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Physician assistant students' perceptions of mental illness: A correlational study of empathy, attitudes, and stigma levels

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PHYSICIAN ASSISTANT STUDENTS' PERCEPTIONS OF MENTAL ILLNESS: A CORRELATIONAL STUDY OF EMPATHY, ATTITUDES, AND STIGMA LEVELS

A Dissertation

by

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ABSTRACT

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Physician assistant students' perceptions and attitudes towards mental illness were examined in relation to their empathy levels. The theoretical frameworks of stigma and labeling were explored and examined through the use of surveys and questionnaires to assess prior attitudes and beliefs about individuals with a mental illness. Based on a multiple-regression model and multi-way analysis of variance, this study showed a statistical significance between an individual's empathy levels and their stigmatization towards mental illness. In addition, the results of this study identified significant relationships between gender and race in terms of empathy. Implications of this study could have far-reaching effects on how healthcare professionals are trained to deal with persons with disabilities, more particularly, mental health and illness.

DEDICATION

I dedicate this dissertation to my husband, my two sons, and my parents. Thank you Mike, my best friend and companion in life, for your unconditional love and support throughout this entire process. You never left my side, never let me quit, and never stopped believing in me. For this I am forever grateful to you. My sons, Mikey and Chase, I love you more than words can say. Let this dissertation serve as reminder to each of you to set goals in life, work hard, believe in yourself, never quit, and I guarantee your dreams will come true. Mom and Dad, thank you for always being there for me. Thank you for making sure I always received the best education. Without your devotion, support, and love I wouldn't be here today.

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CHAPTER I

INTRODUCTION

The population in the United States continues to diversify as the years pass. People of different ethnicities/race, abilities, educational levels, and socioeconomic backgrounds come together to build the fabric of our society. Many people, especially those with disabilities, find themselves fully integrated into a society that does not necessarily understand the dynamics of their disabilities. Individuals diagnosed with a mental illness, for example, is a group that encounters and is faced with society's misconceptions and attitudes towards their disability (Angermeyer & Dietrich, 2006). In regards to health care, individuals with a mental illness utilize the same facilities that everyone else takes advantage of on a daily basis. The difference, however, is that the people working in these healthcare facilities do not always know how to effectively communicate and serve all of the people who walk into their offices (Kaufman, McDonnel, Cristofalo, & Ries, 2012).

As the need for primary care providers continues to grow in the United States, physician assistant studies programs throughout the nation are stepping up to help address this void ("Filling the Gaps," 2007). Very few physician assistants, let alone physician assistant students, have ever dealt with someone who has a mental illness. Through fault of their own, physician assistants simply do not have the skill sets necessary to deal with mental illness. Traditional physician assistant studies programs must condense many years of training into 2 ½ year programs to keep up with the America's growing demand. Unfortunately, a minimal amount of this time is spent teaching future physician assistants about how to communicate and effectively

deal with individuals with a mental illness. A recent study emphasized this lack of training for health professionals. The study discussed an analysis of healthcare provider responsibility which did not recognize mental health training as a need for students (Hardy, 2014). This attitude, in turn, could lead to the prevalence in lack of training seen throughout the nation (Hardy, White, Deane, & Grey, 2011).

Upon graduation, new physician assistants will leave their respective programs and dissipate throughout healthcare facilities and offices around the United States. At some point in their careers, physician assistants will come face-to-face with someone who has a mental illness. Chances are they probably will not know exactly how to handle the situation. Addressing this lack of knowledge (i.e., provider-to-patient communication) may lead to a change—a change that will make physician assistants more prepared and understanding of the unique situations and challenges persons with a mental illness face in a society that stigmatizes them (Kaufman, et al., 2012).

Statement of the Problem

One in five people will experience a mental illness over the course of their lifetime (US Department of Health and Human Services, 1999). According to the National Institute of Mental Health, there are an estimated 43.7 million adults aged 18 or older in the United States diagnosed with a mental illness and 9.6 million diagnosed with a serious mental illness (2012). The Center for Disease Control Surveillance Report estimates that 25% of all adults in the United States (U.S.) have a mental illness; in addition, nearly 50% of U.S. adults will develop at least one mental illness during their lifetime (2010). Those that have experienced a mental illness often say the amount of prejudice and discrimination they experience is worse than the illness itself (Corrigan, 2004; Shrivastava, Johnston, De Sousa, Sonavane, & Shah, 2014). Individuals with a

mental illness feel ashamed and many times avoid seeking treatment to avoid humiliation and shame (Dingfelder, 2009). Families, too, are embarrassed and may blame themselves. Friends may feel uncomfortable and withdraw, leaving the person with a mental illness and their families feeling weakened, isolated and powerless (Shrivastava et al., 2014). Unfortunately, these factors can facilitate mental illness to remain masked in secrecy.

Mental illness has been on the rise over the past few decades. According to the New York Review of Books, between 1987 and 2007, the number of people with mental disorders that qualify for Supplemental Security Income or Social Security Disability Insurance has increased two and a half times (Angell, 2011). While this steep increase could be attributed to improvements in recognizing and diagnosing mental illnesses, mental illness has a stigma in America. According to a 2007 Centers for Disease Control and Prevention Survey, 57% of American adults believed that people are caring and sympathetic to persons with mental illness, while only 25% of adults with mental health symptoms believed that people are caring and sympathetic to persons with mental illness (Center for Disease Control, 2010).

The stigma associated with mental illness continues to provide a major public health challenge. Initiatives such as the Mental Health Commission of Canada's Opening Minds anti-stigma program and the American non-profit Bring Change 2 Mind are diligently working to eradicate the stigma surrounding mental illness (Modgill, Patten, Knakk, Kassam, & Szeto, 2014). Eradicating the stigma of mental illness is an enormous challenge; however, the persistent efforts and sustained activity from these national organizations and through this research endeavor, change is possible.

Purpose of the Study

The purpose of the study is to improve healthcare professionals' understanding of mental health and attitudes toward mental illness. The study aims to examine the correlation between empathy and physician assistant students' attitudes toward mental illness. Specifically, it is hypothesized that the variables of age, race, gender, education, empathy levels, and prior contact are contributing factors in physician assistant students' attitudes toward mental illness. If accurate education regarding the plight of persons with a mental illness can be integrated into physician assistant programs, empathy towards this population could result in more positive attitudes among physician assistants and may facilitate better service to them.

Research Design

This research is a non-experimental, descriptive quantitative study examining physician assistant students' perceptions of mental illness. This study assesses six independent variables: age, gender, race, level of education, prior discipline of study, and phase in training. The dependent variables utilized for this study include empathy levels and level of stigma toward mental illness.

Research Questions & Hypotheses

This study raises the following series of research questions and hypotheses. All hypotheses were tested at the .05 level of significance:

1. Is there a relationship between a physician assistant student's empathy levels when compared to their perception of mental illness stigma?

   HϕI: There is no significant relationship between a physician assistant student's empathy level when compared to their perception of mental illness stigma.

2. Do age, gender, race, prior discipline of student, level of education, and phase in training predict a physician assistant student's level of empathy?

HϕII: Age, gender, race, prior discipline of study, level of education, and phase in training does not significantly predict a physician assistant student's level of empathy.

2.1 Do age, gender, race, prior discipline of student, level of education, and phase in training predict a physician assistant student's level of empathic skill?

HϕIII: Age, gender, race, prior discipline of study, level of education, and phase in training does not significantly predict a physician assistant student's level of empathic skill.

2.2 Do age, gender, race, prior discipline of student, level of education, and phase in training predict a physician assistant student's level of compassionate perspective?

HϕIV: Age, gender, race, prior discipline of study, level of education, and phase in training does not significantly predict a physician assistant student's level of compassionate perspective.

3. Do age, gender, race, prior discipline of prior study, level of education, phase in training, and empathy level predict a physician assistant student's level of stigma to mental illness?

HϕV: Age, gender, race, prior discipline of prior study, level of education, phase in training, and empathy level does not significantly predict a physician assistant student's level of stigma to mental illness.

3.1 Do age, gender, race, prior discipline of prior study, level of education, phase in training, and empathy level predict a physician assistant student's attitudes towards people with mental illness?

HϕVI: Age, gender, race, prior discipline of prior study, level of education, phase in training, and empathy level does not significantly predict a physician assistant student's attitudes towards people with mental illness.

3.2 Do age, gender, race, prior discipline of prior study, level of education, phase in training, and empathy level predict a physician assistant student's attitudes of social engagement to persons with a mental illness?

HϕVII: Age, gender, race, prior discipline of prior study, level of education, phase in training, and empathy level does not significantly predict a physician assistant student's attitude of social engagement to persons with a mental illness.

Research questions and hypotheses will be evaluated and addressed individually in Chapter Four of this work.

Significance of the Study

The significance of this study will be to add to the existing body of knowledge of mental illness. More particularly, this study aims to identify if stigma does exist among healthcare professional students, specifically physician assistant students. By raising awareness of mental health and the stigma of mental illness, physician assistant programs across the world can begin to appropriately incorporate mental health issues and concerns of this growing population (along with strategies in overcoming stigma) into their existing academic curriculums.

Operational Definitions Used in Study

Mental disorder: "A syndrome characterized by clinically significant disturbance in an individual's cognition, emotion regulation, or behavior that reflects dysfunction in the psychological, biological, or developmental processes underlying mental function. Mental disorders are usually associated with significant distress or disability in social, occupational, or other important activities. An expectable or culturally approved response to a common stressor or loss, such as death of a loved one, is not a mental disorder. Socially deviant behavior (e.g., political, religious, or sexual) and conflicts that are primarily between the individual and society are not mental disorders unless the deviance or conflict results from a dysfunction in the individual, as described above." (American Psychiatric Association, 2013, p. 20)

Mental illness: Disorders generally characterized by dysregulation of mood, thought, and/or behaviors (American Psychiatric Association, 2013).

Mental health: A state of complete physical, mental and social well-being, and not merely the absence of disease. It is related to the promotion of well-being, the prevention of mental disorders, and the treatment and rehabilitation of people affected by mental disorders (US Department of Health and Human Services, 1999).

Empathy: The feeling that you understand and share another person's experiences and emotions: the ability to share someone else's feelings (*Merriam Webster Dictionary Online*).

Stigma: A set of negative and often unfair beliefs that a society or group of people have about something (*Merriam Webster Dictionary Online*).

Social stigma: Act of discrediting, or "blemishing" of one's behavior, identity, or status (Goffman, 1963).

Mental health stigma (MHS): A form of social stigma aimed at individuals having a mental illness; often interpreted as a "social cognitive process in which the public perceives certain cues as to an individual's mental health status which in turn activate stereotypes of the group in question and may lead to prejudice and discrimination" (Modgill et al., 2014, p. 2).

Assumptions, Limitations, and Delimitations of the Study

This research survey assumes honesty and truthful responses from its participants. In addition, a sample of convenience is being utilized for this study and therefore cannot generally be applied to a larger population of physician assistant students nationally; as such generalizability is a limitation of this study. These results may be affected by the operations of society during this study, more particularly, the increase and influx of social trends and the use of social media utilized to increase the awareness of mental illness. Furthermore, an additional limitation of this study is the method of analysis. This research utilizes quantitative statistical models that can determine correlations and assignable causations of variable difference(s), however, this study does not utilize any qualitative aspects.

Delimitations utilized for this study include the following factors: participants, geographic region, and profession. Specifically, only physician assistant students in both didactic and clinical phases of their education will be included in the study in a southern state; therefore, results from this study may only be indicative of physician assistant students enrolled in a southern state. An additional delimitation will be the use of closed-ended responses in comparison to open-ended responses. Closed-ended responses were chosen to increase the likelihood that surveys would be completed in their entireties.

Expected Outcomes of the Study

Expected outcomes for this study are to be able to determine if there are demographic variables (i.e, age, gender, race, prior discipline of study, level of education, and phase in

training) that can predict a physician assistant student's level of empathy and level of stigma in relation to mental illness. In alignment with previous research, it is expected that gender will be able to predict these levels. It is also expected to determine that there is a positive correlation and relationship between an individual's amount of contact (with a person diagnosed with a mental illness) and their stigma level. If this relationship is statistically significant, this will allow for evidence-based knowledge and research for physician assistant programs across the nation that indicates the following: By increasing the contact and exposure that physician assistant students have to persons diagnosed with mental illness, there will be a decrease in the levels of stigma to mental illness as they progress into healthcare professionals in clinical practice upon graduation from physician assistant school.

Organization of Remaining Chapters

Chapter One provides an introduction, a purpose, and the need for the study. Chapter Two discusses empathy, stigma as defined as attitudes, and the effects of empathy on mental illness stigma. Chapter Three describes the methodology of the study and details the process that was used to collect and analyze the data. Chapter Four will present the data and the statistical analysis of the results. Chapter Five will provide a summary of the study's results, the conclusions reached, and recommendations for the future.

CHAPTER II

REVIEW OF THE RELATED LITERATURE

Chapter Two of this study is the literature review. It begins with the theoretical framework of empathy, types of empathy, and demographic variables in relation to empathy. Following empathy, theories and origins of mental illness stigma are discussed. The effects of empathy on mental illness stigma are presented at the conclusion of this literature review.

Understanding Empathy

Empathy is defined, "as the act of perceiving, understanding, experiencing, and responding to the emotional state and ideas of another person" (Barker, 2003, p. 147). This response enables an individual to share another's emotional experience. People with emotional empathy tend to be more altruistic, non-aggressive, and score high on measures of moral judgment (Mehrabian, Young, & Sato, 1988). Empathy also promotes healthy personal and moral development and is critical for healthy social relationships by facilitating communication and is a foundational building block of social interaction (Hoffman, 2001). As an emotion that contributes to the intrinsic sense of justice and is the moral behavior that fortifies a society, empathy is essentially the ability to adapt and change (Watson, 2002).

Types of Empathy

Research has determined three forms of empathy that an individual may experience. These include: cognitive empathy, emotional empathy, and compassionate empathy. Cognitive empathy is the ability to recognize what another person is feeling and places an emphasis on understanding and perspective-taking. Emotional empathy focuses on the emotional response

and the ability to actually feel what the person is feeling and encourages the sharing of emotions between people. Finally, compassionate empathy is the ability and want to help a person deal with their situation and emotions (Hoffman, 2001).

Empathy and Clinical Practice

Physician assistant programs across the nation strive to produce professional and clinically competent healthcare providers upon maturation. Clinical competence is defined as, "the habitual and judicious use of communication, knowledge, technical skills, clinical reasoning, emotions, values, and reflection in daily practice for the benefit of the individuals and community being served" (Ogle et al., 2013, p. 825). Empathy, as a component of the interpersonal communication process, is essential in the development of an effective doctor-patient relationship (Ogle et al., 2013). According to Spiro (2009, p. 1177), "empathy is the foundation of patient care, and it should frame the skills of the profession."

In health care, a key feature of empathy is the utilization of cognitive information processing as a method to demonstrate the healthcare providers understanding of their patients' experiences, concerns, and perspectives. This method (cognition, understanding, and communication) of processing information requires that the healthcare provider communicate back to the patient their understandings of what has been said (Ogle et al., 2013). Fjortoft, Van Winkle, and Hojat (2011, p. 1) summed up empathy as it pertains to patient care by describing it as, "predominantly a cognitive attribute that involves an understanding of patients' concerns, the capacity to communicate this understanding, and an intention to help."

If all of this is true, the implications on effective patient care are substantial. Recent research has indicated that higher levels of empathy are associated with higher levels of clinical competence and positive patient outcomes (Ogle et al., 2013). This, in turn, can have a positive

impact on overall patient satisfaction and quality of life. According to Fjortoft et al. (2011, p.1), "empathic engagement in patient care led to better patient compliance, more accurate diagnosis, more accurate prognosis, increase patient satisfaction, and decreased likelihood of litigation against healthcare providers." Therefore, empathy is both an essential and important attribute for physician assistants to develop as they progress through their studies.

Empathy and Students

Research has shown a decline of empathy in regards to patient care among health professional students as they progress through their training and education (Hojat, Mangione, & Nasca, 2004). Stephanie Steinberg (2010) of USA Today profiled a recent study by Sara Konrath from the University of Michigan that says college students today show less empathy towards others in comparison to past generations--40% less empathy when compared to students in the 1980's and 1990's. Konrath reviewed over 72 studies that evaluated empathy levels among 14,000 college students over the past 30 years and concluded that empathy has been declining progressively over the years, but the most drastic decline has occurred since 2000. Although the study did not evaluate the reasons students were becoming less and less empathic, she hypothesized that less face-to-face interactions and the increased use of social media to communicate could be to blame (Steinberg, 2010).

Even with the known importance of empathy in health care, empathy continues to decline during medical training (Wilson, Prescott, & Becket, 2012). Healthcare educators have acknowledged this decline and have taken steps to not only prevent the decline but also develop methods to change attitudes and empathy among their students (Fjortoft et al., 2011). Studies on empathy and health profession students has consistently shown that women are more empathetic and have higher empathy levels in comparison to their male counterparts (Wilson et al., 2012).

Another study by Fjortoft et al. (2011) that confirms this finding is a recent study involving the administration of the Jefferson Scale of Empathy to 187 pharmacy students. This research discovered that gender differences, in regards to empathy, were in favor of women with both statistical significance ($p<.01$) and also practical importance (effect size =0.61; Fjortoft et al., 2011).

Besides gender, age has been cited previously as a predictor for higher empathy levels. Kunzmann (2011) discovered that older adults generally reported and expressed greater empathy and sympathy than their younger counterparts. Wilson et al. (2012) further supports that age is a factor to be considered when evaluating empathy by discovering that participants aged 27 years and older had significantly more empathy than the younger participants.

Discipline of study prior to admission to physician assistant school and year of study are also factors in evaluating student empathy levels. Research has indicated that empathy scores among university students vary depending on discipline and year of study (Wilson et al., 2012). Wilson et al. conducted a study to compare empathy level scores, utilizing the Jefferson Scale of Physician Empathy between health profession students and non-health profession (law) students and between first- and third-year. Findings from this study determined that women consistently outscored men in empathy levels regardless of year of medical training they are in; however, both male and female demonstrated a decline (higher in males) in empathy levels as their medical training progressed. Additionally, Wilson et al. (2012) found that health profession students did have significantly higher empathy scores than did the non-health profession students.

Physician assistant academic curriculums measure students' clinical competencies throughout the didactic and clinical years. Clinical competence is taught and builds on a

foundation of basic knowledge, ethics, and skills. As students progress in their training, they are expected to successfully complete an objective structured clinical examination (OSCE). An OSCE is a performance-based evaluation in which students are assessed in skills pertaining to communication, patient education, clinical examinations, medical procedures, determining medical diagnosis, prescribing, and the interpretation of results (Joong, et al., 2015). With the known importance of empathy, perhaps the OSCE can evaluate a student's empathy as it pertains to patient care and examination.

Theoretical Works of Stigma

Stigma originates from the Greek language and refers to a mark or brand on the body often signifying shame and discredit of a person (Weinstein, 1982). Goffman was one of the most influential stigma theorists. Goffman differentiates three types of stigma: the first of which is abominations of the body which refers to the visible physical impairments of a person, the second type of stigma is identified as the blemishes of a person's character (mental disorder, alcoholism, homosexuality, etc.), and thirdly are the social impairments (race, religion, class, etc.) (Goffman, 1963). A stigmatized individual feels compelled to behave in a manner that they have been categorized with, in turn, affecting a person's self-conceptions and interactions with others (Weinstein, 1982).

Cumming and Cumming (1965) also provided an additional theoretical contribution to stigma and mental illness. This theoretical contribution believes that stigma is, "a loss and a stain on one's good name, a loss of reputation with a reduced social competence" (Weinstein, 1982, p. 89). The Cumming's theoretical framework is very similar to the labeling theory developed by Scheff in 1966. Within these frameworks it is believed that mental illness is not an abnormal

condition of an individual but rather it is seen as a label attached to persons who involve themselves in particular types of deviant activities (Scheff, 1966). While these theories may seem dated, it is important to recognize the framework that researchers today use in studying stigma and its effects.

Dimensions and Models of Stigma

Kassam, Papish, Modgill, and Patten (2012, p. 62) identify six dimensions of stigma: perceived stigma is one's belief that others perceive an individual socially unacceptable; self-stigma is an internal perception that can hinder an individual from seeking help due to the fear of the associated stigma; social distance is a person's desire to sustain adequate distance from individuals with a mental illness; dangerousness is the belief that an individual with a mental illness is dangerous; recovery is the belief that mental illness can be overcome with treatment; and emotional reactions such as empathy and compassion towards people with a mental illness are acknowledged as indicators of non-stigmatizing attitudes.

Previous literature has identified three models of conceptualization of stigma. Link and Phelan (2001) describe four components of mental illness stigma: labeling which begins when a person's characteristics are identified as different between the person who stigmatizes and the stigmatized; stereotyping occurs when the labeled differences are identified as undesirable characteristics; separating occurs once these differences are identified as undesirable; and status loss/discrimination which ultimately leads to devaluation, rejection, and exclusion.

The second model of stigma conceptualization from Corrigan (2004) contains the same components of stereotypes as listed in the previous model except this model is based on the causal relationship between stereotype, prejudice, and discrimination. For example, "a person who believes (cognition) a person mental illness is dangerous (stereotype) might negatively

evaluate or fear (affect) the person with mental illness as dangerous, leading to prejudice (Kassam et al., 2012, p. 13). This would then lead to discrimination (behavior) when the person is treated inappropriately for their mental illness by receiving sub-standard care (Kassam et al., 2012).

The third stigma conceptualization is the tri-partite model. This model proposes that stigma is an "overarching" term that includes three core elements. Knowledge, attitudes, and behaviors is a highly recognized and utilized framework used for health promotion in medical education (particularly medical schools) and focuses attention on the problem of attitudes that are often projected as stereotypes (Kassam et al., 2012).

Prior literature has shown that attitudes towards people with mental illness can be measured using stereotypes; moreover, stigmatizing attitudes can also be measured in the form of emotional reactions towards people with mental illness, such as evaluating empathy levels (Kassam et al., 2012).

Stigma of Mental Illness

Social stigma is the act of discrediting or blemishing of one's behavior, identity, or status (Goffman, 1963). Mental health stigma is a form of social stigma that is focused on individuals having a mental illness (Sickel, Seacat, & Nabors, 2014). Mental health stigma is an attitudinal barrier that affects an individual's basic human needs and has the ability to influence many aspects of an individual: self-perception, employment, housing, interpersonal relationships, physical health, and mental health (Sickel et al., 2014).

Prior research has determined that mental health stigma can negatively affect an individual's self-perception, more particularly, decreases in self-esteem and self-efficacy are associated with mental health stigma. Mental health stigma also has adverse effects on

interpersonal relationships with family and/or friends. Studies have shown that unemployment rates are higher for individuals with a mental illness and for those employed were more likely to be underemployed; furthermore, 29% felt discriminated in attempts to obtain and maintain employment (Sickel et al., 2014). Obtaining and maintaining employment in turn negatively may affect one's self-perception and ability to secure or maintain adequate housing. Research indicates that individuals with a mental illness report many incidents of discrimination when seeking independent housing. Corrigan et al. (2004) noted that 32% of individuals with a mental illness experienced housing related discrimination due to their disability.

In 2007, adults in 37 states were surveyed about their attitudes toward mental illness, using the 2007 Behavioral Risk Factor Surveillance System Mental Illness and Stigma. This study discovered that 57% of adults without mental health symptoms believed that people are caring and sympathetic to persons with mental illness; whereas, only 25% of adults with mental health symptoms believed that people are caring and sympathetic to persons with mental illness (Centers for Disease Control, 2010). These discoveries further support the importance and need to educate healthcare providers and the public about how to support persons with a mental illness and reduce the barriers and obstacles that exist.

National efforts addressing the stigma of mental illness began over 35 years ago. In 1978, The President's Commission on Mental Health developed a task force to develop strategies to reduce stigma, improve public understanding of mental illness, and to encourage the media to present accurate descriptions of individuals diagnosed with a mental illness (Weinstein, 1982). Despite the many years and decades devoted to anti-stigma campaigns, Americans may be as "suspicious" of people with mental illness as ever (Dingfelder, 2009). Pescosolido et al. (2008)

reports that 68 percent of Americans do not want someone with a mental illness marrying into their family and 58 percent do not want people with mental illness in their workplaces. One would expect attitudes to have gotten better through the years; however, attitudes have gotten worse over time as people today are twice as likely than they were in 1950 to believe that individuals with a mental illness are violent (Dingfelder, 2009). In all actuality, Dingfelder (2009) reports that a majority of people with a mental illness are not violent nor does having a mental illness increase the chances that a person will become violent; furthermore, they are 2.5 more times likely to be victims of violence than those not diagnosed with a mental illness. These negative stigma patterns may be due to inaccurate media portrayals (Corrigan, 2005).

Anti-stigma campaigns have evolved over the years. Recent anti-stigma campaigns emphasize that mental illness is, "a disease like any other" and demonstrate that individuals with a mental illness can't just "snap out of it" (Pescosolido et al., 2008). Unfortunately, the message of these campaigns was not working. The pivotal change with anti-stigma campaigns began in Scotland with the "See Me" campaign that, instead of raising awareness of mental illness disease process and its symptoms, focused on the success stories of individuals diagnosed with mental illness (Dingfelder, 2009). The project in Scotland chose to accentuate the positive to eliminate the negative stigma. "When the population gets a better sense of how many people with mental illness are actually successful—if more people come out of the closet—perhaps the stigma of mental illness will finally decline" (Dingfelder, 2009, p. 56).

Population Trends to Stigma

The Centers for Disease Control and Prevention analyzed data from over 35 states in the United States on two questions from the Behavioral Risk Factor Surveillance System (BRFSS)--a state-based system of health surveys that collects information on health risk behaviors, preventive health practices, and health care access (Centers for Disease Control, 2010). A BRFSS Mental Illness and Stigma Module was developed by the Centers for Disease Control and Substance Abuse and Mental Health Services Administration (SAMHSA) to track the prevalence of serious psychological distress, mental health treatment in past 12 months, and attitudes toward mental illness in U.S. states (Centers for Disease Control, 2010). Attitudes toward mental illness were assessed by asking respondents to indicate their level of agreement with two statements: (1) "Treatment can help people with mental illness lead normal lives," and (2) "People are generally caring and sympathetic to people with mental illness" (Centers for Disease Control, 2010, p. 619). This method of asking respondents to indicate what other people think about a health condition has been previously used in assessing other health-related stigma (Green, 1995). For the two statements, participants were asked to answer whether they agreed strongly, agreed slightly, neither agreed nor disagreed, disagreed slightly, or disagreed strongly. Responses to the first statement were reported as follows: age group >55 agreed most strongly; age group 18-24 had the lowest amount of disagrees; females agreed higher than males; Whites agreed most strongly and Hispanic's had the least strongly agrees. Responses to the second statement were reported as follows: ages 18-24 had the highest amount of agrees at 43% and age group 25-34 had the highest disagrees; males agreed more than females; Whites had the highest amount of agrees and Blacks had the highest amount of strongly disagrees (Centers for Disease Control, 2010).

Other population trends show that African Americans displayed greater stigma than Whites (Menke & Flynn, 2009). Also, levels of mental health stigma are noted to be higher among males and Asian/Pacific Islanders (Golberstien, Eisenberg, & Gollust, 2008).

Stigma Trends Among Healthcare Providers

In regards to mental illness, stigmatizing views are not limited to the general public (Kanwar, 2015). The negative impact of stigma on interpersonal relationships extends beyond family and friends but also to those that provide services to individuals having mental illness (Sickel et al., 2014). Recent studies have discovered that medical doctors and students had higher rates of mental health stigma in comparison to patients and nurses (Serafini et al., 2011). The stigma to mental illness reaches well beyond the United States. It has been studied in other parts of the world as well. Naeem et al. (2006) sent surveys to over 294 medical students in Pakistan and showed over half of these respondents held negative attitudes towards people with mental illness. Ultimately, these negative stereotypes may affect the physician-patient relationship and impede a patient's desire to obtain medical treatment (Sickel et al., 2014). This delay in seeking treatment leads individuals to suffer through their mental illness only to seek medical attention when symptoms are at their worst and treatment is more extensive; therefore, it is imperative to diminish stigmatization by healthcare providers to improve the quality of life in those afflicted with a mental illness (Modgill et al., 2014).

Stigmas held by healthcare providers differs from stigmas held by the general population. It has been concluded that people with a mental illness often have poor physical health due to medical professionals' utilization of a phenomenon termed "diagnostic overshadowing" in which physical symptoms of a patient are over-shadowed and consistently attributed to their mental illness (Kassam et al., 2012, p. 64). Kassam et al. (2012) states that healthcare professionals

diagnose and treat individuals with a mental illness differently. It has been recorded that health care providers may be "ignorant" about their expectations of individuals with a mental illness, often due to inadequate training. Prior literature has noted that 68% of mental health professionals don't believe healthcare providers receive the training necessary to deal with mental illness and that negative attitudes held by healthcare professionals is a problem (Kassam et al., 2012).

Negative Impact of Inadequate Medical Care

The implications of suboptimal medical care for those with a mental illness are far-reaching and usually have serious ramifications on the well-being and overall physical and mental health (Girma et al., 2014). Dickey et al. (2002) studied the prevalence rates of diseases in more than 23,000 Medicaid beneficiaries and determined that those individual diagnosed with a psychiatric illness had higher rates of diabetes, hypertension, heart disease, asthma, gastrointestinal disorders, skin infections, malignant neoplasms, and acute respiratory disorders. These higher prevalence rates could be due to the delay in seeking medical treatment; therefore, these individuals suffer through their mental illness only to seek medical attention when symptoms are at their worst and treatment is more extensive (Modgill et al., 2014). Unfortunately, mortality studies in the United States and internationally have shown higher numbers of premature deaths due to natural (medical) causes in those with a mental illness (Harris & Baradough, 1998; Hansen, Jacobsen & Arnesen, 2001; Joukamaa et al, 2001; Lawrence, Jablensky, Holman, & Pinder, 2000). A recent publication suggests that the risk of death in those with a mental illness is up to five times greater (Hardy & Huber, 2014). This risk can equate to 25-30 years of life lost (Ehrlich, Kendall, Frey, Denton, & Kisely, 2015).

Individuals with a mental illness who do seek treatment may be faced with another obstacle in obtaining adequate health care. Patient dumping, often referred to as hospital dumping, is a phenomenon in health care where patients are prematurely removed from a facility by means of taxi or bus to another facility, hospital, or location in an effort to rid themselves of the responsibility of the patient (Abel, 2011). This "dumping" of patients continues even with legal and ethical norms in place to protect patients (Bruce & Majumder, 2014).

CHAPTER III

METHODOLOGY

Chapter Three is focused on the methodology utilized for this study. It discusses the participants used in the study, the instruments, the procedure, and methods of data analysis. The purpose of this study is to explore healthcare professionals' understanding of mental health, empathy and attitudes/stigma toward mental illness. The study aims to examine the correlation between empathy and physician assistant students' attitudes toward mental illness. Specifically, the research questions include:

1. Is there a relationship between a physician assistant student's empathy levels when compared to their perception of mental illness stigma?
2. Do age, gender, race, prior discipline of student, level of education, and phase in training predict a physician assistant student's level of empathy?
    - 2.1 Do age, gender, race, prior discipline of student, level of education, and phase in training predict a physician assistant student's level of empathic skill?
    - 2.2 Do age, gender, race, prior discipline of student, level of education, and phase in training predict a physician assistant student's level of compassionate perspective?
3. Do age, gender, race, prior discipline of prior study, level of education, phase in training, and empathy level predict a physician assistant student's level of stigma to mental illness?

3.1 Do age, gender, race, prior discipline of prior study, level of education, phase in training, and empathy level predict a physician assistant student's attitudes towards people with mental illness?

3.2 Do age, gender, race, prior discipline of prior study, level of education, phase in training, and empathy level predict a physician assistant student's attitudes of social engagement to persons with a mental illness?

It is hypothesized that the variables of age, race, gender, level of education, prior discipline of study, phase in training, and empathy levels are contributing factors in physician assistant students' attitudes toward mental illness.

This research is a descriptive survey quantitative study examining physician assistant students' perceptions of mental illness. This study assesses six independent variables: age, gender, race, level of education, prior discipline of prior study, and phase in training. The dependent variables utilized for this study include empathy levels and level of stigma to mental illness.

Participants and Sample Size

Study participants were recruited from accredited physician assistant master's degree programs at three public universities in a southwestern state. The sample consisted of first year (didactic) and second year (clinical) students who met the following inclusion criteria: (a) at least 18 years old, (b) proficient in English, and (c) enrolled in the program at the time of the survey.

Stevens (1996) recommends, for social science research utilizing a multiple regression, that 15 participants per predictor are needed for a reliable equation. This research study includes 6 predictor (independent variables); therefore, a minimum of 90 participants is a suffice amount of participants to equate scientific value to this study.

Instruments

The instruments that will be used in this study are the Jefferson Scale of Empathy, the Opening Minds Scale for Health Care Providers, and a demographic questionnaire inquiring about participants' age, gender, race, education level, phase in training, prior discipline of study, and prior contact with individuals who have a mental illness.

The Jefferson Scale of Empathy is an instrument used to empirically investigate empathy levels among health profession students (Hojat, Gonnella, & Maxwell, 2009). This scale is a self-administered instrument developed by researchers at the Center for Research in Medical Education and Health Care at Jefferson Medical College of Thomas Jefferson University. This 20-item scale measures empathy levels. Responses are rated on a seven-point Likert-type scale, ranging from 1 = Strongly Disagree to 7 = Strongly Agree. An example statement includes, "Health care providers' understanding of their patients' feelings and the feelings of their patients' families does not influence treatment outcomes." An example of a reverse-score statement is, "Attention to patients' emotions is not important in patient interview." All items are added to produce summative scores ranging from 20 to 140, with higher values indicating a higher degree of empathy. The Cronbach's α of the Jefferson Scale of Empathy was calculated to be .89 for medical students and .87 among residents (Hojat et al., 2001). This scale was originally developed for medical students and was later modified to be applicable to practicing physicians and other health professionals.

The Opening Minds Scale for Health Care Providers (OMS-HC) is a self-report questionnaire assessing the attitudes and behavior intentions towards individuals with a mental illness (Modgill et al., 2014). The 15-item OMH-HC is a psychometric measure of attitudes that uses a five-point Likert-type scale: 1 = Strongly Disagree, 2 = Disagree, 3 = Neither Agree or

Disagree, 4 = Agree, and 5 = Strongly Agree. An example statement includes, "I am more comfortable helping a person who has a physical illness than I am helping a person who has a mental illness." An example of a reverse score item includes, "I would not mind if a person with a mental illness lived next door to me." Item responses are added to produce a total score value (15 to 60), with high scores suggesting a more stigmatizing attitude (Modgill et al., 2014).

In the *Demographic and Prior Contact Questionnaire,* participants were asked to self-identify age, gender, race, highest level of education obtained, prior discipline of study, and their current phase of training. Additionally, five dichotomous statements were developed to measure participants' prior contact with individuals who have a mental illness in various contexts. Sample items included: "I have a family member who has a mental illness," "I have worked with an individual with a mental illness," and "I have been in a class (educational setting) with an individual who has a mental illness." Reponses were coded 1 = Yes and 0 = No. The total scores ranged from 0 to 5, with a higher score indicating a higher level of prior contact.

Procedure

After obtaining IRB approval, the lead author contacted students in person and via email to request participation in this study. Additionally, the Texas Academy of Physician Assistants emailed a request of participation to the students from the three institutions. Students were informed of the purpose of the study and told that their participation was completely voluntary and that the results will be analyzed in aggregate and remain anonymous. Names were not collected in order to ensure participants' anonymity and confidentiality. Students who agreed to participate were given the link to the online survey using Qualtrics. The contents of the online survey included an informed consent, a demographic form, the Jefferson Scale of Empathy, and

the Opening Minds Scale for Health Care Providers. Instructions were provided at the top of every web page for all instruments to guide participants.

Research Design

A multiple regression analysis, a multi-way analysis of variance, and pair-wise comparisons were performed on the collected data to determine the relationships among the variables and to account for variance in the prediction model. Specifically addressing research question one, a correlational analysis was performed to determine if there is a relationship between a physician assistant student's empathy level when compared to their perception of mental illness stigma. Research question number two seeks to identify if age, gender, race, prior discipline of prior study, level of education, and phase in training predict a physician assistant student's level of empathy. Research question number three assesses if age, gender, race, prior discipline of prior study, level of education, phase in training, and empathy level predict a physician assistant student's level of stigma. The statistical method utilized to answer research questions number two and three consisted of a multiple regression and an analysis of variance. Post-hoc tests were implemented to further assess all pair-wise comparisons. In particular, the Scheffe was utilized with results that were determined to be statistically significant that held sufficient practical significance.

Several statistical analysis were conducted within this research; therefore, it is imperative that a Bonferroni correction be completed to adjust the alpha level. Bonferroni corrections are to be completed by adjusting the *P* values when several dependent and/or independent statistical tests are being performed simultaneously on a single data set (Huck, 2008). The Bonferroni correction consisted of dividing the critical *P* value (α) by the number of comparisons being made. The statistical power of the study is then calculated based on this modified *P* value. This

Bonferroni correction will be used to reduce the chances of obtaining false-positive results (type I errors).

A factor analysis was conducted to identify factors that may statistically explain the variation and covariation among the measures. This factor analysis served as a data reduction technique that assessed for overlapping measured variables to determine a smaller set of factors. The factor analysis consisted of two stages: factor extraction and factor rotation. The two statistical criteria used to determine the number of factors to extract included: the absolute magnitude of the eigenvalues of factors (e.g. eigen-value-greater-than-one-criterion) and the relative magnitudes of the eigenvalues (e.g. scree test). Once the factors have been extracted, the factors were rotated to make them more meaningful (Green & Salkind, 2003). The rotational method of VARIMAX was implemented yielding factor names by examining the largest values that link the factor to the measured variables.

Data Analysis

Both descriptive and inferential statistical techniques were used. All data analysis was conducted utilizing IBM SPSS version 22 (2013) software. Descriptive statistics were provided for each variable, including the frequency, mean and standard deviation for gender, age, race, education level, prior discipline of study, phase in training, prior contact, empathy scores, and stigma scores. Variables identified for this study were coded as follows (Pallant, 2010). Age categories were coded as 1 = 18-24 years of age, 2 = 25-34 years of age, 3 = 35-54 years of age, 4 = >55 years of age. Coding for gender included 0 = male and 1 = female. Participant's self-identified race was coded as 0 = White or Caucasian, 1 = Hispanic or Latino, 2 = Black or African American, 3 = Asian, 4 = American Indian or Alaska Native, 5 = Native Hawaiian or other Pacific Islander, and 6 = other. Additional collapsing of race identification coding

included, 1 = Hispanic or Latino and 2 = White or Asian. Highest level of degree attained was coded as 0 = bachelor's degree and 1 = graduate and/or professional degree. Participants were asked to identify their prior discipline of study prior to admission to physician assistant school. Coding included: 0 = non-health and human service related and 1 = health and human service related. Participants were also asked to identify their current phase in training whereas, 0 = didactic (1st year, classroom phase) and 1 = Clinical (2nd year, clinical rotation phase).

In summary, the methodology of this research study is a quantitative survey design. Six independent variables (age, gender, race, prior discipline of study, level of education, and phase in training) were applied to the prediction of two dependent variables (levels of empathy and stigma) in addressing the seven stated research questions. This chapter has detailed the participants, procedures, research designs, and the data analysis used in this research.

CHAPTER IV

RESULTS

The following section pertains to the analysis of data collected for this study. Sample composition and demographics, descriptive statistics, and inferential analyses are addressed in response to the research questions and hypotheses outlined in Chapter One. Five statistical analyses were utilized in this study. These include: factor analysis, correlational analysis, multiple regression, analysis of variance, and multi-way analysis of variance.

A factor analysis was initially conducted to assess the dimensionality of the variables and served as a data-reduction technique reducing overlapping measured variables to a smaller set of factors (Green & Salkind, 2003). This technique identified factors that statistically explain the variation and covariation among measures. A correlational analysis was then performed to identify if a relationship exists between empathy levels and stigma levels. A multiple regression analysis was conducted to evaluate if demographic variables (independent variables) can predict empathy level (dependent variable). An additional multiple regression was performed to evaluate if demographic variables (independent variables) can predict stigma level (dependent variable). The equation for multiple regression reflects the following: $Y' = a + b_1 \cdot X_1 + b_2 \cdot X_2 + b_3 \cdot X_3 + b_4 \cdot X_4 + b_5 \cdot X_5 + b_6 \cdot X_6$. Whereas, Y' is the dependent variable, a represents the constant, b_1-b_6 are regression coefficients, and X_1-X_6 represent the independent variables. The effect size for the overall models- that is, the proportion of variance in Y that is predictable from X_1 and X_2 ...combined is estimated by computation of R^2. The calculated formula utilized was $R^2 = \frac{SSregression}{SStotal}$ (Warner, 2013).

The third statistical analysis utilized in this study was a multi-way (3x2x2x2x2x2) analysis of variance (ANOVA). The first multifactorial analysis' dependent variable was empathy level and the independent variables included age, gender, race, level of highest degree, prior discipline of study, and phase in training. The second multifactorial analysis' dependent variable was stigma level and the independent variables included level of age, gender, race, highest degree, previous degree field, phase in training, and empathy levels. Effect sizes (η^2) were determined for each variable using the following calculated formula: $\eta^2=SS_{between}/SS_{total}$ (Warner, 2013). Analysis of variances and independent sample t-tests were also conducted to evaluate the mean differences of empathy levels with each of the independent variables followed by stigma levels with each of the independent variables. These t-tests and ANOVAs were able to provide specific pair-wise comparisons amongst the independent variables.

Sample Composition and Demographics

Two hundred thirty nine (239) surveys were sent out to three institutions in Texas. One hundred thirty nine physician assistant students participated in the study. The response rate was 58%. After excluding 11 questionnaires due to substantial missing or incomplete data (Son, Friedman, & Thomas, 2012; Warner, 2012), 128 were retained for further analysis. Six more participants were removed due to insufficient numbers in the race independent variable. There were six identified African Americans and one identified in the "other" category. The viable sample size was 122, therefore, a power confidence level of .90 for analyzing the data was upheld. The power confidence level as estimated here suggests that a researcher can be 90% confident of statistical findings for group differences based on the number of subjects in the study. Based on the power confidence formula, this study has met the power analysis requirement with a sample size of 122. The power confidence formula is, n = (L/F 2) + K+ 1,

where *n* is the sample size, *L* is the tabled critical value, *F* is the calculated multiple regression variable, and *K* is the number of independent variables (Hinkle, Wiersma, & Jurs, 2003; Usami, 2014). It has been noted that 15 participants per independent variable is a viable calculation in evaluating sufficient sample sizes. This study has 6 independent variables for research questions 2, 2.1, and 2.2 and 7 independent variables for research questions 3, 3.1, and 3.2, thus requiring a minimum sample size of 105.

The sample consisted of 38 males (31.1%) and 84 females (68.9%) with a mean age of 28.79 years (SD = 5.598). The minimum age was 21 and the maximum was 47 years old. The median age was 27 and the mode was 25. In terms of race, 56.6% of participants self-identified themselves as Hispanic and 43.4% as White or Asian. In alignment with the U.S. Equal Employment Opportunity Commission guidance on creating combined format for racial/ethnic categories from the Special Equal Employment Opportunity file (2012), this study has combined the Asian race with the White race to reflect the new Asian and White (not Hispanic or Latino) race category. Of the participants, 76.2% had a bachelor's degree and 23.8% had a master's or doctoral/professional degree. Prior to admission into a physician assistant program, 32.8% of participants had a health and human service related degree or discipline of study, whereas 67.2% had a non-health and human service related discipline of study. Additionally, 45.9% of participants were currently in their first year or didactic (classroom) phase in their physician assistant training, and 54.1% were in their second year or clinical rotation phase of training.

Empathy levels were divided into three categories (high, medium, and low) based on the participants' score on the Jefferson Scale of Empathy. The scale scores range from 19 to 133, where lower scores indicate less empathy and higher scores indicate higher empathy. Each category (high, medium, and low) was evenly distributed to reflect 38 point differences between

each group. Based on the participants in this study, 86.1% were in the high empathy level category, 17% were in the medium level of empathy category, and 0 participants were in the low empathy level category.

Stigma levels were determined by the participants' scores on the Opening Minds Scale. Scores on this scale ranged from 12 to 48. Based on the 36 point difference, each category (high, medium, and low) was evenly divided with 12 points in each group. Based on the participants in this study, 52.5% of respondents were in the low stigma level category, whereas, 47.5% were in the medium stigma level category, and 0 participants were in the high stigma level category.

The amount of contact categories (high, medium, and low) were determined by the summed score that participants marked on the survey. The questionnaire asked the participants the following questions: (1) Do they know (or met) someone who has a mental illness; (2) Do they have a mental illness; (3) Do they have a family member with a mental illness; (4) Have they been in a class with someone who has a mental illness, and (5) Do they have a friend with a mental illness. Coding was 0 = no and 1 = yes. The amount of "yes" answers were combined to determine the participant's level of contact. Low contact was 0-1, medium contact was 2-3, and high level of contact was 4-5. Based on the participants in this study, 47.5% of participants had a medium level of contact, 27.9% had a high level of contact, and 24.6% had a low level of contact. The demographic characteristics of the sample are presented in Table 1.

Table 1

Descriptive Statistics for Independent Variables (N = 122)

Variable	Frequency	Percentage
Gender		
Male	38	31.1
Female	84	68.9
Age Group		
18-24	24	19.7
25-34	80	65.6
35-54	18	14.8
Race		
White and Asian	53	43.4
Hispanic	69	56.6
Level of Highest Degree		
Bachelor's Degree	93	76.2
Graduate Degree	29	23.8
Degree Field		
Health and Human Services Related	40	32.8
Non-Health and Human Services Related	82	67.2
Phase in Training		
Didactic Phase	56	45.9
Clinical Phase	66	54.1
Empathy Levels		
High (95-133)	105	86.1
Medium (57-94)	17	13.9
Low (19-56)	0	0
Stigma Levels		
High (37-48)	0	0
Medium (25-36)	58	47.5
Low (12-24)	64	52.5
Contact Levels		
High (4-5)	34	27.9
Medium (2-3)	58	47.5
Low (0-1)	30	24.6

Descriptive Statistics

Both empathy levels and stigma levels were assessed for each of the participants. The empathy levels were derived as a summative score based on the Jefferson Scale of Empathy-Health Profession student version (JSE, HPS-version) and the stigma levels were derived as a summative score based on the Opening Minds Scale for Health Care Providers (OMS-HC-15). The overall empathy level mean score of the participants was 109.57. The minimum score was 74 and the maximum was 131 with a standard deviation of 13.232. The overall stigma level mean score was a 24.17. The minimum score was 14 and the maximum score was 35 with a standard deviation of 4.525. The means for both the empathy and stigma scores were evaluated according to the independent variables. In addition to the mean values, each category was divided evenly into ratings based on the scores. Empathy scores were classified as low (19-56), medium (57-94), and high (95-133). Stigma ratings consisted of low (12-24), medium (>24-36), and high (>36-48). The mean scores of empathy and stigma were also compared to the amount of contact that a participant had with an individual diagnosed with a mental illness. The level of contact was based on the contact scores that each participant completed on the survey. Categories of contact levels were established as low contact (0-1 on contact score), medium contact (2-3 on contact score), and high (4-5 on contact score).

Figures 1 and 2 are histograms that indicate the mean for empathy levels and stigma levels based on the participants' responses. Table 2 further describes the empathy scale data. This table reflects the mean empathy score, mean standard deviation, and pair-wise analysis amongst each of the independent variables. Gender was statistically significant, $t=-2.766$, $p<.05$. Also, race was statistically significant, $t=-2.202$, $p<.05$.

Figure 1

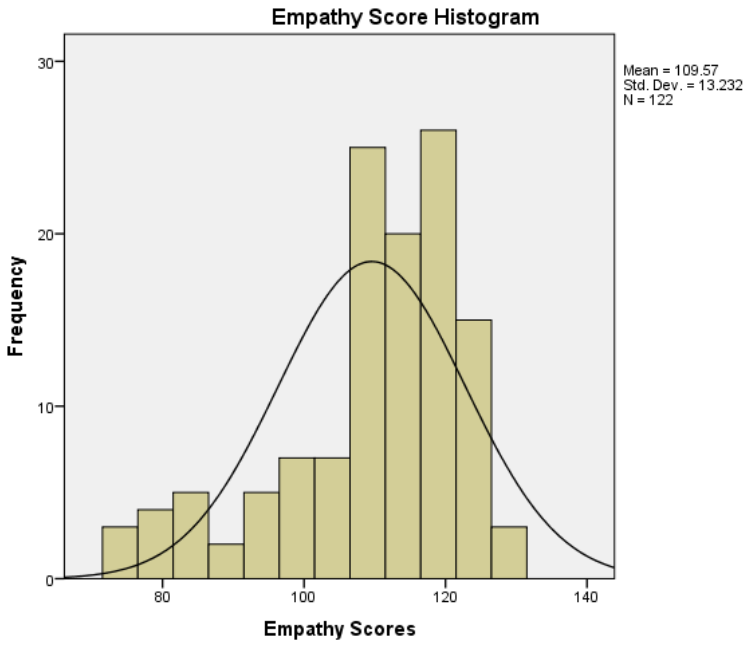


Figure 2

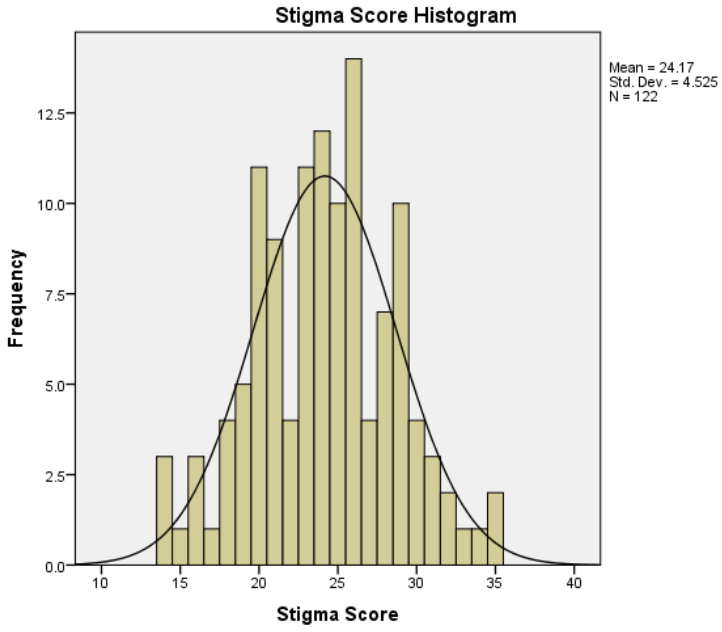


Table 2
Empathy Scale Data

Descriptive Statistics for Independent Variables (N = 122)

Variable	Mean Empathy	Mean Standard	Pair-Wise Analysis
Gender			
Male	104.21	15.614	-2.766*
Female	112.00	11.289	
Age Group			
18-24	112.58	7.180	
25-34	108.89	14.549	0.773
35-54	108.61	13.298	
Race			
White and Asian	112.42	10.465	-2.202*
Hispanic	107.39	14.720	
Level of Highest Degree			
Bachelor's Degree	109.29	13.848	-0.422
Graduate Degree	110.48	11.198	
Degree Field			
Health and Human Services Related	108.83	12.760	0.435
Non-Health and Human Services	109.94	13.518	
Phase in Training			
Didactic Phase	111.11	10.682	1.213
Clinical Phase	108.27	15.022	
Stigma Levels			
High	0	0	
Medium	103.45	15.322	25.810**
Low	114.60	8.491	
Contact Levels			
High	113.44	10.661	
Medium	107.29	14.813	2.366
Low	109.60	13.338	

Note: *p<.05; **p<.01; Ratings for stigma classified as low (12-24), medium (>24-36) or high (>36-48).

Table 3 further describes the stigma scale data. This table reflects the mean stigma score, mean standard deviation, and pair-wise analysis amongst each of the independent variables. Age group was statistically significant, $F(2,119) = 3.270$, $p<.05$. The Scheffe post hoc analysis noted statistical difference ($p<.05$) between age groups 18-24 and 35-54. The Scheffe test was used in this study because of the unequal samples sizes. The critical value for the Scheffe test is the degrees of freedom for the between variance times the critical value for the one-way ANOVA (Pallant, 2010). The linear formula: cv = (k-1) F(k-01,N-K, alpha). Additionally, empathy levels were statistically significant, $t = 22.176$, $p<.01$.

Participants were also questioned on their level of agreement or disagreement to the following general statements: (1) Treatment can help persons with mental illness lead normal lives, and (2) People are generally caring and sympathetic to persons with mental illness. Table 4 demonstrates the results to these two statements in comparison to the general population level of agreement and disagreement as published by the Center for Disease Control's Behavioral Risk Factor Surveillance System. Figures shown on Table 4 are national sample percentages versus the current study sample percentages.

Table 3
Stigma Scale Data

Descriptive Statistics for Independent Variables (N = 122)

Variable	Mean Stigma	Mean Standard	Pair-Wise Analysis
Gender			
Male	25.03	4.353	1.408
Female	23.79	4.574	
Age Group			
18-24	22.63	4.595	
25-34	24.19	4.534	3.270*
35-54	26.17	3.746	
Race			
White and Asian	24.36	4.451	-0.397
Hispanic	24.03	4.608	
Level of Highest Degree			
Bachelor's Degree	23.88	4.636	-1.273
Graduate Degree	25.10	4.083	
Degree Field			
Health and Human Services	24.60	4.349	-0.728
Non-Health and Human Services	23.96	4.620	
Phase in Training			
Didactic Phase	23.57	4.639	-1.355
Clinical Phase	24.68	4.396	
Empathy Levels			
High	23.41	4.331	
Medium	28.32	3.146	22.176**
Low	0	0	
Contact Levels			
High	23.65	4.880	
Medium	24.38	4.553	0.314
Low	24.37	4.140	

Note: *p<.05; **p<.01; Ratings for empathy classified as low (19-56), medium (57-94) or high (95-133).

Table 4

A comparison between levels of agreement with statements about mental illness. Adapted from the Center for Disease Control's Behavioral Risk Factor Surveillance System.

General Statement 1: Treatment can help persons with mental illness lead normal lives.

Variable	Disagree*	Agree*
Gender		
Male	6.2/2.6	91.4/97.5
Female	4.5/1.1	93.6/98.9
Age Group		
18-24	9.1/0	88.9/100
25-34	5.9/2.4	92.2/97.5
35-54	4.3/0	93.8/100
Race		
White, non-Hispanic	4.1/2.5	94.1/97.3
Hispanic	8.1/0	88.5/100
Black, non-Hispanic	9.4/0	88.3/100
Other	6.5/6.6	91.6/97.1

General Statement 2: People are generally caring and sympathetic to persons with mental illness.

Variable	Disagree*	Agree*
Gender		
Male	31.8/51.1	64.7/48.6
Female	41.4/58.3	55.4/41.4
Age Group		
18-24	30.7/62.5	66.3/37.5
25-34	38.6/52.9	58.3/46.9
35-54	39.1/61.8	57.5/38.0
Race		
White, non-Hispanic	39.2/76.8	57.7/23.0
Hispanic	28.1/46.2	67.4/53.5
Black, non-Hispanic	38.1/40.0	58.9/60.0
Other	29.9/53.2	67.2/46.6

Note: *Figures shown include national sample (N=202,065) percentages versus study sample (N=128) percentages.

Factor Analysis

A principal component analysis (PCA) was run on a 20 question survey that measured an individual's level of empathy. The suitability of PCA was assessed prior to analysis. Inspection of the correlation matrix showed that all variables had at least one correlation coefficient greater than 0.3. The overall Kaiser-Meyer-Olkin (KMO) measure was .795, classifications of 'middling' to 'meritorious' according to Kaiser (1974). Bartlett's Test of Sphericity was statistically significant ($p<.0005$), indicating that the data was likely factorable. PCA revealed five components that had eigenvalues greater than one and visual inspection of the scree plot indicated that two components should be retained (Cattell, 1966).

The two component solution explained 42.79% of the total variance. A Varimax orthogonal rotation was employed to aid interpretability. The rotated solution exhibited 'simple structure' (Thurstone, 1947). The interpretation of the data was consistent with the empathy attributes the survey was designed to measure with strong loadings of healthcare provider's compassionate perspective on Component 1 and healthcare provider's empathic skill on Component 2. Item 18 the on survey was removed because it did not load on either components. Component loadings of the rotated solution are presented in Table 5.

A principal component analysis (PCA) was run on a 15 question survey that measured an individual's level of stigma. The suitability of PCA was assessed prior to analysis. Inspection of the correlation matrix showed that all variables had at least one correlation coefficient greater than 0.3. The overall Kaiser-Meyer-Olkin (KMO) measure was .632, classifications of 'middling' to 'meritorious' according to Kaiser (1974). Bartlett's Test of Sphericity was statistically significant ($p<.0005$), indicating that the data was likely factorable and adequate to yield distinct and reliable factors.

Table 5

Empathy Factor Analysis

Rotated Structure Matrix for PCA with Varimax Rotation of a Two Component Questionnaire

	Rotated Component Coefficients	
	Component 1	Component 2
Question 12	.815	
Question 7	.803	
Question 14	.786	
Question 8	.754	
Question 11	.720	
Question 6	.638	
Question 19	.594	
Question 1	.555	
Question 3	.463	
Question 16		.744
Question 10		.691
Question 2		.682
Question 20		.667
Question 4		.659
Question 9		.574
Question 13		.521
Question 17		.481

Note: Question 18 was removed because it did not load on either component; Component 1 – Healthcare provider's compassionate perspective; Component 2 – Healthcare provider's empathic skill

PCA revealed five components that had eigenvalues greater than one and visual inspection of the scree plot indicated that three components should be retained (Cattell, 1966). A three component solution met the interpretability criterion and three components were retained.

The three component solution explained 50.29% of the total variance. A Varimax orthogonal rotation was employed to aid interpretability. The rotated solution exhibited 'simple structure' (Thurstone, 1947). Question items 4, 10, and 12 were removed due to cross loadings. The interpretation of the data was consistent with the perceptions and stigma attributes the

survey was designed to measure with strong loadings of attitudes of healthcare providers towards people with mental illness on Component 1, attitudes of healthcare providers towards disclosure and help-seeking on Component 2, and attitudes of healthcare providers towards social engagement on Component 3. Component loadings of the rotated solution are presented in Table 6.

Table 6

Stigma Factor Analysis

Rotated Structure Matrix for PCA with Varimax Rotation of a Three Component Questionnaire

	Component 1	Component 2	Component 3
Question 15	.800		
Question 13	.725		
Question 9	.700		
Question 1	.476		
Question 11	.448		
Question 6		.781	
Question 14		.684	
Question 7		.673	
Question 2		.658	
Question 3			.821
Question 8			.706
Question 5			.455

Note: Question 4, 10, and 12 were removed due to cross loadings; Component 1 - Attitudes of healthcare providers towards mental illness, Component 2 - Attitudes of healthcare providers towards disclosure and help-seeking; Component 3 - Attitudes of healthcare providers towards social engagement

Inferential Statistics

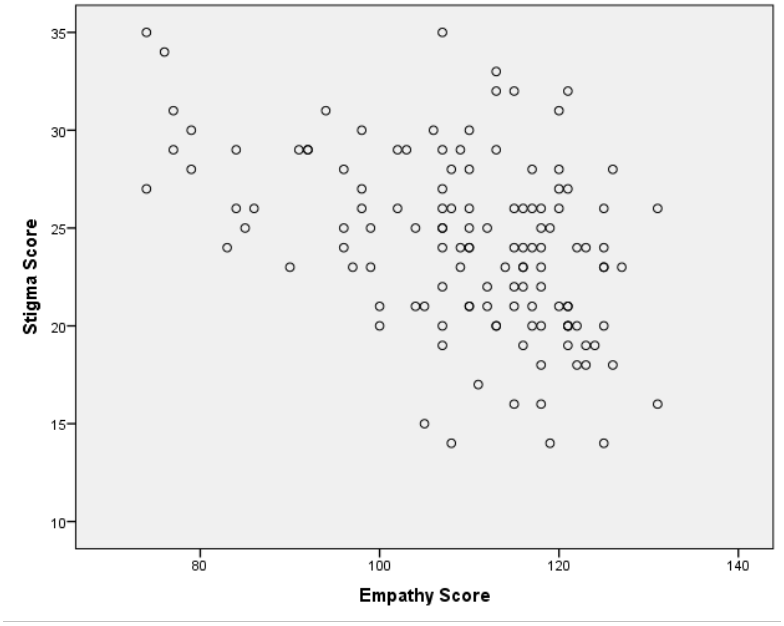
The data analysis presented in this section is consistent with the order of research questions listed in Chapter One.

Research question 1: Is there a relationship between a physician assistant student's empathy levels when compared to their perception of mental illness stigma? The relationship between empathy levels (as measured by the Jefferson Scale of Empathy) and level of stigma (as measured by the Opening Minds Scale) was investigated using the Pearson Product Moment Correlation Coefficient. Preliminary analysis was performed to ensure no violation of the assumption of normality, linearity, and homoscedasticity (Rovai, Baker, & Ponton, 2014). There was a medium, negative correlation between the two variables (empathy and stigma), $r = -.465$, $n = 122$, $p<.001$, with higher levels of empathy associated with lower stigma levels. The coefficient of determination (r^2) = .216. Empathy levels help to explain nearly 21.6% of the variance in respondents' scores on the stigma scale. Based on the correlational analysis, there is a relationship between physician assistant students' empathy levels when compared to their perception of mental illness stigma. Figure 3 is a scatterplot reflecting the negative correlation between empathy and stigma levels; therefore, the null hypothesis is rejected.

A chi-square test for association was also conducted between empathy levels and stigma levels. Observed frequencies of occurrence were compared with theoretical expected frequencies with all expected cell frequencies greater than five (Hinkle, Wiersma, & Jurs, 2003). There was a statistically significant association between empathy levels and stigma levels, $\chi^2(1) = 13.116$, $p<.001$. There was also a moderate association between empathy and stigma levels, $Ø = .328$, $p<.001$.

Figure 3

Empathy and Stigma Correlation



Research question 2: Do age, gender, race, prior discipline of study, level of education, and phase in training predict a physician assistant student's level of empathy? A multiple regression was conducted to predict empathy levels from gender, age, race, level of highest degree, discipline of prior study, and phase in training. The assumptions of linearity, independence of errors, homoscedasticity, unusual points, and normality of residuals were met (Rovai, Baker, & Ponton, 2014). There was independence of residuals as assessed by a Durbin-Watson statistic of 1.668.

This regression model proved to be statistically significant, $F(6,115) = 2.703$, $p<.05$ in predicting empathy levels with adjusted $R^2 = .078$. That is, when gender, age, race, level of highest degree, discipline of prior study, and phase in training were used as predictors, about 12.4% of the variance in empathy levels could be predicted. Gender was statistically significant in predicting empathy levels, $t = 2.624$, $p = .01$. Race group also added statistical significance,

t=2.013, p<.05. Gender's beta value was .242 and participant's race beta value resided at .184. Regression coefficients and standard errors can be found in Table 7. Based on the multiple regression, age, gender, race, level of highest degree, discipline of prior study, and phase in training may predict empathy levels, therefore, the null hypothesis is rejected.

Furthermore, a multi-way ANOVA was conducted to evaluate the effect of the independent variables on the dependent variable. The assumptions of independence of observations and normal distribution were met (Rovai, Baker, & Ponton, 2014). There was homogeneity of variances as assessed by the Levene's test for equality of variances, p = .278. Gender and race were both statistically significant main effects in predicting empathy levels. The corresponding effect-size estimates included the sum of eta squared at .117, thus, the independent variables explain 11.7% of the variance of empathy scores. Gender accounted for 5.3% and race accounted for 3.2% of the variance. Table 8 is a summary of the multi-way ANOVA results.

Table 7

Summary of Multiple Regression Analysis (Empathy)

Variable	*B*	SE_B	β
Age	-1.449	2.222	-.064
Gender	6.890	2.626	.242*
Race	4.889	2.429	.184*
Level of Highest Degree	3.310	2.972	.107
Previous Degree Field	-3.193	2.629	-.114
Phase in Training	-1.929	2.363	-.073

Note: *p<.05; *B* = unstandardized regression coefficient; SE_B = Standard error of the coefficient; β = standardized coefficient

Table 8

Summary of Multi-way Analysis of Variance
Empathy

	Type III SS	DF	MS	F	p-value
Age	90.766	2	45.383	0.279	.757
Gender	1120.595	1	1120.595	6.889	.010**
Race	674.206	1	674.206	4.144	.044*
Level of Highest Degree	219.897	1	219.897	1.352	.247
Previous Degree Field	260.375	1	260.375	1.601	.208
Phase in Training	119.498	1	119.498	0.735	.393

Note: *****p<.05; **p<.01; SS = sum of scores; DF = degrees of freedom; MS = mean square; F = F distribution

Research question 2.1: Do age, gender, race, prior discipline of study, level of education, and phase in training predict a physician assistant student's level of empathic skill?

A multiple regression was run to predict level of empathic skill from gender, age, race, level of highest degree, discipline of prior study, and phase in training. The assumptions of linearity, independence of errors, homoscedasticity, unusual points, and normality of residuals were met (Rovai, Baker, & Ponton, 2014). There was independence of residuals as assessed by a Durbin-Watson statistic of 1.911. This model was not a good model fit and proved not to be statistically significant, $F(6,115) = 1.550$, $p = .168$, in predicting empathic skill. A multi-way ANOVA was conducted to evaluate the effect of the independent variables on the dependent variable. The assumptions of independence of observations and normal distribution were met. There was homogeneity of variances as assessed by the Levene's test for equality of variances, $p = .657$. Gender's main effect was statistically significant in predicting empathic skill $F(1,114) = 5.059$, $p<.05$. Based on the multi-way ANOVA, age, gender, race, level of highest degree, discipline of

prior study, and phase in training may predict empathy levels, therefore, the null hypothesis is rejected.

The corresponding effect-size estimates included the sum of eta squared at .07, thus, the independent variables explained 7% of the variance of empathic skill. Gender accounted for 4.1% of the variance. Table 9 is a summary of the multi-way ANOVA.

Table 9

Summary of Multi-way Analysis of Variance
Empathic Skill

	Type III SS	DF	MS	F	p-value
Age	7.957	2	3.979	.105	.900
Gender	190.872	1	190.872	5.059	.026*
Race	5.426	1	5.426	.144	.705
Level of Highest Degree	18.136	1	18.136	.481	.490
Previous Degree Field	103.609	1	103.609	2.746	.100
Phase in Training	.031	1	.031	.001	.977

Note: *****p<.05; **p<.01; SS = sum of scores; DF = degrees of freedom; MS = mean square; F = F distribution

Research question 2.2: Do age, gender, race, prior discipline of study, level of education, and phase in training predict a physician assistant student's level of compassionate perspective? A multiple regression was run to predict level of compassionate perspective from gender, age, race, level of highest degree, discipline of prior study, and phase in training. The assumptions of linearity, independence of errors, homoscedasticity, unusual points, and normality of residuals were met (Rovai, Baker, & Ponton, 2014). There was independence of residuals as assessed by a Durbin-Watson statistic of 1.706. This regression model proved to be statistically significant, $F(6,115) = 2.867$, $p<.05$ in predicting level of compassionate perspective with adjusted $R^2 = .085$. That is, when gender, age, race, level of highest degree, discipline of prior study, and phase in

training were used as predictors, about 13% of the variance in compassionate perspective could be predicted. Gender was statistically significant in predicting level of compassionate perspective, t = 2.327, p <.05. Race also added statistical significance, t=2.277, p<.05. Gender's beta value was .214 and race's beta value resided at .207. Regression coefficients and standard errors can be found in Table 10. Based on the multiple regression, age, gender, race, level of highest degree, discipline of prior study, and phase in training do predict level of compassionate perspective, therefore, the null hypothesis is rejected.

A multi-way ANOVA was also conducted to evaluate any effects the independent variables had on the dependent variables. The assumptions of independence of observations and normal distribution were met (Rovai, Baker, & Ponton, 2014). However, the assumption of variances as assessed by the Levene's test for equality of variances was violated, p = .008. If the assumptions for ANOVA have not been met, nonparametric alternatives may be utilized and still hold power (Green & Salkind, 2003). Therefore, the Kruskal-Wallis Test, a nonparametric analysis was conducted. Gender held statistical significance (p<.05) and rejected the null hypothesis.

Table 10

Summary of Multiple Regression Analysis (Compassionate Perspective)

Variable	*B*	SE_B	β
Age	-1.130	1.602	-.069
Gender	4.405	1.893	.214*
Race	3.987	1.751	.207*
Level of Highest Degree	2.375	2.142	.106
Previous Degree Field	-.692	1.895	-.034
Phase in Training	-2.208	1.703	-.115

Note: *p<.05; *B* = unstandardized regression coefficient; SE_B = Standard error of the coefficient; β = standardized coefficient

Research question 3: Do age, gender, race, prior discipline of study, level of education, phase in training, and empathy level predict a physician assistant student's level of stigma?

A multiple regression was run to predict stigma levels from gender, age, race, level of highest degree, discipline of prior study, phase in training, and empathy levels. The assumptions of linearity, independence of errors, homoscedasticity, unusual points, and normality of residuals were met (Rovai, Baker, & Ponton, 2014). There was independence of residuals as assessed by a Durbin-Watson statistic of 2.242. This regression model proved to be a good fit and statistically significant, $F(7,114) = 6.002$, $p<.001$ in predicting stigma levels with adjusted $R^2 = .224$. That is, when gender, age, race, level of highest degree, discipline of prior study, phase in training, and empathy levels were used as predictors, about 27% of the variance in stigma levels could be predicted. The independent variable of empathy level added statistical significance to the model, $t = -5.635$, $p<.001$. Based on the multiple regression, age, gender, race, level of highest degree, discipline of prior study, phase in training, and empathy levels do predict stigma levels, therefore, the null hypothesis is rejected. Regression coefficients and standard errors can be found in Table 11.

A multi-way ANOVA was also conducted to evaluate the effect of the independent variables on the dependent variable. The assumptions of independence of observations and normal distribution were met (Rovai, Baker, & Ponton, 2014). There was homogeneity of variances as assessed by the Levene's test for equality of variances, $p = .917$. Empathy level's main effect was statistically significant in predicting stigma level, $F(1,113) = 19.209$, $p<.001$. The corresponding effect-size estimates included the sum of eta squared at .175, thus, the independent variables explain 17.5% of the variance of stigma scores. Level of empathy

accounted for 14.1% of the variance. Table 12 is a summary of the multi-way ANOVA for stigma.

Table 11

Summary of Multiple Regression Analysis (Stigma)

Variable	*B*	SE_B	β
Age	1.332	.785	.173
Gender	-.722	.927	-.074
Race	.099	.858	.011
Level of Highest Degree	.429	1.049	.041
Previous Degree Field	.329	.928	.034
Phase in Training	.713	.834	.079
Empathy Level	-.165	.029	-.482**

Note: *p<.05, **p<.01; *B* = unstandardized regression coefficient; SE_B = Standard error of the coefficient; β = standardized coefficient

Table 12

Summary of Multi-way Analysis of Variance
Stigma

	Type III SS	DF	MS	F	p-value
Age	50.070	2	25.035	1.432	.243
Gender	.039	1	.039	.002	.962
Race	7.430	1	7.430	.425	.516
Level of Highest Degree	12.676	1	12.676	.725	.396
Previous Degree Field	.003	1	.003	.000	.990
Phase in Training	2.122	1	2.122	.121	.728
Empathy Level	335.709	1	335.709	19.209	.000**

Note: *****p<.05; **p<.01; SS = sum of scores; DF = degrees of freedom; MS = mean square; F = F distribution

Research question 3.1: Do age, gender, race, prior discipline of study, level of education, phase in training, and empathy level predict a physician assistant student's attitudes towards people with mental illness?

A multiple regression was run to predict attitudes towards people with mental illness from gender, age, race, level of highest degree, discipline of prior study, phase in training, and empathy level. The assumptions of linearity, independence of errors, homoscedasticity, unusual points and normality of residuals were met (Rovai, Baker, & Ponton, 2014). There was independence of residuals as assessed by a Durbin-Watson statistic of 2.117. This regression model proved to be a good fit and statistically significant, $F(7,114) = 5.216$, $p<.001$ in predicting attitudes towards people with mental illness with an adjusted $R^2 = .196$. That is, when gender, age, race, level of highest degree, discipline of prior study, phase in training, and empathy levels were used as predictors, about 24.3% of the variance in attitudes towards people with mental illness could be predicted. The independent variable of empathy level added statistical significance to the model, $t = -5.265$, $p<.001$. Based on the multiple regression, age, gender, race, level of highest degree, discipline of prior study, phase in training, and empathy levels do attitudes towards people with mental illness, therefore, the null hypothesis is rejected. Regression coefficients and standard errors can be found in Table 13.

A multi-way ANOVA was also conducted to evaluate the effect of the independent variables on the dependent variable. The assumptions of independence of observations and normal distribution were met (Rovai, Baker, & Ponton, 2014). There was homogeneity of variances as assessed by the Levene's test for equality of variances, $p = .889$. Empathy level's main effect was statistically significant in predicting attitudes towards people with mental illness, $F(1,113) = 15.174$, $p<.001$. The corresponding effect-size estimates included the sum of eta

squared at .147, thus, the independent variables explain 14.7% of the variance of attitudes. Empathy level accounted for 11.5% of the variance. Table 14 is a summary of the multi-way ANOVA for attitudes.

Table 13

Summary of Multiple Regression Analysis (Attitudes)

Variable	*B*	SE_B	β
Age	.603	.429	.144
Gender	-.366	.507	-.069
Race	.241	.469	.049
Level of Highest Degree	.435	.574	.076
Previous Degree Field	.150	.507	.029
Phase in Training	.259	.456	.053
Empathy Level	-.085	.016	-.458**

Note: *p<.05,**p<.01; *B* = unstandardized regression coefficient; SE_B = Standard error of the coefficient; β = standardized coefficient

Table 14

Summary of Multi-way Analysis of Variance
Attitudes

	Type III SS	DF	MS	F	p-value
Age	8.338	2	4.169	.772	.464
Gender	.006	1	.006	.001	.974
Race	6.183	1	6.183	1.145	.287
Level of Highest Degree	8.098	1	8.098	1.500	.223
Previous Degree Field	.096	1	.096	.018	.894
Phase in Training	.015	1	.015	.003	.958
Empathy Level	81.914	1	81.914	15.174	.000**

Note: *****p<.05; **p<.01; SS = sum of scores; DF = degrees of freedom; MS = mean square; F = F distribution

Research question 3.2: Do age, gender, race, prior discipline of study, level of education, phase in training, and empathy level predict a physician assistant student's attitudes of social engagement to persons with a mental illness?

A multiple regression was run to predict attitudes of social engagement to persons with a mental illness from gender, age, race, level of highest degree, discipline of prior study, phase in training, and empathy level. The assumptions of linearity, independence of errors, homoscedasticity, unusual points, and normality of residuals were met (Rovai, Baker, & Ponton, 2014). There was independence of residuals as assessed by a Durbin-Watson statistic of 2.047. This regression model was not a good model fit and was not statistically significant, $F(7,114) = 1.543$, $p=.160$ in predicting attitudes of social engagement towards people with mental illness.

A multi-way ANOVA was also conducted to evaluate the effect of the independent variables on the dependent variable. The assumptions of independence of observations, and normal distribution were met (Rovai, Baker, & Ponton, 2014). There was homogeneity of variances as assessed by the Levene's test for equality of variances, $p = .103$. Empathy level's main effect was statistically significant in predicting attitudes of social engagement towards people with mental illness, $F(1,113) = 4.748$, $p<.001$. The corresponding effect-size estimates included the sum of eta squared at .09, thus, the independent variables explain 9% of the variance of attitudes of social engagement. Empathy levels accounted for 4% of the variance. Table 15 is a summary of the multi-way ANOVA for attitudes of social engagement. Based on the multi-way ANOVA, gender, age, race, level of highest degree, discipline of prior study, phase in training, and empathy level predict attitudes of social engagement towards people with a mental illness; therefore, the null hypothesis is rejected.

Table 15

Summary of Multi-way Analysis of Variance
Attitudes of Social Engagement

	Type III SS	DF	MS	F	p-value
Age	.989	2	.495	.170	.844
Gender	1.722	1	1.722	.593	.443
Race	10.340	1	10.340	3.561	.062
Level of Highest Degree	1.918	1	1.918	.661	.418
Previous Degree Field	2.133	1	2.133	.735	.393
Phase in Training	.812	1	.812	.280	.598
Empathy Level	13.785	1	13.785	4.748	.031*

Note: *****p<.05; **p<.01; SS = sum of scores; DF = degrees of freedom; MS = mean square; F = F distribution

Summary

Data analysis and results presented in this chapter were addressed in response to the research questions and related hypotheses posed in Chapter One. Overall, there was a statistically significant correlation between empathy and stigma levels. Both the multiple regression and multi-way ANOVAs indicated a statistically significant prediction of age, gender, race, level of highest degree, prior degree of study, and phase in training with empathy levels (with both gender and race significantly adding to the models). Gender was statistically significant in predicting empathic skill and level of compassionate perspective. Race also contributed significantly to be a predictor of compassionate perspective. Finally, empathy level was shown to be statistically significant in predicting stigma levels, attitudes towards people with mental illness, and attitudes/likelihood of social engagement towards people with a mental illness.

CHAPTER V

DISCUSSION

In order to examine the effects of the independent variables on both empathy and stigma levels in physician assistant students, it is important to revisit the research questions and hypotheses established for this study. The initial discussion will reexamine these research questions and hypotheses and summarize the results categorically as follows: empathy, stigma, and the relationship between stigma and empathy. This will be followed by a discussion on the implications of this study's findings as well as its strengths and limitations. Finally, implications for future research will be discussed along with recommendations for future clinical and educational practices.

Empathy

The independent variables used to predict a physician assistant student's empathy were age, gender, race, prior discipline of study, level of education, and phase in training. Research question 2 tested the predictability of a physician assistant student's empathy level in regards to age, gender, race, prior discipline of study, level of education, and phase in training. Results indicate a relationship showing gender and race as predictors of a student's level of empathy. In regards to mean empathy scores and gender, the female average was 112.00 and the male average was 104.21 for a difference of 7.79. Additionally, in evaluating mean empathy scores and race, the White and Asian (not Hispanic) group mean score was 112.42 and the Hispanic group score was 107.39 for a difference of 5.03. Further pair-wise analysis showed a significant relationship between these two variables. Surprisingly, age did not show a statistical

relationship. Age has been cited previously as a predictor for higher empathy levels. Kunzmann (2011) discovered that older adults generally reported and expressed greater empathy and sympathy than their younger counterparts. Wilson et al. (2012) further supports that age is a factor to be considered when evaluating empathy by discovering that participants aged 27 years and older had significantly more empathy than the younger participants.

Empathic skill was established during a factor analysis to describe the ability of a physician assistant student to be empathetic when dealing with patients. Research question 2.1 tested the predictability of a physician assistant student's level of empathic skill in regards to age, gender, race, prior discipline of study, level of education, and phase in training. Gender was shown to be significantly related to empathic skill in physician assistant students. Empathic skill mean scores showed females scoring 2.86 points higher than their male counterparts. The implications of empathic skill on effective patient care are substantial. In fact, previous literature suggests that empathic skill or "empathic engagement in patient care led to better patient compliance, more accurate diagnosis, more accurate prognosis, increase patient satisfaction, and decreased likelihood of litigation against healthcare providers (Fjortoft et al., 2011, p. 1)."

Like empathic skill, compassionate perspective was established during a factor analysis to describe the ability of a physician assistant student to be compassionate when dealing with patients. Research question 2.2 tested the predictability of a physician assistant student's level of compassionate perspective in regards to age, gender, race, prior discipline of study, level of education, and phase in training. Gender and race, once again, were shown to be a significant predictor of compassionate perspective level in physician assistant students. Like empathic skill, females scored 5.32 points higher than males in measuring compassionate perspective; furthermore, the White and Asian (not Hispanic) race group scored 4.33 points higher than the

Hispanic group. Studies on empathy and health profession students has consistently shown that women are more empathetic and have higher empathy levels in comparison to their male counterparts (Wilson et al., 2012). Another study by Fjortoft et al. (2011) confirms this finding in a recent study involving the administration of the Jefferson Scale of Empathy to 187 pharmacy students. This research discovered that gender differences, in regards to empathy, were in favor of women with both statistical significance ($p<.01$) and also practical importance (effect size =0.61; Fjortoft et al., 2011).

Stigma

The independent variables used to predict physician assistant student's level of stigma are age, gender, race, prior discipline of study, level of education, and phase in training. An additional independent variable, empathy level, was introduced in evaluating stigma. Research question 3 tested the predictability of a physician assistant student's stigma level in regards to age, gender, race, prior discipline of study, level of education, phase in training, and empathy level. Results indicate a relationship showing empathy level as a predictor of a student's level of stigma. Pair-wise comparison of stigma and empathy levels showed a considerable relationship between the two variables. More specifically, this correlational relationship shows as empathy levels increase, stigma levels decrease. Those with high empathy levels averaged 23.41 in the stigma scale, while those with medium empathy levels averaged 28.32 in the stigma scale for a difference of 4.91, with higher scores indicating higher stigma levels.

"Attitudes towards people with mental illness" was established during a factor analysis to describe the overall attitudes that physician assistant students have about those with a mental illness. Research question 3.1 tested the predictability of a physician assistant student's attitudes towards those with a mental illness in regards to age, gender, race, prior discipline of study, level

of education, phase in training, and empathy level. Results indicate a relationship showing empathy level as a predictor of a student's attitudes towards mental illness.

"Attitudes of social engagement to persons with a mental illness" was established during a factor analysis to describe the likelihood of physician assistant students to effectively interact with those having a mental illness. Research question 3.2 tested the predictability of a physician assistant student's attitudes towards those with mental illness in regards to age, gender, race, prior discipline of study, level of education, phase in training, and empathy level. Results indicate a relationship showing empathy level as a predictor of a student's attitudes of social engagement towards people with a mental illness.

In comparing age and stigma, further post-hoc analysis noted a significant difference between age groups 18-24 and 35-54. The mean stigma score for the 18-24 age group was 22.63, while the mean stigma score for the 35-54 age group was 26.17, for a difference of 3.54 with higher scores indicating higher stigma levels.

Relationship Between Empathy and Stigma

The overall relationship between a physician assistant student's empathy levels when compared to their perception of mental illness stigma was evaluated in research question 1. A significant relationship between empathy and stigma was shown to have a negative correlation. In other words, as empathy level decreases stigma level increases (and vice-versa). Previous studies have shown that empathy may have an effect on stigmatization (Cohen, Quintner, Buchanan, Nielsen, & Guy, 2011; Olapegba, 2010).

Additional Findings

Previous levels of contact with those individuals with a mental illness was measured in the study with participants being ranked as having low, medium, and high contact levels.

Empathy scale data indicates that the participants with the highest amount of contact had the highest empathy scores. Additionally, stigma scale data indicates that the participants with the highest amount of contact had the lowest stigma scores.

Phase of training (didactic or clinical) also showed differences in empathy and stigma scores. The mean empathy scores decreased as students progressed from didactic to the clinical phase of training. Moreover, progression from didactic to clinical phase in training showed an increase in the mean stigma scale score. This is in line with previous research that shows variance in empathy scores among university students depending on year of study (Wilson et al., 2012). Wilson et al. (2012) conducted a study to compare empathy level scores, utilizing the Jefferson Scale of Physician Empathy between health profession students and non-health profession (law) students and between first- and third-year students. Findings from this study determined that women consistently outscored men in empathy levels regardless of the year of medical training they are in; however, both male and female demonstrated a decline (higher in males) in empathy levels as their medical training progressed.

Study participants were asked whether they agree or disagree with two general statements that were adapted from the Center for Disease Control's Behavioral Risk Factor Surveillance System. This method of asking respondents to indicate what other people think about a health condition has been previously used in assessing other health-related stigma (Green, 1995). Statement 1 read as follows: Treatment can help persons with mental illness lead normal lives. When evaluating statement 1, participants were broken down into gender, age group, and race. In the gender category, 1.8% disagreed (5.35% national average) with this statement while 98.2% agreed (92.5% national average). In the age group category, 1.3% disagreed (6.4%

national average) while 99.2% agreed (91.6% national average). Finally, in the race category, 2.3% disagreed (7.0% national average) while 98.6% agreed (90.6% national average).

Statement 2 read as follows: People are generally caring and sympathetic to persons with mental illness. When evaluating statement 2, participants were also broken down into gender, age group, and race. In the gender category, 54.7% disagreed (36.6% national average) with this statement while 45.0% agreed (60.1% national average). In the age group category, 59.1% disagreed (36.1% national average) while 40.8% agreed (60.7% national average). Finally, in the race category, 54.1% disagreed (33.8% national average) while 45.8% agreed (62.8% national average). While the study group averages were close to the national averages, it is important to note that the national sample size was 202,065 and the study sample was 122. This could explain any significant differences between the national and study averages.

Limitations of the Research

Like most studies, this study on empathy and stigma does have limitations. One limitation of this study was the number of participants. The sample size of this study was 122. Although a power analysis indicated that this was a sufficient number of participants to be statistically sound, a larger number of participants may have shown greater effects statistically. This limitation was due, in part, to the limitation that follows below.

Another limitation that may have actually boosted overall participation in the study is the use of data from only three institutions in the state of Texas even though there are approximately eight accredited physician assistant programs statewide. Unfortunately, this limitation was due to the exceeding costs required to use one of the scales utilized in the study. Without this limitation, the sample size could have shown representative data not only from Texas but nationwide. This effect, too, could have shown greater statistical effects or more statistical

difference. Because the sample is one of convenience, information gathered cannot generally be applied to the larger population of physician assistant students nationally.

Finally, the method of analysis for this study presents another limitation. This research study utilizes quantitative statistic models that can determine correlations and assignable causations of variable difference(s); however, this study does not utilize any qualitative aspects for consideration.

Future Research

Although this study provided significant information about empathy as it relates to stigma, there continues to be unidentified factors that could attribute to an individual's empathy and empathic skills. Future studies could aim to determine such factors. It would be of great benefit to continue research to see if dynamics like personality types, birth order, or family size contribute to higher levels of reported empathy.

In regards to stigma as it pertains to perceptions and attitudes towards those with a mental illness, the use of additional data analysis to gain further insight from a qualitative perspective could be advantageous. Instead of strictly using closed-ended questions, future research could focus on utilizing open-ended questions and statements to identify underlying factors and themes. The use of interviews and group discussions are methods that could be used to collect differing perspectives pertaining to stigmatization of mental illness.

Implications

Implications for this study can be categorized educationally and clinically. From an educational standpoint, it is important for educators to realize that between the didactic and clinical phases of training, something happens that leads to decreased levels of empathy. Even with the known importance of empathy in health care, empathy continues to decline during

medical training (Wilson, Prescott, & Becket, 2012). Healthcare educators have acknowledged this decline and have taken steps to not only prevent the decline but also develop methods to change attitudes and empathy among their students (Fjortoft et al., 2011). Whatever the determining factor may be, it is essential for physician assistant educators to be proactive in preventing empathic skill loss. By integrating empathy skill workshops, seminars, and sensitivity trainings into the curriculum, educators can address awareness in their students and hopefully reverse the desensitization that seems to occur as students progress in their physician assistant training.

In regards to stigma, physician assistant educators should aim to increase exposure to mental health and mental illness. In alignment with this study, participants with higher contact levels had lower stigma level scores. The incorporation of a psychiatric clinical rotation would increase student contact to mental illness with a goal of decreasing stigmatizing patterns as students progress in their physician assistant training.

If appropriate education regarding the plight of persons with mental illness can be integrated into physician assistant programs, empathy towards this population and the resulting positive attitudes among physician assistants may facilitate better service to those they encounter in a clinical setting.

Conclusion

As stated earlier, empathy is an essential foundation in effective patient care (Ogle et al., 2013; Spiro, 2009). This study intended to explore healthcare professionals' understanding of mental health and attitudes toward mental illness. Results of the study show significant relationships between gender and race in terms of empathy. In addition to this, results also show significant relationships between empathy levels and stigmatization of mental illness. The

results of this study have far reaching implications in the development of future physician assistant students.

Like most studies, limitations exist. For this reason, continued research is needed to identify other factors that have an effect on a person's empathy level. As the need for primary care providers continues to grow in the United States, physician assistant studies programs are responsible for filling this void. It is imperative that tomorrow's healthcare providers are instilled with the skill sets necessary to be compassionate and understand their patients that have a mental illness.

REFERENCES

Abel, E. (2011). Patient dumping in New York City, 1877-1917. *American Journal Of Public Health*, *101*(5), 789-795.

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders.* (5th edition). Arlington, VA: American Psychiatric Publishing.

Angell, M. (2011). The epidemic of mental illness: Why. Retrieved from http://www.nybooks.com/articles/archives/2011/jun/23/epidemic-mental-illness-why/

Angermeyer, M. C., & Dietrich, S. (2006). Public beliefs about and attitudes towards people with mental illness: a review of population studies. *Acta Psychiatrica Scandinavica*, *113*(3), 163-179.

Barker, R.L., (2003). *The Social Work Dictionary*, Fifth Edition. Washington, DC: NASW Press.

Bruce, C. R., & Majumder, M. A. (2014). The "permanent" patient problem. *Journal Of Law, Medicine & Ethics*, *42*(1), 88-92.

Cohen, M., Quintner, J., Buchanan, D., Nielsen, M., & Guy, L. (2011). Stigmatization of patients with chronic pain: The extinction of empathy. *Pain Medicine, 12*(11), 1637-1643.

Corrigan, P. (2004). How stigma interferes with mental health care. *American Psychologist, 59*(7), 614-625.

Corrigan, P.W., (2005). *On the stigma of mental illness: Practical strategies for research and social change.* Washington, DC: American Psychological Association.

Centers for Disease Control and Prevention. (2010). Attitudes toward mental illness—35 states, District of Columbia, and Puerto Rico, 2007. *Morbidity and Mortality Weekly Report*. *59*(20), 619-625.

Cumming, J. and Cumming, E. (1965). On the stigma of mental illness. *Community Mental Health Journal,* 1, 135-143.

Dickey, B., Normand, S.L., Weiss, R.D., Drake, R. E., & Azeni, H. (2002). Medical morbidity, mental illness, and substance use disorders. *Psychiatric Services,* 50, 515-519.

Dingfelder, S.F., (2009). Stigma: Alive and well. *Monitor on Psychology, 40*(6), 56.

Ehrlich, C., Kendall, E., Frey, N., Denton, M., & Kisely, S. (2015). Consensus building to improve the physical health of people with severe mental illness: a qualitative outcome mapping study. *BMC Health Services Research*, *15*(1), 1-9.

Empathy. 2015. In Merriam-Webster.com. Retrieved March 2, 2015, from http://www.merriam-webster.com/dictionary/empathy.

Filling the Gaps. (2007). *H&HN: Hospitals & health networks*, *81*(1), 53-59.

Fjortoft, N., Van Winkle, L. J., & Hojat, M. (2011). Measuring empathy in pharmacy students. *American Journal Of Pharmaceutical Education*, *75*(6), 1-6.

Girma, E., Möller-Leimkühler, A. M., Müller, N., Dehning, S., Froeschl, G., & Tesfaye, M. (2014). Public stigma against family members of people with mental illness: findings from the Gilgel Gibe Field Research Center (GGFRC), Southwest Ethiopia. *BMC International Health & Human Rights*, *14*(1), 1-15.

Goffman, E. (1963). *Stigma: notes on the management of spoiled identity*. Englewood Cliffs, NJ: Prentice-Hall.

Golberstein, B.A., Eisenberg, D., & Gollust, S.E. (2008). Perceived stigma and mental health care seeking. *Psychiatric Services,* 59, 392-399.

Green, G. (1995). Attitudes toward people with HIV: Are they as stigmatizing as people with HIV perceive them to be. *Social Science and Medicine, 41*(4), 557-68.

Green, S. & Salkind, N. (2003). Using SPSS for Windows and Macintosh. New Jersey: Prentice Hall.

Hansen, V., Jacobsen, B.K., & Arnesen, E. (2001). Cause-specific mortality in psychiatric inpatients after deinstitutionalisation. *British Journal of Psychiatry*, 199, 438-443.

Hardy, S., & Huber, J. (2014). Training practice nurses to care for people with severe mental illness. *Primary Health Care, 24*(3), 18-23.

Hardy, S., White, J., Deane, K., & Gray, R. (2011). Educating healthcare professionals to act on the physical health needs of people with serious mental illness: a systematic search for evidence. *Journal of Psychiatric & Mental Health Nursing, 18*(8), 721-727.

Harris, E. C., & Barraclough, B. (1998). Excess mortality of mental disorder. *British Journal of Psychiatry,* 17, 11-53.

Hinkle, D., Wiersma, W., & Jurs, S. (2003). *Applied statistics for the behavioral sciences* (5th edition). Belmont, California: Wadsworth Learning.

Hojat, M., Gonnella, J., & Maxwell, K. (2009). *Jefferson scales of empathy: Professional manual & user's guide.* Philadelphia, PA: Jefferson Medical College.

Hojat, M., Mangione, S., Nasca, T. J., Rattner, S., Erdmann, J. B., Gonnella, J. S., & Magee, M. (2004). An empirical study of decline in empathy in medical school. *Medical Education, 38*(9), 934-941.

Hoffman, M.L., (2001). *Constructive and destructive behavior: Implications for family, social, and society.* Washington, DC: American Psychological Association.

Huck, S. (2008). *Reading statistics and research* (5th Edition). Boston: Pearson Education.

IBM Corp. Released 2013. IBM SPSS Statistics for Windows, Version 22.0. Armonk, NY: IBM Corporation.

Joong Hiong, S., Abdul Aziz, Y. F., Mansor, A., Vijayananthan, A., Chan Choong, F., & Vadivelu, J. (2015). Students' performance in the different clinical skills assessed in OSCE: what does it reveal?. *Medical Education Online*, *20*1-7.

Joukamaa, M., Heliovaara, M., Knekt, P., Aromaa, A., Raitasalo, R., & Lehtinen, V. (2001). Mental disorders and cause-specific mortality. *British Journal of Psychiatry,* 179, 498-502.

Kanwar, A. (2015). Mental illness and stigma: Has psychiatry done more harm than good? *Indian Journal Of Psychological Medicine*, *37*(2), 181-183.

Kassam, A., Papish, A., Modgill, G., Patten. S. (2012). The development and psychometric properties of a new scale to measure mental illness related stigma by health care providers: the Opening Minds Scale for Health Care Providers. *BMC Psychiatry, (12)*62-73.

Kaufman, E. A., McDonell, M. G., Cristofalo, M. A., & Ries, R. K. (2012). Exploring barriers to primary care for patients with severe mental illness: Frontline patient and provider accounts. *Issues In Mental Health Nursing*, *33*(3), 172-180.

Kunzmann, R., (2011). Age differences in three facets of empathy: performance-based evidence. *Psychology and Aging, 26*(1), 60-70.

Lawrence, D., Jablensky, A.V., Holman, C., & Pinder, T. (2000). Mortality in Western Australian psychiatric patients. *Social Psychiatry & Psychiatric Epidemiology*, 35, 341-347.

Link, B. and Phelan, J. (2001). Conceptualizing stigma. *Annual Review of Sociology*, 27, 363-385.

Mehrabian, A., Young, A. L., & Sato, S. (1988). Emotional empathy and associated individual differences. *Current Psychology: Research & Reviews*, 7, 221-240.

Menke, R., & Flynn, H. (2009). Relationships between stigma depression and treatment in White and African American primary care patients. *The Journal of Nervous and Mental Disease*, 197, 407-411.

Modgill, G., Patten, S. B., Knaak, S., Kassam, A., & Szeto, A. H. (2014). Opening minds stigma scale for health care providers (OMS-HC): Examination of psychometric properties and responsiveness. *BMC Psychiatry*, *14*(1), 1-23.

Naeem, F., Ayud, M., Javed, Z., Irfan, M., Haral, F., & Kingdon, D. (2006). Stigma and psychiatric illness: A survey of attitude of medical students and doctors in Lahore, Pakistan. *Journal of Ayub Medical College*, *18*(3), 46-49.

National Institute of Mental Health. (2012). Any Mental Illness Among Adults. Retrieved from http://www.nimh.nih.gov/health/statistics/prevalence/any-mental-illness-ami-among-adults.shtml

Ogle, J., Bushnell, J. A., & Caputi, P. (2013). Empathy is related to clinical competence in medical care. *Medical Education*, *47*(8), 824-831.

Olapegba, P.O. (2010). Empathy, knowledge, and personal distress as correlates of HIV-/AIDS-related stigmatization and discrimination. *Journal of Applied Social Psychology, 40*(4), 956-969.

Pallant, J. (2010). *SPSS Survival Manual* (4th edition). New York: Open University Press.

Pescosolido, B.A., Jensen, P.S., Martin, J.K., Perry, B.L, Olafsdottir, S., & Fettes, D. (2008). Public knowledge and assessment of child mental health problems: Findings from the National Stigma Study—Children. *Journal of the American Academy of Child & Adolescent Psychiatry*, 47, 339-349.

Rovai, A., Baker, J., & Ponton, M. (2014). Social science research design and statistics. Chesapeake, VA: Watertree Press.

Scheff, T. (1966). *Being mentally ill: A sociological theory.* Chicago: Aldine.

Serafini, G., Pompili, M., Haghighat, R., Pucci, D., Pastina, M., Lester, D., & Girardi, P., (2011). Stigmatization of schizophrenia as perceived by nurses, medical doctors, medical students and patients. *Journal of Psychiatric and Mental Health Nursing*, 18, 576-585.

Shrivastqava, A., Johnston, M., De Sousa, A., Sonavane, S., Shah, Nilesh. (2014). Psychiatric treatment as anti-stigma intervention: Objective assessment of stigma by families. *International Journal of Medicine and Public Health, 4*(4), 491-495.

Sickel, A. E., Nabors, N. A., & Seacat, J. D. (2014). Mental health stigma update: A review of consequences. *Advances In Mental Health*, *12*(3), 202-215.

Son, H., Friedman, E., & Thomas, S. A. (2012). Application of pattern mixture models to address missing data in longitudinal data analysis using SPSS. *Nursing Research*, *61*(3), 195-203.

Spiro, H. (2009). The practice of empathy. *Academic Medicine, 84*(9), 1177-1179.

Steinberg, S., (2010). College students have less empathy than past generations. USA TODAY. Retrieved from http://usatoday.com.

Stevens, J. (1996). Applied multivariate statistics for the social sciences (3rd edition). Mahwah, NJ: Lawrence Erlbasum.

Stigma. 2015. In Merriam-Webster.com. Retrieved March 2, 2015, from http://www.Merriam-webster.com/dictionary/stigma

Thurstone, L.L. (1947). Multiple Factor Analysis. Chicago: University of Chicago Press.

US Department of Health and Human Services. (1999). Mental health: a report of the Surgeon General. Rockville, MD: US Department of Health and Human Services, Substance Abuse and Mental Health Services Administration, Center for Mental Health Services, National Institutes of Health, National Institute of Mental Health.

US Equal Employment Opportunity Commission. (2012). Retrieved from http://www.eeoc.gov/eeoc/statistics/census/race_ethnic_data.html on June 6, 2015.

Usami, S. (2014). Generalized sample size determination formulas for experimental research with hierarchical data. *Behavior Research Methods, 46*(2), 346-356.

Warner, R.M. (2013). Applied statistics from bivariate through multivariate techniques (2nd Edition). Thousand Oaks, CA: Sage Publications.

Watson, J.C. (2002). *Humanistic psychotherapies: Handbook of research and practice.* Washington, DC: American Psychological Association.

Weinstein, R. M. (1982). Stigma and mental illness: theory versus reality. *Orthomolecular Psychiatry, 11*(2), 87-99.

Wilson, S. E., Prescott, J., & Becket, G. (2012). Empathy levels in first- and third-year students in health and non-health disciplines. *American Journal of Pharmaceutical Education*, *76*(2), 1-4.

APPENDIX A

LETTER OF SUPPORT

Texas Academy of
Physician Assistants

04/15/2015

Juliann Garza
1201 W. University Drive
Edinburg, Texas 78539
Garzajm2@utpa.edu

RE: Physician Assistant Students' Perceptions of Mental Illness

Dear Juliann Garza,

We are writing this letter in support of your UTPA research study titled, "Physician Assistant Students' Perceptions of Mental Illness." We understand that participants will be asked to complete an online survey, and that all data collection will be conducted off-site. All data collected will be anonymous and reported anonymously.

We agree to facilitate your research by forwarding your email invitation from the TAPA email list serve to students that have an active membership.

If you have any questions regarding site support, please contact: Executive Director, Lisa Jackson at (800) 280-7655.

Sincerely,

Lisa Jackson

Lisa Jackson, CMP, CAE
Executive Director

APPDENDIX B

INSTITUTIONAL REVIEW BOARD APPROVAL

Kimberly Fernandez
to Juliann Garza
cc IRB; Shawn Saladin

Tue, Apr 28 5:14 PM

IRB Approval Memo - IRB# 2015-006-01 (Please Print For Your Records)

NOTICE OF APPROVAL
Institutional Review Board for Human Subjects (IRB)
FWA#00000805

Dear Researchers,

This email is regarding your UTPA IRB submission titled "Physician Assistant Students' Perceptions of Mental Illness" – IRB# 2015-006-01.

The IRB protocol referenced above has been reviewed and APPROVED.

Basis for approval: Exempt, Category # 2.

Status Report Due Date: April 28, 2016

Recruitment and Informed Consent: You must follow the recruitment and consent procedures that were approved. If your study uses an informed consent form or study information handout, you will receive an IRB-approval stamped PDF of the document(s) for distribution to subjects.

Modifications to the approved protocol: Modifications to the approved protocol (including recruitment methods, study procedures, survey/interview questions, personnel, consent form, or subject population), must be submitted in writing to the IRB at irb@utpa.edu for review. **Changes must not be implemented until approved by the IRB.**

Data retention: All research data and signed informed consent documents should be retained for a *minimum* of 3 years after *completion* of the study.

Reports: Submission of a status report to assess the study's progress, or a final report when a study has been completed (*this applies to all IRB approved protocols*) is required. For exempt protocols, a status report should be submitted on a yearly basis, unless the study has been completed in which case a final report will be required. For expedited and full review protocols, the continuing review request form is equivalent to a status report. A final report should be submitted for completed studies or studies that will be completed by their respective expiration date.

Approved by: _____
Chair, Institutional Review Board

APPENDIX C

PARTICIPANT CONSENT FORM

Physician Assistant Students' Perceptions of Mental Illness

This survey is being conducted by Juliann Garza, Doctoral Student in Rehabilitation Studies, at The University of Texas-Pan American (email: garzajm2@upta.edu).

The purpose of this study is to examine perceptions toward mental illness.

This survey should take about 5-10 minutes to complete.

Participation in this research is completely voluntary. Choosing not to participate will not adversely affect your grade or standing in the class. If there are any individual questions that you would prefer to skip, simply leave the answer blank.

You must be at least 18 years old to participate. If you are not 18 or older, please do not complete the survey.

All survey responses that we receive will be treated confidentially and stored on a secure server. However, given that the surveys can be completed from any computer (e.g., personal, work, school), we are unable to guarantee the security of the computer on which you choose to enter your responses. As a participant in our study, we want you to be aware that certain technologies exist that can be used to monitor or record data that you enter and/or websites that you visit.

Any individually identifiable responses will be securely stored and will only be available to those directly involved in this study. Deidentified data may be shared with other researchers in the future, but will not contain information about your individual identity.

This research has been reviewed and approved by the Institutional Review Board for Human Subjects Protection (IRB). If you have any questions about your rights as a participant, or if you feel that your rights as a participant were not adequately met by the researcher, please contact the IRB at 956-665-2889 or irb@utpa.edu. You are also invited to provide anonymous feedback to the IRB by visiting www.utpa.edu/IRBfeedback.

APPENDIX D

DEMOGRAPHICS QUESTIONNAIRE

Demographics Questionnaire

1. What is your gender?
____male
____female

2. What is your age?_____

3. Please indicate your race?
_____White or Caucasian
_____Hispanic or Latino
_____Black or African American
_____Asian
_____American Indian or Alaska Native
_____Native Hawaiian or other Pacific Islander
_____Other, please specify_____

4. What is the highest degree or credential you currently hold?
_____Bachelor's Degree; Please specify your discipline of study
_____
_____Master's Degree; Please specify your discipline of study
_____
_____Doctorate; Please specify your discipline of study
_____
_____Other; please specify _____

5. What phase are you currently at within your physician assistant education/training?
_____Didactic (classroom) phase
_____Clinical phase

6. I have met a person who has a mental illness.
_____Yes
_____No

7. I have a mental illness.
_____Yes
_____No

8. I have a family member(s) with a mental illness.
_____Yes
_____No

9. I have been in a class with a person with a mental illness.
_____Yes
_____No

10. I have friend(s) who have a mental illness.
_____Yes
_____No

Please mark below your level of agreement or disagreement to each of the following statements below.
11. Treatment can help persons with mental illness lead normal lives.
_____Disagree strongly
_____Disagree slightly
_____Agree slightly
_____Agree strongly

12. People are generally caring and sympathetic to persons with mental illness.
_____Disagree strongly
_____Disagree slightly
_____Agree slightly
_____Agree strongly

APPENDIX E

PERMISSION TO USE OPENING MINDS SCALE

gmodgill@mentalhealthcommission.ca Tue, Jan 13 10:49 AM
to Juliann Garza
cc Romie Christie; Micheal Pietrus

RE: OM Scale for Health Care

4 files attached ^ Save all

2014 05 22_OMS-15 I... .pdf 98.4 KB
Kassam_2012_OMS-... .pdf 465 KB
Modgill_2014_OMS-... .pdf 519 KB
Opening Minds Scal... .pdf 297 KB

Hi Julie,

Thank you for your interest in using the OMS-HC in your project. The scale was purposively published in an open access journal so that it would have unlimited use. If needed, I can provide a letter to your university's REB stating the same. Attached are copies of OMS-HC scale, coding scheme, and corresponding published manuscripts. We are keeping an informal list of researchers using the scale and would be very interested in seeing your final results. Best of luck with your research project!

Warmest regards,

Geeta

Geeta Modgill, MSc
Research Associate (Epidemiologist), Opening Minds
Mental Health Commission of Canada
110 Quarry Park Blvd, Suite 320, Calgary, AB, T2C 3G3
Ph: 403.701.2918 / F: 403.385.4044/ **Email:** gmodgill@mentalhealthcommission.ca

For more information on the work of the Commission, visit our website at **www.mentalhealthcommission.ca**

From: Juliann Garza [mailto:garzajm2@utpa.edu]
Sent: Tuesday, January 13, 2015 9:09 AM
To: Geeta Modgill
Subject: Re: OM Scale for Health Care PrSusan O'Brien

Great thank you!

Julie

On Jan 12, 2015, at 3:08 PM, Geeta Modgill <gmodgill@mentalhealthcommission.ca> wrote:

Hi Julienne,

I am out of the office today and will reply to your inquiry tomorrow.

Best,
Geeta

Sent from my BlackBerry 10 smartphone on the TELUS network.

From: Romie Christie
Sent: Monday, January 12, 2015 12:29 PM
To: Garzajm2@utpa.edu
Cc: Micheal Pietrus; Susan O'Brien; Geeta Modgill
Subject: RE: OM Scale for Health Care PrSusan O'Brien

Hi Julienne

Thanks for your interest in using our OM Scale for Healthcare providers. The short answer is yes, you are welcome to use the scale. I am copying Geeta Modgill on this note, who is one of our research associates. She will provide you with additional information that will be useful to you when using it. We also will appreciate knowing what you use it for, and Geeta will discuss that in her response to you.

Regards
Romie

Romie Christie
Manager, Opening Minds / Chef, Changer les mentalités
Mental Health Commission of Canada / Commission de la santé mentale du Canada
320, 110 Quarry Park Blvd / 110 Quarry Park Boul. SE suite 320
Calgary, AB, T2C 3G3
T 403-385-4034 C 403-826-3952
rchristie@mentalhealthcommission.ca

From: Susan O'Brien
Sent: January-12-15 12:25 PM
To: Romie Christie
Cc: Micheal Pietrus
Subject: OM Scale for Health Care Providers

Hi Romie,

I had a call from Julienne Garza. She is a faculty member at the University of Texas PA and is working on her doctoral dissertation. She would like to use the above noted scale in her work and was calling to find out the steps involved in gaining permission.
Can you follow up with her?
956-369-6152
Garzajm2@utpa.edu
Thanks,

Susan O'Brien

Office Manager/Receptionist/ Coordonnaitrice du bureau et réceptionniste, Corporate Services
Mental Health Commission of Canada / Commission de la santé mentale du Canada
100 Sparks Street, Suite 600 / 100, rue Sparks, Bureau 600 / Ottawa, ON CANADA K1P 5B7
T: 613.683.3910 / F: 613.798.2989
www.mentalhealthcommission.ca / www.commissionsantementale.ca

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DÉCLARATION DE CONFIDENTIALITÉ : Cette communication est destinée seulement a la personne ou à l'entité nommée ci-dessus. Elle peut contenir des informations confidentielles ou privilégiées. Si vous n'êtes pas le destinataire ou la personne responsable de remettre des messages ou des communications au destinataire, soyez avisé(e) que toute utilisation, distribution ou copie de cette communication ou des informations qu'elle contient est strictement interdite. Si vous avez reçu cette communication par erreur, veuillez nous aviser immédiatement en appelant au (403)-255-5808; veuillez ensuite détruire ou effacer cette communication. La Commission de la sante mentale du Canada vous remercie de votre coopération.

APPENDIX F

PERMISSION TO USE JEFFERSON SCALE OF EMPATHY

empathy@jefferson.edu Wed, Feb 11 4:06 PM
to Juliann Garza
cc Mohammadreza Hojat

RE: JSE query

Hi Juliann,
I spoke with our director on your behalf and we will allow you to use a the third institution in your study.
Best of luck,
Kaye

Kaye Maxwell
Empathy Projects
Thomas Jefferson University
Center for Research in Medical Education and Health Care
Phone: 215-955-6907
Cell: 610-639-6823 (preferred)
http://www.jefferson.edu/university/jmc/crmehc/jse.html

From: Juliann Garza [mailto:garzajm2@utpa.edu]
Sent: Tuesday, February 10, 2015 10:44 AM
To: empathy svc
Subject: RE: JSE query

Thank you Kaye again for all your help and guidance. Thank you for speaking with me yesterday in regards to the JSE HPS-version. As I mentioned yesterday I have come across some issues with my sample size. I know you had granted me permission to using the JSE-HPS version with 2 institutions and I am extremely appreciative of that. However, after meeting with my dissertation chair and statistician we need at a minimum of viable 200 participants for this study. Because my study is on Physician Assistant students each program is based on a cohort system which limits the amount of students available to participate in the study. I have looked for my 2nd institution to be the largest PA program with the most amount of students in the program but I am still having troubles obtaining my needed sample size. Is there any possible way that I may add any additional institutions that are satellite university institutions to ours. We are on the University of Texas system and the additional University of Texas institutions that have PA programs include: University of Texas Health Science Center (45 students), University of Texas Medical Branch Galveston (89 students) and UT Southwestern with (77 students). Is there any possible way to grant me permission to be able to use this scale with these institutions? Each of these institutions have a stringent IRB process that will help ensure the confidentiality and use of the JSE. Again, I am convinced that this is the best empathy scale and I really want to use it. I fully and whole-heartedly agree to all conditions set forth for the use of this scale. This survey will be entered into the University of Texas-Pan American Qualtrics survey system. Our institution requires that all online surveys be completed on the Qualtrics system to ensure security and privacy to all participants. The survey will be released and only available for 2 weeks. With Qualtrics system I have full control of who receives the survey via email request to the individual student. Following the last day of survey availability I will remove the survey and scale from qualtrics system so that the survey cannot be accessed by anyone.
Thank you for everything.
-Julie

From: empathy svc [mailto:empathy@jefferson.edu]
Sent: Friday, January 16, 2015 1:46 PM
To: Juliann Garza
Cc: Mohammadreza Hojat
Subject: RE: JSE query

Dear Juliann,
Thank you for the explanation of your research study specifics. With your agreement to all conditions stated in my email of January 8th, with the only exception that you will have participants from 2 institutions (please provide the names of them), you have our permission to post the JSE HPS-version for the single not-for-profit study that you described. I have attached the User's Guide and the scoring algorithm since you already have the scale.

We wish you luck with your research! Please keep us informed of your progress.

I look forward to hearing from you with the names of the institutions and in August...good luck.
Kaye

Kaye Maxwell
Empathy Projects
Thomas Jefferson University
Center for Research in Medical Education and Health Care
Phone: 215-955-6907
Cell: 610-639-6823 (preferred)
http://www.jefferson.edu/university/jmc/crmehc/jse.html

From: Juliann Garza [mailto:garzajm2@utpa.edu]
Sent: Friday, January 16, 2015 10:18 AM
To: empathy svc; Sandra Maxwell
Subject: Fw: JSE query

Thank you so much Kaye for speaking with me this morning. I truly do appreciate it very much! After many hours and days of researching for the best empathy scales I continue to conclude that the Jefferson Scale of Empathy for Health Professional Students is the best and the one that I must use to ensure that my dissertation is the best it can be. However, my dilemma is my ability to purchase the scale. I am a doctoral student that is completing my dissertation completely UNFUNDED. Is there any possible assistance that I may request in order to utilize this scale? I fully and whole-heartedly agree to all conditions set forth for the use of this scale. This survey will be entered into the University of Texas-Pan American Qualtrics survey system. Our institution requires that all online surveys be completed on the Qualtrics system to ensure security and privacy to all participants. The survey will be released and only available for 2 weeks from March 1, 2015 to March 14, 2015. With Qualtrics system I have full control of who receives the survey via email request to the individual student. Following the last day of survey availability I will remove the survey and scale from qualtrics system so that the survey can not be accessed by anyone. I understand that the agreement for use of this survey online is with intention that only one institution can use it; however, I would please request if I could use it with 2 institutions.

My study is assessing physician assistant students empathy levels and since we only have a limited amount of PA students at my institution I would like to send the survey to include 2 institutions. If I could include 2 institutions this would grant me a suffice sample size for my research study and dissertation. I plan to complete my dissertation in August 2015. I would send you any publications from my study to add to your bibliography list.
Again, thank you for your time and consideration and I look forward to hearing back from you.
Sincerely,
Julie

From: Sandra Maxwell
Sent: Thursday, January 8, 2015 3:47 PM
To: Juliann Garza
Cc: Mohammadreza Hojat

Hi again, Julie,
Nice to talk to you earlier.
As you are aware, there are several versions of the JSE. One version was developed for administration to physicians and other practicing health professionals (Physician/HP-Version). The other versions are for administration to medical students (S-version) and other health professions students (HPS version). All are similar in content with minor modifications in wording to reflect empathic orientation (in the student versions) and empathic behavior (in the physician/health professional version). For example, an item beginning "My understanding..." in the Physician/HP version may begin "Physicians' understanding..." or "Health care providers' understanding..." in the medical student and health professions student versions," respectively. As requested, I have attached review copies of the HP and HPS versions of the JSE.

Our order form is currently being reevaluated. Regarding costs until a new order form is completed:

> FORMS ONLY: the most economical use of the scale is the purchase of forms which you score yourself, minimum order of 100 forms for $600, 200 forms for $700, 300 forms for $800, etc. You receive the forms, User's Guide and scoring algorithm.

Some clients need to modify the demographic questions that are part of the scale and instead of receiving hard copies of the JSE, purchase permission to make copies of the scale instead. This option may also eliminate mailing delays and shipping and handling charges. If you choose this option you must agree to each of these conditions:

- the text and order of appearance of the items, instructions and response scale must remain unchanged and intact. Changes/additions to the demographic questions are acceptable.
- the following copyright must be included on all administrations: © Thomas Jefferson University All rights reserved.
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I have also attached the bibliography files I mentioned to you.

Let me know if you have any other questions.

Kind regards,
Kaye

Kaye Maxwell
Empathy Projects
Thomas Jefferson University
Center for Research in Medical Education and Health Care
Phone: 215-955-6907
Cell: 610-639-6823 (preferred)
http://www.jefferson.edu/university/jmc/crmehc/jse.html

From: Sandra Maxwell
Sent: Thursday, January 08, 2015 3:20 PM
To: 'garzajm2@utpa.edu'
Subject: FW: JSE query

Hello Juliann,
Mr. Veloski forwarded your message to me. I don't know what you want to know about the Jefferson Scale of Empathy but I would be pleased if you contact me with your questions about our scale via email or my cell.
I look forward to hearing from you.
Kind regards,
Kaye.

Kaye Maxwell
Empathy Projects
Thomas Jefferson University
Center for Research in Medical Education and Health Care
Phone: 215-955-6907
Cell: 610-639-6823 (preferred)
http://www.jefferson.edu/university/jmc/crmehc/jse.html

From: Juliann Garza [mailto:garzajm2@utpa.edu]
Sent: Monday, January 05, 2015 2:55 PM
To: Jon Veloski
Subject: Use of scale

Hello Dr. Veloski,
Thank you for speaking with me a couple of minutes ago in regards to the use of the Jefferson Scale of Physician Empathy. I look forward to hearing from the contact person that you will connect me with to get the needed information for the use of the scale.

Thank you,
Juliann Garza

Sent from Surface

BIOGRAPHICAL SKETCH

Juliann M. Garza received her Bachelor of Science degree in Psychology and Biology from the University of Mary-Hardin Baylor in 1998. She received a Master of Science degree in Rehabilitation from The University of Texas-Pan American in 2000. She obtained a second Bachelor of Science degree in Physician Assistant studies from The University of Texas-Pan American in 2002. She received her doctorate of philosophy degree in 2015 from The University of Texas-Pan American in Rehabilitation.

Her permanent mailing address is 2429 Yale Avenue, McAllen, Texas 78504. She is a nationally certified practicing physician assistant in the state of Texas since 2002. She currently serves as a Clinical Assistant professor with the Physician Assistant Department at The University of Texas-Pan American.