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Preparing Future Healthcare Professionals: The Relationship Between Resilience, Emotional Intelligence, and Age

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This dissertation, directed and approved by the candidate's committee, has been accepted by the College of Graduate and Professional Studies of Abilene Christian University in partial fulfillment of the requirements for the degree.

Doctor of Education in Organizational Leadership

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May 17, 2021

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School of Educational Leadership

Preparing Future Healthcare Professionals:

The Relationship Between Resilience, Emotional Intelligence, and Age

A dissertation submitted in partial satisfaction

of the requirements for the degree of

Doctor of Education in Organizational Leadership

by

Cindy Lee McGuire

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Abstract

Preparing students for a successful career should be the goal of any healthcare educational program. However, traditional approaches in healthcare education are primarily focused on the technical components and neglect the competencies needed to navigate the emotional labor associated with clinical practice. With increased stress and demands related to emotional labor, as evident in recent events such as the COVID-19 pandemic, healthcare professionals are likely to encounter adverse events and emotionally challenging situations. The purpose of this quantitative, cross-sectional study was to explore the relationship among resilience, emotional intelligence (EI), and age in students enrolled in healthcare programs. Convenience sampling was used to recruit participants by posting the survey link within healthcare courses at one mid-sized southeastern public university in the United States. A total of 199 participants completed the online survey. The survey included five demographic questions, the Schutte Self Report Emotional Intelligence Test, and the Brief Resilience Scale. A multiple linear regression model was conducted to examine the relationship between age, EI, and resilience. The independent variables were age and EI. The dependent variable was resilience. The sample consisted of 178 women (89.3%) and 21 men (10.7%). The study findings were statistically significant, suggesting that collectively there was a significant predictive relationship among EI, age, and resilience. This understanding may help educators develop collaborative interventions that develop EI to influence positive retention and clinical experiences for healthcare students that translate to their careers in the healthcare industry.

Keywords: emotional intelligence, resilience, healthcare

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Chapter 1: Introduction

According to the U.S. Bureau of Labor Statistics (2019), the number of healthcare jobs in the United States is expected to grow much faster than average through 2026. Healthcare professionals are charged with caring for patients and their families during times of crisis, making healthcare an emotionally demanding profession (Bridgeman et al., 2018; Foster et al., 2018; Makkai, 2018). Healthcare professionals are expected to balance multiple stresses such as clinical performance, teamwork, professional relationships, and time constraints, all while demonstrating compassionate care for patients and their families.

The demands on an employee to project feelings of safety and compassion is what Hochschild (2012) described as emotional labor and requires emotional intelligence (EI). Emotional labor is a component of workplace stress (Chau et al., 2009; Elliott, 2017; Zhao et al., 2019) and may influence burnout and employee turnover (Goodman & Berlinerblau, 2018; Tarcan et al., 2017). Researchers contend that successfully navigating these demands also requires EI (Celik, 2017; Kroning, 2015). EI is multidimensional and refers to an individual's ability to recognize, identify, and manage emotions in both self and others (Salovey & Mayer, 1990). EI literature has grown in the last few decades and reveals that EI can positively affect various psychological constructs such as self-efficacy (Ibrahim et al., 2017), job satisfaction (Schutte & Loi, 2014), burnout (Zhao et al., 2019), and resilience (Bano & Pervaiz, 2020).

The psychological and physical demands of U.S. healthcare professionals are increasing due to the COVID-19 pandemic (Cartwright & Thompson, 2020). Shortages of personal protective equipment, concerns about getting sick or spreading COVID-19 to others, limited resources, and increased work demands have been negatively impacting healthcare professionals. A recent survey of health professionals working during the COVID pandemic in the United

Kingdom revealed that 50% of respondents reported a decline in mental health, and 20% plan on leaving the healthcare profession (Thomas & Quilter-Pinner, 2020).

Analysts predict a significant shortage in the healthcare workforce in the United States (Hu et al., 2016; Narlock, 2017; U.S. Bureau of Labor Statistics, 2017). This is especially problematic because ongoing burnout and attrition among U.S. healthcare workers can exacerbate an already significant hiring problem. Resilience can help mitigate the negative impact of workplace stress (Arrogante & Aparicio-Zaldivar, 2017; Gentry, 2018). Associated with optimism, resilience can be instrumental when individuals experience adversity (Richardson, 2002) and can buffer the impact of burnout within the workplace (Arrogante & Aparicio-Zaldivar, 2017; Lee et al., 2019). Some literature suggests a connection between EI and resilience (Sarrionandia et al., 2018).

The projected growth of 2.4 million new jobs in healthcare (U.S. Bureau of Labor Statistics, 2019) emphasizes the critical role education programs have in preparing future healthcare professionals. Some argue that healthcare students are not yet prepared to handle the emotional demands associated with clinical practice (Enns et al., 2018; Foster et al., 2018; Pau et al., 2004). Researchers and practitioners acknowledge that the ability to manage emotions is an essential skill needed by workers to thrive within the medical community (Cofer et al., 2018; Delgado et al., 2017; Hollis et al., 2017; Pérez-Fuentes et al., 2018; Schutte & Loi, 2014). Due to current events and recent trends in burnout and retention among healthcare professionals, education programs would benefit from a better understanding of the role of EI in preparing future healthcare professionals and preventing burnout.

Background

The concept of EI can be traced back more than a hundred years ago, but EI gained momentum in 1990 when Salovey and Mayer published research that described EI as an ability

and subset of social intelligence in which an individual can recognize and manage emotions in self and others (Ciarrochi et al., 2001). Within the past several decades, multiple constructs of EI have emerged, and most can be categorized into three models: ability, trait, and mixed models (Kanesan & Fauzan, 2019). Pioneers in EI research, Salovey and Mayer (1990) consider EI as an ability. Ability EI can be described as the capacity to recognize and analyze emotions and use the information to reason and behave (Qualter et al., 2011). Salovey and Mayer's theory was used as the construct of EI for this dissertation, specifically as it relates to perceiving, using, understanding, and managing emotions.

Inspired by Salovey and Mayer's research, Goleman (1995), a Harvard-trained psychologist, commercialized the concept of EI in his book *Emotional Intelligence*. Goleman's model mixed pieces of Salovey and Mayer's ability model with personality traits (Mayer et al., 2008). Goleman explained EI in a manner that appealed to the general public; however, critics argued his scientific method was weak (Ackley, 2016). Despite the criticism from academic researchers, Goleman's mixed model has gained considerable attention in leadership development as "he is an unusual psychologist in that he is able to write about psychology in ways that those outside of our profession can understand" (Ackley, 2016, p. 273). Different than the other two models, trait EI is more concerned with self-perception (Qualter et al., 2011). Petrides (2010) argued that EI is better described as a trait defined within the lower levels of personality hierarchies. Ackley (2016) contended that despite their differences, each model of EI includes some combination of native ability and development.

It is often assumed that the development of EI is associated with age. However, not all researchers agree on this connection. Some studies indicate little to no connection between EI and age (Fariselli et al., 2008; Shipley et al., 2010) while others argue a more significant

connection (Chen et al., 2016; Salovey & Mayer, 1990; Stein, 2009). More research is needed to better understand the potential connection between age and EI.

Having the ability to understand and regulate emotions is vital for those working in healthcare (Birks et al., 2009; Mackay et al., 2015; Pau et al., 2004). A recent study of surgical residents in Alabama found a significant association between burnout and EI (Cofer et al., 2018). The study revealed that an individual's potential for burnout is related to their level of EI. The connection between EI and burnout is also evident in students enrolled in higher education settings (Cazan & Năstasă, 2015; Pertegal-Felices et al., 2014). Higher levels of EI are associated with lower levels of stress and burnout among university students, especially those pursuing healthcare professions (Cazan & Năstasă, 2015; Cofer et al., 2018; Foster et al., 2018).

Statement of the Problem

As members of the healthcare team, radiographers work to provide medical imaging on patients (U.S. Bureau of Labor Statistics, 2017). Most of the educational training for radiographers focuses on technical components such as patient positioning, radiation protection, and image analysis (American Society of Radiologic Technologists, 2017). Likewise, nursing students complete courses focused on clinical treatment, pathology, and pharmacology. While much attention is given to the didactic components of the curriculum, less instruction is provided regarding the emotional demands while completing clinical training.

The problem addressed in this study is that students enrolled in medical education programs experience more significant stress from the emotional demands of participating in clinical rotations (Birks et al., 2009; Enns et al., 2018; Jones-Schenk & Harper, 2014; Pau et al., 2004). This is important because, in addition to typical demands associated with higher education, healthcare students have further stressors related to a clinic such as needing to develop the technical and emotional skills to care for sick patients and learn new systems and

workflow procedures while rotating to various clinical placement sites (Birks et al., 2009; Enns et al., 2018; Sharon & Grinberg, 2018). The COVID-19 pandemic intensifies the stressful reality of working in the healthcare environment (Zhao et al., 2020). Furthermore, because of the increased levels of stress, students are more susceptible to burnout and higher attrition, thus negatively impacting the ability to meet the growing demand for healthcare workers (Cofer et al., 2018; Delgado et al., 2017; Schutte & Loi, 2014; Sharon & Grinberg, 2018).

Purpose of the Study

The purpose of this quantitative study was to generate information needed to develop collaborative interventions that address stress and develop EI to positively influence retention and clinical experiences for healthcare students. It explored the relationship between resilience, EI, and age in healthcare students enrolled at one university in the southeastern United States. Existing literature suggests students with lower levels of EI are more susceptible to burnout and attrition compared to those with higher levels of EI (Cofer et al., 2018; Delgado et al., 2017; Sharon & Grinberg, 2018). Therefore, this study examined age, the psychological construct of EI, and levels of resilience among health professional students. The significance of the relationship between these variables might provide a better understanding of the role of EI in healthcare education. This understanding can help educators develop collaborative interventions that address stress and develop EI to influence positive retention and clinical experiences for healthcare students.

Research Questions

The primary research question was: To what extent does emotional intelligence and age predict resilience among healthcare students?

Definition of Key Terms

Attrition. The student dropout or discontinuation from an educational program. Burke (2019) describes attrition as a failure "to persist" (p. 13).

Burnout. In this study, "a prolonged response to chronic emotional and interpersonal stressors on the job and is defined by the three dimensions of exhaustion, cynicism, and inefficacy" (Maslach et al., 2001, p. 397).

Clinicals. In this study, clinicals refer to the hospital and clinical rotations required for nursing and radiologic science students for competency practice and assessment (American Society of Radiologic Technologists, 2017; Commission on Collegiate Nursing Education, 2018). During clinicals, students work alongside healthcare professionals in real-world settings such as hospitals and clinics to care for patients and their families.

Emotional intelligence. An individual's ability to perceive and manage emotions within self and others (Salovey & Mayer, 1990).

Healthcare student. Any student enrolled in a medical education program. In this study, this term specifically refers to undergraduate and graduate students enrolled within a healthcare program at one university in the Southeastern United States. These students pursue careers within the healthcare industry.

Resilience. The ability to recover and adapt positively to adversity, stressful situations, or hardship (Sarrionandia et al., 2018).

Summary

As future healthcare professionals, healthcare students must navigate both clinical and academic stressors to successfully complete their training programs. Even amid the pandemic, they must function within the changing landscape of healthcare and facilitate quality interactions with peers, patients, clinical staff, and instructors. These potential stressors can influence student

retention, burnout, and clinical experiences. Understanding the role of EI and resilience among students in healthcare education programs could improve student retention and positively influence the growing need for adept healthcare providers.

Chapter 2: Literature Review

The purpose of this study was to explore the relationship among resilience, EI, and age in students enrolled in health professional programs at ABC University (pseudonym), a university in southeastern United States. Within the following literature summary, I present recent research related to EI and resilience among healthcare professionals and educational programs. There is a substantial body of existing research on burnout within the healthcare industry to include nurses, physicians, nursing students, and medical students; however, there is less research explicitly targeting the connection among resilience, EI, and age in healthcare students. The literature review begins with a brief background and will focus on the primary themes of emotional demands associated with clinical education for healthcare students, perceived stress and burnout, resilience, and EI.

Analysts have predicted a significant shortage in the healthcare workforce (Hu et al., 2016; Narlock, 2017; U.S. Department of Labor, 2017). As the population ages, the demand for health services increases. These increasing demands and workforce shortages can lead to employee burnout and attrition. In 2012, a survey found that 46% of physicians would have chosen a career other than medicine (Medscape, 2012). This growing trend is not limited to physicians. Gellasch (2015) reported that 47% of surveyed nurses intended to leave the nursing profession. Loan et al. (2010) surveyed allied health professionals and reported that the respondents identified excessive workload, pressure, and stress as the primary factors influencing their decision to leave the profession. Recent research has suggested that the emotional demands of the job may influence burnout and retention (Goodman & Berlinerblau, 2018; Tarcan et al., 2017). The increasing trends of burnout, combined with the worker shortage, underscores the importance of investigating the role of EI in student burnout in clinical education. Within the last three decades, the construct of EI has been useful in organizational research (Feyerabend et al.,

2018; Schlegel & Mortillaro, 2019; Schutte & Loi, 2014). Understanding how an individual

manages their emotions to navigate work roles and relationships may provide information that

could help prevent attrition and burnout in the healthcare industry.

Conceptual Framework Discussion

The purpose of this study was to investigate the potential relationships between EI, age,

and resilience in healthcare students. Three concepts have influenced the framework of this

study: the experience of burnout, resilience, and EI.

Maslach and Jackson's (1981) conceptual description of burnout as a syndrome of

emotional exhaustion, depersonalization, and reduced accomplishment (inefficacy) was

instrumental in defining burnout within the workplace. Maslach (2003) expanded the description

of burnout as multidimensional and a relationship between the work environment and the person.

Rooted in caregiving and service occupations, burnout research focused not only on the

individual stress response but also on the transactional interactions at work (Maslach et al.,

2001). Chronic interpersonal stressors contribute to burnout and can cause loss of energy,

irritability or withdrawal, low morale, reduced productivity, and even inability to cope (Maslach

& Leiter, 2016).

Maslach et al. (2001) indicated that burnout is linked to outcomes in both job

performance and health. Decreased job satisfaction, productivity, and commitment are outcomes

of burnout that can negatively impact relationships in the workplace. The physiological effects of

burnout are similar to outcomes associated with prolonged stress, and Maslach et al. (2001)

indicated findings that linked different types of substance abuse to burnout.

A review of physician burnout and interventions found that strategies to reduce burnout

were effective. The most common approaches reported involved mindfulness, stress

management, and small group discussions (West et al., 2016). The opportunity to reduce or

mitigate burnout is well-documented in the literature (Johnson et al., 2020; Lakioti et al., 2020; McFadden et al., 2018; Wilczek-Ruzycka & Jableka, 2013). These findings underscore the importance of teaching healthcare students helpful strategies to use in stressful environments.

Rindfleisch (2017) described burnout as "the shadow side of resilience" (para. 6). The concept of human resilience originated as researchers sought to explore the impact of adversity on human adaptation following major events such as the Great Depression and World War II (Masten, 2018). Resilience has been described in various contexts such as a fixed trait, a process, an outcome, or a combination of all three (Masten, 2018). Regardless of the context, resilience is linked to positive psychology that facilitates stress coping abilities in challenging conditions (Connor & Davidson, 2003). No recent event has been more challenging to modern health systems than the global outbreak of COVID-19, declared a pandemic by the World Health Organization in 2020 (Chen & Bonanno, 2020). Chen and Bonanno (2020) suggested that identifying factors that promote resilience would be "especially useful in face of ongoing and uncertain threats during the COVID-19 pandemic" (p. S52). Factors such as mindfulness, cognitive flexibility, physical well-being, and social support systems can boost resilience in adverse events (Chen & Bonanno, 2020; Iacoviello & Charney, 2014; Olson et al., 2015). Understanding resilience among healthcare students can help educators identify the need for interventions and development to promote resilience in training programs and prevent burnout.

The theory of EI also influenced this study. As previously stated, various models of EI have developed within the past 50 years. Most constructs of EI can be categorized into three models: ability, trait, and mixed models (Kanesan, & Fauzan, 2019). Salovey and Mayer (1990) described EI as an ability to perceive emotions and discriminate between them and use the information to influence actions. The ability-based model of EI is distinct from the other models in that EI is based on an individual's ability. Petrides (2010) argued that EI is better described as

a trait since it is defined by self-perception within lower levels of one's own personality. Considering EI as a trait places it within an individual's personality. Kanesan and Fauzan (2019) indicated that while scholars may have different views on the definition of EI, most agree that EI, IQ, and personality are three unique concepts. The mixed model of EI, popularized by Goleman (2006), posits that EI is based on various competencies (ability) and general disposition (trait). While these models will be discussed in greater detail in the following sections, it is important to note that Salovey and Mayer's theory of EI was used as the construct of EI for this study, specifically as it relates to perceiving, using, understanding, and managing emotions.

Clinical Education

Education within the medical industry is comprised of didactic (theoretical) courses and practical applications. Practical applications are essential as they provide students with an opportunity to apply their theoretical knowledge in a real-world environment. Vatansever and Mert (2017) confirmed that one of the essential aspects of effective education is the ability to apply theoretical lessons to practical applications. Students training in healthcare professions perform these practical applications in clinical settings such as hospitals and medical clinics.

The concept of clinical training is not new. Clinical clerkships for medical students became widespread in the United States in the early 1900s (DeZee et al., 2012). While medical education has evolved with advancements in technology, training within the clinical environment remains an essential component for healthcare students. Since the late 19th century, clinical education has expanded beyond medical schools as more healthcare professional training programs incorporate clinical education into curriculum standards. Most healthcare professions, such as physical therapy, occupational therapy, nursing, respiratory therapy, surgical technologist, and radiologic technologist, include clinical education requirements in their curriculum.

The clinical learning environment is different than a traditional classroom in that additional factors can exist in the clinical setting. Factors such as time constraints, patient and clinic requirements, work-related interactions between healthcare team members and other staff, and unpredictable workload can influence the student experience during clinical practice (Ab Latif & Mat Nor, 2019). There is a growing body of research focused on increased levels of depression and stress in medical students. McConville et al. (2017) proposed that many of the stressors associated with medical school training are also present in all healthcare professional training.

Students preparing to work in healthcare professions have unique stressors associated with clinical practicums (Foster et al., 2018; Mason, 2006; McConville et al., 2017; Rudman & Gustavsson, 2012). McConville et al. (2017) indicated that stress experienced by healthcare students can affect well-being and clinical performance. A study by Rudman and Gustavsson (2012) revealed that in addition to typical pressures associated with college, nursing students' experienced additional stressors specific to clinical education such as taking care of patients, relationships with clinical staff, and fear of making mistakes. Existing research suggests that students enrolled in healthcare programs experience extra pressures such as developing patient care skills, learning new systems and workflow procedures while rotating to various clinical placement sites (Birks et al., 2009; Enns et al., 2018; Sharon & Grinberg, 2018). Healthcare students exposed to demanding clinical settings experience emotional labor, which is associated with burnout, negative outcomes, and compassion fatigue (Foster et al., 2018). Hochschild (2012) described emotional labor as the effort used to suppress emotions within the work environment. Healthcare workers are susceptible to increased emotional labor, as it is often necessary to manage highly emotional situations associated with the realities of medical work (Chau et al., 2009). Individuals working in the medical environment experience stress associated

with caring for sick patients, dealing with families, coworkers, and challenging work processes (Foster et al., 2018).

Like nursing students, radiologic science students participate in clinical practicums during their educational program. A study focused on radiology professionals found that radiographers exhibited higher than average levels of emotional exhaustion compared to national norms (Akroyd et al., 2002). Mason (2006) surveyed radiologic students and identified clinical burdens such as the fear of making mistakes, feeling unprepared, intimidation by clinical staff, difficult patients, and hurtful criticism that led to increased stress during clinical education. Cohen and Legg (2019) examined stress among radiologic science students and found that 60% indicated feeling constantly under strain, while 38% reported high levels of mental distress. The increasing rates of burnout combined with the additional stressors associated with clinical education emphasize the need to investigate the preparedness of students to handle the emotional demands of clinical practice.

Stress and Burnout

The concept of stress has been well documented in the literature. Maslach and Leiter (2008) reported that as an occupational hazard, stress can impair health, well-being, and performance. Scientific research has demonstrated that stress negatively affects one's mental and physical health (Segerstrom & O'Connor, 2012). While stress is a known occupational hazard for health professionals (Maslach & Leiter, 2016), studies indicate a rise in stress levels for college students in the United States (Liu et al., 2019). Stress among college students can significantly influence academic performance, retention, and mental health issues including depression, anxiety, and suicide (Aydin, 2017; Liu et al., 2019). Prolonged exposure to stress is a significant predictor of burnout (Maslach & Leiter, 2016).

The concept of burnout was first introduced in 1974 (Freudenberger, 1974). Since then,

the most common definition in medical literature is based on Maslach and Jackson's work (1981) that describes burnout as a syndrome of emotional exhaustion, depersonalization or cynicism, and reduced accomplishment (inefficacy). Emotional exhaustion is a core component of burnout and represents an individual's feeling of chronic fatigue, loss of energy from excessive stress associated with work roles (Maslach et al., 2001). Depersonalization or cynicism is a feeling of detachment from others, withdrawal, or negative attitudes toward colleagues or patients (Maslach & Leiter, 2016). Maslach and Leiter (2016) described reduced accomplishment or inefficacy as reduced productivity, low morale, or a lack of one's sense of effectiveness.

Goodman and Berlinerblau (2018) indicated that burnout could also lead to adverse effects such as reduced patient care and satisfaction and increased medical errors. Previous researchers approached the topic by analyzing the risk factors associated with increased burnout, depression, and suicide (Amoafo et al., 2014; Center et al., 2003; Dyrbye et al., 2014; Jackson et al., 2016). Most find that common risk factors include alcohol abuse, female gender, younger age, longer working hours (more than 40 per week), low job satisfaction, and presence of work-home conflict (Amoafo et al., 2014; Jackson et al., 2016; Shanafelt et al., 2015).

The negative relationship between job satisfaction and burnout has been established in recent literature (Guveli et al., 2015; Hirsch & Adarkwah, 2018; Safi et al., 2016; Tarcan et al., 2017). Tarcan et al. (2017) found that emotional exhaustion and reduced accomplishment are significantly linked to job satisfaction. Guveli et al. (2015) also found a significant relationship between job satisfaction and emotional exhaustion. Job satisfaction influences employee motivation, organizational commitment, absenteeism, and burnout (Tarcan et al., 2017). As the U.S. population ages, the demand for healthcare workers increases, and organizations are expected to treat more patients regardless of worker shortage (Hu et al., 2016). According to Bridgeman et al. (2018), healthcare has unique challenges that increase stress, such as time

constraints associated with clinical work, "lack of control over work processes and scheduling,

and conflicting roles and relationships with leadership" (p. 147). As a result, healthcare

professionals are experiencing high levels of job dissatisfaction and burnout (Bridgeman et al.,

2018; Chachula et al., 2015; Tarcan et al., 2017; Thanacoody et al., 2014).

Healthcare professionals are often confronted with stressful situations, which can lead to

depression, burnout, and compassion fatigue (Kerasidou & Horn, 2016). Compassion fatigue is a

similar but unique concept related to burnout. While burnout develops over time and can affect

any profession, compassion fatigue is more acute and specific to those in helping professions and

is caused by the stress associated with the emotional burden of caring for others who are

suffering (Gentry, 2018; Henson, 2020). Increased exposure to suffering and trauma can cause a

depletion of compassion and without intervention, can result in apathy, decreased quality of

patient care, and burnout (Henson, 2020).

The emotional involvement associated with compassionate care can increase the risk for

burnout (Gentry, 2018). Factors such as emotional demands and perceived stress contribute to

job dissatisfaction, emotional exhaustion, and burnout (Delgado et al., 2017; Lin et al., 2016).

Devebakan (2018) reported that perceived stress was a significant predictor of emotional

exhaustion and depersonalization dimensions of burnout. Rudman and Gustavsson (2012) found

that nursing students who experienced burnout during their training programs were more likely

to leave the profession. Since the prevalence of burnout among health professionals is increasing,

interventions are needed to reduce the number of workers leaving the health profession (Reith,

2018).

Resilience

The concept of resilience has been addressed in literature across multiple industries. The

increasing threat of burnout is a critical reality for healthcare professionals. One factor shown to

mitigate burnout is resilience (Deldar et al., 2018). From environmental science to social sciences, the description is similar and refers to the ability to recover, bounce back, and preserve through stressful situations (Brown et al., 2018; Connor & Davidson, 2003; Polk, 1997).

Despite the broad use of resilience in literature, there lacks a consensus defining resilience as a trait or a skill (Leys et al., 2020; Zanatta et al., 2020). Some evidence supports a significant link between resilience and five personality traits of the Five Factor Model (Oshio et al., 2018; Riolli et al., 2002). Childs-Kean et al. (2020) described the five aspects of the Five Factor Model

> Openness to experience (how open a person is to new ideas), conscientiousness (how goal-directed and persistent a person is), extraversion-introversion (how much a person is energized by the outside world), agreeableness (how much a person puts others' interests ahead of their own), and neuroticism (how sensitive a person is to stress). (p. 2)

Oshio et al. (2018) revealed a negative correlation between resilience and neuroticism; whereas Riolli et al. (2002) found that openness to experience, conscientiousness, and extraversion shared a positive connection to resilience. In a study of 252 paramedics, Froutan et al. (2018) reported that differences in resilience could be attributed to personality traits. To encourage a more resilient team, the researchers suggested personality traits should be considered in recruitment and interventions developed for those with traits of neuroticism (Froutan et al., 2018).

Unlike personality, which is considered fixed, resilience is a dynamic process that can be shaped and developed (Kossek & Perrigino, 2016; Palma-García et al., 2018). Feder et al. (2019) documented resilience as an active process and can be enhanced with interventions. In medical literature, the concept of resilience is most often linked to burnout and referred to as an ability that can be developed (Brown et al., 2018; Robertson et al., 2016).

Resilience has been shown to serve as a protective barrier to burnout (Arrogante &

Aparicio-Zaldivar, 2017; Ogińska-Bulik & Michalska, 2020). A study by Lee et al. (2019) measured stress, resilience, and burnout among 806 participants and found that resilience had significant direct effects on burnout. They found that participants with higher resilience scores reported lower levels of burnout. Multiple researchers have also reported a negative correlation between burnout and resilience, indicating that increased resilience can mitigate burnout (Bridgeman et al., 2018; Deldar et al., 2018; Grabbe et al., 2020; Jackson et al., 2007; Lee et al., 2019).

There is evidence to suggest a link between the protective nature of resilience with individual social skills and self-confidence (Askeland et al., 2020; Pérez-González et al., 2017; Racine et al., 2020). A Norway study measured negative life events, resilience, and depressive symptoms of 9,546 adolescents (Askeland et al., 2020). The researchers found that goal orientation, self-confidence, social competence, social support, and family cohesion correlated with fewer depressive symptoms and increased resilience. Their findings were similar to those of another study that reported good social skills to be positively correlated with coping strategies and resilience among first-year employees in Japan (Kodama, 2017). Another study of undergraduate social work students revealed that students who were more socially confident and scored higher on an EI assessment were more resilient (Grant & Kinman, 2012). These findings support the potential connection between resilience and interpersonal relationships. This connection should be explored in healthcare students to identify a potential path for resilience development.

Emotional Intelligence

Intelligence is commonly associated with intellectual ability and success (Sarkar & Oberoi, 2018). Levesque (2018) indicated that for the past several decades, psychologists have asserted that "approaching intelligence from a purely cognitive perspective failed to

acknowledge the social and emotional intelligence required to maneuver in everyday life" (para. 1). EI can be used to describe how an individual communicates with colleagues, handles conflict, and responds to others. Having the ability to understand and regulate emotions is an essential skill for healthcare professionals. Rooted in ancient philosophy, the concept of EI gained momentum in 1990 when Salovey and Mayer published research that described EI as the ability to identify and recognize emotions in self and others and use that information to influence one's actions (Salovey & Mayer, 1990). While intelligence incorporates cognitive abilities such as reasoning, abstract thinking, and problem-solving, EI includes social capabilities such as empathy, sensitivity, adaption, and self-control (Sarkar & Oberoi, 2018). As previously mentioned, several different models are found in the literature. Three primary models of EI are ability, trait, and mixed models (Kanesan & Fauzan, 2019). Razzaq et al. (2016) suggested that the difference in EI constructs is influenced by how EI is measured and how abilities and behaviors related to EI are described.

Ability Model. Pioneers in EI research, Salovey and Mayer (1990) described EI as a skill that people use to problem-solve in areas related to emotion. Mayer et al. (2004) argued that EI is an ability and includes four major branches:

- *Perceiving emotions* involves the ability to recognize emotion in self and others and includes identifying nonverbal expressions of emotion.

- *Facilitating thought* is the ability to use emotion to assist in thinking and planning. Capabilities include prioritizing thinking, leveraging mood swings, and generating emotions to aid in judgment and memory (Mayer et al., 2016).

- *Understanding emotions* reflects one's ability to "analyze emotions, appreciate their probable trends over time, and understand their outcomes" (Mayer et al., 2008, p. 199). This branch also includes the reasoning capability to differentiate between emotion and

moods, consider cultural differences, and appraise situations.

- *Managing emotions* is considered the "action branch" (Harper & White, 2013, p. 4) and refers to self-control and regulation of one's own emotions and effectively managing others' emotions to achieve a desired outcome (Mayer et al., 2016).

The Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT) was developed as a reliable measurement tool for ability-based constructs of EI; it consists of 141 items and takes about 45 minutes to complete (Brackett et al., 2011).

Trait Model. Another EI model focuses on an individual's self-perceptions of emotional abilities. Petrides and Furnham (2001) studied EI as a trait and described it as a concept that included "behavioral dispositions and self-perceived abilities" (p. 426). Trait EI is described as emotional self-efficacy (Kanesan & Fauzan, 2019; Petrides & Furnham, 2001). Petrides and Mavroveli (2018) defined trait EI as a collection of emotional perceptions measured through surveys. Trait EI can be measured with the Trait Emotional Intelligence Questionnaire (TEIQue) and measures the 15 trait emotional facets depicted in Table 1.

Table 1

The Sampling Domain of Trait Emotional Intelligence in Adults and Adolescents

Facets	High scorers view themselves as…
Adaptability	flexible and willing to adapt to new conditions.
Assertiveness	forthright, frank, and willing to stand up for their rights.
Emotion expression	capable of communicating their feelings to others.
Emotion management (others)	capable of influencing other people's feelings.
Emotion perception (self and others)	clear about their own and other people's feelings.
Emotion regulation	capable of controlling their emotions.
Impulse control	reflective and less likely to give in to their urges.
Relationships	capable of maintaining fulfilling personal relationships.
Self-esteem	successful and self-confident.
Self-motivation	driven and unlikely to give up in the face of adversity.
Social awareness	accomplished networkers with superior social skills.
Social management	capable of withstanding pressure and regulating stress.
Trait empathy	capable of taking someone else's perspective.
Trait happiness	cheerful and satisfied with their lives.
Trait optimism	confident and likely to "look on the bright side" of life.

Mixed Models. While Salovey and Mayer are considered the pioneers of EI, Goleman (1995) popularized it in his book, *Emotional Intelligence: Why It Can Matter More Than IQ*. Goleman's model of EI offers a more practical approach that applies EI in work-related leadership constructs (Kanesan & Fauzan, 2019; Razzaq et al., 2016). Goleman considered EI as an integration of an individual's ability and personality (Kanesan & Fauzan, 2019). Goleman (2006) indicated five components of EI: self-awareness, self-regulation, motivation, empathy, and social skills. As cited earlier, despite its prevalence in leadership and business development, Goleman's model is often criticized in academic research for lacking scientific evidence (Ackley, 2016). Researcher, Bar-On (2006) read Goleman's books and sought to provide a more theoretical approach to the mixed model, in which he described EI as a cross-section of abilities and skills (Drigas & Papoutsi, 2018). Bar-On (2006) developed an Emotional Quotient Inventory (EQi) to measure emotionally and socially intelligent behavior.

In consideration of the various EI models, ability EI and trait EI were used to develop the conceptual framework for this study. Salovey and Mayer's theory of EI relates to the ability-based model based on perceiving, using, understanding, and managing emotions. Trait EI is measured by self-report and most useful when considering behavioral tendencies and emotional self-efficacy in response to adversity or stress (O'Connor et al., 2019). While Goleman's model is viewed as a practical application in leadership constructs, it is less supported in scientific research (Ashkanasy & Daus, 2005; Yekta & Abdolrahimi, 2016). As previously mentioned, despite the differences, most scholars agree that EI can be developed and improved (Ashkanasy & Daus, 2005; Brackett et al., 2011; Gilar-Corbi et al., 2019; Kroning, 2015), and the ability-based model serves as a basis for the majority of training interventions (Enns et al., 2018; Mayer et al., 2008). Incorporating aspects of both ability and trait models, the Self-Report Emotional Intelligence Test (SREIT) was developed using Salovey and Mayer's model of EI that

participants can complete via self-report (Schutte et al., 1998). Cited more than 3,000 times, the SREIT measures a combination of ability and trait EI and includes factors such as optimism/mood regulation, appraisal of emotions, social skills, and utilization of emotions (O'Connor et al., 2019). For these reasons, the SREIT was used in this study to measure EI.

Several researchers have questioned the role of age in EI. Cabello et al. (2016) researched the relationship between EI and age in 12,198 Spanish adults ranging from 17 to 76 years. This study was unique in that the age range was much broader than other studies. They found that EI increased in middle-adulthood (32–44 years old), whereas younger (17–31 years old) and older adults (45–76 years old) scored lower on the EI assessment. Cabello et al. (2016) reported that increasing cognitive ability and life experience supports an EI peak in middle adulthood. The authors suggest that lower EI in older adults may be linked to a decline in cognitive functions and is supported by existing literature on empathy and age. Van Rooy et al. (2005) administered EI assessments to 275 undergraduate students aged 18 to 44 years old and reported an increase in EI scores with age.

Other researchers found a less significant relationship between age and EI (Fariselli et al., 2008; Shipley et al., 2010). Shipley et al. (2010) examined EI in relationship to age, work experience, and academic performance of undergraduate business students. They found that EI was positively connected to work experience but not associated with age. The authors suggested a possible explanation for their findings could be because the average age of participants was between 19 and 29 years old. The lack of variance may have limited their results and suggest future studies in academic programs considered both undergraduate and graduate students (Shipley et al., 2010). Another study of 281 radiography students found no association between age and EI scores (McNulty et al., 2016). Çelık and Denız (2008) compared EI scores of 215 participants and found that age did not significantly impact EI. Accordingly, more research is

needed to better understand the potential connection between age and EI among healthcare students.

EI is a growing focus within medical literature. According to Omid et al. (2018), the EI of clinical educators influenced the teaching outcomes within medical education. A study of 540 medical students revealed that EI was positively associated with academic performance, leadership capacity, and self-efficacy (Ibrahim et al., 2017). In addition to medical education, EI is prevalent within nursing literature. Taherinejad et al. (2017) found a significant positive relationship between EI and organizational commitment among 2126 nursing respondents. Another study focused on nurses revealed that higher EI scores correlated with high levels of work engagement (Pérez-Fuentes et al., 2018). Several studies have demonstrated a positive relationship between EI and job satisfaction (Feyerabend et al., 2018; Hollis et al., 2017; Schutte & Loi, 2014). A study by Schutte and Loi (2014) revealed a significant positive relationship between EI and work engagement, better mental health, greater satisfaction, and perceived power in the workplace. While these studies present a promising connection between EI and job satisfaction, only a handful have focused on EI and job satisfaction or burnout within the healthcare industry. A survey of physicians within one surgical department found that EI was significantly correlated with job satisfaction (Hollis et al., 2017). Another study of surgical residents by Cofer et al. (2018) revealed a significant relationship between EI and burnout. The EI scores were lower in respondents with burnout. Studying burnout and EI among medical residents, Shahid et al. (2018) reported that incorporating EI education into the curriculum provides students with a burnout-buffering effect. While existing research demonstrates a connection between EI and burnout, a closer look within the healthcare industry, primarily healthcare education programs, is necessary.

There are several limitations of the existing literature. One limitation is most of the

research associated with burnout and EI within the healthcare industry focuses on nurses and physicians (Amoafo et al., 2014; Center et al., 2003; Cofer et al., 2018; Dyrbye et al., 2014; Goodman & Berlinerblau, 2018; Shanafelt et al., 2015). While there are some similarities between healthcare professions, such as caring for patients and working in a clinical setting, there are distinct differences between them. Physicians and nurses treat patients and provide therapeutic care for patients (Ainsworth, 2013; Cofer et al., 2018), while radiologic technologists provide diagnostic support to healthcare practitioners (American Society of Radiologic Technologists, 2017). Some studies did include allied health professionals (Akroyd et al., 2002; Birks et al., 2009; Foster et al., 2018); however, only one was specific to students (Mason, 2006). Considering the distinct stressors healthcare students experience in training programs supports the need for the proposed study.

Summary

Several studies focus on various aspects of stress, burnout, resilience, or EI; however, few examined the relationship among age, EI, and resilience of healthcare students. As the healthcare industry is poised for significant growth, having enough workers is critical. Exploring the impact of resilience and EI in the context of the healthcare education industry may provide select audiences with information that could be used to develop interventions to target burnout, address recruitment and retention, cultivate development programs, and incorporate EI in the healthcare education curriculum. The main concepts influencing this study are presented in Figure 1. In the next chapter, I will describe my study design and methodology.

Figure 1

Conceptual Map of the Proposed Study

Independent Variables   Dependent Variable

Emotional Intelligence

Age
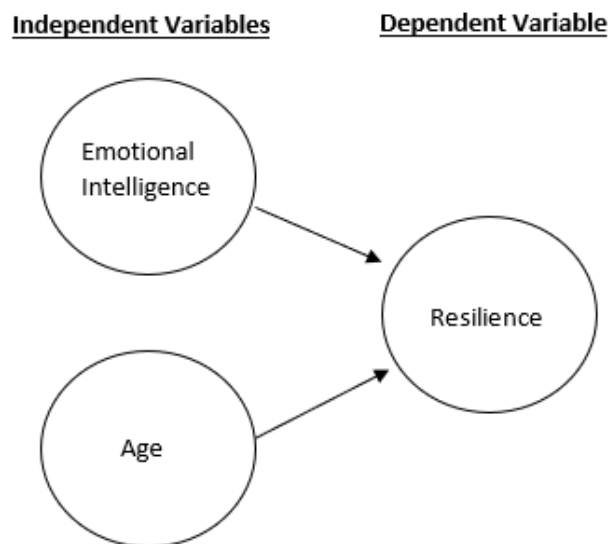
Resilience

Chapter 3: Research Method

The purpose of this quantitative study was to explore the relationship among EI, age, and resilience in healthcare students at a university in the southeastern United States. With decreased levels of resilience and EI, students are more susceptible to burnout and attrition, thus impacting the ability to meet the growing demand for healthcare professionals (Cofer et al., 2018; Delgado et al., 2017; Schutte & Loi, 2014; Sharon & Grinberg, 2018). This study was designed to answer the following question: To what extent does EI and age predict resilience? Answers to this question can help educators develop collaborative interventions that develop EI and resilience to influence positive retention and clinical experiences for healthcare students. This chapter describes the research and design methods, population and samples, instruments, data collection and analysis procedures, ethical considerations, and limitations.

Research Design and Method

The primary purpose of this study was to examine the potential predictive relationship among levels of resilience, EI, and age in healthcare students. The study employed a nonexperimental, cross-sectional, predictive correlational design.

Within medical education literature, a quantitative methodology is most frequently used (Boet et al., 2012). Quantitative research generates numerical data and measures variables from an objective perspective (Bloomfield & Fisher, 2019). According to Levin (2006), cross-sectional research is important as it provides a "snapshot of the outcome and the characteristics associated with it, at a specific point in time" (p. 24). In experimental research, something is done to manipulate variables (Lock et al., 2013). Since this study sought to analyze the descriptive data, and nothing was done to interfere or manipulate the variables, a nonexperimental design was most appropriate (Babbie, 2016).

Population and Sample

The population of interest for this study was healthcare students. Convenience sampling was used to recruit participants by posting the survey link within healthcare courses at one mid-sized southeastern public university. Eligibility to participate in the study was determined by the participant's enrollment status within a health professional course at the university. Pre-clinical students or students not enrolled in a health professional course with the prefixes NURA, NURB, NURG, ALHE, or RADS were not eligible to participate. Students enrolled in online programs, or accelerated programs such as Registered Nurse to Bachelor of Science in Nursing (RN to BSN) were eligible to participate.

Instruments

A web-based survey link included five demographic questions (see Appendix A), the Schutte Self Report Emotional Intelligence Test (Schutte et al., 1998), and the Brief Resilience Scale (Smith et al., 2008). The survey instrument and respective characteristics are shown in Table 2.

Table 2

Research Instrumentation

Variable	Instrument	Number of questions	Type of questions	Reliability
EI	Self-Report Emotional Intelligence Test (SREIT)	33	Five-point Likert Scale	Cronbach Alpha .87
Resilience	The Brief Resilience Scale (BRS)	6	Five-point Likert Scale	Cronbach Alpha .92

Developed by Smith et al. (2008), the Brief Resilience Scale (BRS) is widely used and highly reliable. The BRS contains six items to determine resilience as "the ability to bounce back or recover from stress" (p. 194). Participants were asked to rate each item using a Likert scale. Three items are negatively worded, and three are positively framed items (see Appendix B). The BRS is free and available to use for research or education courtesy of Smith et al. (2008) and with permission from Springer (See Appendix D).

The Schutte Self-Report Emotional Intelligence Test (SSEIT) is a 33-item self-report inventory and takes about five minutes to complete (Schutte et al., 1998). Participants rated themselves using a five-point scale (see Appendix C). Utilizing Salovey and Mayer's definition of emotional intelligence, the SSEIT assesses trait emotional intelligence. Respondents were scored in four factors: perception of emotions, managing emotions, social skills, and utilization of emotion. The instrument has been well documented in research and demonstrates good reliability and validity (Schutte et al., 2009). Schutte granted permission to use the SSEIT in this study (see Appendix E).

Independent and Dependent Variables

Two independent variables were measured and analyzed with one dependent variable. EI and age were the independent variables, whereas the level of resilience was the dependent variable. All variables were analyzed as interval data. Age was collected and reported in the number of years with a fill-in-the-blank response on the survey. Scores from the EI and resilience measurements were collected and analyzed as interval data.

Operational Definitions of Variables

Emotional Intelligence (EI). EI describes an individual's ability to perceive and manage emotions within self and others (Salovey & Mayer, 1990). EI was measured with the Schutte Self Report Emotional Intelligence Test (SSEIT) in which participants were asked to score

themselves using a five-point Likert scale from 1=strongly disagree, 2=somewhat disagree, 3=neither agree nor disagree, 4=somewhat agree, and 5=strongly agree. Scores were calculated by summing all items together with total scores ranging from 33 to 165, with higher scores indicating greater EI.

Resilience. This dependent variable refers to an individual's ability to recover or bounce back after stressful situations or adversity (Smith et al., 2008). Resilience was measured with the modified BRS. Participants responded to six items by indicating the agreement level with each statement using a five-point Likert scale from 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, and 5 = strongly agree. Mean scores were calculated by adding items together and dividing them by six.

Data Collection and Analysis. Once approved by the Institutional Review Board (IRB), all healthcare students enrolled in a course with the prefix NURA, NURB, NURG, ALHE, or RADS were invited to participate in the study. The survey was provided online through a SurveyMonkey link. A brief description of the study, the survey link, and instructions were provided to instructors to post on all course homepages. The survey took approximately 15 minutes to complete.

The data were downloaded from SurveyMonkey and uploaded into Statistical Package for the Social Sciences version 25 (SPSS). The variables of interest, EI, and resilience were constructed following the previously validated scoring instructions on the SSEIT and modified BRS. Descriptive statistics were utilized to explore the trends in the demographic variables and variables of interest. For nominal and ordinal-level variables (gender, ethnicity, and education program) frequency and percentage distributions were used. For interval-level variables (age, EI, and resilience), minimums, maximums, means, medians, and standard deviations were explored.

RQ: To what extent do EI and age predict resilience among healthcare students?

To address the research question, a multiple linear regression model was conducted to examine the relationship between age, EI, and resilience. A multiple linear regression model was appropriate to test the predictive association between multiple independent variables and a continuous dependent variable (Tabachnick & Fidell, 2013). The forced entry approach was utilized to input age and EI into the regression model simultaneously. The independent variables corresponded to age and EI. The dependent variable corresponded to resilience.

Before analysis, the assumptions of a regression model were tested. According to Field (2013) and Laerd (2018), the following assumptions should be verified before running multiple linear regression analyses:

1. There should be one dependent variable that is measured at the continuous level.

2. There should be at least two independent variables that are measured either at the continuous or nominal level.

3. There should be independence of observations.

4. There should be a linear relationship between the predictors and outcome.

5. There should be homoscedasticity of residuals (equal error variances).

6. There should be no significant outliers.

7. The residuals (errors) should be approximately normally distributed.

8. There should be an absence of multicollinearity.

The first assumption was met due to the dependent variable, resilience, being a continuous-level measurement. The second assumption was met due to the examination of multiple predictors in the regression model – age and EI. The third assumption, independence of observations, was assessed with a Durbin-Watson test. The Durbin-Watson test verifies for autocorrelation in the sample, and values close to two indicate that the assumption is met (Field, 2013). The fourth assumption, linearity, was tested with a scatterplot between EI and resilience

and a scatterplot between age and resilience. An approximate positive or negative trend indicates that the assumption is met. The fifth assumption, homoscedasticity of residuals, was tested with a residuals scatterplot. The absence of a distinct pattern indicates that the assumption was met (Stevens, 2009). The sixth assumption, absence of significant outliers, was identified through standardization of age, EI scores, and resilience scores. Tabachnick and Fidell (2013) indicated that standardized values exceeding +3.29 standard deviations from the mean will be removed from further analysis. The seventh assumption, normality, was verified using a P-P scatterplot. The assumption is met if the data closely follow the normality trend line (Howell, 2012). The eighth assumption, absence of multicollinearity, was assessed with variance inflation factors (VIFs). Absence of multicollinearity verifies that there is not a large association between the predictor variables. Stevens (2009) suggested that VIFs below 10 indicate there is not a high association between the predictors, thus meeting the assumption for absence of multicollinearity.

The F test indicates whether age and EI significantly predict resilience. Statistical significance for the F test was evaluated at the generally accepted significance threshold, $\alpha = 0.05$. The coefficient of determination, R^2, indicated how much variance in resilience can be explained by age and EI. The standardized beta coefficient (β) for each predictor indicated how much resilience changes by a one-unit shift in age and EI.

Ethical Considerations

This study received approval from ACU's Institutional Review Board (IRB) before data collection (see Appendix E). A copy of the IRB approval was provided to the participating institution for review. Once permission was granted by the participating institution and the Dean of the College of Nursing and School of Allied Health, eligible students were invited to participate via an announcement in class and a link on the Moodle course homepage. Data were collected online via the SurveyMonkey link. Student privacy was protected, complying with the

Family Educational Rights and Privacy Act (FERPA), since no lists or educational records were shared with me outside of the students' responses. Participation was voluntary, and the survey anonymously collected a limited number of demographics, such as age, gender, ethnicity, and education level (graduate or undergraduate). As with any study involving data collection, there is the possibility of a breach of confidentiality; however, every precaution was taken to secure data. No names or Internet Protocol (IP) addresses were collected or recorded. The survey results were password protected and downloaded from SurveyMonkey server to my computer.

Assumptions, Limitations, and Delimitations

I assumed that participants responded with truthful answers. I hoped to encourage honesty by keeping the study voluntary and anonymous. The results of this study are specific to the university at which all the participants were surveyed; therefore, the generalization of the results is limited. Another limitation is that all responses are self-reported. Participants may have responded with more socially acceptable answers or may not be self-aware to have answered honestly. This was a cross-sectional study and only collected data from one point in time; therefore, other factors apart from age and EI may have impacted how a participant responded to questions assessing resilience. A delimitation of the study is the focus on clinical students enrolled in one Southeastern university. Non-clinical students and students of other majors were not included in this study. Another delimitation is that professors and other healthcare professionals were not eligible to participate. The research focused on EI and perceived stress among clinical students.

Summary

The purpose of this quantitative, correlational study was to explore the relationship among resilience, EI, and age in students enrolled in healthcare programs at a university in the southeastern United States. The significance of the relationship may provide a better

understanding of the role of EI in healthcare education. This understanding can help educators

develop collaborative interventions that develop EI to influence positive retention and clinical

experiences for healthcare students that translates to their careers in the healthcare industry.

Chapter 4: Results

The purpose of this quantitative, correlational study was to explore the relationship among resilience, EI, and age in healthcare students at one university. In this chapter, the findings of the data analyses are presented. Frequencies and percentages are used to explore the trends of the demographic variables. Cronbach alpha test of internal consistency is used to examine the internal consistency of the measures. Means and standard deviations are calculated for the continuous-level variables. To address the research questions, a multiple linear regression was conducted. Statistical significance was evaluated at the generally accepted alpha level, $\alpha = .05$.

Students currently enrolled in a healthcare course with the prefix NURA, NURB, NURG, ALHE, or RADS were invited to participate in the study. These prefixes are used within the university to identify courses in the following programs: Associate of Science in Nursing (ASN), Bachelor of Applied Science in Allied Health (BASAH), Bachelor of Science in Nursing (BSN), Bachelor of Science in Radiologic Science (BSRS), Doctor of Nursing Practice (DNP), Master of Science in Nursing (MSN), and Master of Science in Radiologic Science (MSRS). A survey provided online through a SurveyMonkey link was posted on each course page, inviting students to participate. The survey was anonymous and available for three weeks at the beginning of the spring 2021 semester.

Description of the Sample

A total of 211 participants provided consent to respond to the survey. Twelve participants did not respond to a significant portion of the questionnaire and were subsequently removed. Potential outliers were examined through standardization of EI and resilience scores. Tabachnick and Fidell (2013) indicated that outliers correspond to scores exceeding ± 3.29 standard

deviations from the mean. As such, no outliers were identified for the variables. The final sample

consisted of 199 participants.

The sample consisted of 178 women (89.3%) and 21 men (10.7%), which is similar to the

female to male enrollment ratio for the university's health professional programs. A majority of

the sample consisted of Caucasians ($n = 139$, 69.8%). Most participants were in the BSN ($n = $

79, 39.7%) or BSRS ($n = 63$, 31.7%) programs. The age of the participants ranged from 19 to 72

years, with $M = 31.56$ years and $SD = 10.10$. The variance of age can be attributed to the

inclusion of both undergraduate and graduate programs in this study. Table 3 presents the

frequencies and percentages of the demographic variables.

Table 3

Frequencies and Percentages of Demographics

Variable	*n*	*%*
Gender		
Male	21	10.6
Female	178	89.4
Race		
Caucasian	139	69.8
African American	28	14.1
Latino or Hispanic	10	5.0
Asian	7	3.5
Native American	4	2.0
Native Hawaiian or Pacific Islander	1	0.5
Two or more	10	5.0
In what program are you currently enrolled?		
ASN	8	4.0
BASAH	7	3.5
BSN	79	39.7
BSRS	63	31.7
DNP	5	2.5
MSN	23	11.6
MSRS	13	6.5
Other (please specify)	1	4.5

Composite scores were calculated on the SSEIT and BRS. Cronbach's alpha test of reliability was examined for the two instruments. The strength of the alpha values was interpreted by utilizing George and Mallery's (2016) guidelines, in which $\alpha \geq .9$ Excellent, $\alpha \geq .8$ Good, $\alpha \geq .7$ Acceptable, $\alpha \geq .6$ Questionable, $\alpha \geq .5$ Poor, and $\alpha < .5$ Unacceptable. Both the EI ($\alpha = .88$) and resilience ($\alpha = .86$) instruments met the acceptable threshold for internal consistency.

EI scores ranged from 97.00 to 163.00, with $M = 129.67$ and $SD = 12.35$. Resilience scores ranged from 1.17 to 5.00, with $M = 3.37$ and $SD = 0.77$. Descriptive statistics for the instruments are presented in Table 4. Figures 2 and 3 present histograms for the data.

Table 4

Descriptive Statistics for Scales

Instrument	Variable	n	*Min*	*Max*	*M*	*SD*	*n* of items	α
SSEIT	Emotional intelligence	199	97.00	163.00	129.67	12.35	33	.88
BRS	Resilience	199	1.17	5.00	3.37	0.77	6	.86

Note. SSEIT = Schutte Self-Report Emotional Intelligence Test; BRS = Brief Resilience Scale

Figure 2

Histogram for EI Scores
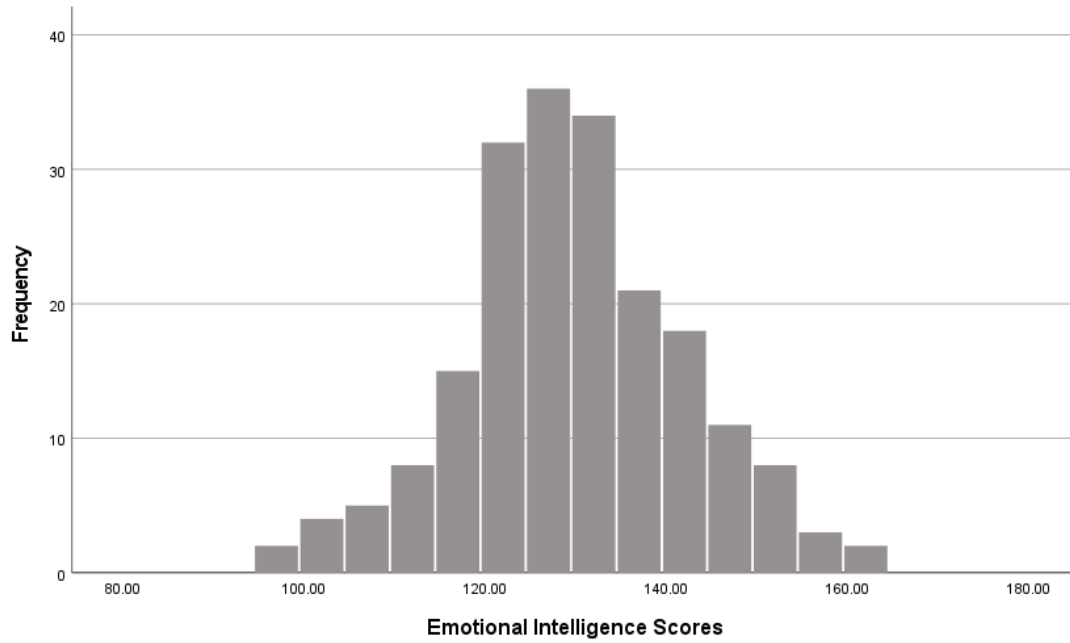
Figure 3

Histogram for Resilience Scores
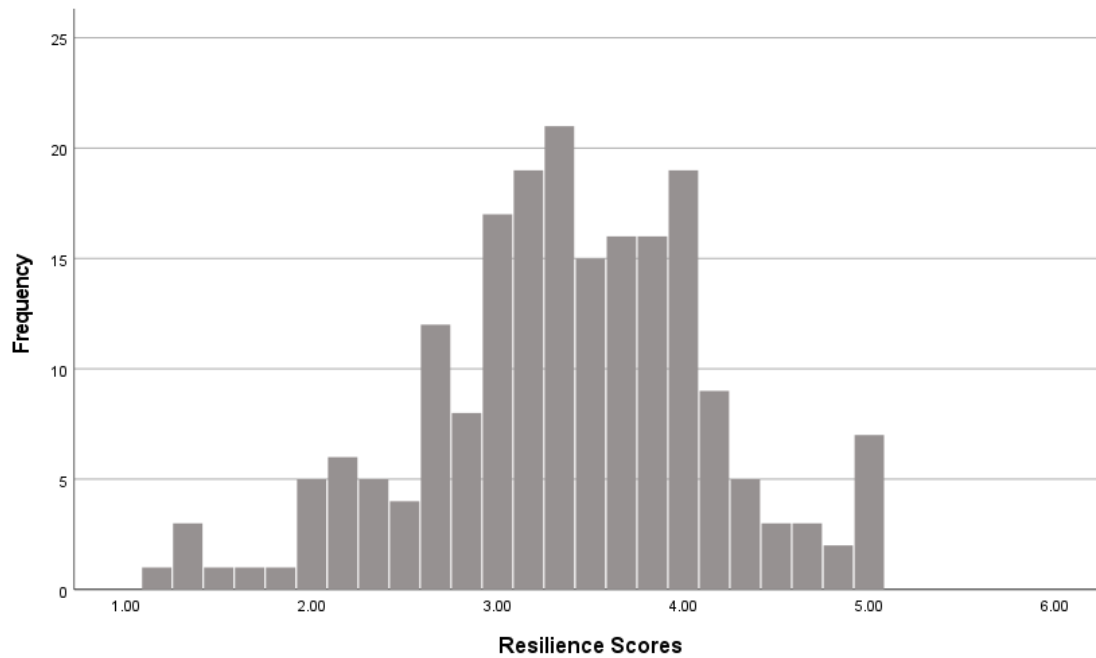
Multiple Linear Regression

To address the research question, a multiple linear regression model was conducted to examine the relationship between age, EI, and resilience.

Test of Assumptions

Before analysis, the assumptions of a regression model were tested. According to Field (2013) and Laerd (2018), the following assumptions should be verified before running multiple linear regression analyses:

Dependent Variable. There should be one dependent variable that is measured at the continuous level. The assumption was met due to resilience being the primary dependent variable of interest.

Independent Variables. There should be at least two independent variables that are measured either at the continuous or nominal level. This assumption was met due to the examination of both EI and age as variables of interest.

Autocorrelation. There should be independence of observations. This assumption was tested with the Durbin-Watson test. The finding of the Durbin-Watson test was 1.70, which approaches the value of 2 for the absence of autocorrelation. This indicates little to no autocorrelation between the residuals.

Linear Relationship. There should be a linear relationship between the predictors and outcome. The assumption of linearity was visually verified with a scatterplot. There appeared to be a positive trend between EI and age on resilience scores (see Figures 4 and 5).

Figure 4

Scatterplot Between EI and Resilience Scores
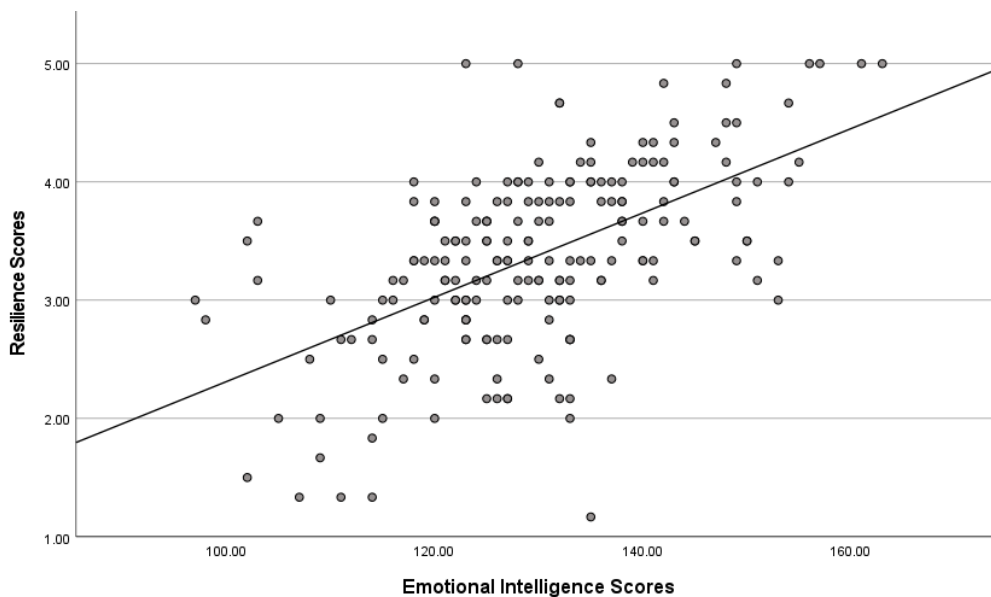
Figure 5

Scatterplot Between Age and Resilience Scores
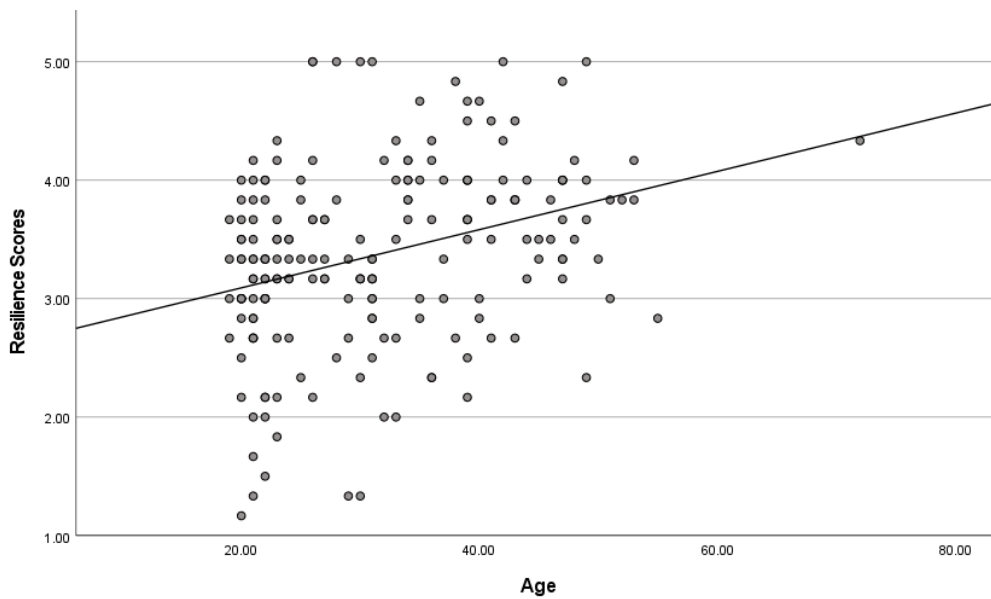
Homoscedasticity. There should be homoscedasticity of residuals (equal error variances). The assumption of homoscedasticity was first examined with a residuals scatterplot (see Figure 6). While the scatterplot lacks an obvious pattern, some clustering may be present; therefore, additional analysis was needed to address this assumption.

Figure 6

Residuals Scatterplot for the Relationship Between EI, Age, and Resilience
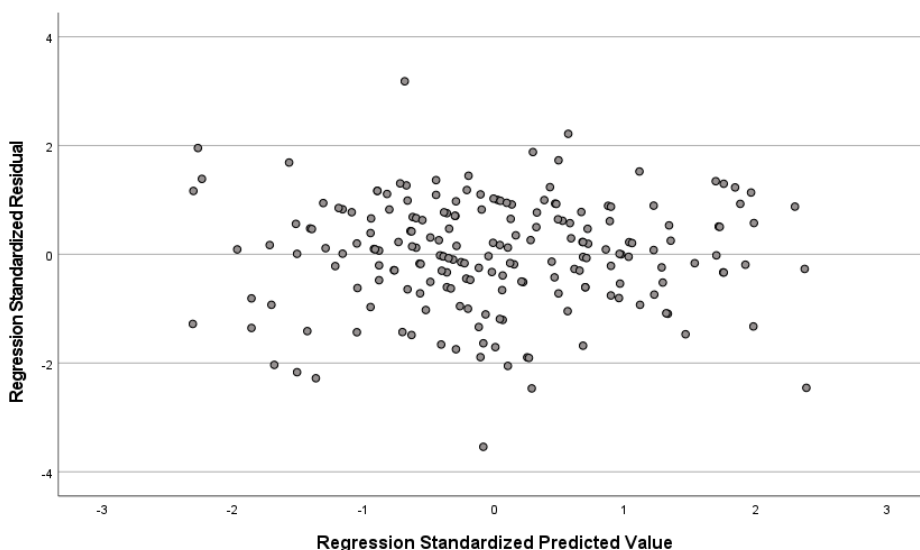
The Glejser test for heteroscedasticity identifies potential patterns in the differences by estimating a secondary regression in which the independent variable is the absolute value of the residuals (Berry & Feldman, 1985). The Glejser test uses the coefficient estimates from the regression to test for significance to identify heteroscedasticity. If the *p*-value is > 0.05, it can be concluded that the data are homoscedastic (Berry & Feldman, 1985). As shown in Table 5, the Glejser test revealed a coefficient significance for EI at 0.254 and age at 0.581, thus satisfying the assumption of homoscedasticity.

Table 5

Glejser Test for Homoscedasticity

Model		Unstandardized coefficients		Standardized coefficients		
		B	*SE*	β	*t*	*p*
1	(Constant)	5.100	1.757		2.902	.004
	Emotional intelligence	-.015	.013	-.083	-1.145	.254
	Age	-.009	.016	-.040	-.553	.581

Note. Dependent variable: AbsUt

Outliers. There should be no significant outliers. The absence of outliers was verified during the pre-analysis screening of the data. Using z-scores for the EI and resilience scores, no outliers were identified.

Normality. The residuals (errors) should be approximately normally distributed.

The assumption of normality was verified with a P-P plot. The data closely followed the diagonal trend line, indicating that the assumption of normality was supported (see Figure 7).

Figure 7

Normal P-P Plot for the Relationship Between EI, Age, and Resilience
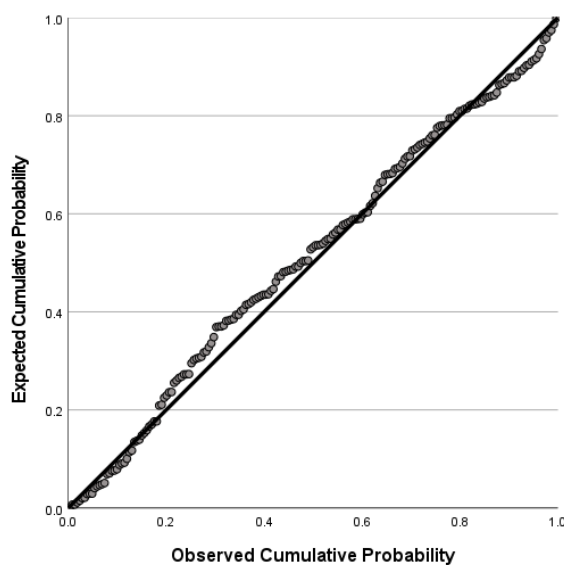
Multicollinearity. There should be an absence of multicollinearity. The assumption for the absence of multicollinearity was verified with VIF values. Stevens (2009) suggested that VIFs below 10 identify a low association between the predictors. Both EI and age had low VIF values (each was 1.02), indicating that the assumption for the absence of multicollinearity was met. The findings of the VIF values are presented in Table 6.

Table 6

Variance Inflation Factors (VIFs) for Predictor Variables (VIFs)

Predictor	Tolerance	VIF
Emotional Intelligence	.978	1.02
Age	.978	1.02

Note. The dependent variable was Resilience

The multiple linear regression findings were statistically significant, $F(2, 194) = 58.48$, $p < .001$, and $R^2 = .376$, suggesting that collectively there was a significant predictive relationship among EI, age, and resilience. The coefficient of determination, R^2, indicates that approximately 37.6% of the variance in resilience can be explained by EI and age.

EI ($B = 0.03$, $t = 9.21$, and $p < .001$) was statistically significant in the model, indicating that with every one-unit increase in EI, resilience scores increased by approximately 0.03 units. Age ($B = 0.02$, $t = 4.23$, and $p < .001$) was statistically significant in the model, indicating that with every one-year increase in age, resilience scores increased by approximately 0.02 units. Table 7 presents the findings of the linear regression.

Table 7

Linear Regression with EI and Age Predicting Resilience

Predictor	B	SE	β	t	p
Emotional intelligence	0.03	0.00	.53	9.21	<.001
Age	0.02	0.00	.24	4.24	<.001

Note. The overall model results: F(2, 194) = 58.48, p < .001, R2 = .376

Summary

The purpose of this quantitative, correlational study was to explore the relationship among resilience, EI, and age in students enrolled in healthcare programs at a university in the southeastern United States. In this chapter, the findings of the data analysis were presented. The EI and resilience measures indicated acceptable internal consistency.

To address the research questions, a multiple linear regression was conducted. The findings of the multiple linear regression were statistically significant, suggesting that collectively there is a significant predictive relationship among EI, age, and resilience. EI was statistically significant in the model, indicating that EI and resilience had a positive relationship. Age was statistically significant in the model, indicating that age and resilience had a positive relationship.

In the next chapter, the statistical findings will continue to be explored with connections to the literature. Implications and limitations of the research will be discussed, and recommendations for future research will be provided.

Chapter 5: Discussion, Conclusions, and Recommendations

Understanding the concept of resilience among healthcare workers is critical due to the growing trends of burnout and attrition in the healthcare industry. With increased stress and demands related to emotional labor, as evident in recent events such as the COVID-19 pandemic, professionals are likely to encounter adverse events and emotionally challenging situations (Chen & Bonanno, 2020). Identifying factors that promote resilience is essential since, without the skills needed to navigate the demands of clinical practice, individuals are more susceptible to burnout, thereby increasing their likelihood of leaving the profession.

Preparing students for a successful career should be the goal of any healthcare educational program. However, traditional approaches in healthcare education are primarily focused on the technical components and neglect the competencies needed to navigate the emotional labor associated with clinical practice.

The purpose of this study was to examine the effect of EI and age on levels of resilience among healthcare students. Results of this study revealed a significant predictive relationship among EI, age, and resilience. This final chapter includes a discussion of the findings to elucidate connections to the literature and implications for practice. Also, this chapter presents the limitations of the study and recommendations for future research.

Interpretation and Discussion of Findings

The predicted shortage of healthcare workers in the United States is concerning due to the growing reports of burnout and attrition within the medical community. Not limited to one profession, increased accounts of burnout have been reported for multiple groups including physicians, nurses, and allied health professionals (Gellasch, 2015; Loan et al., 2010; Medscape, 2012; Reith, 2018; Shanafelt et al., 2015). Based on the work of Maslach and Jackson (1981), the concept of burnout is described as a syndrome of emotional exhaustion, depersonalization, and

inefficacy. Literature regarding burnout includes the individual stress response as well as transactional interactions within the work environment (Maslach et al., 2001). In addition to the multidimensional components of burnout, there is a distinction from an individual being simply "stressed-out." An individual can experience stress during a single event as an acute response. Burnout is a chronic condition, developed over time, brought on by "a prolonged response to chronic emotional and interpersonal stressors" (p. 397). Maslach and Leiter (2016) indicated that prolonged exposure to stress is a significant predictor of burnout and negatively impacts physical health, interpersonal relationships, productivity, work performance, and the ability to cope. Reith (2018) argued that increased levels of burnout have been associated with increased job turnover, medical errors, dishonest behavior, and even alcohol abuse.

Literature on the prevalence of burnout and attrition within the healthcare industry reveals that workers are susceptible to increased emotional labor and prolonged workplace stress associated with caring for sick patients and families. (Chau et al., 2009; Enns et al., 2018; Foster et al., 2018; Pau et al., 2004). This increased susceptibility also impacts students enrolled in healthcare education programs (Foster et al., 2018; Rudman & Gustavsson, 2012). Healthcare students can be especially vulnerable to the unique stressors associated with clinical practicums such as caring for sick patients, relationships with clinical staff, developing patient care skills, fear of making mistakes, and learning new systems and workflow procedures while rotating to various clinical sites (Birks et al., 2009; Enns et al., 2018; Sharon & Grinberg, 2018). Existing research suggests resilience can help mitigate the negative impact of burnout (Arrogante & Aparicio-Zaldivar, 2017; Gentry, 2018).

This study aimed to generate information needed to develop collaborative interventions that enhance EI to positively influence resilience. Data were collected in a 44-question survey and were used to calculate EI and resilience scores for 199 healthcare students at one university.

The multiple linear regression analysis examined the relationship between resilience, the dependent variable, and two independent variables, age, and EI. The study findings indicated a significant predictive relationship among EI, age, and resilience. The results of the multiple linear regression revealed that EI and age can explain approximately 37.6% of the variance in resilience scores.

Emotional Intelligence

EI describes how an individual interacts and responds to an environment. As healthcare students respond to the academic and clinical stressors associated with their training, the ability to adapt and persevere during adversity is an essential skill. This study assessed the EI scores of participants using the SSEIT. The mean EI score of the participants was 129.67, with scores ranging from 97 to 163. The findings revealed a statistically significant relationship indicating that as EI increased, so did resilience. The results are consistent with other research that found a link between resilience and EI (Delgado et al., 2017; Sarrionandia et al., 2018; Sharon & Grinberg, 2018). Sarrionandia et al. (2018) examined the relationship between EI, resilience, and perceived stress. Data collected from 696 undergraduate students from the United States and Spain revealed that resilience was positively affected by EI scores for students in both countries. Sarrionandia et al. (2018) noted that the students' ability to "identify and manage their own emotions, as well as other's emotions seems to have a predictive impact on their ability to cope with developmental tasks despite the risks" (p. 8). The capacity to perceive, facilitate, understand, and manage emotions allows for greater adaptability (Guseh et al., 2015; Salovey & Mayer, 1990), supporting the significant association between EI and resilience found in my study.

Age

The relationship between age and resilience was assessed. Resilience scores were calculated based on how participants responded to the BRS. Age ranged from 19 to 72 years, with a mean age of 31 years. Resilience scores ranged from 7.00 to 30.00, with a mean resilience score of 20.19. This study's findings revealed a positive, statistically significant relationship, suggesting that resilience scores increased with older age. The results align with previous research that reports a positive relationship between age and resilience (Lundman et al., 2007; Portzky et al., 2010). In a study of more than 1500 participants between 21–100 years of age, Thomas et al. (2016) reported scores of happiness, anxiety-coping, and depression all improved with age. The authors contend that "older adults become more adept at coping with stressful changes" (p. 6). The developmental nature of resilience as a dynamic process adds support to this study's findings since development can be a process of aging. Increased life experiences and development opportunities could potentially explain the association between increased resilience among older participants found in this study.

Findings from this study support previous research on the relationship between resilience, EI, and age. While the correlational design limits the understanding of the causal connection among the three variables, the statistically significant relationship supports the likelihood that EI development may increase resilience.

Implications for Theory

This study has two implications regarding theory and research. First, despite the growing literature concerning resilience and EI, few studies specifically address the relationship of the two constructs in the context of healthcare education. Connor and Davidson (2003) described resilience as a measure of stress coping abilities. As previously mentioned, higher education students training for careers in healthcare experience additional stressors specific to clinical

education (Birks et al., 2009; Enns et al., 2018; Rudman & Gustavsson, 2012; Sharon & Grinberg, 2018). As stress is a likely reality for healthcare students, further exploration into strategies to develop stress-coping skills during training is needed. Initially described by sociologist Robert Merton in the 1940s, middle-range theory refers to an approach to theory development that explains phenomena within a limited context (Cartwright, 2020). Unlike grand theory, middle-range theories seek to explain the mechanism of concepts within a specific setting or conditions (Cody, 1999). Much like Sarrionandia et al. (2018), this study's findings support a positive association between resilience and EI; however, the cause-and-effect relationship was not assessed. Due to this study's time constraints and limited scope, an experimental design with longitudinal data was not used. However, a more in-depth exploration of the causal relationship between the constructs could lead to a greater understanding of EI's role in developing resilience. This information could inform the development of a middle-range theory that specifically addresses the role of EI in building resilience among healthcare students. Based on the statistically significant association between the EI and resilience scores of healthcare students in this study, further analyses exploring the causal relationship between the two variables may identify EI development as a key to support increased resilience.

A second theoretical consideration relates to the construct of EI. Pioneers in EI theory, Salovey and Mayer (1990), originally defined it as an individual's ability to perceive and manage emotions within self and others. Building on this construct, Mayer et al. (2004) suggested that EI is developmental and increases with age. However, research has reported varying results regarding the relationship between age and EI scores. Fariselli et al. (2008) and Shipley et al. (2010) contended no connection between age and EI. However, other scholars suggest a significant relationship between the two (Chen et al., 2016; Salovey & Mayer, 1990; Stein, 2009).

While the relationship between EI and age was not explicitly addressed in the research question, an additional analysis of EI scores in relation to age revealed a very weak, positive correlation between the two variables, which was statistically significant ($r = .149$, $n = 197$, $p = .036$). These findings are not surprising considering the discrepancies in research regarding EI and age. One explanation may be that age variance is often limited due to various measurement approaches, especially in education studies. One weakness of this study is that while both graduate and undergraduate programs were included, most respondents (65.8%) were age 35 or younger. Despite its statistical significance, the very weak association between age and EI found in this study should be interpreted with caution. The statistically significant positive correlation between EI and age supports the construct of EI posited by Mayer et al. (2004); however, the very weak nature of the association, along with the differing outcomes reported in previous research, underscores the need for additional examination.

Another possible explanation for the conflicting research regarding the relationship between age and EI may be due to the multiple assessment tools used to measure the different models of EI. The three primary models of EI are ability, trait, or mixed models (Kanesan & Fauzan, 2019). This is not to say that one EI model is superior to the others, as they each have utility within specific contexts. However, due to the various approaches, EI is assessed differently. Multiple tools exist to measure EI as it applies to each particular model. According to O'Connor et al. (2019), there are currently more than 30 EI assessments. In addition to the different focus of EI measures, the tools vary in cost, accessibility, and method. Many of the more accessible measures use self-report questions and have limitations in research (O'Connor et al., 2019). This may be a barrier to consistently replicating study methods across multiple disciplines. A consideration for future development is exploring the possibility of a universal

psychometric tool to assess EI that is accessible and uses direct measurement instead of self-report.

Another factor contributing to the varying research regarding the relationship between EI and age may be due to the limited scope of ages assessed within each model. Mayer et al. (2004) acknowledged this gap and recommended "expanding EI measurement to a wider range of age groups to better understand its developmental course" (p. 211). Understanding how age interacts within the developmental nature of EI is necessary for further theory development.

Implications for Policy

In most healthcare settings, the model of care has evolved (Shah, 2020). Influenced by changes in technology, insurance reform, and patient expectations, patient care has shifted to a more consumer-based approach that includes interdisciplinary collaboration. No longer independent silos, healthcare modalities have transitioned to more comprehensive approaches that require greater cooperation, not just between professionals but also with patients and families. Relationship management, communication skills, and social awareness are aspects of EI needed to perform professional roles successfully.

Skills associated with EI influence how an individual communicates, handles conflict, and responds to others. Sarkar and Oberoi (2018) explained that EI includes social capabilities such as empathy, sensitivity, adaption, and self-control. Although EI is a growing topic within positive psychology, it is not well-established within curriculum development in medical education. The role of EI in navigating professional competencies presents an opportunity for healthcare education programs.

An implication for policy relates to program accreditation within higher education. Most healthcare education programs within the United States undergo an accreditation process. One purpose of accreditation is to ensure the quality of an educational program to train and build a

competent health workforce (Frank et al., 2020). Both nursing and radiologic sciences have independent accreditation boards that assure educational standards and student learning outcomes. Quality improvement is a focus of accreditation, providing programs with tools needed to assess and evaluate outcomes based on new information or developments within the industry. For example, the American Occupational Therapy Association (AOTA) states that one specific purpose of accreditation is "to encourage faculty to anticipate and accommodate new trends and developments in the practice of occupational therapy that should be incorporated into the educational process" (para. 7). Likewise, the Commission on Collegiate Nursing Education (CCNE; 2018) asserts a purpose of accreditation as "ensuring that nursing education program outcomes are in accordance with the expectations of the nursing profession to adequately prepare individuals for professional practice" (p. 4).

Student learning objectives are determined within the curriculum and influenced by industry standards and accreditation guidelines. As such, the incorporation of EI development within the curriculum should be an important consideration. Both nursing and radiologic sciences mention various professional competencies within the curriculum standards that require EI skills. For example, a learning objective for clinical practice provided by the American Society of Radiologic Technologists (2017) is, "adapt to changes and varying clinical situations" (p. 67). The American Association of Colleges of Nursing (AACN) states an essential student learning objective for nursing students as, "Recognize the relationship between personal health, self-renewal, and the ability to deliver sustained quality care" (2008, p. 28). While both examples are essential abilities for healthcare professionals, measuring and evaluating student competency in either of these examples can be subjective and vague. Incorporating structured resources to address EI skills objectively could be a possible solution.

Integrating EI development within the curriculum has several potential benefits for education programs. First, EI could provide healthcare education programs with a common approach to addressing and developing the affective skills needed within clinical practice. While individual programs may vary on specific student outcomes defined within the curriculum, EI serves as the umbrella and common language under which affective competencies fall. Programs could collaborate and provide a universal EI development program for students, regardless of the major or professional program. Since EI concepts are applicable and transferable across disciplines and situations, collaborating with other education programs would ease the burden of each program implementing independent EI development tools. This also has the added benefit of facilitating and demonstrating interdisciplinary communication as participants could be a combination of various majors.

Second, incorporating EI development within the curriculum not only provides a common approach to develop effective skills but also can help improve resilience. Perceiving, facilitating, understanding, and regulating emotions are skills associated with EI development. These capabilities can influence resilience, an individual's ability to recover and adapt positively to adversity or hardship (Sarrionandia et al., 2018). Resilience has been shown to serve as a protective barrier to burnout (Arrogante & Aparicio-Zaldivar, 2017; Ogińska-Bulik & Michalska, 2020) and more resilient individuals are better equipped to navigate workplace stressors (Sull et al., 2015).

Due to the increased prevalence of burnout within the healthcare industry, accreditation agencies and education programs should evaluate current standards and consider EI enrichment as an approach to better prepare the students for the workforce. Incorporating EI development within the curriculum could help programs meet accreditation standards by providing a common language and approach to ensuring student competency in the affective objectives of clinical

practice. Also, integrating EI within the curriculum could positively impact student resilience; thereby, better preparing students to transition to the workforce.

Another policy consideration relates to early intervention. The results of this study revealed an association among EI, age, and resilience, supporting a more in-depth longitudinal examination of their potential causal relationship. Should future research show a positive connection, the findings could contribute to the development of a micro-policy for the institution. The relationship between resilience and EI could be used to develop an early intervention program. Scores relating to resilience and EI could help identify students at-risk and in need of potential intervention. Another consideration for micro-policy development is for assessing EI and resilience within the admissions process. First, the data could identify at-risk students and provide additional support in the form of a development program. Similar to math or science development courses geared toward incoming students with low test scores, a development course could be used to enhance EI skills. Second, collecting EI and resilience scores in the admissions process could provide baseline data that could be used to assess outcomes of EI development programming. However, more research is needed before an institutional policy could be implemented.

Implications for Practice

Based on the demonstrated relationship among EI, age, and resilience, there are several potential implications for practice. As the healthcare industry is challenged with increased burnout, attrition, and demand, educational programs must explore strategies to develop student resilience. The impact of emotional labor within clinical practices should be recognized within healthcare education. The significance of the relationship between EI and resilience presents an opportunity for programs to build skills that contribute to improved resilience.

One possibility is to use EI assessment within the admissions process. Many healthcare education programs use some form of standardized testing as a criterion in the application process. An EI assessment could provide programs with a more holistic picture of an individual's potential for success. While a student may not excel in math or science, their ability to perceive and manage emotions could indicate a better potential for navigating the demands in clinical practice. Incorporating an EI assessment within the admissions process could also provide programs with baseline data to assess outcomes associated with EI development programming.

Incorporating EI assessment and development within the curriculum can help students improve self-awareness, stress management, self-efficacy, empathy, and communication (Ibrahim et al., 2017; Sarkar & Oberoi, 2018). The integration of EI in the curriculum can foster skills needed to navigate the emotional demands of clinical practice. Burnout is of growing concern within the medical profession, so increased consideration should be given to preventative measures. Resilience protects against burnout (Arrogante & Aparicio-Zaldivar, 2017; Ogińska-Bulik & Michalska, 2020); therefore, building resilience skills within the educational program can better prepare graduates to join the workforce.

Another benefit of implementing EI assessment and development within the curriculum is that programs can identify the need for intervention. Ideally, EI assessment and development should be threaded throughout the program and not just as a one-time event. As student experiences change and evolve throughout their educational program, various factors may influence the need for greater support. For example, senior students who spend more time in clinical practice may need more support in building empathy or relationship management than lower-level students who have fewer hours in clinical rotations. A lower-level student may need more help in developing self-awareness. Integrating EI assessment and development throughout the curriculum can help identify potential problems. This information could help educational

programs develop collaborative interventions that address stress and develop EI to influence positive retention and clinical experiences for healthcare students.

As education programs are tasked with preparing the future healthcare workforce, it is critical that programs recognize and acknowledge the growing trends of burnout. While technical skills associated with patient care, anatomy, and physiology are essential, educational programs should not overlook the emotional demands contributing to attrition and burnout. Recent events, such as the COVID-19 pandemic and workforce shortages, challenge education programs to consider how to best prepare students for a future healthcare career. Implementing EI assessment and development within the curriculum can help improve resilience, thus arming students with the essential tools to prevent burnout in a healthcare career.

Limitations

The study's findings demonstrate a statistically significant association among resilience, EI, and age; however, there are some limitations. Measures used to calculate EI and resilience scores were based on self-reported responses. Self-reported data are susceptible to bias as participants may select answers that they view as more socially acceptable. Also, the data from self-reported measures are based on a participant's self-awareness. Since individual responses are dependent on a person's ability to assess themselves accurately, some responses may result in misrepresentation.

Another limitation of the study was the lack of age variance within the sample. Although both graduate and undergraduate programs were included, 68.8% of the respondents were between the ages of 19 and 35. The narrow representation of older participants may limit the assessment of age as it correlates to EI and resilience.

This study only included participants from one university, which limits the generalizability of the study's findings. The sample from this study only included students

majoring in nursing, allied health, or radiologic science. Caution should be used when generalizing the results since the included sample may not represent the larger population of healthcare students.

Finally, this study employed a cross-sectional design that only collected data from participants at a single point in time. This could potentially be a limitation considering participants' responses to items on the resilience and EI measure may change over time or be influenced by factors present at the time of the study. The survey was presented at the beginning of the spring semester, and participant responses may have been affected by perceived stress or situations specific to that point of time within the semester. Factors such as course exams and clinical rotation schedules might influence survey responses. Data collected over time might provide a more comprehensive view of resilience and EI within the healthcare education setting.

Recommendations for Future Research

More research is needed to better understand the predictive relationship among levels of resilience, EI, and age. The following are recommendations for future research:

1. Repeat the study using a broader sample across multiple organizations. While only one university was utilized in this study, future studies could recruit a more comprehensive representation of healthcare professional programs across multiple educational institutions. This would not only provide a robust sample size, but also include additional healthcare programs not represented in this study.

2. Collect data in a time series. The additional data collected multiple times throughout the education program's length would give researchers more information to better analyze the relationship between resilience and EI.

3. Future studies could examine the relationship between the three variables within different populations. For example, analyzing the relationship between resilience, EI, and age in

the general population would provide greater potential to include a broader age variance,

thus clarifying the connection between EI and age.

4. Repeat the study focusing on the healthcare professionals, not students, working within

    the clinical environment. This would provide insight into how the relationships among

    the three variables not only differ in various healthcare industry populations, but also

    compare to healthcare students.

5. Employ an alternative method for collecting data related to EI. Utilizing an EI measure

    that is not self-reported could lend significance to the understanding of EI factors.

6. Investigate the effectiveness of incorporating EI assessment and development within the

    healthcare education curriculum to increase levels of resilience. The collection of data

    before and after an EI development intervention may provide a more comprehensive

    understanding of the efficacy of EI development within the context of education

    programs.

Conclusion

The purpose of this study was to investigate the predictive relationship among levels of

resilience, EI, and age in healthcare students. Existing literature revealed that students enrolled in

medical education programs experience more stress from the emotional demands of participating

in clinical rotations (Birks et al., 2009; Enns et al., 2018; Jones-Schenk & Harper, 2014; Pau et

al., 2004). Students are active members of the healthcare team during their clinical education

experience. They are further vulnerable to the increased psychological and physical demands that

resulted from the COVID-19 pandemic (Cartwright & Thompson, 2020). Because of the

increased levels of stress, students are more susceptible to burnout and higher attrition, thus

negatively impacting the ability to meet the growing demand for healthcare workers. The

significant shortage in the healthcare workforce combined with increasing reports of burnout and

attrition among workers emphasizes the critical role of education programs in preparing future healthcare professionals.

EI has been shown to influence self-awareness, stress management, self-efficacy, empathy, and communication (Ibrahim et al., 2017; Sarkar & Oberoi, 2018). Students with lower levels of EI are more susceptible to burnout and attrition compared to those with higher levels of EI (Cofer et al., 2018; Delgado et al., 2017; Sharon & Grinberg, 2018). While several previous studies focus on various aspects of stress, burnout, resilience, or EI, this study examined the elements of EI and age as predictors of resilience among healthcare students.

The findings revealed a statistically significant predictive relationship of EI and age with resilience, offering insight into the possible solution of increasing resilience skills by integrating EI within the curriculum. This study contributes to the body of knowledge by demonstrating a strong positive relationship among EI, age, and resilience in the healthcare students who participated in the study.

Burnout is multidimensional and influenced by several factors. Emotional intelligence and resilience do not guarantee immunity. However, the prevalence of increased stress and burnout within the medical community poses the question: Are students prepared to navigate clinical practice's emotional challenges? Just as an individual trains for a marathon, programs must educate and train students, developing EI skills to increase resilience. Training for a marathon does not guarantee first place; however, purposeful training can improve the likelihood of finishing the race. Likewise, intentional development of EI skills and improved resilience can better prepare students to navigate the emotional demands and challenges expected as a future healthcare professional.

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Appendix A: Demographic Questions

1. Are you currently enrolled in at least one course within the College of Nursing and School of Allied Health? (at least one class with the prefix: NURA, NURB, NURG, ALHE, RADS)
   a. Yes
   b. No

2. What gender do you identify as?
   a. Female
   b. Male
   c. Other (specify) _____
   d. Prefer not to answer

3. What year were you born? (yyyy) _____

4. Please specify your ethnicity.
   a. Caucasian
   b. African-American
   c. Latino or Hispanic
   d. Asian
   e. Native American
   f. Native Hawaiian or Pacific Islander
   g. Two or more
   h. Other/unknown
   i. Prefer not to say

5. In which program level are you currently enrolled?
   a. ASN
   b. BSN
   c. BSRS
   d. BASAH
   e. MSRS
   f. MSN
   g. DNP
   h. Other: _____

Appendix B: Brief Resilience Scale

Brief Resilience Scale (BRS)

Please respond to each item by marking <u>one box per row</u>	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
BRS 1 I tend to bounce back quickly after hard times	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
BRS 2 I have a hard time making it through stressful events.	☐ 5	☐ 4	☐ 3	☐ 2	☐ 1
BRS 3 It does not take me long to recover from a stressful event.	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
BRS 4 It is hard for me to snap back when something bad happens.	☐ 5	☐ 4	☐ 3	☐ 2	☐ 1
BRS 5 I usually come through difficult times with little trouble.	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
BRS 6 I tend to take a long time to get over set-backs in my life.	☐ 5	☐ 4	☐ 3	☐ 2	☐ 1

Scoring: Add the responses varying from 1-5 for all six items giving a range from 6-30. Divide the total sum by the total number of questions answered.

My score: _____ item average / 6

From "The brief resilience scale: Assessing the ability to bounce back.," by Smith, B. W. Dalen, J., Wiggins, K., Tooley, E., Christopher, P., and Bernard, J., 2008, *International Journal of Behavioral Medicine, 15*, p. 196. Copyright 2008 by Springer Nature. Adapted with permission.

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Appendix C: The Schutte Self-Report Emotional Intelligence Test

Directions: Each of the following items asks you about your emotions or reactions associated with emotions. After deciding whether a statement is generally true for you, use the 5-point scale to respond to the statement. Please circle the "1" if you strongly disagree that this is like you, the "2" if you somewhat disagree that this is like you, "3" if you neither agree nor disagree that this is like you, the "4" if you somewhat agree that this is like you, and the "5" if you strongly agree that this is like you.
There are no right or wrong answers. Please give the response that best describes you.

1 = strongly disagree
2 = somewhat disagree
3 = neither agree nor disagree
4 = somewhat agree
5 = strongly agree

1. I know when to speak about my personal problems to others.   1 2 3 4 5

2. When I am faced with obstacles, I remember times I faced similar obstacles and overcame

them.   1 2 3 4 5

3. I expect that I will do well on most things I try.   1 2 3 4 5

4. Other people find it easy to confide in me.   1 2 3 4 5

5. I find it hard to understand the non-verbal messages of other people.   1 2 3 4 5

6. Some of the major events of my life have led me to re-evaluate what is important and not

important.   1 2 3 4 5

7. When my mood changes, I see new possibilities.   1 2 3 4 5

8. Emotions are one of the things that make my life worth living.   1 2 3 4 5

9. I am aware of my emotions as I experience them.   1 2 3 4 5

10. I expect good things to happen.   1 2 3 4 5

11. I like to share my emotions with others.   1 2 3 4 5

12. When I experience a positive emotion, I know how to make it last.   1 2 3 4 5

13. I arrange events others enjoy.   1 2 3 4 5

14. I seek out activities that make me happy.   1 2 3 4 5

15. I am aware of the non-verbal messages I send to others.   1 2 3 4 5

16. I present myself in a way that makes a good impression on others.   1 2 3 4 5

17. When I am in a positive mood, solving problems is easy for me.   1 2 3 4 5

18. By looking at their facial expressions, I recognize the emotions people are experiencing.

                                                        1 2 3 4 5

19. I know why my emotions change.   1 2 3 4 5

20. When I am in a positive mood, I am able to come up with new ideas.   1 2 3 4 5

21. I have control over my emotions.   1 2 3 4 5

22. I easily recognize my emotions as I experience them.   1 2 3 4 5

23. I motivate myself by imagining a good outcome to tasks I take on.   1 2 3 4 5

24. I compliment others when they have done something well.   1 2 3 4 5

25. I am aware of the non-verbal messages other people send.   1 2 3 4 5

26. When another person tells me about an important event in his or her life, I almost feel as

though I experienced this event myself.   1 2 3 4 5

27. When I feel a change in emotions, I tend to come up with new ideas.   1 2 3 4 5

28. When I am faced with a challenge, I give up because I believe I will fail.

                                                        1 2 3 4 5

29. I know what other people are feeling just by looking at them.   1 2 3 4 5

30. I help other people feel better when they are down.   1 2 3 4 5

31. I use good moods to help myself keep trying in the face of obstacles.   1 2 3 4 5

32. I can tell how people are feeling by listening to the tone of their voice. 1 2 3 4 5

33. It is difficult for me to understand why people feel the way they do.   1 2 3 4 5

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2 messages

Cindy Mcguire ·
To: ｜

Thu, Aug 8, 2019 at 3:39 PM

Good afternoon, Dr. Schutte.
I am a doctoral student at Abilene Christian University. I am currently in the process of writing my dissertation. My plan is to conduct a correlational study to explore the relationship between emotional intelligence, clinical self-efficacy, and burnout among health professions students. I am writing to ask written permission to use the Schutte Self-Report Emotional Intelligence Test (SSEIT) in my research study. My plan is to administer the SSEIT to approximately 100-200 undergraduate students. In addition to using the instrument, I also ask your permission to reproduce it in my dissertation appendix.

I would like to use and reproduce your SSEIT under the following conditions:
• I will use the SSEIT only for my research study and will not sell or use it for any other purposes
• I will include a statement of attribution and copyright on all copies of the instrument. If you have a specific statement of attribution that you would like for me to include, please provide it in your response.
• At your request, I will send a copy of my completed research study to you upon completion of the study and/or provide a hyperlink to the final manuscript

I appreciate your consideration.

Sincerely,
Cindy

Cindy McGuire, MSRS, RT(R)(M)

Nicola Schutte
To: Cindy Mcguire

Fri, Aug 9, 2019 at 2:37 AM

Please find attached the manuscript version of a published chapter that contains the scale and background information, including regarding scoring.

With good wishes,
Nicola Schutte

From: Cindy Mcguire ·
Sent: Friday, 9 August 2019 6:39 AM
To: Nicola Schutte
Subject: SSEIT

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I wish you well with your work.

Sincerely,

Megan Roth

Megan Roth, Ph.D.
Director of Research and Sponsored Programs