measure, with means found in Table 6.
Table 5 - Frequencies for Institution Type

<table>
<thead>
<tr>
<th>Institution Type</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Community College</td>
<td>14</td>
<td>7.69</td>
<td>7.69</td>
<td>7.69</td>
</tr>
<tr>
<td>4-Year Public</td>
<td>131</td>
<td>71.99</td>
<td>71.99</td>
<td>79.68</td>
</tr>
<tr>
<td>4-Year Private</td>
<td>37</td>
<td>20.32</td>
<td>20.32</td>
<td>100.00</td>
</tr>
<tr>
<td>Missing</td>
<td>0</td>
<td>0.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>182</td>
<td>100.00</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 6 - Descriptive Statistics for Anticipated PT Education Cost, Anticipated Entry Level PT Salary, and Current Level of Student Debt (In U.S. Dollars)

<table>
<thead>
<tr>
<th></th>
<th>Anticipated Cost</th>
<th>Anticipated Salary</th>
<th>Current Debt</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid</td>
<td>182</td>
<td>181</td>
<td>179</td>
</tr>
<tr>
<td>Missing</td>
<td>0</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Median</td>
<td>158989.00</td>
<td>84251.00</td>
<td>18248.00</td>
</tr>
<tr>
<td>Mean</td>
<td>162633.41</td>
<td>92990.91</td>
<td>34126.05</td>
</tr>
<tr>
<td>Std. Deviation</td>
<td>70676.85</td>
<td>40696.97</td>
<td>40268.97</td>
</tr>
<tr>
<td>Minimum</td>
<td>11200.00</td>
<td>8679.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Maximum</td>
<td>350000.00</td>
<td>250000.00</td>
<td>227601.00</td>
</tr>
</tbody>
</table>

Measures of internal consistency for the full 35-item instrument following modifications of the original Healthcare Career Choice (HCC) instrument was evaluated through use of Cronbach’s alpha calculated at $\alpha = 0.90$ (95% CI [0.87, 0.92]), indicating strong internal consistency of the instrument’s items (see Table 7). Cronbach’s alpha of the original instrument was reported at 0.93 indicating internal consistency of the instrument remained despite slight modification of wording to meet the specific needs of this study.
Figure 14

Reported Undergraduate Degree Majors
Table 7 - Frequentist Scale Reliability Statistics of Survey Instrument

<table>
<thead>
<tr>
<th>Estimate</th>
<th>Cronbach's α</th>
</tr>
</thead>
<tbody>
<tr>
<td>Point estimate</td>
<td>0.90</td>
</tr>
<tr>
<td>95% CI lower bound</td>
<td>0.87</td>
</tr>
<tr>
<td>95% CI upper bound</td>
<td>0.92</td>
</tr>
</tbody>
</table>

Recorded likelihood scores on a 0–10-point scale from respondents appeared negatively skewed and possibly platykurtic based on visual inspection of distribution plots, box plots, and Q-Q plots (See Figures 15, 16, & 17). Further inspection of skewness and kurtosis through descriptive statistics of the criterion variable demonstrated they were non-problematic with measurement calculations neither < -1 nor >1 (see Table 8). Correlations between the predictor variables were analyzed through Pearson’s r and ranged from small approaching moderate to large (see Table 8).

Figure 15 - Distribution Plots of Criterion Variable

Likelihood

![Distribution Plots of Criterion Variable](image)
Figure 16 – Boxplots of Criterion Variable

Likelihood

Figure 17 -Q-Q Plot of Criterion Variable

Likelihood
### Table 8 - Descriptive Statistics for Criterion Variable

<table>
<thead>
<tr>
<th></th>
<th>Likelihood</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid</td>
<td>182</td>
</tr>
<tr>
<td>Missing</td>
<td>0</td>
</tr>
<tr>
<td>Mode</td>
<td>10.00</td>
</tr>
<tr>
<td>Median</td>
<td>7.00</td>
</tr>
<tr>
<td>Mean</td>
<td>7.02</td>
</tr>
<tr>
<td>Std. Deviation</td>
<td>2.89</td>
</tr>
<tr>
<td>Skewness</td>
<td>-0.84</td>
</tr>
<tr>
<td>Std. Error of Skewness</td>
<td>0.18</td>
</tr>
<tr>
<td>Kurtosis</td>
<td>-0.19</td>
</tr>
<tr>
<td>Std. Error of Kurtosis</td>
<td>0.36</td>
</tr>
<tr>
<td>Minimum</td>
<td>0.00</td>
</tr>
<tr>
<td>Maximum</td>
<td>10.00</td>
</tr>
</tbody>
</table>

### Table 9 - Pearson's Correlations of Predictor Variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>Interest Exposure</th>
<th>Self-Efficacy</th>
<th>Perceived Work</th>
<th>Prospects</th>
<th>Social Influence</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Interest</td>
<td>Pearson's r</td>
<td>—</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>p-value</td>
<td>—</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Exposure</td>
<td>Pearson's r</td>
<td>0.21</td>
<td>—</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>p-value</td>
<td>0.005</td>
<td>—</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Self-Efficacy</td>
<td>Pearson's r</td>
<td>0.29</td>
<td>0.45</td>
<td>—</td>
<td></td>
</tr>
<tr>
<td></td>
<td>p-value</td>
<td>&lt;.001</td>
<td>&lt;.001</td>
<td>—</td>
<td></td>
</tr>
<tr>
<td>4. Perceived Work</td>
<td>Pearson's r</td>
<td>0.45</td>
<td>0.32</td>
<td>0.47</td>
<td></td>
</tr>
<tr>
<td></td>
<td>p-value</td>
<td>&lt;.001</td>
<td>&lt;.001</td>
<td>&lt;.001</td>
<td></td>
</tr>
<tr>
<td>5. Prospects</td>
<td>Pearson's r</td>
<td>0.40</td>
<td>0.31</td>
<td>0.46</td>
<td>0.54</td>
</tr>
<tr>
<td></td>
<td>p-value</td>
<td>&lt;.001</td>
<td>&lt;.001</td>
<td>&lt;.001</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>6. Social Influence</td>
<td>Pearson's r</td>
<td>0.22</td>
<td>0.38</td>
<td>0.52</td>
<td>0.43</td>
</tr>
<tr>
<td></td>
<td>p-value</td>
<td>0.003</td>
<td>&lt;.001</td>
<td>&lt;.001</td>
<td>&lt;.001</td>
</tr>
</tbody>
</table>


Alongside examining model normality assumptions through analysis of residuals, casewise diagnostics with standard residuals of greater than two were evaluated. Case numbers \( n = 12 \) with standardized residuals of greater than two were removed from analysis after evaluation of its effect on the distribution of the criterion variable, correlation of the predictor variables, and model assumptions for a total number of 170 respondents included in the final multiple regression analysis. Distribution plots for the criterion variable remained much the same but improvement based on visual inspection was observed in boxplots and Q-Q plots (see Figures 18 & 19).

Model normality assumptions were analyzed through visual inspection of plotted residuals vs predicted values which demonstrated no sign of heteroscedasticity (see Figure 20) and Q-Q plots of the standardized residuals (see Figure 21). Scatterplots were also analyzed with no curvilinear relationships between the criterion variable and the predictor variables or heteroskedasticity evident (See Figure 22).
Figure 20 - Residuals vs. Predicted

Figure 21 - Q-Q Plot Standardized Residuals
Figure 22 - Partial Regression Plots

Likelihood vs. Interest

Likelihood vs. Perceived Work

Likelihood vs. Exposure

Likelihood vs. Prospects

Likelihood vs. Academics

Likelihood vs. Social Influence
There was a statistically significant relationship between the self-reported likelihood of applying to a graduate physical therapy program and the predictor variables (i.e., personal interest, prior healthcare exposure, academic self-efficacy, perceived nature of work, job prospects, social influences), $F(6, 163) = 8.38, p < 0.001$ (see Table 10). A moderate approaching large effect size was noted with approximately 24% of the variance accounted for in the model, $R^2 = 0.24$ (95% CI [.11, .33]). Replication of this study based on a similar sample may yield effects ranging from small to large, indicating a degree of instability with these findings. Personal interest was a statistically significant predictor of likelihood ($p = 0.003$) uniquely accounting for approximately 4.4% of the variance in the model estimated through squared part calculations (see Table 13). Exposure to the profession was also a statistically significant predictor of likelihood ($p < 0.001$) uniquely accounting for approximately 6.8% of the variance in the model. Finally, job prospects were a statistically significant predictor of likelihood ($p = 0.014$) uniquely accounting for 2.9% of the model. A degree of collinearity appears to be present through collinearity calculations of greater than 0.8 which may account for the low unique variance calculations for statistically significant predictor variables, but VIF statistics all fell below 5 so no combining of predictor variables was conducted for this model. The remaining predictor variables of academic self-efficacy ($p = 0.40$), perceived work ($p = 0.98$), and social influence ($p = 0.22$) were not found to be statistically significant predictors of likelihood. It was noted that although not significant, factors related to academics, perceived work, and social influences all trended towards a negative relationship with the criterion variable of likelihood in applying to a graduate physical therapy program. Given the sample size of $n = 170$, statistical significance would have been detected even for small effect sizes, $R^2 > 0.08$. 
Table 10 - Model Summary - Likelihood

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R²</th>
<th>Adjusted R²</th>
<th>RMSE</th>
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<tbody>
<tr>
<td>H₀</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>2.43</td>
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<tr>
<td>H₁</td>
<td>0.49</td>
<td>0.24</td>
<td>0.21</td>
<td>2.16</td>
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Table 11 - ANOVA

<table>
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<tr>
<th>Model</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>p</th>
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</thead>
<tbody>
<tr>
<td>H₁</td>
<td>Regression</td>
<td>234.32</td>
<td>6</td>
<td>39.05</td>
<td>8.38</td>
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<tr>
<td></td>
<td>Residual</td>
<td>759.97</td>
<td>163</td>
<td>4.66</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>994.29</td>
<td>169</td>
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Note. The intercept model is omitted, as no meaningful information can be shown.

Table 12 - Descriptives for Criterion and Predictor Variables Post Casewise Diagnostics

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>SE</th>
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</thead>
<tbody>
<tr>
<td>Likelihood</td>
<td>170</td>
<td>7.47</td>
<td>2.43</td>
<td>0.19</td>
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<tr>
<td>Interest</td>
<td>170</td>
<td>22.64</td>
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<td>0.17</td>
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<tr>
<td>Exposure</td>
<td>170</td>
<td>22.48</td>
<td>3.89</td>
<td>0.30</td>
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<td>Academics</td>
<td>170</td>
<td>15.28</td>
<td>2.96</td>
<td>0.23</td>
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<tr>
<td>Perceived Work</td>
<td>170</td>
<td>20.61</td>
<td>2.61</td>
<td>0.20</td>
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<tr>
<td>Prospects</td>
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<td>27.75</td>
<td>3.99</td>
<td>0.31</td>
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<tr>
<td>Social Influence</td>
<td>170</td>
<td>29.43</td>
<td>4.39</td>
<td>0.34</td>
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Table 13 - Part and Partial Correlations

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<tr>
<th>Model</th>
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<th>Part</th>
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<tbody>
<tr>
<td>H₁</td>
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<tr>
<td>Interest</td>
<td>0.23</td>
<td>0.21</td>
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<tr>
<td>Exposure</td>
<td>0.29</td>
<td>0.26</td>
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<tr>
<td>Academics</td>
<td>-0.07</td>
<td>-0.06</td>
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<tr>
<td>Perceived Work</td>
<td>-0.00</td>
<td>-0.00</td>
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<tr>
<td>Prospects</td>
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<td>0.17</td>
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<tr>
<td>Social Influence</td>
<td>-0.10</td>
<td>-0.09</td>
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</table>

Note. The intercept model is omitted, as no meaningful information can be shown.
### Table 14 - Coefficients

<table>
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<tr>
<th>Model</th>
<th>Unstandardized</th>
<th>Standard Error</th>
<th>Standardized</th>
<th>t</th>
<th>p</th>
<th>95% CI</th>
<th>Lower</th>
<th>Upper</th>
<th>Tolerance</th>
<th>VIF</th>
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<tr>
<td>H₀</td>
<td>(Intercept)</td>
<td>7.465</td>
<td>0.186</td>
<td>40.126</td>
<td>&lt; .001</td>
<td>7.097</td>
<td>7.832</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H₁</td>
<td>(Intercept)</td>
<td>-3.925</td>
<td>1.947</td>
<td>-2.016</td>
<td>0.045</td>
<td>-7.770</td>
<td>-0.080</td>
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<td>Interest</td>
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<td>0.451</td>
<td>0.736</td>
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<td>Exposure</td>
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<td>0.300</td>
<td>3.801</td>
<td>&lt; .001</td>
<td>0.090</td>
<td>0.284</td>
<td>0.752</td>
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<td>Academics</td>
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<td>-0.075</td>
<td>-0.849</td>
<td>0.397</td>
<td>-0.203</td>
<td>0.081</td>
<td>0.606</td>
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<tr>
<td></td>
<td>Perceived Work</td>
<td>-0.002</td>
<td>0.082</td>
<td>-0.002</td>
<td>-0.025</td>
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<td>Prospects</td>
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<td>Social Influence</td>
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<td>-0.153</td>
<td>0.035</td>
<td>0.627</td>
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### Table 15 - Collinearity Diagnostics

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<th>Eigenvalue</th>
<th>Condition Index</th>
<th>(Intercept)</th>
<th>Interest</th>
<th>Exposure</th>
<th>Academics</th>
<th>Perceived Work</th>
<th>Prospects</th>
<th>Social Influence</th>
</tr>
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<tbody>
<tr>
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</tr>
<tr>
<td></td>
<td>2</td>
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<td>0.040</td>
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<td>5</td>
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<td>7</td>
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<td>0.004</td>
<td>0.027</td>
<td>0.029</td>
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*Note.* The intercept model is omitted, as no meaningful information can be shown.
CHAPTER V: DISCUSSION

Demographic data on sex/gender for reported males (28.02%) and females (71.43%) within this investigation differs from U.S. Census Bureau data of the U.S. in its entirety (50.5% female) or with the individual states of Alabama (51.4% female), Kentucky (50.5% female), Mississippi (51.3% female), and Tennessee (51.0% female) (U.S. Census Bureau, 2022). Reported sex/gender demographics did, however, correlate with the latest APTA physical therapy workforce data reporting women as 65-70% and men as 30-35% of the current physical therapy workforce depending on the data source (APTA, 2020a). Historically, physical therapy has been a female predominant profession with women making up much of the workforce. Data provided on applicants from the 2018-2019 PTCAs application cycle suggests this may be changing with males now accounting for 39.8% of applicants with similarities in ultimate acceptance rates indicating men are entering the profession in higher numbers than previously (PTCAS, 2023).

Demographics for race/ethnicity, again, differs from national U.S. Census Bureau data but does more closely resemble regional and state demographics in which study data was collected (i.e., AL, KY, MS, TN). National census information reports the most recent population makeup of the U.S. as American Indian, Alaska Native, non-Hispanic (0.7%), Asian, non-Hispanic (5.9%), Black or African American, non-Hispanic (12.6%), Hispanic or Latino (18.9%), White, non-Hispanic (59.3%), multi-racial, non-Hispanic (2.3%), and Native Hawaiian and other Pacific Islander, non-Hispanic (0.2%) (U.S. Census Bureau, 2022). Comparisons of racial data collected within this study sample to that of national census information can be made
by viewing Table 4. Primary differences are seen with the higher percentage of respondents in this study sample identifying as Black or African American, non-Hispanic (25.27%) along with lower percentages of individuals identifying as Hispanic or Latino (4.39%). There was a slightly higher percentage of individuals identifying as White/Caucasian, non-Hispanic (63.19%) and a lower percentage of individuals identifying as Asian, non-Hispanic (0.55%) as well. When looking at east south-central regional census data for the states in which study data was collected, the demographics of the study sample is consistent with differences seen in comparison to national U.S. demographics, specifically the increased representation of Black, non-Hispanic individuals, along with the decreased representation of Hispanic or Latino and Asian, non-Hispanic individuals (U.S. Census Bureau, 2022).

Information reported by the APTA on the national physical therapy workforce demonstrates that current working physical therapists consist of individuals identifying as American Indian, non-Hispanic (0.4%), Asian, non-Hispanic (6.9%), Black, non-Hispanic (6.9%), Hispanic or Latino (3.5%), White, non-Hispanic (84.3%), and Other (2.4%). PTCAS information for the 2021-2022 application cycle reported graduate physical therapy program total applicants identifying as American Indian/Alaskan Native (0.3%), Asian (11.1%), Black or African American, non-Hispanic (8.5%), Hawaiian/Pacific Islander (0.1%), Hispanic or Latino (14.2%), White, non-Hispanic (60.3%), multi-racial (4.2%), and unreported (1.4%) (PTCAS, 2023). Data found in the 2022 CAPTE Aggregate Program Data Report indicates that for 2021-2022 students enrolled in graduate physical therapy programs consisted of individuals identifying as American Indian or Alaskan Native (0.43%), Asian, non-Hispanic (9.68%), Black or African American, non-Hispanic (4.89%), Hispanic or Latino (8.03%), Native Hawaiian or
Other Pacific Islander (0.24%), White or Caucasian (65.27%), Multi-racial (4.42%), or Other/Unknown (2.83%) (CAPTE, 2023).

Information provided by the APTA Workforce Report, CAPTE Aggregate Program Data, and PTCAS 2021-2022 Applicant Data Report suggest the PT profession’s need for continued efforts in improving diversity and overall representation of various minority groups including increased inclusion of American Indian or Alaskan Native, Black or African American, and Hispanic/Latino individuals. The 25.27% of respondents identifying as Black or African American within this study expressing interest in the physical therapy progression are not represented in the 3.4% of current workforce members and 4.89% of students enrolled in PT programs identifying as Black or African American. This issue has been expressed in many of the APTA’s recent policies and action plans including the APTA’s 2022-2025 Strategic Plan. The profession has acknowledged the necessity for increased initiatives for diversity, equity, and inclusion needed to meet societal healthcare needs (APTA, 2022a).

It is recognized that demographics for the southern region in which this sample was collected, including one HBCU, are unique when compared to national U.S. demographics which may account for the increased representation of Black or African American individuals expressing interest in physical therapy as a career within this study sample. Even so, the numbers of individuals identify as Black or African American reporting interest are higher than the number of currently practicing physical therapists within the states in which data was collected. This suggests a disproportionate number of Black Americans that may be interested in physical therapy as a career but are choosing to not pursue, are not being admitted, or are not graduating from professional programs at rates needed to address issues of diversity equity, and inclusion. African American or Black, non-Hispanic applicants are reported to have the lowest acceptance
rate among all demographics (PTCAS, 2023). The mean number of all minority students admitted to a class across all physical therapy programs has increased from five in 2016 to 12 in 2022 but still only represents 27.9% of the average class (CAPTE, 2023). Further research is needed to investigate possible disparities or barriers in the professional path to physical therapy for Black or African American as well as American Indian/Alaskan Native and Hispanic/Latino individuals entering the PT profession. This includes pre-professional exposure, interest development, academic counseling, professional program application, and physical therapy program admissions.

Reported undergraduate majors within this investigation were consistent with commonly reported undergraduate majors among students applying to physical therapy programs (PTCAS, 2020; PTCAS, 2023). Exercise science and exercise physiology along with kinesiology are included among the most common majors for individuals applying to physical therapy programs throughout the United States. Reported undergraduate degree majors vary from institution to institution, state, and region based on what undergraduate degree programs are offered at higher education institutions within those areas. Many institutions design undergraduate pre-physical therapy degree majors to meet most if not all physical therapy program application requirements or encourage undergraduate students expressing interest in physical therapy to pursue degree programs that meet many of the needed requirements. For many institutions, students interested in physical therapy are often directed towards degrees in exercise science/physiology, kinesiology, or similar as they are viewed as being a direct bridge to the profession with goals of developing and meeting potential applicant’s academic interests and career needs. Currently, 88% of physical therapy programs require applicants to obtain a bachelor’s degree (CAPTE, 2023). There are 64 programs (22%) however, that have early entry mechanisms for students to
be admitted to their graduate physical therapy program at the start of or during enrollment in an undergraduate degree program at the same institution. These are often private higher education institutions that can admit students to their undergraduate programs with the purpose of efficiently moving directly to their graduate physical therapy program with the built in advantage of saving the individual time to completion of both degrees.

Related to undergraduate degree selection, when asked the open-ended survey question Q19 “What information or opportunities do you feel would make choosing physical therapy as a healthcare career easier?”, one theme that emerged was the expressed desire for increased access to information and assistance with career educational needs. Related sub-themes included the desire for increased academic assistance with undergraduate degree path/career selection specifically related to physical therapy, graduate physical therapy program option awareness, graduate physical therapy application process assistance including information on PTCAS, and increased information on physical therapy program candidate selection criteria including professional portfolio development needs to be considered a competitive applicant.

Some respondents expressed frustrations when viewing their institution as lacking an undergraduate program more closely related to the field of physical therapy or allowed them improved access or prospects of acceptance into a graduate physical therapy program. Without the ability to question respondents further, it is unknown as to what fully contributed to these expressions of frustration. Speculation might include decreased access to what prospective students believe are opportunities for personal interest exploration through a major they feel would be more in line with the physical therapy profession, perceptions or beliefs of potential knowledge and skill education gaps needed for success within a graduate physical therapy education program, inability to meet graduate physical therapy application requirements through
their selected major resulting in increased costs for additional coursework, or perceived disadvantages in development of their professional portfolio to be more competitive for selection. One individual’s response touched on the above when stating, “I decided not to go this route because my university did not offer a PT specific major; they offered kinesiology but that did not even require some courses needed for a lot of DPT programs.” The total number of expressed frustrations specific to undergraduate major opportunities were minimal but worth noting. Research may need to explore undergraduate and prospective student thoughts, perceptions, feelings, and beliefs on undergraduate degree program opportunities and choice including how it affects career selection and decisions in applying to graduate physical therapy programs. Differences may be present based on region or rural vs. urban settings and what higher education institutions are present including their corresponding educational offerings.

Results of the multiple regression analysis demonstrate that out of the six factors explored (i.e., personal interest, prior healthcare exposure, academic self-efficacy, perceived nature of work, job prospects, social influences), exposure to the physical therapy profession and alignment of personal interests with perceptions of physical therapy as a career have the greatest impact on a perspective student’s self-perceived likelihood of applying to a physical therapy program. Job prospects were also found to be influential which is pertinent when considering current financial issues facing the profession such as student debt, (Ambler, 2020b; APTA, 2020b; Dickson et al., 2020, Pabian et al., 2018) stagnant salary growth, and measures of ROI (Ambler et al., 2020a; Shields et al., 2018). Feelings of academic self-efficacy, perceived nature of work, and social influences were not found to be statistically significant but were thematically represented in responses obtained with the included open-ended questions. These factors were
linked in responses to factors facilitating pursuit of physical therapy but also with perceived barriers to entering the profession for students planning on seeking application.

Ideas of prior exposure and personal interest playing key roles in self-reported likelihood of applying to a physical therapy program were supported by themes found within the survey’s open-ended questions Q16, “How did you first learn about physical therapy as a profession?” and Q17, “What reasons interested or motivated you to consider physical therapy as a healthcare career?” The most common themed response on how respondents first learned of the profession was through prior exposure by means of themselves or close family members having received physical therapy care. More specifically, 45% of the 140 respondents reported having previously being a patient and 10.7% reported having a family member or close friend receiving care from a physical therapist and through those experiences being exposed to the profession on a more personal and meaningful level. This exposure was reported to cause the initial development of interest in physical therapy and related content or resulted in the individual wanting to further explore the alignment of established personal interests (e.g., sports, exercise, fitness, health, human performance, human anatomy & physiology) with that of a career in physical therapy.

Other sources of initial exposure to the profession were reported to come from teachers, mentors, athletic coaches, athletic trainers, and career advisors such as career guidance counselors providing information on physical therapy as a career either independently or in conjunction with information on other healthcare or fitness/wellness related professions. There were also reports of being exposed through participation in related classes or coursework that included discussions of physical therapy among related topics such as sports, sports medicine, physical education, healthcare, fitness, or health and wellness. Few respondents reported first learning about physical therapy through personal exploration of interests leading them to
discover and learn details about the profession on their own. Only six of the 140 respondents reported being initially exposed through job shadowing, observations, internships, employment within the physical therapy field, or employment in other healthcare or closely related fields. Instead, most respondents discussed having learned and developed previous interest before seeking out opportunities to further observe, shadow, or participate in physical therapy with intentions of exploring whether it was a profession they would want to consider as a career.

Prospective students’ exposure to physical therapy combined with their unique background initiated the development of self-efficacy and outcome expectations contributing to the formation of interest in pursuing physical therapy as a profession for themselves. This interest resulted in the individual forming choice goals and actions to seek out more in-depth exposures to the profession serving to either reinforce or diminish the idea of physical therapy as a career choice based on experiences and performance outcomes continually shaping ideas of self-efficacy and outcome expectations (Lent et al., 1994). In this study, 62.94% of participants reported having already participated in some form of job shadowing, internships, observation, or part-time employment at the time of completing the survey. Having prospective students participate in observations, job shadowing, internships, or similar has been reported to serve as a positive way to help solidify prospective student’s thoughts and feelings on pursuing physical therapy as a career (Gleeson et al., 2020) but most likely does not serve to initially expose them to the profession per the responses in this investigation. Clinical observations have also been shown to not serve as a means of predicting professional physical therapy program student outcomes (Wheeler et al., 2018).

When asked what would help make choosing physical therapy as a healthcare career easier (Q19), key themes emerged including feelings that increased exposure to the profession
would significantly help with decision making. Specifically, respondents wished they had learned about the profession at an earlier age allowing them more opportunities for interaction, learning, and interest exploration including career viability and alignment with career/life goals. Respondents desired increased availability and easier access to shadowing, internships, or part-time job opportunities, believing that it would significantly help with career decision making. Respondents also desired increased access to current students and professionals to answer questions about the real and unfiltered day to day life of both professional physical therapy graduate school and physical therapy clinical practice. Themes of improved availability, access, and depth of information on the profession itself were also expressed as desired to further explore personal interests and develop a more comprehensive understanding of the profession needed to advance outcome expectations and self-efficacy.

Responses reinforce the need for increased efforts to expose students to the field of physical therapy, both more broadly and at younger ages. This exposure would allow students to begin exploring the profession while developing and reshaping personal interests thus allowing increased time and opportunities for interaction through shadowing, observations, or internships. Prior exposure has been established as a key factor in developing student’s self-reported intention to apply to a physical program and pursue it as a career as well as students own open-ended responses calling for earlier access to information and interactions to help them in their decision-making regarding physical therapy as a career. As previously stated, many individuals interested in a career in physical therapy come from having received physical therapy services themselves and through that experience, gaining interest in the profession. This represents a limited pool of potential applicants that may become interested in pursuing physical therapy and
therefore becoming future professionals needed to sustain a continually growing workforce based on societal healthcare needs.

The APTA PT Moves Me student recruitment campaign has been established with resources to educate students as early as elementary school on the physical therapy profession (APTA, n.d.-a). Physical therapy professionals may become PT Moves Me Ambassadors for the program and have access to resources intended to educate students from elementary school through late college. Based on responses gained within this investigation, physical therapy education programs, faculty, and other stakeholders should consider utilizing the tools provided by the APTA and the PT Moves Me recruitment campaign, or similar, intending to expose potential students to the profession to increase both awareness and interest. Stakeholders may also consider developing closer relationships with applicable higher education advisors, local high school career counselors, as well as increase opportunities and participation in local career exposure and development initiatives to further introduce potential pre-professional students to the field of physical therapy.

Prior exposure was not always reported as being positive with some respondents mentioning unfavorable initial encounters. Some incidents of exposure served to turn prospective students away with one respondent reporting, “Some of the places I have shadowed were not like my own experience and kind of made me rethink my decision.” Other respondents mentioned their negative personal experience is serving as motivation to pursue physical therapy so that they might provide a more positive experience to others in the future, focusing on the importance of personal relationship development and the essential role that physical therapy provides to individuals with movement dysfunction. Further research may investigate how clinicians and clinical experiences impact career choice including negative experiences and their roles in
recruiting and influencing prospective students. Even though clinical shadowing or observation may not correlate to educational program student outcomes (Wheeler et al., 2018), they have been demonstrated to play a role in helping individuals decide to pursue physical therapy as a career (Gleeson et al., 2020) and may assist with decisions on which area of practice they would like to eventually pursue if exposed to a variety of clinical environments. Negative encounters or receiving negative outlooks on the profession may be serving to deter potential students from the profession or contributing to unfavorable perceptions. This may also need to be a focus of key stakeholders, including but not limited to clinical and healthcare administrators, to ensure that student clinical observers are receiving professional and positive experiences but also an accurate one that provides a picture of day-to-day physical therapy clinical practice.

As stated, respondents called for an increased variety of internship opportunities to explore all areas of practice they may be exposed to in a professional program or may perhaps wish to pursue once entry-level. Respondents acknowledged awareness that many different areas of clinical practice exist but that it was often difficult to locate and arrange clinical observations in settings of more specialized clinical practice or working with a more specialized population of patients. Observations in the form of shadowing, internships, or part-time jobs may serve to influence future specialty selection indicating the importance of exposing prospective students to lessor known and specialized areas of practice needed to develop knowledge and interest in these areas. Stakeholders, including clinicians themselves, should consider exploring ways to increase opportunities for observations in a variety of clinical settings, especially some that have been traditionally more difficult for prospective students to access because of the setting’s unique circumstances, environments, or populations served. This could potentially serve to increase interest in the profession through exposure to all the different avenues of clinical practice that
exist. Currently, program requirements for observation hours vary anywhere between 0-200 hours as a minimum with wide variability in number of practice settings requirements and some programs offering only a recommended number of hours (PTCAS, n.d.).

Social influences were not shown to be statistically significant within the multiple regression analysis, but themes of social influences linked to prior exposure contributing to initial learning about the physical therapy profession emerged within open-ended question responses. Few respondents reported first learning about the profession through media exposure such as news articles, the internet, or social media but rather through personal connections such as family members, teachers, athletic coaches, or other mentors including their own physical therapist. Media exposure did not serve as a means of initial exposure but was reported to be a significant source of information respondents used to learn more about the profession and career outlook. Respondents reported being influenced by their fathers, mothers, siblings, or by family members of close friends if they had a career as a physical therapist and that having a significant impact on their understanding and views of the profession. Other respondents described having a family member or mentor suggest physical therapy because they saw it as a compatible career for them. Responses highlighting social influences in relation to prior exposure are of significance to distinguish because it highlights the importance of personal relationships when making career decisions through both initial exposure and interest development (Lent et al., 1994). Respondents frequently mentioned their own physical therapist and the personal connection they shared along with the desire to have those same types of relationships with their own patients in the future. Relationships between previous exposure and social influences in career choice discussed in open-ended responses are important to note and potentially expose collinearity issues between the two within the multiple regression analysis. Further exploration using more in-depth
interviews may provide improved clarity and distinctions between these two factors, in addition to personal interests, and how each ultimately contributes to physical therapy career choice for prospective students including relationships with one another.

Open-ended responses for interest or motivation development in considering physical therapy as a career (Q17) expressed themes of both prior exposure and personal interests with personal interests playing a more significant role. Sub-themes included interest in sports/athletics, exercise, fitness/wellness, sciences focusing on the human body such as anatomy, healthy lifestyles, and healthcare. Respondents expressed that interest in the above topics aligned with perceptions of physical therapy and its area of focus and practice as a career field. Ultimately, the combination of having a personal connection with the profession in addition to personal interest is what many described as having a significant impact on their decision to pursue physical therapy as a career.

Themes surrounding nature of work were expressed through comments related to perceived work environments, work-life balance, and characteristics many respondents felt a physical therapy career possessed. Respondents mentioned positive perceptions of the work environment, work-life balance, and it being an active job. Comments related to work-life balance mentioned the perceived ability to have a family or maintain other interests and pursuits outside of work. Many respondents reported positively viewing physical therapy as a hands-on job and the profession as being highly social matching previous study findings in other parts of the world (Fuente-Vidal et al., 2021; T. Mkondo et al., 2007). In addition, the view that careers in physical therapy supported a continued healthy lifestyle as well as the ability to promote a healthy lifestyle to others was expressed. The ability to travel, such as with travel physical therapist employment positions, was reported by some respondents as being desirable or a reason
that interested them while others expressed the desire to work in healthcare but wanting to avoid working with blood, needles, or primarily in hospitals associated with other healthcare career jobs.

Themes surrounding the perceived nature of work also contained deterrents to career choice. Respondents expressed hesitations about entering a career in physical therapy due to perceived negatives and more recent changes in the profession. Negatives mentioned included the amount of documentation and paperwork required, high productivity standards sometimes dictating clinical decision-making autonomy and patient care, and the need for career-long continuing education to maintain licensure needed to practice. Some respondents discussed concerns they would find the job to be monotonous and require significant levels of mental focus throughout the entire workday allowing less flexibility or variety of thought that may cause mental fatigue or high mental stress levels. In addition to mental stress, respondents reported hearing that physical therapy is a very physically demanding job causing difficulty for those with physical dysfunctions of their own or prior health concerns as well as being difficult to maintain a career as one gets older. Expressed concerns also included schedules and patient loads, not allowing much flexibility throughout the day seen as increasingly desirable for work-life balance in the modern and younger workforce.

Themes surrounding difficulties facing the profession were closely related and included perceived issues surrounding comprehensive and unrestricted patient direct-access, difficulties in dealing with insurance companies and reimbursement, lack of professional growth opportunities, and career volatility exposed during the COVID-19 pandemic. A few respondents discussed their observations of job cuts and layoffs that occurred because of the pandemic resulting in decreased elective surgeries. This fluctuation in the job market exposed vulnerabilities in job security for
some with one respondent reporting, “The fact that elective surgeries were cancelled during the COVID-19 pandemic, and I witness first-hand how many of the DPTs I worked under either had hours cut or lost their job all together.” Not surprisingly when asked about opportunities that would make choosing physical therapy a healthcare career easier (Q19), respondents discussed the need for improved pay when comparing education requirements and compensation for similar professions, improvements in job availability and stability, improvements in job longevity, more perceived career advancement opportunities, and increased flexibility in the workplace to meet more modern workforce needs and desires.

Notably, the most common themed response for interest development or motivation in considering a career in physical therapy was that of altruism or the desire to help others. The desire to help emerged as a significant reason for why prospective students seem drawn to the profession. Sub-themes included the desire to help and take care of others, being of a “service” mind, having the ability to establish relationships and make impactful connections with others, the opportunity to showcase compassion and caring, the desire to make a difference, to improve the quality of life for others, and the ability to help others stay active and live a healthy lifestyle. The theme of altruism showcased the importance of developing interpersonal connections and relationships for individuals considering physical therapy as a career and the desire for a career that is a “mission” or “calling” and not just a job.

Job prospects, job security, and financial stability were themes expressed by several respondents supporting the findings of the multiple regression analysis. Specifically, the better outlook an individual had on job prospects and the quality of life it provided, including financial stability, resulted in an increase in self-reported likelihood of applying. Some respondents expressed views that a career as a physical therapist would provide a steady income with job
prospects and stability, yet with others expressing concerns. Respondents discussed the balance between the desire for a fulfilling career but also one in which they could achieve financial stability while participating in their interests and achieving career goals. On the topic of financial stability, one respondent expressed, “The capacity to help and minister to people while making a steady income” and another, “The ability to help others, the opportunity for advancement, and it makes a good living.” One respondent expressed multiple of the above themes by stating, “The main reason was knowing I could make a difference in someone’s life and help them to live up to their full potential. Other reasons include a stable living and ability to travel. Also, I am highly interested in how the body functions.”

Although job prospects served as a reason why some were considering a career in the profession, it was also a primary reason for why others reported feeling discouraged. Answers to the open-ended question (Q18) “What reasons, if any, have discouraged you from physical therapy as a healthcare career?” resulted in multiple respondents discussing the cost of education and the substantial financial investment in attending a graduate physical therapy program in the wake of rising student debt levels. Respondents discussed themes related to return on investment (ROI), pointing specifically to concerns for the high cost of attendance vs. the level of compensation they would receive with entry-level positions in the job market. The perspective that physical therapists receive lower pay in comparison to other healthcare careers, especially considering the length of school, was expressed. One respondent wrote, “I have had many people tell me that the pay is not adequate for the job being done and that it is very physically demanding” while another wrote, “The lower pay in comparison to other healthcare careers.” One respondent stated, “The starting salary is low compared to the debt from physical therapy school, and physical therapists are not as respected as other healthcare professionals.”
Issues related to salaries and ROI were raised (Ambler et al., 2020a) and shown to make a difference in post education entry-level professional career decisions (Ambler, 2020b). Salary and ROI issues have also been suggested to potentially impact prospective students’ decisions regarding entry into the profession (ACAPT, 2020, APTA, 2020b). Results of this study support the idea that discussions and concerns surrounding high educational costs, entry level salaries along with salary growth, and ROI issues are reaching the ears of prospective students and making an impact on decisions whether to enter the profession. With job prospects being demonstrated to have an impact on the likelihood of applying to physical therapy programs and themes surrounding the need for financial stability, financial issues should be heavily considered by profession leaders, educational administrators, clinical administrators, and other key stakeholders moving forward when discussing contributing factors to declining national application rates.

In response to growing financial concerns, respondents expressed themes related to making physical therapy career choice easier (Q19) as being the decrease in financial barriers and improvement of financial literacy. Respondents called for increased financial aid and scholarship availability and assistance with both. Respondents also called for increased financial literacy even prior to attending a physical therapy program and assistance with understanding all options regarding borrowing, scholarships, and the potential for student loan forgiveness upon graduation. The APTA has created the APTA Financial Solutions Center (APTA, n.d.-b) to provide prospective, current, and past students information and resources on how better to manage financial costs of education and student debt intending to combat rising student debt level issues. It is unknown as to how much prospective students are accessing this information and whether education programs are exposing pre-professional and professional students to these
resources. It is also unknown as to whether both potential and current students find these resources beneficial related to their own personal financial literacy or planning. Educational programs should consider introducing this resource not only to their current students, if not already doing so, but also to potential students and academic advisors at regional undergraduate institutions that often matriculate students in their program. Addressing any financial concerns for prospective students may help alleviate perceived barriers making it more likely for them to pursue a career. It would also be prudent to investigate the effectiveness of these resources on improving financial literacy and debt management needed to refine and improve them as the world of student debt financial programs and planning evolves.

In addition to financial issues, themes related to time investment requirements also emerged as discouraging potential candidates. Respondents spoke of the combined undergraduate and graduate education resulting on average in seven years of total education requirements. Some respondents focused on the total education time for both undergraduate and graduate programs, while others focused on the length of time of the graduate program necessary to become a physical therapist and how this is closely related to financial costs. Respondents also mentioned issues related to academics including the rigor and volume of prerequisite courses and requirements needed to apply to a graduate program, while others expressed apprehension over their perceptions of academics once accepted and entering physical therapy school. An issue expressed, relating to pre-requisites requirements, was the view that some courses did not have anything to do with or related to physical therapy. One respondent wrote, “Physics and chemistry! Those two classes have really made me question if I should pursue being a physical therapist”, while another wrote, “The undergraduate classes that have no relevance to my field.” Multiple respondents expressed concerns that their lack of undergraduate academic success
would prevent them from being able to pursue a career in physical therapy as a reason why they were discouraged. One respondent wrote, “I would say grades have discouraged me because I don’t have an outstanding GPA”, while another reported, “I am not a 4.0 student, and everyone tells me that when applying to PT school, everyone else will be a 4.0 student.” Respondents also mentioned being intimidated or worried they would not be successful once accepted into a physical therapy program due to the perceived rigorousness of the coursework. Academic self-efficacy was not demonstrated to be a significant predictive factor in applying to a physical therapy program within the multiple regression, but self-perceived lack of academic success or capabilities appears to serve as a discouraging factor based on open-ended question response themes.

Related were common themes of perceived difficulties with the application process itself, the competitiveness of admissions, and the stress of acceptance into a program as being discouraging factors. Respondents described the perceived nature of competitiveness in acceptance as a reason why they would potentially not pursue physical therapy. If program acceptance is perceived, based on exaggerated expectations, as being decided primarily through means of academic accomplishments alone, especially when accompanied with perceptions of low acceptance rates, it may be resulting in decreased confidence in students’ own chances of being accepted and serving to discourage them from pursuing the profession despite being an academically competitive applicant as well as having many other desirable characteristics. In the 2022 CAPTE Aggregate Program Data report (CAPTE, 2023), 72% of physical therapy professional programs describe themselves as having “holistic admissions” processes often intending to enhance diversity (Canham et al., 2021), but these are often variable, non-descript, or specific only to each institution. From the information gained within this investigation,
physical therapy programs should consider ensuring that entrance requirements are transparent, easily accessible, and understandable for the public as well as undergraduate institution faculty and advisors who may be helping students with physical therapy career guidance and planning.

Programs should also consider working closely with undergraduate institutions from which students often apply to make sure career and undergraduate degree program advisors are up to date on admission requirements and selection practices including holistic practices with the purpose of improving diversity, equity, and inclusion and intending to locate students with desirable characteristics outside of GPA and GRE scores alone. This information should include examples of realistic academic expectations and/or profiles of recently accepted students, highlighting desirable aspects for resumes that program admission committees are considering when making their selections. In addition, information should be included that addresses what prerequisites are in place along with explanations for why that undergraduate coursework will help the student to be successful both in their physical therapy education as well as career practice. Finally, physical therapy programs may consider implementing early instructional sessions directly to undergraduate students, or even high-school students, interested in pursuing physical therapy as a career to provide information and clarification on application pre-requisites so that students may best plan their undergraduate educational track to meet individual needs in the most time and cost-efficient way. Early and accessible information is key for students especially if there are considering applying to multiple graduate programs that have unique sets of application requirements for which students need to consider when selecting their undergraduate major and any needed supplementary coursework.

Many respondents stated they had no discouraging reasons and fully planned to apply to a physical therapy program without considering any other careers. On the other end of the
spectrum, respondents reported having previously considered physical therapy as a career but ultimately deciding on another path or profession due to issues discuss above, changing personal interests or circumstances, or perceptions of career opportunities in other fields. When respondents were asked what other careers besides physical therapy they have considered or are currently considering (Q21), a variety of professions emerged but with many common responses. The top careers in order of response were: 1) Medicine, 2) athletic training, 3) physician assistant, 4) occupational therapy, and 5) working in the fitness/health industry such as pursuing a career as an exercise physiologist, strength and conditioning coach, or personal fitness trainer. Other reported career considerations included jobs in business, nursing, sports administration, coaching, education, dentistry, veterinary science, chiropractic, nutrition/dietetics, psychology, genetics, and engineering or sciences. Many of the mentioned careers still involved jobs in either healthcare, allied health, or fitness/wellness industry as well as being socially interactive and science-based analytical career choices.

Two of the topmost alternative careers mentioned above are allied health professions that have recently made changes to their entry-level degree requirements in occupational therapy moving to a doctorate (OTD) and athletic training now requiring a master’s degree for licensure and entry-level practice. These professions along with the other professions listed may be appealing to potential students due to perceived similarities or desirable differences in the accessibility, costs, pre-requisites, educational time investments, earning potential, career-life balances, and career advancement opportunities they provide. Where in the past some of these professions may not have interested students pursing physical therapy as a career for a variety of reasons, homogenizing educational time/financial investments, educational requirements, earning potential, professional development opportunities, and increasingly overlapping or
duplicate areas of clinical practice among healthcare professions meeting personal interests (i.e., desire to work with athletes, work in orthopaedics, etc.) may be resulting in increased competition for potential students where none may have previously existed. Further research is needed to explore what it is about these other reported professions that are potentially attracting students away from the field of physical therapy. Physical therapy leadership, educators, and professionals should be aware of what other careers are being considered and how to inform the profession of potential challenges caused by changes in career development decision making practices among students including how it may be impacting future pre-professional recruitment efforts.

Physical therapy moving to the DPT as the entry-level degree has resulted in pre-professional students now comparing it with and considering it alongside other doctoring professions as potential careers. This includes comparing financial and time investments vs. earning and career advancement opportunities for all the potential careers being considered. Careers in medicine, dentistry, or pharmacy may been seen as requiring similar schooling time investments, not including clinical residency or fellowships, but may be viewed as offering greater long-term earning potential, career opportunities, professional advancement, social mobility, or greater ROI (Shields & Dudley-Javoroski, 2018). As previously discussed, CAPTE established the DPT as the only degree conferred by accredited institutions beginning January 2016 and therefore the only degree in which students would be eligible to sit for licensure (APTA, 2022b). The arguments for moving to the DPT were met with critiques both before and after the transition occurred (Jannenga, 2018; Plack & Wong, 2002). Critiques for moving to the DPT projected that increasing the degree requirements would lead to barriers of increased cost and time in pursuing a physical therapy degree resulting in increased student loan debt for new
professionals. In 2003, the average total number of weeks spent in a physical therapy program, including the clinical education component, was 107.4 weeks for a 3+3 program and 103.4 for a 4+2 program (CATE, 2021c). In 2016, following all programs now conferring the DPT degree, 65.3% of programs were reported as being a 4+3 program with an average of 123.4 weeks in length demonstrating an increase of around 16-20 weeks, or between 1-2 semesters (CAPTE, 2021c). This average time increase has remained much the same in the latest CAPTE data from 2022 (CAPTE, 2023) with 61.56% of programs reported still as the traditional 4+3.

In 2000, a little over 90% of physical therapy programs still offered the master’s degree as the entry-level degree into the profession with the average annual tuition reported as $4,977 per year for public programs and $17,714 per year for private programs with a total cost of attendance reported as $18,013 and $50,556 respectively (CAPTE, 2021c). In 2016, with 100% of programs conferring the DPT degree, the average cost had risen to $15,404 per year for public programs and $33,411 for private programs for a total cost of $48,135 and $105,229 respectively (CAPTE, 2021c). More recently during the 2022-2023 cycle year, the average annual tuition was reported as $23,271 for public programs and $41,949 for private programs with a total projected program cost of $73,232 and $125,055 respectively (CAPTE, 2023). The most current 2022 CAPTE Aggregate Program Data reported the median DPT program student debt level as $68,612 after attending public programs and $106,613 after attending private programs with median total post-secondary debt levels being $83,520 for public and $122,362 for private institutions (CAPTE, 2023). This corresponds with the APTA Impact of Student Debt Report which stated average loan balances of $87,551 for public programs, $116,338 for out-of-state public programs, and $132,827 for private programs. Respondents in this investigation reported a median current undergraduate debt level as $18,248 with a median anticipated cost of physical
therapy school being $158,989. Total anticipated costs provided by respondents included all school expenses plus all living expenses while participating in a program which may account for the differences between provided costs and the average reported costs that do not include many living expenses.

As previously discussed, increased education costs and time are weighing heavily on the minds of potential students as demonstrated by thematic responses to open-ended questions demonstrating both are serving as discouraging factors or barriers to pursuing physical therapy as a career. Some respondents expressed thoughts and opinions on the link between increased time and costs and the move to the DPT degree along with its impact on their decision to pursue physical therapy. For example, one respondent wrote:

The DPT program takes three years. That is three additional years of school that I don’t want to do. School is very expensive, and three years of graduate school is a significant investment of time and energy. I backed away from physical therapy as a career when there was a shift from a master’s program to a DPT. I figured if I were going to go into the medical field, I might as well consider being a doctor if it was going to take that level of investment.

When asked what would make pursuing a career in physical therapy easier (Q19), another student wrote, “a master’s instead of a doctorate.” The points expressed by the respondents highlight that potential students are hearing information and forming opinions concerning the DPT degree which are impacting their perceptions on what it has meant to the physical therapy profession primarily through perceptions of increased educational requirements and views that it is limiting access to physical therapy careers. Many respondents report having positive thoughts and opinions on being able to pursue and obtain a doctorate in the profession but are
acknowledging its impact and links to increased time of pursuing a terminal clinical degree, increased time until being able to enter the workforce, and increased costs associated with more graduate education. No matter which side of the DPT debate one may side with, it is difficult to deny the effects that increasing the entry-level degree requirements had on the profession including leaving some potential professional students behind that otherwise would have been interested in pursuing a career had it not been for the financial, time, or other barriers imposed.

More responses to (Q19), included suggestions for less time and requirements for school including changes to the traditional 4+3 format for the DPT degree. Some respondents discuss less time and requirements in their undergraduate education or the ability to transfer some applicable credits to a physical therapy program. Other students suggested expanding opportunities for direct BS to DPT pathways being utilized at some institutions with the perception that it would save in total education time to completion. Other respondents are simply suggesting, “less time in school”, or “if there wasn’t as much school.” Interestingly, the current average number of credits for completion of the DPT across all programs is 120.68 (CAPTE, 2023), while CAPTE only requires a minimum of 90 credit hours for completion (Dunn, 2019). This minimum requirement is lower than the average number of hours for many programs even before transitioning from a master’s degree to the DPT, which was an argument made by proponents of the move at the time.

Physical therapy programs have been adapting by forming newer hybrid programs and what some are advertising as ‘accelerated’ since they take less time than the traditional three-years or 4+3 model. Instead, these programs are promoting their completion in 2-2.5 years. These newer programs are coming at a time when technology is increasing the possibilities of distance education allowing more advanced options of on-line learning (Gagnon et al., 2020). It
is unknown, however, if this is translating in reduced costs or debt levels or if this is attracting potential students who may have otherwise not considered physical therapy as a career due to perceived time and financial barriers. Further research is needed to investigate whether online or accelerated options may be serving to attract potential students to the profession who otherwise may not be considering physical therapy or are considering other careers due to issues of accessibility. Increased capabilities in teaching and learning through the application of technology may serve to reduce costs and streamline the education process but to the knowledge of the author, have yet to be compared with outcomes of traditional programs in terms of student graduation rates, clinical evaluation scores, and board pass rates on the NPTE.

In addition to adopting new technologies, physical therapy education programs may also consider exploring other options from that of the traditional 4+3 format for the DPT degree including direct BS to DPT programs, application of education credits from an undergraduate education to completion of their degree, or a reduction in the total required credit hours. Reductions in total credit hours or total semesters would potentially reduce costs and allow professional students to enter the workforce sooner. More research is needed to further explore thoughts, beliefs, and perceptions of students on potential changes to the format of obtaining a DPT and how it may increase the accessibility of education, one of the six pillars discussed in A Vision for Excellence in Physical Therapy Education by the Education Leadership Partnership (ELP, 2021). Increased access may serve to increase application rates needed to maintain the physical therapy workforce necessary to meet societies future needs.

**Limitations**

Primary limitations of the study design include use of a one item measure for self-perceived intention to apply to a physical therapy program. As stated previously, use of a one
item measure for a construct is often not regarded as being ideal due to the potential validity, sensitivity, and reliability issues related to that one item truly representing the intended construct. In this case, inquiring as to a student’s current self-perceived percent likelihood of applying to a physical therapy program is a direct measure of the individual’s current feelings thus allowing for the use of a direct measure (Allen et al., 2022). The measure will not represent actual behavioral outcomes in the application to a program but identify factors in individuals considering a physical therapy career and how that may contribute to their likelihood in applying. This is representative of the factor’s potential influence on the student’s decision-making process regarding career choice while it is still fluid and represents their feelings at that specific point in time which may be variable as shown with only moderate test-retest reliability scores.

Another limitation is that the survey respondents may consist of individuals that are more interested in participating because they have, in fact, decided to attend physical therapy school. This may lead to responses of the criterion variable that are not truly representative of the sample for all students who have considered physical therapy as a career and to data that is nonparametric but negatively skewed from an abundance of higher percentages regarding self-reported likelihood of applying to a PT program. This was addressed by distribution of the survey at multiple test sites and programs to attempt and capture a large enough sample size and variation in responses.

Conclusions

Recent discrepancies in workforce modeling and declining physical therapy program application rates suggest issues may be on the horizon, making it important for profession leaders, educators, and healthcare administrators to investigate potential applicants’ career
decision-making processes including identifying facilitators and barriers to entering the profession. This investigation demonstrates prior exposure and personal interest serve as primary factors linked to pre-professional students’ perceived likelihood of applying to a graduate physical therapy program followed by job prospects substantiated through open-ended responses. Findings suggest the need for prospective students to be exposed earlier, in more breadth and depth, and in meaningful ways needed to develop interest in pursuing the profession. Prospective students are also asking for increased levels of information and support with undergraduate program navigation, the application process, and especially financial literacy and assistance including opportunities such as scholarships or loan forgiveness programs to aid in their pursuit of physical therapy as a career.

Findings also illuminate barriers recognized by prospective students considering the profession. Concerns over financial and time investments needed for the completion of a DPT, along with ROI issues propelled by increasing education costs coupled with stagnant wage growth, are reaching prospective students’ ears and on their minds as they are making career decisions. This may be especially true for minority groups such as American Indian or Alaskan Native, African American or Black, and Hispanic/Latino individuals who are currently underrepresented in the national physical therapy workforce. Further research needs to explore how these minority groups may be disproportionately affected by barriers, hampering efforts to increase DEI within the physical therapy profession. To increase application rates in the wake of expanding program development, physical therapy education programs and vested stakeholders should consider retrospectively looking at program entrance requirements, admissions processes, partnerships and promotional efforts, student financial literacy and assistance programs, and curricular efficiency to combat barriers to students pursuing physical therapy as a career choice.
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113


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LIST OF APPENDICES
APPENDIX A: Physical Therapy Career Choice Survey

Title: Factors Influencing Individuals’ Consideration of Physical Therapy as a Career Choice

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Description
The purpose of this research study is to explore how factors identified to influence healthcare career choice affect individuals’ intentions applying to a graduate Doctor of Physical Therapy (DPT) program. You will be asked to provide basic demographic information, complete a survey instrument, and answer open-ended questions to assist the investigator in gaining insights into physical therapy career choice.

Inclusion Criteria
Any individual at least 18 years of age having considered or is considering pursuing physical therapy as a career without having yet applied to a graduate Doctor of Physical Therapy (DPT) degree program.

Cost
There is no cost to you for participation in this study.

Compensation
After verification of inclusion criteria and full completion of the survey, you will be eligible to receive a one-time $10.00 e-gift card as compensation for your time.

Risks and Benefits
There is no anticipated risk associated with participation in this research study. In addition, there is no anticipated direct benefits to you as the participant. Intention of the research study is to identify key physical therapy career decision making factors professional leadership and education stakeholders may need to consider when developing future recruitment strategies and policy efforts impacting the healthcare supply of physical therapy professionals.

Confidentiality
No identifiable information will be directly linked to your survey answers and therefore we do not anticipate you can be identified from this study. Every effort will be made to keep your responses
confidential. Basic demographic information (i.e., sex/gender, race/ethnicity, age, etc.) will be collected along with survey results and stored in a Qualtrics database, but no personal identification markers will be collected on the initial survey. Following completion of the initial survey, a link will be provided to a second survey to collect name and contact information necessary to send the $10.00 e-gift card. Contact information collected in the second survey will also be stored in a Qualtrics database but will not be linked to this survey maintaining anonymity of your responses.

Right to Withdraw
You do not have to take part in this study and may stop participating at any time. Participation is completely voluntary. If you start the survey and decide that you do not want to finish, there will be no penalty for non-completion.

IRB Approval
This study has been reviewed by The University of Mississippi’s Institutional Review Board (IRB) (Protocol #23x-038) and the University of Mississippi Medical Center’s IRB (Protocol #UMMC-IRB02022-424). If you have any questions, concerns, or reports regarding your rights as a participant of research, please contact the University of Mississippi IRB at (662) 915-7482 or irb@olemiss.edu and/or the University of Mississippi Medical Center IRB at (601) 815-5016 or umcirb@umc.edu.

Questions
If you have any questions about this study or need to report an issue about the survey, please contact the principal investigator, Ryan M. Babl at rbabl@umc.edu or by calling 601-815-3427.

Q1 Statement of Consent
I have read and understand the above information. By selecting 'Yes' below, I consent to participate in the study. In addition, by selecting ‘Yes’, I affirm that I am at least 18 years of age and meet the stated inclusion criteria.

○ Yes (1)

○ No (2)
Q2 To any degree, have you ever considered physical therapy as a possible healthcare career choice?

- Yes (1)
- No (2)

Q3 To date, have you applied to a graduate Doctor of Physical Therapy (DPT) degree program?

- Yes (1)
- No (2)

Q4 Sex/Gender

- Male (1)
- Female (2)
- Non-binary / third gender (3)
- Prefer not to say (4)
Q5 Race/Ethnicity

- American Indian or Alaska Native (1)
- Asian (2)
- Black or African American, non-Hispanic (3)
- Hispanic or Latino or Spanish Origin of any race (4)
- Native Hawaiian or Other Pacific Islander (5)
- White/Caucasian, non-Hispanic (6)
- Multiracial (7)
- Prefer not to say (8)

Q6 Age (Please enter below)

________________________________________________________________

Q7 In which type of higher education institution are you currently enrolled?

- Two-year community college (1)
- Four-year public college or university (2)
- Four-year private college or university (3)
- Not currently enrolled (4)
Q8 Undergraduate degree major (Please enter below)

Q9 On a scale from 0-10, how likely is it that you will be applying to a graduate Doctor of Physical Therapy (DPT) degree program?

- 0  (0)
- 1  (1)
- 2  (2)
- 3  (3)
- 4  (4)
- 5  (5)
- 6  (6)
- 7  (7)
- 8  (8)
- 9  (9)
- 10 (10)
Q10 I am considering or have previously considered physical therapy as a healthcare career choice because________

<table>
<thead>
<tr>
<th>I desire to help others (1)</th>
<th>Strongly Disagree (1)</th>
<th>Disagree (2)</th>
<th>Neutral (3)</th>
<th>Agree (4)</th>
<th>Strongly Agree (5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>I could contribute to society (2)</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>I desire for a fulfilling career (3)</td>
<td></td>
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</tr>
<tr>
<td>I enjoy interacting with people (4)</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>I want to make a difference in someone's life (5)</td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

Q11 I am considering or have previously considered physical therapy as a healthcare career choice because of my experience________
<table>
<thead>
<tr>
<th>In taking care of a family member or friend (1)</th>
<th>Strongly Disagree (1)</th>
<th>Disagree (2)</th>
<th>Neutral (3)</th>
<th>Agree (4)</th>
<th>Strongly Agree (5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>In being taken care of by a physical therapist (e.g., athletic injury, accident, disability, illness, etc.) (2)</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>In my school curriculum or co-curriculum activities (e.g., athletics, physical education classes, sports clubs, work-study, internships, etc.) (3)</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>In observing a physical therapist at work (4)</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>In hearing about physical therapy from significant others (e.g., family members, friends, teachers, coaches, mentors, etc.) (5)</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>Doing voluntary or job-related work in healthcare settings (6)</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
</tbody>
</table>
Q12 I am considering or have previously considered physical therapy as a healthcare career choice because ________

<table>
<thead>
<tr>
<th></th>
<th>Strongly Disagree (1)</th>
<th>Disagree (2)</th>
<th>Neutral (3)</th>
<th>Agree (4)</th>
<th>Strongly Agree (5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>It reflects well of my academic ability (1)</td>
<td></td>
<td></td>
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<tr>
<td>I want to choose a career that is more deserving of my good grades (2)</td>
<td></td>
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<td></td>
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<tr>
<td>I could make autonomous decisions at work (3)</td>
<td></td>
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<td></td>
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<tr>
<td>I want to be able to make a diagnosis (4)</td>
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</tr>
</tbody>
</table>

Q13 I am considering or have previously considered physical therapy as a healthcare career choice because ________

<table>
<thead>
<tr>
<th></th>
<th>Strongly Disagree (1)</th>
<th>Disagree (2)</th>
<th>Neutral (3)</th>
<th>Agree (4)</th>
<th>Strongly Agree (5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>It is a highly skilled occupation (1)</td>
<td></td>
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</tr>
<tr>
<td>I want a more hands-on job (2)</td>
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<tr>
<td>It would be a challenging job (3)</td>
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<td></td>
</tr>
<tr>
<td>It would be a demanding job (4)</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>I do not mind attending to others' physical needs (5)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Q14 I am considering or have previously considered physical therapy as a healthcare career choice because ________

<table>
<thead>
<tr>
<th>Reason</th>
<th>Strong Disagree (1)</th>
<th>Disagree (2)</th>
<th>Neutral (3)</th>
<th>Agree (4)</th>
<th>Strongly Agree (5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>It ensures a stable job</td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I would never be unemployed</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>It ensures high income</td>
<td></td>
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</tr>
<tr>
<td>The career ensures me a good standard of living</td>
<td></td>
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<tr>
<td>It would provide a chance to work in multiple geographic or job site locations</td>
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<tr>
<td>It would provide many opportunities for my career advancement</td>
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<tr>
<td>It would provide a chance to achieve higher qualifications</td>
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<td></td>
</tr>
</tbody>
</table>
Q15 I am considering or have previously considered physical therapy as a healthcare career choice because ________

<table>
<thead>
<tr>
<th>Reason</th>
<th>Strongly Disagree (1)</th>
<th>Disagree (2)</th>
<th>Neutral (3)</th>
<th>Agree (4)</th>
<th>Strongly Agree (5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>I would be well respected (1)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>It has a good public image (2)</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>News, social, or other forms of media have inspired me (3)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>There is no gender, racial, or social stigma in this career (4)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>My parents or caregivers would be supportive (5)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I want my parents or caregivers to be proud of me (6)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>My peers encouraged me of my choice (7)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>My peers would look up to me (8)</td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

Q16 How did you first learn about physical therapy as a profession?

_____________________________________________________________________

Q17 What reasons interested or motivated you to consider physical therapy as a healthcare career?

_____________________________________________________________________

137
Q18 What reasons, if any, have discouraged you from physical therapy as a healthcare career?
_____________________________________________________________________________________________________________________

Q19 What information or opportunities do you feel would make choosing physical therapy as a healthcare career easier?
_____________________________________________________________________________________________________________________

Q20 To date, have you completed any observations, job shadowing, or internships with physical therapy?

☐ Yes (1)

☐ No (2)

Q21 What other careers have you considered or are currently considering besides physical therapy?
_____________________________________________________________________________________________________________________

Q22 How much do you think is the average cost of attendance for a U.S. Doctor of Physical Therapy (DPT) degree program in total? (i.e., all tuition, student fees, housing, books, transportation, etc.)

<table>
<thead>
<tr>
<th>Amount in U.S. Dollars ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>$0</td>
</tr>
<tr>
<td>$350000</td>
</tr>
</tbody>
</table>
Q23 How much do you think is the average yearly starting salary in the U.S. for a full-time entry-level physical therapist?

<table>
<thead>
<tr>
<th>Amount in U.S. Dollars ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>$0</td>
</tr>
<tr>
<td>$250000</td>
</tr>
</tbody>
</table>

Q24 Currently, what is your total amount of student loan debt? (Approximately)

<table>
<thead>
<tr>
<th>Amount in U.S. Dollars ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>$0</td>
</tr>
<tr>
<td>$250000</td>
</tr>
</tbody>
</table>
APPENDIX B: E-Gift Card Information Collection

Q0 Personal information collected here is for purposes of providing the $10.00 Walmart e-gift card as compensation for your time filling out the survey for the project titled: "Factors Influencing Individuals' Consideration of Physical Therapy as a Career Choice." The information provided will be stored in a Qualtrics database but will not be linked to your previous survey responses, maintaining anonymity, but necessary to receive the one-time e-gift card through email.

Q1 First name

________________________________________________________________

Q2 Last name

________________________________________________________________

Q3 Email address

________________________________________________________________

Q4 Please confirm the email address entered above.

________________________________________________________________
APPENDIX C: Recruitment Email Script

Dear Academic Advisor, Faculty Member, or Administrator,

** Please consider forwarding the below message to any students potentially considering careers paths in healthcare, fitness, wellness, or sports who may have considered or is currently considering a career in physical therapy. **

My name is Ryan M. Babl, faculty member at the University of Mississippi Medical Center in Jackson, MS and Ph.D. candidate at the University of Mississippi in Oxford, MS. I am conducting a research study investigating factors influencing individuals’ consideration of physical therapy as a career choice. I am asking any individuals at least 18 years of age who have considered or is currently considering a career in physical therapy to assist me by completing this survey. Participation will involve completion of an online survey that will take approximately 15 minutes or less to complete. Those who complete the survey in full will be compensated for their time with a $10 Walmart e-gift card.

If you choose not to participate or to withdraw from the study at any time, there will be no penalty and it will not affect your grade. The questionnaire is anonymous. The results of the study may be published but your name will not be known. Return of the questionnaire will be considered your consent to participate.

To participate, please see the attached information flyer, click on this link: https://uofmississippi.qualtrics.com/jfe/form/SV_bPnOWlbu3Jiido or scan the QR code below.

This study was approved by The University of Mississippi Institutional Review Board (Protocol #23x-038) and The University of Mississippi Medical Center Institutional Review Board (IRB Protocol #UMMC-IRB-2022-424). The informed consent process is built into the survey.

Contact information: If you have concerns or questions about this research study, please contact Ryan M. Babl at 601-815-3427 or at rbabl@umc.edu.

Thank you,

Ryan M. Babl, PT, DPT, MS, OCS, CSCS
APPENDIX D: Recruitment Flyer

CONSIDERING A CAREER IN HEALTHCARE, FITNESS, WELLNESS, OR SPORTS?

EVER CONSIDER OR CURRENTLY CONSIDERING A CAREER IN PHYSICAL THERAPY?

A RESEARCHER AT THE UNIVERSITY OF MISSISSIPPI IS LOOKING FOR PARTICIPANTS TO COMPLETE AN ONLINE SURVEY INTENDING TO GAIN INSIGHTS INTO PHYSICAL THERAPY CAREER CHOICE.

Who is eligible? Any individual, at least 18 years of age having ever considered or is actively considering physical therapy as a career without having yet applied to an entry-level Doctor of Physical Therapy (DPT) program.

What will I need to do? Complete an online survey on healthcare career choice factors related to physical therapy.

Risks and Benefits? There are no anticipated risks or direct benefits. Participants who complete the survey in full will be compensated for their time.

TO PARTICIPATE PLEASE SCAN OR CLINK THE LINK
HTTPS://UOFMISSISSIPPI.QUALTRICS.COM/JFE/FORM/SV_BPNOWLBV3JIIDO

Any Questions?
Please contact the principal investigator
Ryan M. Babl at rbabl@umc.edu
This project has been reviewed by the University of Mississippi IRB
Protocol #23x-038
and the University of Mississippi Medical Center IRB
Protocol #UMMC-IRB-2022-424
APPENDIX E: University of Mississippi IRB Approval Letter

PI:

This is to inform you that your application to conduct research with human participants, “Factors Influencing Individuals’ Consideration of Physical Therapy as a Career Choice” (Protocol #23x-038), has been determined as Exempt under 45 CFR 46.101(b)(2). You may proceed with your research.

Please remember that all of The University of Mississippi’s human participant research activities, regardless of whether the research is subject to federal regulations, must be guided by the ethical principles in The Belmont Report: Ethical Principles and Guidelines for the Protection of Human Subjects of Research.

It is especially important for you to keep these points in mind:

• You must protect the rights and welfare of human research participants.

• Certain changes to your approved protocol must be reviewed and approved before initiating those changes. These changes include the addition of a vulnerable subject group (children, persons with disabilities, and prisoners), as well as the addition of research materials, such as the addition of surveys or interview questions and test articles, the addition of the use of deception, or any changes to subject confidentiality. Personnel amendments for exempt protocols are no longer required. Instead, PIs are responsible for keeping an up to date record of all active personnel and for ensuring that personnel have completed the necessary training to be on their protocol.

• You must report promptly to the IRB any injuries or other unanticipated problems involving risks to participants or others.

• If research is to be conducted during class, the PI must email the instructor and ask if they wish to see the protocol materials (surveys, interview questions, etc.) prior to research beginning.

If you have any questions, please feel free to contact the IRB at irb@olemiss.edu.

Miranda L. Core
Senior Research Compliance Specialist, Research Integrity and Compliance
Office of Research and Sponsored Programs
The University of Mississippi
212 Barr Hall
University, MS 38677-1848
irb@olemiss.edu | www.olemiss.edu
APPENDIX F: UMMC IRB Approval Letter

Initial Approval Letter

Waiver of Documentation of Informed Consent Approval Letter

Investigator Name: Ryan Babl

UMMC IRB Tracking Number: UMMC-IRB-2022-424

Review Classification: Expedited

Board Action Date: December 7, 2022

Approval Expires: December 6, 2023

Submission Type: Initial Application w/ Waiver of Documentation of Informed Consent

DHHS FWA: 00003630 IORG: 0000043

IRB 1 Registration: 00000061

IRB 2 Registration: 00005033

IRB 3 Registration: 00013555

IRB Telephone: (601) 815-5016

IRB E-mail: UMCIRB@umc.edu

Protocol Title: Factors Influencing Individuals' Consideration of Physical Therapy as a Career Choice

THE FOLLOWING ITEMS ARE APPROVED:

- Ryan M. Babl - UMMC IRB Protocol 11.11.2022.docx
- University of Mississippi IRB Approval 9.08.2022.pdf
- Recruitment Email Script - PT Career Choice (2).pdf
- Physical Therapy Career Choice Survey Flyer (2).pdf (IRB Stamped)
- Physical_Therapy_Career_Choice_Survey_-_FINAL (2).pdf
- E-Gift_Card_Information_Collection_-_FINAL (3).pdf
Please note the following information:

**THE IRB HAS APPROVED THE FOLLOWING EXPEDITED CATEGORIES RELATED TO THIS RESEARCH:**

7. Research on individual or group characteristics or behavior (including, but not limited to, research on perception, cognition, motivation, identity, language, communication, cultural beliefs or practices, and social behavior) or research employing survey, interview, oral history, focus group, program evaluation, human factors evaluation, or quality assurance methodologies.

**THE IRB HAS APPROVED THE FOLLOWING ENROLLMENT TOTAL:**

- 200

**THE IRB HAS APPROVED THE FOLLOWING SITES TO BE USED IN THE RESEARCH:**

- UMMC
• **External Institution:** No 'activities' will be conducted at other sites except for the distribution of the survey instrument to potential participants through healthcare careers offices or educational departments that commonly have access to the target population of individuals (students) that have considered are actively considering physical therapy as a career choice. Healthcare career offices and/or education departments will be approached and asked to distribute the recruitment flyer information to any potentially interested students at any two-year public higher education institution or four-year public or private higher education institution in the states of Mississippi, Alabama, Tennessee, or Kentucky. Students or other individuals will be able to independently decide to participate in the research study after being forwarded the information through officials at their respective institution but will not impact their standing or have anything to do with the institution they attend itself.

Please remember to:

- Use the IRB file number (UMMC-IRB-2022-424) on all documents or correspondence with the IRB concerning your research protocol.
- Review and comply with all requirements on the enclosure, UMMC Investigator Responsibilities, Protection of Human Research Participants.

The IRB has the prerogative and authority to ask additional questions, request further information, require additional revisions, and monitor the conduct of your research and the consent process.

Please note, if this study involves an intervention (whether or not it involves a drug or device) you (or the “responsible party”) must register the study before enrollment begins and report results within 12 months of study closure through Clinicaltrials.gov [http://www.clinicaltrials.gov/](http://www.clinicaltrials.gov/). Penalties for responsible parties who fail to register applicable clinical studies are significant and include civil monetary penalties and, for federally-funded studies, withholding or recovery of grant funds. For additional information please go to [http://irb.umc.edu/GuidanceInfo/ ClinTrialRegistry.htm](http://irb.umc.edu/GuidanceInfo/ ClinTrialRegistry.htm).

**Waiver of Documentation of Informed Consent**

**Protocol Title:** Factors Influencing Individuals' Consideration of Physical Therapy as a Career Choice

IRB 3 Chair has reviewed and approved your request for a Waiver of Documentation of Informed Consent. We have determined that the request is allowable within Federal Regulations set forth by 45 CFR 46.117(c).
Requirements for waiver of documentation of informed consent.

An IRB may waive the requirement for the investigator to obtain a signed informed consent form for some or all subjects if it finds any of the following:

(i) That the only record linking the subject and the research would be the informed consent form and the principal risk would be potential harm resulting from a breach of confidentiality. Each subject (or legally authorized representative) will be asked whether the subject wants documentation linking the subject with the research, and the subject's wishes will govern;

(ii) That the research presents no more than minimal risk of harm to subjects and involves no procedures for which written consent is normally required outside of the research context; or

(iii) If the subjects or legally authorized representatives are members of a distinct cultural group or community in which signing forms is not the norm, that the research presents no more than minimal risk of harm to subjects and provided there is an appropriate alternative mechanism for documenting that informed consent was obtained.

In cases in which the documentation requirement is waived, the IRB may require the investigator to provide subjects or legally authorized representatives with a written statement regarding the research.

UMMC Investigator Responsibilities

Protection of Human Research Participants

The IRB reviews research to ensure that the federal regulations for protecting human research participants outlined in UMMC policy, the Department of Health and Human Services (DHHS) regulations (45 CFR 46) and the Food and Drug Administration (FDA) regulations (21 CFR Parts 50 & 56), as well as other requirements, are met. The University of Mississippi Medical Center's Federal Wide Assurance (FWA), FWA# 00003630, awarded by the Office for Human Research Protections (OHRP) at DHHS, is a written pledge to follow federal guidelines for protecting human research participants in accordance with the principles of the Belmont Report. All investigators must read both the Belmont Report and the UMMC FWA to understand their responsibilities in conducting research involving human participants. Both documents are available on the Human Research Office webpage, http://irb.umc.edu/, and in hard copy by request from the Human Research Office. Some of the responsibilities investigators have when conducting research involving human participants are listed below.

1. Conducting the Research: You are responsible for making sure that the research is conducted according to the IRB approved research protocol. You are also responsible for the actions of the study's co-investigators and research staff

2. Participant Enrollment: You may not recruit or enroll participants prior to the IRB approval date or after the expiration date of IRB approval. All recruitment materials for any form of distribution or media use must be approved by the IRB prior to their use. If you need to recruit more participants than was noted in your IRB approval letter, you must submit an amendment requesting an increase in the number of participants.
3. Informed Consent: Informed consent is a process that begins with the initial contact and ends at some point after the study is complete. You are responsible for the conduct of the consent process, ensuring that effective informed consent is obtained and documented using only the IRS-approved and stamped consent document(s), and for ensuring that no human participants are involved in research prior to obtaining their informed consent. Whoever is presenting the consent document to the potential participant and conducting the consent discussion must have all pertinent information at hand, be knowledgeable about the study and the disease or condition involved, if any, and have the ability and experience to answer questions regarding the study and any treatment involved. Please give all participants a signed copy of each consent or assent document they sign, and keep the originals in your secured research files for at least six (6) years. When appropriate, you should place a copy of the consent document in the participant's medical record.

4. Renewal: The IRB must review and approve all IRS-approved research protocols at intervals appropriate to the degree of risk, but not less than once per year. There is no grace period. Prior to the date on which IRB approval of the research expires, the IRB will send you two reminders to submit a Renewal, 60 and 30 days prior to expiration. Although reminders are sent, it is ultimately your responsibility to submit the renewal in a timely fashion to ensure that a lapse in IRB approval does not occur. If IRB approval of your research lapses, you must stop new participant enrollment, and contact the IRB immediately.

5. Modifications: If you wish to modify or change any aspect of your research, including research design, interventions or procedures, number of participants, participant population, consent document, instruments, surveys or recruitment and retention material, you must submit the modification or revisions to the IRB for review. You may not initiate any modifications or changes to your research without first obtaining IRB review and written approval. The only exception is when the change is necessary to eliminate apparent immediate hazard to participants. In that case the IRB should be immediately informed of this necessity, but the change may be implemented before obtaining IRB approval.

6. Unanticipated Events: All adverse events that are unanticipated (unanticipated means that the event is serious, unexpected, related or possibly related to participation in the study and places participants at greater risk of harm than previously recognized) and serious protocol deviations, must be reported to the IRB within ten (10) business days of discovery. The only exception to this policy is death - the death of a UMMC research participant must be reported within 48 hours of discovery. Reportable events should be submitted to the IRB with the Adverse Event/Unanticipated Problem Report form.

Events that do not meet the definition of an unanticipated problem involving risk to participants or others, including research related injury occurring at a UMMC performance site or to a UMMC study participant, participant complaints, problems, minor protocol deviations and non-compliance with the IRB's requirements for protecting human research participants should be reported as follows: Minor deviations and problems should be submitted at the time of continuing review, as instructed on the form. All other events should be reported in writing via letter or email to the IRB with sufficient detail to allow the reviewer to understand the problem and any actions taken to prevent it from happening again.
7. Research Record Keeping: At a minimum, you must keep the following research related records in a secure location for at least six years: the IRB approved research protocol and all amendments; all versions of the investigator's brochure; all informed consent documents; all recruiting materials; all renewal applications; all adverse or unanticipated event reports; all correspondence to and from the IRB; and all raw data.

8. Reports to FDA and Sponsor: When you submit the required annual report to the FDA or you submit required reports to your sponsor, you must provide a copy of that report to the IRB. You may submit the report with your IRB continuing review application.

9. Provision of Emergency Medical Care: When a physician provides emergency medical care to a participant without prior IRB review and approval, to the extent permitted by law, such activities will not be recognized as research and the data cannot be used in support of the research.

10. Closure: When you have completed the study, (no further participant enrollment, interactions, interventions or data analysis) or stopped work on it, you must submit a Closure to the IRB.

11. On-Site Evaluations, FDA Inspections, or Audits: If you are notified that your research will be reviewed or audited by the FDA, OHRP, the sponsor, any other external agency, or any internal group, you must inform the IRB immediately and submit all audit reports received as a result of the audit to the IRB.

*We wish you the best as you conduct your research. If you have questions or need additional information, please contact the Human Research Office at (601) 815-5016.*

*IRB 3*
Dear Dr. Babl,

This is a follow-up to SHRP Interim Dean, Dr. Burrell’s memo regarding approval of your grant proposal. On behalf of the research affairs committee (RAC) and SHRP Private Practice Plan members, I would like to congratulate you for receiving such a prestigious award and to provide you with additional information about the mechanism of funding. Your grant was approved for a duration cycle that begins on 10/1/22 (from October 2022 to September 30th, 2023/Direct Cost: $2,000.00). You will need to contact Ms. Kim McGaugh at the Dean’s office to help you establish your grant account through the private practice plan fund. Please keep in mind that the grantee is fully responsible for cost accountability during the entire period of the research project, and you will be personally responsible for any overexpenditure. A Terminal Report, summarizing work completed, results, and expenditures, must be submitted within six months of completion of all studies/projects (April 2023). The information provided in the terminal report will assist the RAC in raising new monies and justifying monies spent. This report shall be submitted to RAC and will consist of sufficient details that the end product can be clearly understood. Instructions for completing this report may be obtained from the RAC or within the application forms. Grant recipients are expected to publish/present results of their studies/projects at the institutional (SHRP Research Day) as well as national levels. In addition, the RAC expects a copy of any publication (if any) and notification of presentations which result from this work. Any publication or other transmissions of research findings emanating from this project must include a credit line, "This project was supported by the University of Mississippi Medical Center School of Health Related Professions Development Fund/Private Practice Plan, Jackson, MS." A Follow-up Report may be submitted to summarize any achievements which resulted following the submission of the Terminal Report. The Follow-up Report, documenting publications (if any), presentations and other transmissions of research emanating from the research project, should be submitted to RAC. In case where research is not completed, a final report must be filed with RAC within three months of the end of the funding period. In a separate e-mail, I will send you the RAC member’s comments, pending recommendations and suggestions which we believe will help you tremendously in the next phase.

Congratulations again and good luck in executing the aims of your project.

Sincerely,

Sherry Colson
Chair SHRP Practice Plan Committee

Sherry Colson, PT, DPT, EdD
Associate Professor
University of MS Medical Center
School of Health Related Professions
Department of Physical Therapy
Jackson, MS
601-984-6348
CURRICULUM VITAE

Ryan Michael Babl
University of Mississippi Medical Center
School of Health-Related Professions
Department of Physical Therapy

Education:
Doctor of Philosophy – Currently Enrolled
University of Mississippi; Oxford, Mississippi
Higher Education
Anticipated Graduation August 2023

Doctor of Physical Therapy
University of Alabama at Birmingham; Birmingham, Alabama
Physical Therapy
December 2010

Master of Science
University of Southern Mississippi; Hattiesburg, Mississippi
Exercise Science
May 2005

Bachelor of Science in Education
University of Nebraska – Lincoln; Lincoln, Nebraska
Exercise Science
May 2003

Licensure Information:
Mississippi State Board of Physical Therapy License # PT5099

Certifications:
ABPTS Board Certified Specialist in Orthopaedic Physical Therapy
Certification # 52396
Initial Certification: July 2018

American Physical Therapy Association (APTA) Academy of Aquatic Physical Therapy Certificate in Aquatic Physical Therapy Clinical Competency (CAPTCC)
2015

National Strength and Conditioning Association (NSCA) Certified Strength and Conditioning Specialist (CSCS)

American Heart Association CPR and AED Certifications
Current

151
Professional Skills:
- Microsoft Word, Excel, PowerPoint, Outlook
- Zoom Video Conferencing
- Canvas Learning Management System
- BigBlueButton Virtual Classroom Software
- JASP Statistical Software

Employment and Positions Held:
- Associate Professor, Department of Physical Therapy  
Non-Tenure Track Appointment  
University of Mississippi Medical Center (UMMC) - School of Health-Related Professions (SHRP)  
Jackson, MS  
July 2020 – Present

- Assistant Professor, Department of Physical Therapy  
Non-Tenure Track Appointment  
University of Mississippi Medical Center (UMMC) - School of Health-Related Professions (SHRP)  
Jackson, MS  
December 2016 – June 2020

- Senior Physical Therapist  
St. Dominic Outpatient Rehabilitation and Hand Management Center - St. Dominic Health Systems  
Jackson, MS  
July 2012 – December 2016

- Physical Therapist and Weekend Sports Clinic Coordinator  
Eskridge and White Physiotherapy  
Homewood, AL  
January 2011 – June 2012

- Personal Fitness Instructor  
Gravlee Fitness and Body Designs  
Mountain Brook, AL  
September 2005 – June 2011

- Graduate Assistant of Aquatics/Fitness  
Division of Recreational Sports - University of Southern Mississippi  
Hattiesburg, MS  
August 2003 – June 2005

Peer Reviewed Publications:


**Peer Reviewed Scientific and Professional Presentations:**

**Instructional Session Presentation(s):**
- Babl RM, Ware T. Using Aquatic Therapy for Neuro Patients and Ortho Patients. Mississippi Physical Therapy Association (MPTA) Fall Meeting. Tupelo, MS; October 2016.


**Platform Presentation(s)/Abstract(s):**


**Poster Presentation(s):**


Joint Position Error test, Dynamic Visual Acuity test; and Cranio-Cervical Flexion Test in Healthy Young Adults: A Pilot Study. APTA Combined Sections Meeting (CSM); February 2020.


Funded/In Review Grant Activity:
UMMC - School of Health-Related Professions Faculty Development Grant
Babl (PI)
10/01/2022 – 09/30/2023
Title: Factors Influencing Individuals’ Consideration of Physical Therapy as a Career Choice
Amount: $2,000
The goal of this project is to explore how factors identified to influence career choice in healthcare impact an individual's self-perceived likelihood of applying to an entry-level graduate physical therapy program and pursuing physical therapy as a career.
Role: Principal Investigator

Health Resources and Services Administration (HRSA)
Chandra (PI)
09/30/2022 – 09/29/2023
Title: Remote Concussion Examination in Virtual Reality
The goal of this project is to develop novel diagnostic tests, delivered via headset virtual reality (VR), to enable concussion examination and treatment through telehealth. Data collected in this project will be used to train a self-learning algorithm to refine the test battery for future studies.
Role: Sub-Study Co-Investigator (5% effort)

Health Resources and Services Administration (HRSA) 2 U66RH31459-04-00
Chandra (PI)
09/30/2021 – 09/29/2022
Title: Remote Concussion Examination in Virtual Reality
The goal of this project is to develop novel diagnostic tests, delivered via headset virtual reality (VR), to enable concussion examination and treatment through telehealth. Data collected in this project will be used to train a self-learning algorithm to refine the test battery for future studies.
Role: Sub-Study Co-Investigator (5% effort)

Health Resources and Services Administration (HRSA) 6 U66RH31459-03-01
Summers (PI)
09/30/2019 – 09/29/2021
Title: Remote Concussion Examination in Virtual Reality
Amount: $148,000
The goal of this project is to develop novel diagnostic tests, delivered via headset virtual reality (VR), to enable concussion examination and treatment through telehealth. Data collected in this project will be used to train a self-learning algorithm to refine the test battery for future studies.
Role: Sub-Study Co-Investigator (5% effort)
The goal of this project is to develop novel diagnostic tests, delivered via headset virtual reality (VR), to enable concussion examination and treatment through telehealth. Data collected in this project will be used to train a self-learning algorithm to refine the test battery for future studies.
Role: Sub-Study Co-Investigator (5% effort)

Non-Funded Grant Activity:
2018 AAMC Curricular Innovation Award Grant Submission
Title: UMMC Interprofessional Standardized Patient Encounter Series
Amount: $2,500
Role: Co-Investigator

Current/Active Research Activity:
Currently Pursuing a Doctor of Philosophy (Ph.D.) in Higher Education
School of Education - Department of Higher Education
University of Mississippi; Oxford, Mississippi
Anticipated Date of Graduation: August 2023
Reneker JC, Babl RM, Brown M, Pannell WC. Title: Remote Concussion Examination in Virtual Reality
Grant Funded (5% effort)

Membership in Scientific/Professional Organizations:
American Physical Therapy Association (APTA) - Professional Member
2007 – Present
Academy of Orthopaedic Physical Therapy Member
Academy of Aquatic Physical Therapy Member
Academy Education Member

APTA Mississippi - Chapter of the American Physical Therapy Association - Professional Member
2013 – Present

National Strength and Conditioning Association (NSCA) - Professional Member
2003 – 2007; 2020 - Present

Alpha Eta Society - University of Mississippi Medical Center Chapter
November 13, 2020-Present

Consultative and Advisory Positions Held:
Article Reviewer for Journal of Aquatic Physical Therapy
Academy of Aquatic Physical Therapy
2021, 2022, 2023

Abstract Reviewer for CSM 2021 in Orlando, FL
Academy of Aquatic Physical Therapy
2020

Abstract Reviewer for CSM 2020 in Denver, CO
Academy of Aquatic Physical Therapy
2019
Grant reviewer
Academy of Aquatic Physical Therapy Hydroworx Grant application submissions
2019, 2020

Abstract Reviewer for CSM 2019 in Washington, DC
Academy of Aquatic Physical Therapy
2018

National Service:
Research Committee Communications Liaison
Academy of Aquatic Physical Therapy
2019 – 2020

Research Committee Member
APTA Academy of Aquatic Physical Therapy
2018 – 2020

Regional, State, or Local Community Service:
Nominations Committee Chair (2017) & Committee Member (2015-2016)
APTA Mississippi – Chapter of the American Physical Therapy Association
2015 - 2017

Chair – Event 5k & Fun Run Committee
Central Mississippi Down Syndrome Society (CMDSS) Buddy Walk – Pearl, MS
2017, 2018, 2019

Volunteer - Central Mississippi Down Syndrome Society (CMDSS) Buddy Walk – Pearl, MS
2016 - Present

Volunteer - St. Dominic's Magnolia Meltdown Event Committee – Ridgeland, MS
2015

Co-Chair and Committee Member - University of Southern Mississippi Rec. Sports Annual Run for Love 5k Race – Hattiesburg, MS
2004, 2005

Member - American Heart Walk Committee – Hattiesburg, MS
2004

Services to the University/College/School on Committees/Councils/Commissions:
University of Mississippi Medical Center (UMMC); Jackson, MS
Member – UMMC Faculty Senate, SHRP Representative
University of Mississippi Medical Center (UMMC); Jackson, MS
2022 - Present

Member – Office of Interprofessional Education
University of Mississippi Medical Center (UMMC); Jackson, MS
2022 - Present

Member - Opioid Task Force Education Subcommittee
University of Mississippi Medical Center (UMMC); Jackson, MS
2018 – 2022
Member - Development/Organizational Committee for Student IPE Learning Community Series
University of Mississippi Medical Center (UMMC); Jackson, MS - Schools of Medicine, Pharmacy, Physical Therapy, Occupational Therapy, and Nursing
2017 – Present

UMMC School of Health-Related Professions (SHRP)
Member – SHRP Grants Writing Advisory Group
UMMC School of Health-Related Professions; Jackson, MS
2022 - Present

Chair – SHRP Interprofessional Education Committee
UMMC School of Health-Related Professions; Jackson, MS
2022 – Present

Judge - SHRP Research Day
UMMC School of Health-Related Professions; Jackson, MS
2021, 2022, 2023

Member - SHRP Best Practices Committee
UMMC School of Health-Related Professions; Jackson, MS
2018 - Present

Member - SHRP Inter-professional Education Committee
UMMC School of Health-Related Professions; Jackson, MS
2017 – 2022

SHRP Department of Physical Therapy
Member - Research Committee
Department of Physical Therapy – UMMC School of Health-Related Professions; Jackson, MS
2022 - Present

Member - Faculty Search Committee
Department of Physical Therapy – UMMC School of Health-Related Professions; Jackson, MS
2022

Member - LM Building OT/PT Task Force Committee
Department of Physical Therapy – UMMC School of Health-Related Professions; Jackson, MS
2020 - 2021

Member – PT Curriculum Committee
Department of Physical Therapy – UMMC School of Health-Related Professions; Jackson, MS
2020 – Present

Class Advisor - Physical Therapy Class of 2022
Department of Physical Therapy – UMMC School of Health-Related Professions; Jackson, MS
May 2019 - May 2022

Chair - Laboratory Structure, Supplies, and Planning Committee
Department of Physical Therapy - UMMC School of Health-Related Professions; Jackson, MS
2018 - Present

Member - PT Graduate/Employer Follow-up Committee
Department of Physical Therapy - UMMC School of Health-Related Professions; Jackson, MS
2017 - Present
Member - Academic Advisor Committee  
Department of Physical Therapy - UMMC School of Health-Related Professions; Jackson, MS 2017 - 2022

Member - Admissions Committee  
Department of Physical Therapy - UMMC School of Health-Related Professions; Jackson, MS 2017 - Present  
Admissions Subcommittee Member for File Review Forms (2018-2019)  
Admissions Subcommittee Member for Interviews (2018 – 2019)

Member - Dress Code Development Task Force Committee  
Department of Physical Therapy - UMMC School of Health-Related Professions; Jackson, MS 2017

Academic Student Advisor  
Department of Physical Therapy - UMMC School of Health-Related Professions; Jackson, MS 2017 - Present

Member - Promotions Committee  
Department of Physical Therapy - UMMC School of Health-Related Professions; Jackson, MS 2016 - Present

Honors and Awards:  
Alpha Eta Society Inductee  
University of Mississippi Medical Center Chapter  
November 2020

William N. Wasson Student Leadership & Academic Award  
The National Intramural-Recreational Sports Association (NIRSA)  
April 2003

Golden Key National Honor Society  
University of Nebraska Chapter  
2000

The National Society of Collegiate Scholars  
University of Nebraska Chapter  
2000

Continuing Education Attended:  
Combined Sections Meeting (CSM) – San Diego, CA  
American Physical Therapy Association (APTA)  
2023

APTA-Mississippi 2022 Fall Conference  
September 23-24, 2022

Ethics Course for the State of Mississippi  
Innovative Educational Services Ethics & Jurisprudence  
2021

Mississippi Physical Therapy Association (MPTA) 2020 Fall Conference  
September 2020
Screening for Medical Disorders Online Course
American Physical Therapy Association (APTA) Online Learning Center
June 2020

Information on APTA’s Revised Code of Ethics for the Physical Therapist and Standards of Ethical Conduct for the Physical Therapist Assistant
American Physical Therapy Association (APTA) Online Learning Center
May 2019

Advanced Concepts in Rehabilitation of the Upper Extremity
University of Mississippi Medical Center (UMMC) Continuing Health Professional Education
May 2019

Combined Sections Meeting (CSM) – Washington, D.C.
American Physical Therapy Association (APTA)
2019

Orthopaedic Certified Specialist (OCS) Board Certification Prep Course
Evidence in Motion Institute of Health Professions
2018
Combined Sections Meeting (CSM) – New Orleans, LA
American Physical Therapy Association (APTA)
2018

Ethics Course for the State of Mississippi
Innovative Educational Services Ethics & Jurisprudence
2017

Faculty Development Workshop – Chicago, IL
APTA Education Section
2017

Bi-monthly UMMC Sports Resident Journal Club
University of Mississippi Medical Center (UMMC); Jackson, MS
January 2017 – Present

MT-2: Essential Spinal Seminar – Canton, MS
Maitland Australian Physiotherapy Seminars
2016

MT-0: Evidence-Based Orthopedic Diagnostic Evaluation – Madison, MS
Maitland Australian Physiotherapy Seminars
2016

Certificate in Aquatic Physical Therapy Clinical Competency Online Seminars and 3-Day Pool Course Program – Chicago, IL
APTA Aquatic Section
2015

Certified Personal Trainer (NSCA-CPT) Online Study Course
National Strength and Conditioning Association (NSCA)
2015

S1 – Spinal Evaluation & Manipulation Course - Birmingham, AL
University of St. Augustine
2014
Foundations of Clinical Orthopaedics Online Course
University of St. Augustine
2014

Intro to Aquatic Therapy and Rehab Online Seminar
Aquatic Therapy & Rehab Institute
2014

Professional Development Days: Intermediate AquaStretch for the Upper Quadrant - Birmingham, AL
Aquatic Therapy & Rehab Institute (ATRI)
2013

Professional Development Days: AquaStretch Basics - Birmingham, AL
Aquatic Therapy & Rehab Institute (ATRI)
2013

Upper Quarter – Spinal and Peripheral Manual Therapy Treatment Techniques - Homewood, AL
Mulligan Concept
2011

APTA Physical Therapist Clinical Performance Instrument for Students: A Self-Guided Training
Online Course

American Physical Therapy Association (APTA) Online Learning Center
2010

Current Teaching Responsibilities

Full-Time Non-Tenure Track Faculty Appointment
Entry Level DPT Program – School of Health-Related Professions (SHRP)
University of Mississippi Medical Center (UMMC)

AY 2022-2023
Summer 2023
   Instructor of Record – PT670 – Elective Course in Therapeutic Exercise

Spring 2023
   Instructor of Record - PT 661 - Evidence Based Physical Therapy Practice II
   Instructor of Record - PT 665 – Research Methodology II
   Contributing Faculty - PT 603 - Physiologic Basis of Physical Therapy II
   Contributing Faculty - PT 631 - Assessment and Management of Musculoskeletal Problems I

Fall 2022
   Instructor of Record – PT 611 - Systems Review and Clinical Dysfunction
   Contributing Faculty – PT 602 - Human Kinesiology and Biomechanics I
   Contributing Faculty – PT 617 – Issues in Community Health and Prevention & Wellness
   Contributing Faculty – PT 634 – Assessment and Management of Musculoskeletal Problems II