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The Association Between Emotional Intelligence, Empathy, and Social Determinants of Health Among Accelerated Bachelor of Science in Nursing Students: A Multi-State Cross-Sectional Descriptive Study

Kwanza Thomas

THE ASSOCIATION BETWEEN EMOTIONAL INTELLIGENCE, EMPATHY, AND SOCIAL DETERMINANTS OF HEALTH AMONG ACCELERATED BACHELOR OF SCIENCE IN NURSING STUDENTS: A MULTI-STATE CROSS-SECTIONAL DESCRIPTIVE STUDY

by

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ABSTRACT

This study investigated the association between emotional intelligence (managing and understanding), empathy, and social determinants of health (SDOH) among accelerated Bachelor of Science in Nursing (ABSN) students. Despite the exponential increase in ABSN programs in the United States, little is known about the association between these variables among this nursing student population. A cross-sectional, correlational descriptive design was used to survey 104 students completing ABSN programs in Georgia, Mississippi, Philadelphia, and Texas. Participants self-reported their socioeconomic and programmatic characteristics using a researcher-developed questionnaire. Emotional intelligence (managing and understanding) was measured using two instruments, including the Situational Test of Emotional Management – Brief (STEM–B) and the Situational Test of Emotional Understanding – Brief (STEU–B). The Kiersma-Chen Empathy Scale–Revised (KCES–R) measured participants' cognitive and affective empathy. The American Academy of Family Physicians Social Needs screening tool measured participants' SDOH. Statistical analyses included correlation coefficients and multiple regression models to examine associations between emotional intelligence (managing and understanding), empathy, and SDOH. Findings revealed a strong positive correlation ($r(104) = .70$, $p = <.001$) between managing emotions and understanding emotions. However, there were only weak positive correlations found between managing emotions and empathy, and understanding emotions and empathy ($r(104) = .24$, $p = <.015$, $r(104) = .31$, $p = <.002$, respectively). Multiple regression analyses indicated that higher emotional management, emotional understanding, and empathy levels were associated with fewer SDOH needs ($\beta = -.14$, $p=.017$, $\beta = -.14$, $p<.001$, $\beta = -.04$, $p=.008$,

respectively). This study expands the knowledge and understanding of ABSN students. It is recommended that nursing curricula fully integrate health equity principles into nursing curricula to equip future nurses with the knowledge, skills, and attitudes to advocate for marginalized populations. The doctoral student recommends that future longitudinal research be conducted to ascertain causation and investigate probable mechanisms underlying this association.

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DEDICATION

First and foremost, I dedicate this dissertation to God, my Heavenly Father, the One with whom all things are possible. It is through His grace and mercy that I was able to overcome every obstacle on this journey. I am grateful for His everlasting love and faithfulness.

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LIST OF ILLUSTRATIONS

LIST OF ABBREVIATIONS

AACN	American Association of Colleges of Nursing
AAFP	American Academy of Family Physicians
ABSN	Accelerated Bachelor of Science in Nursing
ANOVA	Analysis of Variance
BSN	Bachelor of Science in Nursing
CINAHL	Cumulative Index to Nursing and Allied Health Literature
CMS	Center for Medicare and Medicaid Services
EI	Emotional Intelligence
GPA	Grade Point Average
HESI	Health Education Systems, Inc
HSTS	HTTP Strict Transport Security
HTTP	Hypertext Transfer Protocol
IRB	Institutional Review Board
KCES	Kiersma-Chen Empathy Scale
KCES-R	Kiersma-Chen Empathy Scale-Revised
MAR	Missing at Random
NCIN	New Careers in Nursing
NCLEX-RN	National Council Licensure Examination-Registered Nurses
NLN	National League for Nursing
RWFJ	Robert Wood Johnson Foundation

SDOH	Social Determinants of Health
SSEIT	Schutte Self-Report Emotional Intelligence Test
STEM	Science, Technology, Engineering, and Math
STEM-B	Situational Test of Emotional Management-Brief
STEU-B	Situational Test of Emotional Understanding-Brief
TEIQue-SF	Trait Emotional Intelligence Questionnaire Short Form
USDHHS	United States Department of Health and Human Services
USM	The University of Southern Mississippi
WHO	World Health Organization

CHAPTER I – INTRODUCTION

Emotional Intelligence (EI) refers to the mental ability to assess the emotions of self and others, discriminate between emotions, and integrate emotions into cognitive and behavioral processes (Mayer et al., 2016). Nurses must respond to numerous emotional situations each workday. Sustained exposure to emotional situations increases stress and burnout (Szczygiel & Mikolajczak, 2018). Occupational stress is an antagonist of quality nursing care and nurses' health and safety (Okuhara et al., 2021). According to the American Association of Colleges of Nursing (AACN, 2022b), 75% of acute care nurses feel stressed, frustrated, and exhausted. According to Martin et al. (2023), 50.8% of nurses feel emotionally drained, and 45.1% feel burnt out several times a week or daily. These feelings are most pronounced among nurses with 10 or fewer years of experience (Martin et al., 2023). Emotional Intelligence mitigates the deleterious impact of occupational stress and burnout and positively impacts the quality of care and nurses' physiological and psychological health (Lina et al., 2022; Tiwari & Bhagat, 2020; Vlachou et al., 2016). Nurses with higher EI possess self-awareness, emotional restraint, and flexibility to effectively empathize while providing patient care without interference from personal emotions (Akerjordet & Severinsson, 2007, as cited in Thomas & Natarajan, 2017).

Emotional Intelligence encompasses empathy. *Empathy* is one's ability to appreciate and understand another's experiences and communicate an understanding of another's feelings and perspectives with the intention to render aid (Haley et al., 2017; Kiersma et al., 2013). A nurse's ability to effectively communicate management and understanding of a patient's experiences impacts their ability to establish a therapeutic

relationship (Holston & Taylor, 2016). The type of relationship a nurse establishes with a patient influences the quality of care (Molina-Mula & Gallo-Estrada, 2020). Emotionally intelligent nurses can identify and appraise their emotions and the emotions of their patients to manage emotional situations and agilely establish therapeutic relationships (Budler et al., 2022). According to Abe et al. (2018), as cited in Lina et al. (2022), EI positively correlates with nurses' empathy. Nurses with higher empathy effectively relate to the patient's situation and understand their mental and emotional state to assess their needs accurately (Pérez-Fuentes et al., 2019). Healthcare professionals with higher empathy are better able to build relationships with their patients, which positively impacts patient outcomes by improving quality satisfaction for the nurse and patient (Moudatsou et al., 2020).

The Social Determinants of Health (SDOH) influence an individual's physical, mental, and emotional health and well-being. The *Social Determinants of Health* are the non-medical and environmental factors that affect an individual's activities of daily living, quality of life, life expectancy, health outcomes, and risks (Giorgi et al., 2022; HealthyPeople.gov, 2021; National League for Nursing [NLN], 2019). Inequities in social determinants principally stem from structural racism and historical discrimination against marginalized populations (American Public Health Association, 2018, as cited in Lathrop, 2020). Explicit and implicit biases due to a lack of awareness of the SDOH decrease the quality of care for underrepresented minority patients exacerbating health inequities and disparities among this population (Gómez et al., 2021; Hynson et al., 2022). Empathy and a level of awareness that SDOH are not a choice but the result of disparate economic, environmental, and social conditions are needed to dispel explicit

and implicit biases that lead to mistrust and avoidance of the healthcare system by underrepresented minorities in the United States (Chaturvedi & Gabriel, 2020).

The ongoing need to reduce health inequities and disparities and the hastily increasing multicultural population underscores the need for an emotionally intelligent, empathetic, and socially and culturally diverse nursing workforce that reflects the nation's demographics. Nurses have a responsibility to foster equity. As the healthcare providers with whom patients spend the most time and depend for their recovery, nurses are positioned to significantly impact SDOH by using their social awareness, personal experience, and abilities to reduce health disparities and achieve health equity (Lathrop, 2020). A diverse nursing workforce with the social awareness, personal experience, and abilities to address SDOH is fundamental to realizing one of Healthy People 2030's foundational principles of achieving health and well-being by eliminating health disparities (HealthyPeople.gov, 2021).

Accelerated Bachelor of Science in Nursing (ABSN) programs are among the country's most rapidly growing entry-level nursing programs. An ABSN student is an undergraduate nursing student with a non-nursing bachelor's degree. Accelerated programs are vital to addressing the need for nearly half a million new nurses by 2026 (U.S. Bureau of Labor Statistics [USBLS], 2022). Accelerated nursing students complete program objectives in 11 to 18 months as opposed to the 24-month completion time for traditional baccalaureate nursing students. According to Oermann et al. (2010), accelerated BSN graduates lack clinical expertise, which is common among traditional BSN program graduates. However, managers value accelerated program graduates' maturity and credit their ease of professional transition to their previous work experience

(Oermann et al., 2010). Nursing graduates with EI abilities will be emotionally prepared for the stressful and demanding work environments experienced by professional nurses (Holston & Taylor, 2016).

Problem Statement

Despite the exponential increase in the number of ABSN programs in the United States, there is a dearth of research concerning ABSN students. To the investigator's knowledge, the association between EI (managing and understanding), empathy, and SDOH among this nursing student population has not been researched. The significance of and relations between empathy and EI is well researched. However, little is known about the association between EI (managing and understanding), empathy, and SDOH among ABSN students. There is a clear knowledge gap in this area that the results of this study can fill. Therefore, it is vitally important that research be conducted examining the association between EI (managing and understanding), empathy, and SDOH among ABSN students. This study will examine the association by answering the research questions below.

Hypotheses and Research Questions

Hypothesis 1: There are differences in sociodemographic characteristics with EI (managing and understanding), empathy, and SDOH among ABSN students.

Research Question 1: Are there differences in sociodemographic characteristics with EI (managing and understanding), empathy, and SDOH among ABSN students?

Hypothesis 2: There is an association between EI (managing and understanding) and empathy among ABSN students.

Research Question 2: Is there an association between managing emotions and understanding emotions among ABSN students?

Research Question 3: Is there an association between managing emotions and empathy among ABSN students?

Research Question 4: Is there an association between understanding emotions and empathy among ABSN students?

Hypothesis 3: There is an association between EI (managing and understanding), empathy, and SDOH screening categories among ABSN students.

Research Question 5: Is there an association between managing emotions and SDOH screening categories among ABSN students?

Research Question 6: Is there an association between understanding emotions and SDOH screening categories among ABSN students?

Research Question 7: Is there an association between empathy and SDOH screening categories among ABSN students?

Purpose

The purpose of this correlational descriptive study was to determine if there was an association between EI (managing and understanding), empathy, and SDOH among ABSN students. This quantitative study considered EI (managing and understanding), empathy, and SDOH when examining ABSN students.

Theoretical Framework

The Four-Branch Model of Emotional Intelligence (Mayer et al., 2016), also called the Ability Model, was used as the theoretical framework for this quantitative, correlational descriptive study. The Ability Model conceptualizes EI as the mental ability

to assess the emotions of self and others, discriminate between emotions, and integrate emotions into cognitive and behavioral processes (Mayer et al., 2016). The Ability Model identifies four branches (*managing emotions, understanding emotions, using emotions,* and *perceiving emotions*) of problem-solving abilities necessary to facilitate emotional reasoning. Each branch represents a group of abilities with a developmental trajectory from basic to advanced.

The Ability Model involves effectively *managing* one's emotions and the emotions of others to attain desired results, *understanding* how others may feel in emotional situations, including cultural differences recognition, *using* emotions to relate to others' experiences, and accurately *perceiving* emotions in one's thoughts and feelings and the facial expressions, vocal cues, and body language of others. The Ability Model (see Figure 1) depicts a table with two columns and four rows. The left column hierarchically arranges the four branches from bottom to top. The right column contains a set of abilities associated with each of the four branches. Within each row is a collection of developmentally arranged abilities, with basic abilities listed at the bottom and advanced abilities at the top.

The Four-Branch Model of Emotional Intelligence, with Added Areas of Reasoning[a]

4. Managing Emotions	• Effectively manage other's emotions to achieve a desired outcome[b] • Effectively manage one's own emotions to achieve a desired outcome[b] • Evaluate strategies to maintain, reduce or intensify an emotional response[b] • Monitor emotional reactions to determine their reasonableness • Engage with emotions if they are helpful; disengage if not • Stay open to pleasant and unpleasant feelings, as needed, and to the information they convey
3. Understanding Emotions	• Recognize cultural differences in the evaluation of emotions[c] • Understand how a person might feel in the future or under certain conditions (affective forecasting)[c] • Recognize likely transitions among emotions such as from anger to satisfaction • Understand complex and mixed emotions • Differentiate between moods and emotions[c] • Appraise the situations that are likely to elicit emotions[c] • Determine the antecedents, meanings, and consequences of emotions • Label emotions and recognize relations among them
2. Facilitating Thought Using Emotion[d]	• Select problems based on how one's ongoing emotional state might facilitate cognition • Leverage mood swings to generate different cognitive perspectives • Prioritize thinking by directing attention according to present feeling • Generate emotions as a means to relate to experiences of another person[c] • Generate emotions as an aid to judgment and memory
1. Perceiving Emotion	• Identify deceptive or dishonest emotional expressions[b] • Discriminate accurate vs inaccurate emotional expressions[b] • Understand how emotions are displayed depending on context and culture[c] • Express emotions accurately when desired • Perceive emotional content in the environment, visual arts, and music[b] • Perceive emotions in other people through their vocal cues, facial expression, language, and behavior[b] • Identify emotions in one's own physical states, feelings, and thoughts

[a] The bullet-points are based on Mayer & Salovey (1997) except as indicated in footnotes b and c. The bulleted items are ordered bottom-to-top within a row (very roughly) from simplest to most complex problem solving involved. Please note that the Four-Branch Model depicts the problem-solving areas of emotional intelligence and is not intended to correspond to the factor structure of the area.
[b] An ability from the original model was divided into two or more separate abilities.
[c] A new ability was added.
[d] Note that the Branch 2 abilities can be further divided into the areas of *generating emotions to facilitate thought* (bottom two bulleted items) and *tailoring thinking to emotion* (the top three bulleted items).

Figure 1. The Four-Branch Model of Emotional Intelligence.

(Mayer et al., 2016).

The Ability Model was applied based on the association between the model's four branches and the study variables. Branch 4, *managing emotions*, is associated with the Situational Test of Emotional Management-Brief (STEM-B) (Allen et al., 2015), an

ability-based EI measurement tool. Branch 3, *understanding emotions*, is associated with the Situational Test of Emotional Understanding-Brief (STEU-B) (Allen et al., 2014), another ability-based EI measurement tool. Branch 2, *using emotion*, is associated with the Kiersma-Chen Empathy Scale-Revised (KCES-R) (Aronson et al., 2022), a cognitive and affective empathy measurement tool. Lastly, the Ability Model was selected because SDOH may impact ABSN students' ability to *manage, understand, use, and perceive* emotions in the provision of care to underrepresented minority patients.

Definition of Terms

The general and operational definitions of the study's terms are explained.

1. *Emotional Intelligence* (EI)
    a. General definition: the mental ability to assess the emotions of self and others, discriminate between emotions, and integrate emotions into cognitive and behavioral processes (Mayer et al., 2016).
    b. Operational definition: For the purposes of this study, EI (managing and understanding) will be based on the Ability Model (Mayer et al., 2016).
2. *Managing Emotions*
    a. General definition: the ability to regulate one's emotions and the emotions of others to attain desired results (Mayer et al., 2016).
    b. Operational definition: For the purposes of this study, managing emotions will be measured by the Situational Test of Emotional Management – Brief (STEM–B).

3. *Understanding Emotions*
    a. General definition: the ability to discern how others may feel in emotional situations and recognize cultural differences (Mayer et al., 2016).
    b. Operational definition: For the purposes of this study, understanding emotions will be measured by the Situational Test of Emotional Understanding – Brief (STEU–B).
4. *Empathy*
    a. General definition: one's ability to appreciate and understand another's experiences and communicate an understanding of another's feelings and perspectives with the intention to render aid (Haley et al., 2017; Kiersma et al., 2013).
    b. Operational definition: For the purposes of this study, empathy will be measured by the Kiersma-Chen Empathy Scale-Revised (KCES-R).
5. *Social Determinants of Health* (SDOH)
    a. General definition: the environmental conditions that affect a person's activities of daily living, quality of life, life expectancy, health outcomes, and risks (Giorgi et al., 2022; HealthyPeople.gov, 2021.; NLN, 2019).
    b. Operational definition: For the purposes of this study, SDOH will be measured by the American Academy of Family Physicians (AAFP) Social Needs Screening Tool.

Assumptions

The study was conducted in consideration of several assumptions by the investigator.

1. The sample will be representative of nursing students completing an ABSN program.
2. The participants will complete all instruments.
3. The participants will answer all instrument questions honestly.

Limitations

The study possessed limitations. Utilizing a convenience sample limited the generalizability of the study results. The study's correlational descriptive design was limited to variable associations and could not predict causation. The timing of data collection limited the number of participants and the quality of responses.

Scope and Delimitations

The study focused on ABSN students. The research participants were limited to nursing students enrolled in an ABSN program, as opposed to students enrolled in other baccalaureate nursing programs. The study was limited to those who could read English.

Significance

This study possesses implications for knowledge generation, practical application, and social change. While the literature discusses the significance of and relations between EI and empathy, there is little research on these topics specific to ABSN students. Furthermore, research on ABSN students' SDOH is absent from the literature. This study pioneered the generation of knowledge concerning the association between EI (managing and understanding), empathy, and SDOH among ABSN students. The findings can be

used to generate new research questions and hypotheses concerning these and similar variables among this nursing student population.

Concerning practical application and social change, nursing programs can use study findings to develop holistic admission criteria for ABSN students. Another significant study implication is an insight into how EI (managing and understanding), empathy, and SDOH may influence the ability of this nursing student population to deliver equitable, high-quality patient care to underrepresented minority patients. A nurse's implicit biases can degrade the quality of care for underrepresented minority patients, contributing to health disparities. Furthermore, policymakers can use the results of this study to develop interventions and policies to diversify the nursing workforce further to reduce health disparities and improve health equity.

Summary

This chapter introduced a significant problem that is worthy of study and it provided the initial foundation for investigating the association between EI (managing and understanding), empathy, and SDOH. These variables may significantly influence the abilities that ABSN students need for clinical practice. However, research concerning this meaningful topic is absent from the literature. Exploring the association between EI (managing and understanding), empathy, and SDOH among ABSN students is fundamental to better understanding this rapidly increasing nursing student population. The review of literature in Chapter II further substantiates the need for this study.

CHAPTER II – REVIEW OF LITERATURE

A review of the literature facilitated the exploration of the research study variables: EI (managing and understanding), empathy, SDOH, and ABSN students. Scholarly literature was obtained from several databases, including the Cumulative Index to Nursing and Allied Health Literature (CINAHL), EBSCOhost, ProQuest, and other accessible databases within The University of Southern Mississippi (USM) libraries. An in-depth literature review was performed utilizing the following headings: emotional intelligence in nursing, emotional intelligence in accelerated nursing students, empathy in nursing, empathy in accelerated nursing students, social determinants of health in nursing, and social determinants of health in accelerated nursing students.

Emotional Intelligence

Emotional Intelligence was initially conceptualized in the literature by Mayer and Salovey in 1990 (Caruso et al., 2016). However, it did not garner public interest until *Emotional Intelligence* by Goleman was published in 1995. In nursing, EI is recognized as an ability nurses need to appropriately respond to the numerous emotional situations they encounter each workday and mitigate stress and burnout. A cross-sectional study among Spanish nurses revealed a positive correlation between five EI dimensions (intrapersonal, interpersonal, stress management, adaptability, and mood) and overall self-esteem (Pérez-Fuentes et al., 2019). According to Stoičević et al. (2022), a high degree of emotional competency reflects professionalism in nursing.

The EI level of nursing students is a well-studied phenomenon. However, the research has primarily been conducted among international students completing traditional nursing programs. Emotional Intelligence studies among nursing students have

revealed disparate EI levels regarding gender, study year, and age. This is one reason why Benson et al. (2010) elected to exclude males from their cross-sectional study. The Canadian researchers found differences between EI levels among 100 female baccalaureate students across the four years of a traditional nursing program (Benson et al., 2010). Year four students possessed a statistically significantly higher EI level than students in year one, suggesting EI increases with the study year. However, only 24% of Year 4 students possessed the emotional capacity needed to mitigate the stresses of the nursing profession and prevent burnout. Burnout decreases nurses' quality of life, job performance, and organizational commitment and increases their intention to resign from their positions or abandon the profession (Tiwari & Bhagat, 2020).

Researchers in Israel found a negative correlation between EI and burnout among 102 third- and fourth-year Israeli nursing students (Ayala & Keren, 2020). This finding is consistent with other research findings suggesting EI reduces the development of burnout over time. In addition, Ayala and Keren's (2020) findings revealed that female nursing students were less burnt out than their male counterparts.

A longitudinal study conducted by Slovenian researchers found positive correlations between 111 nursing students' year of study, age, and EI when measured with the Trait Emotional Intelligence Questionnaire Short Form (TEIQue-SF) but not when measured with the Schutte Self-Report Emotional Intelligence Test (SSEIT) (Budler et al., 2022). Rosaria et al. (2019) also used the SSEIT to assess EI in 130 first- and 107 third-year nursing students in Italy. The findings revealed that females presented with statistically significantly higher EI scores than male students in the third year of the nursing program. While these findings are consistent with most studies that note a higher

level of emotional competence among female students and that EI can be improved over time, the findings also suggest that self-report EI instruments may be less reliable.

When assessing the EI scores of 51 sophomore, junior, and senior nursing students at five Montana State University campuses, Rappold (2017) did not find a significant difference between the EI scores. However, further analysis revealed that participants' ages and EI scores possessed a moderately strong positive correlation. Age affects emotional maturity, and EI evolves as we encounter various life experiences (Budler et al., 2022).

Empathy

Emotional intelligence is a prerequisite for providing empathy (Stoičević et al., 2022). *Empathy* is one's ability to appreciate and understand another's experiences and communicate an understanding of another's feelings and perspectives with the intention to render aid (Haley et al., 2017; Kiersma et al., 2013). *Empathy* is also described as a social concept involving an observer's ability to imagine and precisely acknowledge another's feelings, resulting in the observer's affective response (Jeffrey, 2016).

Numerous research studies highlight the necessity of empathy for establishing trust and facilitating positive patient outcomes (Freshwater & Stickley, 2004; Kunyk & Olson, 2001; Lauder et al., 2002; Reynolds & Scott, 2000; as cited in Rosaria et al., 2019). For example, an empathetic nurse midwife increases a future mother's trust and security and decreases the stress of forthcoming labor pain (Moloney & Gair, 2015). In addition, empathetic nursing care decreases stress and depression among patients with cancer (Brunero et al., 2010; Lelorain et al., 2012). Conversely, less empathic care leads

to patient dissatisfaction potentiating patient noncompliance and disengagement (Håkansson Eklund et al., 2019).

Upon examining factors influencing empathy among nursing students at a university in South Korea, Kim (2018) found no significant age-related empathy variances. However, interpersonal relationships were noted to influence empathy more than self-esteem and self-efficacy, suggesting positive interpersonal relationships can increase empathy. Håkansson Eklund et al. (2019) found a positive association between empathy and previous work experience in a healthcare setting. In addition, sixth-semester undergraduate nursing students expressed higher empathy levels than second-semester students at a university in Sweden (Håkansson Eklund et al., 2019). This finding contradicts Sedaghati-Kesbakhi and Rohani's (2020) findings, which observed empathy levels decline as students' academic year increased, with first-year students exhibiting higher empathy levels than fourth-year students at the Islamic Azad University, suggesting that students may be inadequately prepared to manage the numerous emotional situations they will encounter as a nurse. Additional findings revealed that empathy scores for students 20 years and older were higher than scores for students under 20 years.

A cross-sectional study assessing empathy among students enrolled in a public nursing school and two private nursing schools in Peru revealed varied empathy levels based on school type and gender (Berduzco-Torres et al., 2021). The findings revealed gender and nursing school type as the most influential factors in empathy development. Higher empathy scores were noted among female students and students enrolled in public nursing schools compared to male students and students enrolled in private nursing

schools. While gender differences align with other researchers' findings, the empathy differences based on school type (public vs. private) suggest bias, stereotypes, and superior attitudes as possible empathy influencers.

McKenna et al. (2012) found no significant empathy differences between age groups, gender, or year of study among Australian nursing students. However, varied attitudes towards different patient diagnoses were noted. Patients with intellectual disabilities, chronic pain, acute mental illness, and terminal illness were held in similar regard, while students exhibited significantly lower regard for patients with substance abuse. The findings of Berduzco-Torres et al. (2021) and McKenna et al. (2012) highlight the negative influence of bias and stereotypes on nursing students' empathy, which hinders the establishment of therapeutic nurse-patient relationships.

Social Determinants of Health

Social determinants of health oppose the attainment of health equity in the United States (Lathrop, 2020). The conditions in which an individual is born, lives, works, and ages determine nearly 80% of their health (Robert Wood Johnson Foundation [RWJF], 2019; World Health Organization [WHO], 2021). The persistent stress caused by SDOH is associated with chronic illness and premature aging (Lathrop, 2020). Past or present exposure to the adverse influences of SDOH accounts for up to 70% of preventable deaths in the United States (Schoenthaler et al., 2021, as cited in Giorgi et al., 2022).

While there is no literature regarding ABSN students and their SDOH, the literature discusses nurses' vital role in addressing SDOH to reduce disparate health outcomes among marginalized populations. For example, Healthy People 2030 acknowledges that addressing SDOH is paramount to reducing health disparities and

advancing health equity (HealthyPeople.gov, 2021). The Future of Nursing 2020-2030 report emphasizes the need for nursing curricula to incorporate the competencies necessary to create a health equity culture in nursing (National Academies of Sciences, Engineering, and Medicine [NASEM], 2021). According to the National League for Nursing (NLN, 2019), the profession is responsible for advocating for social justice and health equity. The need to fully integrate SDOH into nursing curricula by providing information concerning the root causes of health disparities is pressing (NLN, 2019). In addition, the American Academy of Colleges of Nursing's *Essentials*: *Core Competencies for Professional Nursing Education* urges nursing schools to address SDOH and their association with bias and racism (AACN, 2021).

According to Gómez et al. (2021), bias and racism lead to inequitable healthcare practices. A level of awareness that SDOHs are not a choice but the result of disparate non-medical conditions is needed to dispel biases that lead to mistrust and avoidance of the healthcare system by underrepresented groups in the United States, thus exacerbating health inequities and disparities (Chaturvedi & Gabriel, 2020). Considering that bias and racism facilitate inequities, nurses should examine personal biases to avoid disparate nursing care. Nurses committed to continuous self-examination, and an awareness of the influence of SDOH are best equipped to promote health equity.

The findings of a systematic review conducted by Hall et al. (2015) indicated that healthcare providers have low to moderate implicit bias levels toward Black, Hispanic, and dark-skinned individuals. The results also showed a significant correlation between implicit bias, patient-provider relations, and health outcomes. According to a meta-analysis by FitzGerald & Hurst (2017), healthcare providers, including nurses, exhibit

implicit racial, ethnic, and socioeconomic status biases. Out of the 35 articles detailing implicit bias among healthcare providers, all noted a significant positive correlation between implicit bias level and suboptimal care. In a scoping review of 215 articles investigating nurse bias and nursing care disparities related to patient characteristics, Groves et al. (2021) identified race and ethnicity as the most common nurse bias category. Respectful communication and caring behavior were the most commonly identified nursing care disparity category.

According to AACN (2023), a diverse nursing workforce is paramount to equitable health in the United States. Nurses who mirror the patient population are better equipped to care for and recover trust and communication between nurses and underrepresented groups in the United States (AACN, 2023). Although 40% of individuals in the United States identify as people of color, only 19.4% of nurses are from an underrepresented group (AACN, 2023). The registered nurse (RN) workforce is comprised of 80.6% White/Caucasian; 7.2% Asian; 6.7% Black/African American; 0.5% American Indian/Alaskan Native; 0.4 Native Hawaiian/Pacific Islander; 2.1% two or more races; 2.5% other and 5.6% of RNs report their ethnicity as Hispanic (Smiley et al., 2021). In addition to recruiting and graduating nurses from underrepresented groups, developing interpersonal skills, such as empathy and emotion management, can advance health equity efforts, alleviate the impact of implicit bias, support nurse-patient relationships, and positively affect patient experiences and outcomes (van Ryn et al., 2011). By using their skills, experience, and knowledge, nurses can impede the deleterious effect of SDOH and achieve health equity (Lathrop, 2020).

ABSN Students

The ABSN program, one of the fastest-growing programs of study, was strategically fashioned to address the nursing workforce shortage (Raines, 2010). Nearly half a million new nurses will be needed by 2026 (USBLS, 2022). There were 318 active ABSN programs in 49 states, including the District of Columbia and Puerto Rico in 2021(AACN, 2022a). Twenty-seven new ABSN programs were in the planning stages in 2022 (AACN, 2022a). Accelerated Bachelor of Science in Nursing programs are an option for students who already possess a non-nursing bachelor's degree. These programs are accelerated because program objectives are completed in 11 to 18 months. Accelerated Bachelor of Science in Nursing programs are geared toward older, highly motivated students. Academic expectations for ABSN students are generally higher than academic expectations for traditional Bachelor of Science in Nursing (BSN) students.

A retrospective comparison of traditional and ABSN graduates highlighted a significant difference in entry grade point averages (GPAs), with ABSN students possessing a higher GPA upon program entry (Payne et al., 2014). Despite a higher entry GPA, no significant difference was found between the traditional and ABSN students' nursing GPA, National Council Licensure Examination-Registered Nurses (NCLEX-RN) pass rate, Health Education Systems, Inc. [HESI™] scores, and HESI pass rate (Payne et al., 2014). A longitudinal study by Lin et al. (2021) reported similar findings, including part-time and even full-time employment by ABSN students. This finding suggests that, unlike traditional students, ABSN students may face financial burdens. Hoffart et al. (2019) surveyed 3506 New Careers in Nursing (NCIN) scholars before, during, and six months after graduation from an ABSN program to investigate gender-related

differences. Females were primarily Black/African American and socioeconomically disadvantaged, having earned an initial bachelor's degree in the physical sciences. However, males were primarily White/Caucasian, married, and less socioeconomically disadvantaged with an initial bachelor's degree in liberal arts (Hoffart et al., 2019).

To understand second-degree students' motivation to pursue a nursing career, Raines (2010) analyzed 66 stories written by first- and second semester ABSN students in the Southeastern United States. The students identified their primary motivation as caring for others and contributing to society's well-being (Raines, 2010). Unlike traditional nursing students, no ABSN students cited personal or family illness or hospitalization as a motivational factor. Most students reported holding an initial bachelor's degree in arts and humanities. The findings also noted intrinsic motivation as an influential factor. Age influences intrinsic motivation and career choices after 30 years old (Bye et al., 2007; Miers et al., 2007). These findings suggest that the reasons ABSN students pursue nursing are different from traditional nursing students' reasons. Accelerated nursing students possess attributes, experiences, knowledge, and interpersonal relationship skills that are transferable to the practice setting (Raines, 2010).

Gaps in the Literature

Research on EI among nursing students is limited to international students completing traditional nursing programs. Another noteworthy literature gap is the lack of research on empathy among ABSN students in the United States. Furthermore, there is a gap in the literature regarding SDOH and their association with EI (managing and understanding) and empathy among ABSN students. This scarcity of empirical research is particularly significant because nurse bias and nursing care disparities related to SDOH

and patient race, ethnicity, and socioeconomic status oppose achieving health equity; however, interpersonal skills, such as empathy and emotion management, can advance health equity efforts. Therefore, further research was needed to assess the association between EI (managing and understanding), empathy, and SDOH among ABSN students.

Summary

The reviewed literature explicitly detailed important information concerning EI, empathy, SDOH, and ABSN students. At the same time, the literature review exposed a significant gap in knowledge regarding those same variables. The literature substantiates the role of EI in mitigating stress and burnout among nurses, the role of empathy in establishing trust and facilitating positive patient outcomes, the role of nurses in achieving health equity, how bias against underrepresented groups promotes nursing care disparities, and the attributes, experiences, and the influences motivating ABSN students to pursue a nursing career. However, the literature fails to examine the association between these variables. Hence, this study sought to investigate the association between EI (managing and understanding), empathy, and SDOH among ABSN students.

CHAPTER III – METHODOLOGY

Chapter III will describe the investigator's processes for answering the research questions. The following components are addressed: (a) research design, (b) sample and setting, (c) eligibility criteria, (d) ethical considerations, (e) the reliability and validity of the instruments, (f) data collection procedure, and (g) data analysis.

Research Design

The study used a simple cross-sectional, descriptive correlational design. Descriptive statistics were used to describe the presence and strength of an association between EI (managing and understanding), empathy, and SDOH among nursing students in various semesters of an ABSN program. The chosen design produced findings to generate new research questions and hypotheses concerning associations between the variables.

Sample and Setting

A convenience sample of students enrolled in an ABSN program at a university in Georgia, a university in Pennsylvania, and a university in Texas were initially recruited to participate in the study. Due to a low response rate, the researcher contacted 12 additional universities for Institutional Review Board (IRB) permission to query their ABSN students. Three of the 12 additional universities granted permission, resulting in a final convenience sample of students enrolled in an ABSN program at one of six participating universities.

The participating universities included a private, faith-based university in Georgia (A), a public university in Georgia (B), a private, nondenominational university in Pennsylvania (C), a private, faith-based university in Pennsylvania (D), a private, faith-

based university in Texas (E), and a public university in Mississippi (F). Table 1 presents the characteristics of each participating university. Each university was selected based on convenience, and the participants were recruited from one ABSN program per university for a total of six participating ABSN programs. All students enrolled in the ABSN programs were invited to participate in the study. A power computation conducted on G*Power 3.1.9.7 indicated that 200 participants were needed based on α=.05, effect size moderate (.4), and power equal to .80. The present study consisted of 179 participants.

Table 1

Characteristics of Participating Universities

	A	B	C	D	E	F
Location	Georgia	Georgia	Pennsylvania	Pennsylvania	Texas	Mississippi
Institutional Type	Private, faith-based	Public	Private, nondenominational	Private, faith-based	Private, faith-based	Public
Undergraduate Student Enrollment	4,880	26,106	2,200	6,112	2,700	10,258
ABSN Program Enrollment	120	24	100	20	285	16
Recruitment Email Distribution Method	Interim Dean of Nursing to email students	ABSN Program Director to email students	ABSN Program Director to provide email addresses to investigator for email delivery	ABSN Program Coordinator to email students	ABSN Program Director to email students	ABSN Program Director to provide email addresses to investigator for email delivery
IRB Requirement	USM IRB approval and streamlined university IRB process	USM IRB approval only	USM IRB approval only	USM IRB approval and streamlined university IRB process	USM IRB approval and streamlined university IRB process	USM IRB approval only

Ethical Considerations

Approval from the IRB at The University of Southern Mississippi (Protocol #23-0453) and from the IRBs at the private, faith-based universities in Georgia, Pennsylvania, and Texas (see Appendix A) were obtained to ensure that human subject protection measures were implemented. Students were neither penalized for not participating in the study nor given credit for participating. The study used an anonymous online survey to protect participant privacy and confidentiality. The researcher did not collect any information that could identify a participant.

Instrumentation

A 13-item questionnaire (see Appendix B) collected sociodemographic and programmatic data. Emotional intelligence (managing and understanding) was measured using two instruments, including the Situational Test of Emotional Management – Brief (STEM–B) (see Appendix C) and the Situational Test of Emotional Understanding – Brief (STEU–B) (see Appendix D). The 18-item STEM–B measured participants' management of emotional situations. The 19-item STEU–B measured participants' understanding of emotional situations. The 14-item Kiersma-Chen Empathy Scale-Revised (KCES-R) (see Appendices E and F) measured participants' cognitive and affective empathy. The 15-item American Academy of Family Physicians (AAFP) Social Needs screening tool (see Appendix G) measured participants' SDOH.

Questionnaire

A 13-item investigator-constructed questionnaire using coded multiple–choice response sets collected sociodemographic and programmatic data. Ten questions regarding participants' age, gender, race, ethnicity, marital status, caregiver status,

employment status, household income, initial bachelor's degree, and previous work experience in a healthcare or hospital setting were listed first. The questionnaire concluded with three questions assessing the programmatic characteristics of participants, including program state, the current semester enrolled in, and the number of completed clinical rotations.

Situational Test of Emotional Management – Brief (STEM–B)

The 18-item Situational Test of Emotional Management – Brief (STEM–B) measured participants' management of emotional situations. Participants selected the most effective response to manage an emotional situation for each item. The STEM-B was scored using four coded multiple–choice response sets where A=1, B=2, C=3, and D=4. Scores range from 0 to 18, with higher scores indicating greater management of emotional situations. The Cronbach's alpha for the STEM-B is .84 (Allen et al., 2015).

Situational Test of Emotional Understanding – Brief (STEU–B)

The 19-item Situational Test of Emotional Understanding – Brief (STEU–B) measured participants' understanding of emotional situations. Participants selected the emotion most likely to result from an emotional situation for each item. The STEU-B was scored using five coded multiple–choice response sets where A=1, B=2, C=3, D=4, and E=5. Scores range from 0 to 19, with higher scores indicating a greater understanding of emotional situations. The Cronbach's alpha for the STEU-B is .63 (Allen et al., 2014).

Kiersma-Chen Empathy Scale – Revised (KCES–R)

The 14-item KCES-R measured participants' cognitive and affective empathy. The scale is separated into two sections with seven items each. Section 1, healthcare professionals, pertains to participants' level of agreement with an attitude/behavior

exhibited by healthcare professionals based on their corresponding Likert weights (1=*Unnecessary*, 4= *Moderately necessary, and 7=Extremely necessary*). Section 2, yourself, pertains to participants' level of agreement with personal ability to exhibit an attitude/behavior based on their corresponding Likert weights (1=*Does not describe me*, 4=*Describes me moderately well, and 7=Describes me extremely well*). A total composite score was obtained by summing the items. Scores range from 14 to 98, with higher scores indicating greater empathy.

The reliability of the KCES-R is based on the 15-item Kiersma-Chen Empathy Scale (KCES) (α=.86) (Aronson et al., 2022). Psychometric item analyses from thousands of previous administrations of the KCES among geographically and professionally diverse samples led to removing one item from the KCES. Two rounds of cognitive interviews confirmed that the item's removal further validated the KCES and improved scale clarity by better aligning the participant's understanding and the developer's intent (Aronson et al., 2022). The new 14-item scale was titled the KCES–R.

American Academy of Family Physicians Social Needs Screening Tool

The 15-item American Academy of Family Physicians (AAFP) multiple–choice long-form social needs screening tool measured participants' SDOH. The long-form screening tool addresses all five United States Department of Health and Human Services (USDHHS) SDOH domains and aligns with the Center for Medicare and Medicaid Services (CMS) Accountable Health Communities Health-related Social Needs screening tool. In addition to addressing the five domains included in the CMS tool, the AAFP screening tool includes supplementary questions addressing education, employment status, financial insecurity, and childcare needs (Kreuter et al., 2021). The social needs of

the AAFP screening tool are based on the following criteria: (1) quality evidence that links poor health and increased health utilization to cost; (2) community services can often address the social need; and (3) the need is not routinely addressed by health care workers (AAFP, 2018). Social needs are identified on an individual level, usually via self-report, and help to identify community-level SDOH (Kreuter et al., 2021).

The social needs screening tool items are divided into nine categories: (1) housing, (2) food, (3) transportation, (4) utilities, (5) childcare, (6) employment, (7) education, (8) finances, and (9) personal safety. The screening tool utilizes a partial scoring system; each item has a multiple-choice response set. The personal safety category (questions 11-14) uses a five-point Likert-type scale to score the items based on their corresponding Likert weights (1=*Never*, 5= *Frequently*). Sums for questions 11-14 that were greater than 10 indicated a positive personal safety screen. Questions in the remaining categories included underlined responses. The selection of an underlined response denoted a social need for that specific SDOH category (Giorgi et al., 2022).

Data Collection Procedure

Prospective participants were recruited to participate in the study via email. The email was sent to students enrolled in one of the six participating ABSN programs. Reminder emails were sent one week and three weeks following the initial email invitation. The participation window closed six weeks following the initial email invitation. The email detailed that the study's purpose was to determine if there is an association between EI (managing and understanding), empathy, and SDOH among ABSN students. A letter of consent was included. An introductory page identified the investigator, explained the purpose of the study, and provided the estimated completion

time. The investigators' and IRBs' contact information was provided to participants should they have questions regarding the study. The investigator retained the electronically signed consent forms on a password-protected computer.

After consent, the participants accessed the questionnaire, the STEM-B, STEU-B, and KCES-R scales, and the AAFP Social Needs screening tool via a secure link. Online questionnaires enable secure storage and immediate data analysis (Grove, 2020). Confidential data collection procedures were used to protect participants' privacy. Study participation was voluntary, and participants could withdraw consent at any time without penalty. After completing the survey, participants who consented to be redirected to a secondary survey unlinked to the first, where they shared their email address, were sent a $10 gift card to the specified email address. Individuals who were unwilling or unable to complete the survey or did not consent to be redirected to the secondary survey did not receive a gift card. Duplicate email addresses did not receive a gift card. Data was password-protected and stored on The Qualtrics Experience Management Platform™. Data was protected by firewall systems and encrypted using Hypertext Transfer Protocol (HTTP) Secure, which enforces HTTP Strict Transport Security (HSTS) (Qualtrics, 2023).

Summary

The Methodology chapter described the framework for answering the research questions. A cross-sectional, correlational descriptive design was used to examine the association between EI (managing and understanding), empathy, and SDOH among ABSN students. A convenience sample of students attending one of six ABSN programs

in Georgia, Pennsylvania, Mississippi, and Texas participated in the study. The subsequent chapter discusses the implementation of data analysis using IBM SPSS 27.0.

CHAPTER IV – PRESENTATION AND ANALYSIS OF DATA

The purpose of this correlational descriptive study was to determine if there was an association between EI (managing and understanding), empathy, and SDOH among ABSN students. A descriptive profile of the sample, description of data analysis, and findings related to each research question are discussed.

Characteristics of the Sample

An investigator-constructed questionnaire using coded multiple–choice response sets collected sociodemographic and programmatic data. Sociodemographic characteristics of participants included (1) age, (2) gender, (3) race, (4) ethnicity, (5) marital status, (6) caregiver status, (7) employment status, (8) household income, (9) initial bachelor's degree, and (10) previous work experience in a healthcare or hospital setting. Programmatic characteristics of participants included (11) the program state, (12) the current semester enrolled in, and (13) the number of completed clinical rotations. The target population for this study was nursing students enrolled in an ABSN program at one of six participating universities.

Sociodemographic Characteristics

Sociodemographic information was provided by 179 ABSN students. Most participants were 18- to 24-years-old (46.9%), White/Caucasian (58.1%), and female (89.4%). Participants' primary ethnicity was non-Hispanic, Latin(o/a), and Latinx (74.9%). Most participants were single, never married (56.5%) non-caregivers (72.9%). Except for age, these sociodemographic characteristics are consistent with typical ABSN students. All sociodemographic data were obtained via self-report. Table 2 presents the sociodemographic characteristics of participants.

Table 2

Sociodemographic Characteristics of Participants

Characteristic		*n*	%[a]
Age Range		179	94.2
	18-24	84	46.9
	25-29	47	26.3
	30-39	32	17.9
	40-49	9	5.0
	50-59	6	3.4
	Prefer not to respond	1	.6
Gender		179	94.2
	Male	17	9.5
	Female	160	89.4
	Prefer not to respond	2	1.1
Race		179	94.2
	American Indian or Alaska Native	3	1.7
	Asian	18	10.1
	Black or African American	34	19.0
	White/Caucasian	104	58.1
	Two or more	12	6.7
	Prefer not to respond	8	4.5
Ethnicity		179	94.2
	Hispanic, Latin(a/o), Latinx	39	21.8
	Not Hispanic, Latin(a/o), Latinx	134	74.9
	Prefer not to respond	6	3.4

Table 2 (continued).

Marital Status		177	93.2
	Single never married	100	56.5
	Single cohabitating	18	10.2
	Married	48	27.1
	Separated	3	1.7
	Divorced	7	4.0
	Widowed	1	.6
Caregiver Status		177	93.2
	Caregiver for child(ren)	34	19.2
	Caregiver for parent(s)	6	3.4
	Caregiver for other relatives/loved ones	8	4.5
	Not a caregiver	129	72.9
Employment Status		177	93.2
	Full-time	22	12.4
	Part-time	34	19.2
	Less than part-time	22	12.4
	Not employed	99	55.9
Household Income		177	93.2
	Less than $9,999	43	24.3
	$10,000-$19,999	15	8.5
	$20,000-$39,999	24	13.6
	$40,000-$59,999	18	10.2
	$60,000-$79,999	21	11.9
	$80,000-$99,999	17	9.6
	$100,000 or more	39	22.0

Table 2 (continued).

Initial Bachelor's degree		176	92.6
	Arts & Humanities	11	6.3
	Business	10	5.7
	Interdisciplinary Health Science	23	13.1
	Social Science	27	15.3
	STEM	85	48.3
	Other	20	11.4
Previous work experience		175	92.1
	Hospital	56	32.0
	Healthcare	65	37.1
	Neither	54	30.9

Note. $N = 190$.

[a] Reflects valid percentages.

Programmatic Characteristics

Programmatic information was provided by 175 ABSN students. Most participants were first-semester ABSN students (38.5%) enrolled in a Texas program (58.9%) and had completed 0-1 clinical rotations (41.4%). Due to the lack of research on ABSN students, the researcher could not locate studies with similar programmatic characteristics. All programmatic data were obtained via self-report. Table 3 presents the programmatic characteristics of participants.

Table 3

Programmatic Characteristics of Participants

Characteristic		*n*	%[a]
Program State		175	92.1
	Georgia	40	22.9
	Pennsylvania	25	14.3
	Texas	103	58.9
	Mississippi	7	4.0

Table 3 (continued).

Semester Enrolled		174	91.6
	1	67	38.5
	2	31	17.8
	3	63	36.2
	4	13	7.5
Completed clinical rotations		174	91.6
	0-1	72	41.4
	2-3	10	5.7
	4-5	31	17.8
	6 or more	61	35.1

Note. $N = 190$.

[a] Reflects valid percentages.

Emotional Intelligence (Managing and Understanding) Characteristics

The 18-item STEM–B, which measured participants' management of emotional situations, was completed by 113 ABSN students. Each item was measured on an ordinal scale. A single, continuous variable ranging from 0-18 ($M = 10.38$, $SD = 2.73$) was yielded from the sum of the items, which was used to analyze emotional management.

The 19-item STEU–B, which measured participants' understanding of emotional situations, was completed by 104 ABSN students. Each item was measured on an ordinal scale. A single, continuous variable ranging from 0-19 ($M = 10.51$, $SD = 4.21$) was yielded from the sum of the items, which was used to analyze emotional understanding.

Empathy Characteristics

The 14-item KCES-R, which measured participants' cognitive and affective empathy, was completed by 104 ABSN students. Each item was measured on an ordinal scale. A single, continuous variable ranging from 14-98 ($M = 84.80$, $SD = 11.59$) was yielded from the sum of the items, which was used to analyze empathy. Table 4 presents descriptive statistics for the STEM-B, STEU-B, and KCES-R scales.

Table 4

EI (Managing and Understanding) and Empathy Scores of Participants

Scale	*n*	Min	Max	Mean	*SD*
STEM-B Score	113	3.17	14.25	10.3798	2.73297
STEU-B Score	104	2.00	16.00	10.5096	4.20816
KCES-R Score	104	42.00	98.00	84.7981	11.58538

Note. STEM-B = Situational Test of Emotional Management – Brief; STEU-B = Situational Test of Emotional Understanding – Brief; KCES-R = Kiersma-Chen Empathy Scale – Revised.

Social Determinants of Health Characteristics

The 15-item AAFP long-form social needs screening tool, which measured participants' social needs, was completed by 104 ABSN students. The screening tool measured participants' social needs based on nine SDOH categories, including (1) housing, (2) food, (3) transportation, (4) utilities, (5) childcare, (6) employment, (7) education, (8) finances, and (9) personal safety. The participant's selection of an underlined response in categories 1-8 was considered a positive response confirming a social need for the specificized SDOH category. The participant's selection of a non-underlined response in categories 1-8 was considered a negative response, denying a social need for the specificized SDOH category.

The four items in the personal safety category were measured on an ordinal scale. A single, continuous variable was yielded from the sum of the four personal safety items. Sums greater than 10 indicated a positive social need in the personal safety category. Individual social needs help identify community-level SDOH (Kreuter et al., 2021). The top four social needs were related to the employment (67.3%), food (37.5%), finances (36.5%), and housing (23.1%) categories. Although employment was the top social need, it should be noted that students are advised not to work while completing the program.

All SDOH data were obtained via self-report. Table 5 represents the participants' SDOH needs.

Table 5

SDOH Needs of Participants

Category		*n*	%[a]
Housing		104	54.7
	Positive	24	23.1
	Negative	80	76.9
Food		104	54.7
	Positive	39	37.5
	Negative	65	62.5
Transportation		104	54.7
	Positive	16	15.4
	Negative	88	84.6
Utilities		104	54.7
	Positive	7	6.7
	Negative	97	93.3
Childcare		104	54.7
	Positive	6	5.8
	Negative	98	94.2
Employment		104	54.7
	Positive	70	67.3
	Negative	34	32.7
Education		104	54.7
	Positive	1	1.0
	Negative	103	99.0
Finances		104	54.7
	Positive	38	36.5
	Negative	66	63.5
Personal Safety		104	54.7
	Positive	7	6.7
	Negative	97	93.3

Note. $N = 190$. Positive = a need reported; Negative = no reported need.

[a] Reflects valid percentages.

Data Analyses

Missing Data Analysis

Missing data patterns were examined before determining the presence and strength of an association between EI (managing and understanding), empathy, and SDOH among nursing students in various semesters of an ABSN program. The purpose of the missing data analysis was to determine whether there were biases based on who completed the survey versus who did not. The analysis revealed that participants in the 3rd semester, with previous work experience in a hospital or healthcare setting and enrolled in an ABSN program located in Mississippi are major reasons contributing to survey incompletion. As the incompleteness was largely related to variables investigated in the survey, it was assumed that the data met the assumption of Missing at Random (MAR) and the missing values were removed from later analysis (Bhaskaran & Smeeth, 2014).

The analysis also revealed that 11 cases were missing responses to all questions, except question one, which asked participants if they consented to study participation. All responses beyond consenting to study participation required a response for survey completion. Therefore, data without responses beyond consenting to study participation were deleted using listwise deletion, leaving 179 (94.2%) cases for analysis. Of these cases, 104 (58.1%) participants completed all survey questions.

Hypotheses and Research Questions

This study examined the presence and strength of an association between EI (managing and understanding), empathy, and SDOH among ABSN students. These variables were examined using the STEM-B, STEU-B, and KCES-R scales, as well as the

AAFP long-form social needs screening tool. All tests were executed considering two-sided and p-values less than .05 as statistically significant. All analyses were executed using IBM SPSS 27.0. The study centered on three hypotheses and seven research questions.

Hypothesis 1: There are differences in sociodemographic characteristics with EI (managing and understanding), empathy, and SDOH among ABSN students.

Hypothesis 1 entailed answering research question 1. To begin, an SDOH sum was created based on the participant's number of positive responses concerning the AAFP Social Needs screening tool's nine SDOH categories, including (1) housing, (2) food, (3) transportation, (4) utilities, (5) childcare, (6) employment, (7) education, (8) finances, and (9) personal safety. Each participant's SDOH sum ranged from 0 to 9.

Then, a two-part analysis was conducted to answer question one. First, observable differences in the sociodemographic data were noted based on descriptive statistics, including means (± *SD*) and frequencies (percentages). Secondly, mean differences were observed using independent two-sample t-tests and one-way Analysis of Variance (ANOVA) to quantify the mean differences while considering their variance. The analysis revealed six significant differences related to research question 1.

Research Question 1: Are there differences in sociodemographic characteristics with EI (managing and understanding), empathy, and SDOH among ABSN students?

Managing Emotions and Sociodemographic Characteristics

Managing Emotions and Age

An ANOVA showed a significant association between managing emotions and age, $F(4, 107) = 2.538$, $p = .044$. Post hoc analyses using the Bonferroni post hoc

criterion for significance indicated that STEM-B scores for ABSN students aged 40 to 49 years old (M = 12.13, SD = 1.61) were significantly higher than scores for ABSN students aged 18 to 24 years old (M = 9.59, SD = 2.98). This finding suggests that 40- to 49-year-old ABSN students tend to manage emotions better than 18- to 24-year-old ABSN students. Table 6 presents the mean STEM-B scores by age group.

Table 6

Mean Managing Emotions Score by Age Group

Age Group	*n*	STEM-B Score
18-24	48	9.59
25-29	32	10.81
30-39	21	11.08
40-49	7	12.13
50-59	4	11.15

Note. N = 112. STEM-B = Situational Test of Emotional Management – Brief.

Managing Emotions and Marital Status

An ANOVA showed a significant association between managing emotions and marital status, $F(4, 107) = 3.643$, $p = .008$. Post hoc analyses using the Bonferroni post hoc criterion for significance indicated that STEM-B scores for married ABSN students (M = 11.36, SD = 2.23) were significantly higher than scores for single, never married ABSN students (M = 9.52, SD = 2.85). This finding suggests that married ABSN students manage emotions better than single, never-married ABSN students. Table 7 presents the mean STEM-B scores by marital status.

Table 7

Mean Managing Emotions Score by Marital Status

Marital Status	*n*	STEM-B Score
Single never married	57	9.52
Single cohabitating	14	11.38
Married	33	11.36
Separated	3	10.72
Divorced	5	11.72
Widowed	1	4.92

Note. N = 113. STEM-B = Situational Test of Emotional Management – Brief.

Managing Emotions and Caregiver Status

An ANOVA showed a significant association between managing emotions and caregiver status, $F(3, 109) = 5.467$, $p = .002$. Post hoc analyses using the Bonferroni post hoc criterion for significance indicated that STEM-B scores for ABSN students who were caregivers for their children ($M = 11.60$, $SD = 1.58$) were significantly higher than scores for ABSN students who were caregivers for their parents ($M = 7.14$, $SD = 3.79$). This finding suggests that ABSN students who are caregivers for their children manage emotions better than ABSN students who are caregivers for their parents. Table 8 presents the mean STEM-B scores by caregiver status.

Table 8

Mean Managing Emotions Score by Caregiver Status

Caregiver Status	*n*	STEM-B Score
Caregiver for child(ren)	21	11.60

Table 8 (continued).

Caregiver for parents	3	7.14
Caregiver for other relatives/loved ones	6	7.60
Not a caregiver	83	10.39

Note. N = 113. STEM-B = Situational Test of Emotional Management – Brief.

Understanding Emotions and Sociodemographic Characteristics

Understanding Emotions and Caregiver Status

An ANOVA showed a significant association between understanding emotions and caregiver status, $F(3, 100) = 5.015$, $p = .003$. Post hoc analyses using the Bonferroni post hoc criterion for significance indicated that STEU-B scores for ABSN students who were caregivers for their children ($M = 12.37$, $SD = 3.27$) were significantly higher than scores for ABSN students who were caregivers for other relatives/loved ones ($M = 5.60$, $SD = 1.52$). This finding suggests that ABSN students who are caregivers for their children understand emotions better than ABSN students who are caregivers for other relatives/loved ones. Table 9 presents the mean STEU-B scores by caregiver status.

Table 9

Mean Understanding Emotions Score by Caregiver Status

Caregiver Status	*n*	STEU-B Score
Caregiver for child(ren)	19	12.37
Caregiver for parents	3	6.33
Caregiver for other relatives/loved ones	5	5.60
Not a caregiver	77	10.53

Note. N = 104. STEU-B = Situational Test of Emotional Understanding – Brief.

Empathy and Initial Bachelor's Degree

An ANOVA showed a significant association between empathy and the field of initial bachelor's degree, $F(5, 97) = 2.858$, $p = .019$. Post hoc analyses using the Bonferroni post hoc criterion for significance indicated that KCES-R scores for ABSN students with initial bachelor's degrees in Science, Technology, Engineering, and Math (STEM) ($M = 88.31$, $SD = 9.66$) were significantly higher than scores for ABSN students with initial bachelor's degrees in interdisciplinary health sciences ($M = 78.21$, $SD = 11.50$). This finding suggests that ABSN students with initial bachelor's degrees in STEM are more empathetic than ABSN students with initial bachelor's degrees in interdisciplinary health sciences. Table 10 presents the mean KCES-R scores by field of initial bachelor's degree.

Table 10

Mean Empathy Score by Field of Initial Bachelor's Degree

Field of Initial Bachelor's Degree	*n*	KCES-R Score
Arts and Humanities	8	78.13
Business	3	89.33
Interdisciplinary Health Science	14	78.21
Social Science	20	85.50
STEM	48	88.31
Other	10	82.60

Note. $N = 103$. KCES-R = Kiersma-Chen Empathy Scale – Revised.

SDOH and Household Income

An ANOVA showed a significant association between SDOH and household income, $F(6, 97) = 5.720$, $p = <.001$. Post hoc analyses using the Bonferroni post hoc criterion for significance indicated that ABSN students with a household income of less than $9,999 ($M = 3.47$, $SD = 1.48$) possessed significantly more positive SDOH categories than ABSN students with household incomes of $60,000 to $79,999 ($M = 1.58$, $SD = 1.31$) and $100,000 or more ($M = 1.88$, $SD = 1.23$). This finding suggests that ABSN students with a household income of less than $9,999 possess greater social needs than ABSN students with household incomes of $60,000 to $79,999 and $100,000 or more. Table 11 presents the mean number of positive SDOH categories by annual household income.

Table 11

Mean Number of Positive SDOH Categories by Annual Household Income

Annual Household Income	*n*	Positive SDOH Categories
Less than $9,999	30	3.47
$10,000-$19,999	9	4.11
$20,000-$39,999	10	3.40
$40,000-$59,999	11	3.36
$60,000-$79,999	12	1.58
$80,000-$99,999	8	2.25
$100,000 or more	24	1.88

Note. $N = 104$.

Hypothesis 2: There is an association between EI (managing and understanding) and empathy among ABSN students.

Hypothesis 2 entailed answering research questions two through four. These research questions were answered using bivariate Pearson correlations to determine the strength and direction of relationships between ABSN students' STEM-B, STEU-B, and KCES-R scores. Coefficient values between ± .70 and ± 1 indicated a strong correlation, values between ± .69 and ± .40 indicated a moderate correlation, and values below + .39 indicated a weak correlation (Akoglu, 2018). The analysis revealed significant correlations related to research questions two through four.

Research Question 2: Is there an association between managing emotions and understanding emotions among ABSN students?

Research Question 3: Is there an association between managing emotions and empathy among ABSN students?

Research Question 4: Is there an association between understanding emotions and empathy among ABSN students?

Managing Emotions, Understanding Emotions, and Empathy

Managing emotions and understanding emotions were strongly positively correlated, $r(104) = .70$, $p = <.001$. This finding suggests that the relationship between ABSN students' ability to manage and understand emotions is strong, and the variables tend to increase in response to one another. Managing emotions and empathy were weakly positively correlated, $r(104) = .24$, $p = <.015$. Although this finding suggests that ABSN students' ability to manage emotions and empathize tend to increase in response to one another, there is not a strong relationship between the variables. Understanding

emotions and empathy were weakly positively correlated, $r(104) = .31$, $p = <.002$. Although this finding suggests that ABSN students' ability to understand emotions and empathize tend to increase in response to one another, there is not a strong relationship between the variables. Table 12 presents descriptive statistics and correlations for EI (managing and understanding), empathy, SDOH, and sociodemographic characteristics that significantly impact SDOH, including age, gender, race, marital status, and annual household income (Xiao et al., 2023).

Table 12

Descriptive Statistics and Correlations for EI (Managing and Understanding), Empathy, SDOH, and Sociodemographic Characteristics

Variable	*n*	*M*	*SD*	1	2	3	4	5	6	7	8	9
1. SDOH Sum	99	2.85	1.69	—								
2. Managing Emotions	99	10.48	2.76	.02*	—							
3.Understanding Emotions	99	10.62	4.23	.00**	<.00**	—						
4. Empathy	99	85.19	11.19	.01*	<.01**	<.00**	—					
5. Age Group	99	1.95	1.10	.12	.00**	.00**	.45	—				
6. Gender	99	1.92	.274	.24	.47	.17	.39	.32	—			
7. Race	99	4.32	1.25	.35	.08	.11	.11	.38	.34	—		
8. Marital Status	99	1.96	1.14	.09	.00**	.00**	.26	.00**	.41	.10	—	

Table 12 (continued).

9. Annual Household Income	99	3.82	2.37	.00**	.00**	.00**	.47	.03*	.41	.10	.01*	—

*r < .05. **r < .01.

Note. 1=SDOH Sum; 2=Managing Emotions; 3=Understanding Emotions; 4=Empathy; 5=Age Group; 6=Gender; 7=Race; 8=Marital Status; 9=Annual Household Income.

Hypothesis 3: There is an association between EI (managing and understanding), empathy, and the number of positive SDOH categories among ABSN students.

Hypothesis 3 entailed answering research questions five through seven. These research questions were answered using regression analysis. First, eight assumptions were examined to ensure the data could be assessed using regression analysis. Multicollinearity between managing emotions and understanding emotions was the only violated assumption. However, multicollinearity between these variables was an expected finding. Based on The Ability Model, understanding emotions facilitates managing emotions (Mayer et al., 2016). Additionally, a strong positive correlation between these variables was noted when answering research question four.

Next, the sample size was analyzed for appropriateness. According to Green (1991), $N \geq 50 + 8m$ (m = number of independent variables) is needed for a moderate effect size when conducting regression analysis. For this study, $N = 50 + 8(3) = 74$. Since this study had 104 participants, the sample size was appropriate for regression analysis. Then, the SDOH sum, STEM-B, STEU-B, and KCES-R scores were analyzed. The analysis revealed significant associations related to research questions five through seven.

Research Question 5: Is there an association between managing emotions and the number of positive SDOH categories among ABSN students?

Research Question 6: Is there an association between understanding emotions and the number of positive SDOH categories among ABSN students?

Research Question 7: Is there an association between empathy and the number of positive SDOH categories among ABSN students?

Managing Emotions, Understanding Emotions, Empathy, and SDOH

Multiple regression analysis was performed to predict the association between the number of positive SDOH categories from STEM-B scores, STEU-B scores, and KCES-R scores. The STEM-B scores statistically significantly predicted the number of positive SDOH categories (β = -.14, p=.017). The STEU-B scores statistically significantly predicted the number of positive SDOH categories (β = -.14, p<.001). The KCES-R scores statistically significantly predicted the number of positive SDOH categories (β = -.04, p=.008). Table 13 presents regression results for positive SDOH categories predicted by EI (managing and understanding) and empathy.

Table 13

Regression Results for Positive SDOH Categories Predicted by EI (Managing and Understanding) and Empathy

Scores	β	Upper 95%	Lower 95%	p
STEM-B	–.14	–.26	–.03	.017*
STEU-B	–.14	–.22	–.07	<.001**
KCES-R	–.04	–.07	.01	.008*

Note. STEM-B = Situational Test of Emotional Management – Brief; STEU-B = Situational Test of Emotional Understanding – Brief; KCES-R = Kiersma-Chen Empathy Scale – Revised.

Summary

This chapter presented the study results. A comprehensive analysis of the data was discussed using descriptive statistics, bivariate Pearson correlations, and regression analysis. The subsequent chapter interprets study findings and presents recommendations.

CHAPTER V – INTERPRETATION OF FINDINGS AND RECOMMENDATIONS

The purpose of this correlational descriptive study was to determine if there was an association between EI (managing and understanding), empathy, and SDOH among ABSN students. This study contributes to the existing body of research on EI (managing and understanding), empathy, and SDOH. This study also fills gaps in the literature regarding these variables among ABSN students.

The participants' characteristics resembled those of typical ABSN students. The findings suggest significant differences in sociodemographic characteristics among ABSN students based on EI (managing and understanding), empathy, and SDOH, as well as a significant correlation between EI (managing and understanding) and empathy. Additionally, a significant correlation between EI (managing and understanding), empathy, and participants' SDOH needs was identified. An interpretation of the findings related to the research questions and recommendations for action are discussed.

ABSN Student Characteristics

Study participants were characterized as single, never married, non-Hispanic, Latin(o/a), Latinx, and White/Caucasian females. Study participants' characteristics were consistent with most ABSN students', except for age. The literature characterizes ABSN students as older, more mature individuals (Oermann et al., 2010). For example, Lin et al. (2021) found significant age differences between ABSN and traditional BSN students (27.57 versus 20.83 years of age, respectively). Payne et al. (2014) found that ABSN students were significantly older than traditional BSN students (27 and 22 years of age, respectively). Read and Laschinger (2017) also found significant age differences between ABSN and traditional BSN graduates (29.64 versus 26.68 years of age, respectively).

However, most participants in the present study self-identified as 18- to 24-years-old. A possible explanation may be the way age was assessed. The broad age range of 18- to 24-year-olds potentially masked the probability of finding participants with ages resembling the ages of ABSN students in the previously mentioned studies.

Differences in Sociodemographic Characteristics

Study findings revealed significant differences in sociodemographic characteristics with EI (managing and understanding), empathy, and SDOH among ABSN students. A significant difference was found in managing emotions based on age, marital status, and caregiver status. A significant difference was also found between understanding emotions and caregiver status; empathy and initial bachelor's degree; and SDOH and annual household income.

Managing Emotions, Age, Marital Status, and Caregiver Status

Accelerated BSN students aged 40- to 49-years-old were found to manage emotions significantly better than ABSN students aged 18- to 24-years-old. These findings are consistent with previous research on EI. According to Rosario et al. (2019), EI increases over time. Emotional stability and well-being are associated with aging (Herwandha & Prastuti, 2021). Por et al. (2011) identified a strong positive relationship between age and EI among traditional nursing students. Ishii (2018) also found a positive correlation between age and EI.

Married ABSN students and ABSN students who care for their children were found to manage emotions significantly better than single, never-married ABSN students and ABSN students who care for their parents, respectively. Research concerning the relationship between managing emotions, marital status, and caregiver status is lacking.

However, a plausible explanation for these findings is the correlation between life experiences and increased emotional maturity (Budler et al., 2022).

Understanding Emotions and Caregiver Status

Accelerated BSN students who care for their children were found to understand emotions better than ABSN students who care for other relatives/loved ones. Gottman et al.'s (1996) Parental Meta-Emotion philosophy is a plausible explanation for this finding. Gottman et al. (1996) define parental meta-emotion as how parents think and feel about emotion (Qiu & Shum, 2022). The systematized array of thoughts and feelings that parents hold regarding their own and their children's emotions form an underlying basis for parental regulation of emotions (Gottman et al., 1996, as cited in Hurrell et al., 2017). Parents with an increased emotional understanding are better equipped to validate and label emotions (Hurrell et al., 2017).

Empathy and Initial Bachelor's Degree

Accelerated BSN students holding initial bachelor's degrees in STEM were found to be more empathetic than those holding initial bachelor's degrees in interdisciplinary health sciences. Empathy is a social construct fundamental for establishing trusting nurse-patient relationships and facilitating positive patient outcomes (Freshwater & Stickley, 2004; Kunyk & Olson, 2001; Lauder et al., 2002; Reynolds & Scott, 2000, as cited in Rosaria et al., 2019). This finding suggests that ABSN students with initial bachelor's degrees in STEM are better equipped to establish trusting relationships with patients. However, research on the relationship between managing emotions, the field of initial bachelor's degrees, and the ability to establish trusting relationships among ABSN students is underdeveloped and should be explored further.

SDOH and Annual Household Income

Accelerated BSN students with a household income of less than $9,999 were found to possess greater social needs than ABSN students with household incomes of $60,000 to $79,999 and $100,000 or more. While this was an expected finding, it is still concerning. An individual's SDOH affects their activities of daily living, quality of life, life expectancy, health outcomes, and risks (Giorgi et al., 2022; HealthyPeople.gov, 2021; NLN, 2019). Income is the most influential SDOH (Sawchuk, 2019).

The negative impact of financial hardship on students' physical and mental health and well-being is well-established in the literature (Bemel et al., 2016; Britt et al., 2016; Deasy et al., 2014; Heckman et al., 2014; Watson et al., 2015, as cited in Grant-Smith & de Zwaan, 2019). For example, students experiencing financial hardships exhibit greater psychological stress and depression than those with stable financial conditions (Andrews and Chong, 2011, as cited in Grant-Smith & de Zwaan, 2019). In addition, financial hardship is negatively correlated with students' academic success, contributing to attrition (Moore et al., 2021). Considering ABSN students are discouraged from working while completing the nursing program and may be ineligible for federal student loans due to the exhaustion of the current lifetime loan limit for undergraduate students, financially related ABSN student attrition is particularly concerning.

EI (Managing and Understanding) and Empathy

The 18-item STEM measured participants' ability to manage emotional situations–B scale. The achievable STEM-B score ranged from 0 (very low ability to manage emotional situations) to 18 (very high ability to manage emotional situations), with a mean score of 9. Participants with higher mean STEM-B scores are generally able

to manage emotional situations. The results of this study revealed that participants' mean level of ability to manage emotional situations was 10.38 (*SD* = 2.73). This result showed that the participants possessed moderate emotional management ability overall.

Participants' ability to understand emotional situations was measured by the 19-item STEU–B scale. The achievable STEU-B score ranged from zero (very low ability to understand emotional situations) to 19 (very high ability to understand emotional situations), with a mean score of 9.5. Participants with higher mean STEU-B scores are generally able to understand emotional situations. The results of this study revealed that participants' mean level of ability to understand emotional situations was 10.51 (*SD* = 4.21). This result showed that the participants possessed moderate emotional understanding ability overall.

The 14-item KCES-R scale measured participants' level of empathy. The achievable KCES-R score ranged from 14 (very low level of empathy) to 98 (very high level of empathy), with a mean score of 42. Participants with higher mean KCES-R scores are generally more empathetic. The results of this study revealed that participants' mean level of empathy was 84.80 (*SD* = 11.59). This result showed that the participants possessed high levels of empathy overall. However, this finding also suggests response bias as a plausible explanation for this finding.

Response bias commonly occurs when self-assessment tools are employed in healthcare and social research (Rosenman et al., 2011). The response bias phenomenon occurs when participants provide biased estimates of self-assessed behavior. In the present study, participants may have desired to appear more empathetic, thereby overestimating their empathy level. Participants' desire to appear virtuous on a survey,

including an anonymous survey, is known as social desirability response bias (Latkin et al., 2017). Social desirability response bias may result in inaccurate self-assessments and flawed study results (Latkin et al., 2017).

Managing and understanding emotions demonstrated a strong positive correlation. Understanding and managing emotions, constructs of EI, are branches three and four of The Ability Model, respectively. In The Ability Model, Mayer et al. (2016) conceptualizes understanding emotions as the mental ability to comprehend, appraise, label, and recognize associations between emotions, which precedes the ability to manage emotions. Mayer et al.'s (2016) conceptualization of these variables explains why they increase in response to one another.

While EI (managing and understanding) demonstrated a strong positive correlation with one another, both variables were weakly positively correlated with empathy. Although ABSN students' ability to manage and understand emotions increased in response to empathy, there was a weak relationship between the variables. However, prior research among nursing scientists substantiates the relationship between EI and empathy. For example, Roberts (2021) found a moderately positive relationship between EI and empathy among traditional and ABSN students. Hajibabaee et al. (2018), Di Lorenzo et al. (2019), and Kang and Choi (2020) also found a significantly positive relationship between EI and empathy among nursing students.

Empathy is fundamental to one's ability to manage and understand emotions and, therefore, is characterized as an antecedent to EI (Raghubir, 2018). Emotional intelligence (managing and understanding) provides the emotional regulation necessary for appropriate decision-making during emotionally stressful situations (Raghubir, 2018).

Students lacking emotional regulation may be inadequately prepared to manage the numerous emotional situations they encounter as nurses.

EI (Managing and Understanding), Empathy, and SDOH Needs

The regression analysis revealed an association between EI (managing and understanding), empathy, and participants' SDOH needs. The statistical significance of the coefficients was assessed, and p-values were obtained for the STEM-B, STEU-B, and KCES-R scores. A significance level of .05 was chosen, and coefficients with p-values below this threshold were considered statistically significant. The coefficient for STEM-B, STEU-B, and KCES-R scores was statistically significant (p=.017, p<.001, p=.008, respectively), suggesting a meaningful relationship between STEM-B, STEU-B, KCES-R scores and the number of positive SDOH categories.

With each 1-point increase in a participant's STEM-B score, their number of positive SDOH categories is expected to decrease by 0.14. This finding suggests a negative relationship between STEM-B scores and the number of positive SDOH categories. As STEM-B scores increase by one unit, the expected outcome is a decrease of 0.14 in the number of positive SDOH categories. While statistically significant, it is important to note that the effect size for STEM-B scores was relatively small, with a decrease of 0.14 in positive SDOH categories for each 1-point increase.

The same is true for the association between STEU-B scores and participants' number of positive SDOH categories. Similar to the association between STEM-B scores and the number of positive SDOH categories, there is a negative association between STEU-B scores and the number of positive SDOH categories. A 1-point increase in STEU-B scores is associated with a decrease of 0.14 in the number of positive SDOH

categories. While statistically significant, it is important to note that the effect size for STEU-B scores was relatively small, with a decrease of 0.14 in positive SDOH categories for each 1-point increase.

With each 1-point increase in a participant's KCES-R score, the number of positive SDOH categories is expected to decrease by 0.04. This finding suggests a negative relationship between KCES-R scores and the number of positive SDOH categories. As KCES-R scores increase by one unit, the expected outcome is a decrease of 0.04 in the number of positive SDOH categories. While statistically significant, it is important to note that the effect size for KCES-R scores was relatively small, with a decrease of 0.04 in positive SDOH categories for each 1-point increase.

These noteworthy findings provide a clear understanding of the direction and strength of the relationships between EI (managing and understanding), empathy, and participants' SDOH needs. Furthermore, the findings are practically significant in that SDOH impacts ABSN students' ability to manage emotions, understand emotions, and empathize in the delivery of patient care. A nurse's ability to establish a trusting patient relationship depends upon their ability to manage their emotions effectively and communicate an understanding of the patient's experiences (Holston & Taylor, 2016). These findings contribute to our understanding of ABSN students and the importance of considering EI (managing and understanding) and empathy in addressing SDOH to mitigate health disparities and advance health equity.

Recommendations

Findings from this dissertation have significant implications for nursing research, education, and practice. While the findings deepen our understanding of ABSN students

and the association between EI (managing and understanding), empathy, and SDOH among this student population, further exploration of these and similar variables, as well as the generation of new research questions and hypotheses is recommended. Future research should expand the current findings by utilizing advanced statistical techniques, qualitative methods, or a mixed-methods approach or incorporating additional variables, such as stress management and self-care, to provide a more nuanced perspective on the relationships identified in this study.

Given the cross-sectional nature of this study, future research could benefit from longitudinal designs to track changes and better understand the dynamics of EI (managing and understanding), empathy, and SDOH over time. Future studies should replicate this research in different regions with increased variability between the types of academic institutions to validate the generalizability of these results. The dissemination of future research via conferences and publications and the translation of research into actionable strategies is recommended for improving nursing practice and education.

The intersection of these findings with necessary social change is significant for nursing practice and education. Practicing nurses have a professional responsibility to advocate for social justice and health equity. Practicing nurses should advocate for policy changes that address SDOH, such as healthcare access and quality, personal safety, and housing.

Nursing education should instill a sense of social responsibility and equip future nurses with the knowledge, skills, and attitudes to advocate for marginalized populations. Nursing education should fully integrate health equity principles into the curriculum. The integration should include addressing structural racism, historical discrimination against

marginalized populations, and teaching strategies to promote equitable care. Innovative teaching strategies that encourage critical thinking and problem-solving to deepen future nurses' understanding of SDOH should also be utilized. Experiential learning, case studies, and simulations can effectively prepare nurses to address complex health issues and apply health equity principles.

Nursing education can also promote health equity by increasing workforce diversity. Nursing education programs should actively recruit and support students from underrepresented backgrounds. Lastly, nursing education programs should promote research initiatives focused on health disparities, SDOH, and strategies for achieving health equity. The research findings can be used to develop evidence-based practices and policies to facilitate positive social change.

Nursing research and education play pivotal roles in preparing future nurses to advocate for social change and deliver equitable nursing. Nursing research bridges the gap between academia and practice, translating research into actionable strategies for improving healthcare delivery. Nursing education can contribute to a more equitable and unbiased healthcare system by integrating these principles into the curriculum. Health equity is a guiding principle in nursing practice, emphasizing the importance of unbiased, patient-centered care. Nurses are pivotal in advocating for social justice, eliminating health disparities, and ensuring all individuals have equal opportunities to achieve optimal health.

Summary

Findings from this dissertation advance the knowledge and understanding of ABSN students. The findings revealed an association between EI (managing and

understanding), empathy, and SDOH among ABSN students. The study revealed that ABSN students who are better at managing and understanding their emotions and empathizing with others have fewer SDOH needs. Emotional Intelligence mitigates stress and burnout, improves patient care, and facilitates nurses' physical and mental well-being. Empathy, an antecedent of EI (managing and understanding), enables nurses to establish therapeutic relationships with patients and build trust. By understanding SDOH, nurses can address the distrust of the healthcare system caused by explicit and implicit bias.

The findings from this dissertation can be used to generate new research questions and hypotheses concerning these and similar variables among the ABSN student population. Considering that ABSN students are vital to addressing the need for nearly half a million new nurses by 2026, nursing research has a duty to understand this student population better. Furthermore, nursing education has a duty to implement educational interventions to enhance students' EI (managing and understanding), empathy, and understanding of SDOH. This way, practicing nurses can provide optimal patient care, promote health equity, alleviate bias, and enhance patient experiences and outcomes.

APPENDIX A – IRB Approval Letters

Office *of*
Research Integrity

THE UNIVERSITY OF SOUTHERN MISSISSIPPI

118 COLLEGE DRIVE #5116 • HATTIESBURG, MS | 601.266.6756 | WWW.USM.EDU/ORI

NOTICE OF INSTITUTIONAL REVIEW BOARD ACTION

The project below has been reviewed by The University of Southern Mississippi Institutional Review Board in accordance with Federal Drug Administration regulations (21 CFR 26, 111), Department of Health and Human Services regulations (45 CFR Part 46), and University Policy to ensure:

- The risks to subjects are minimized and reasonable in relation to the anticipated benefits.
- The selection of subjects is equitable.
- Informed consent is adequate and appropriately documented.
- Where appropriate, the research plan makes adequate provisions for monitoring the data collected to ensure the safety of the subjects.
- Where appropriate, there are adequate provisions to protect the privacy of subjects and to maintain the confidentiality of all data.
- Appropriate additional safeguards have been included to protect vulnerable subjects.
- Any unanticipated, serious, or continuing problems encountered involving risks to subjects must be reported immediately. Problems should be reported to ORI using the Incident form available in InfoEd.
- The period of approval is twelve months. If a project will exceed twelve months, a request should be submitted to ORI using the Renewal form available in InfoEd prior to the expiration date.

PROTOCOL NUMBER:	23-0453
PROJECT TITLE:	THE ASSOCIATION BETWEEN EMOTIONAL INTELLIGENCE, EMPATHY, AND SOCIAL DETERMINANTS OF HEALTH AMONG ACCELERATED BACHELOR OF SCIENCE IN NURSING STUDENTS: A MULTI-STATE CROSS-SECTIONAL DESCRIPTIVE STUDY
SCHOOL/PROGRAM	Systems Leadership & Health Outcome
RESEARCHERS:	PI: Kwanza Thomas Investigators: Thomas, Kwanza~Cuellar, Norma G~
IRB COMMITTEE ACTION:	Approved
CATEGORY:	Exempt Category
APPROVAL STARTING:	19-Jun-2023

Donald Sacco Jr.

Donald Sacco, Ph.D.
Institutional Review Board Chairperson

APPROVED
for use

MERCER UNIVERSITY
Institutional Review Board
For Research Involving Human Subjects

Tuesday, June 27, 2023

Ms. Kwanza Thomas
3001 Mercer University Drive
Georgia Baptist College of Nursing
Atlanta, GA 30341

RE: THE ASSOCIATION BETWEEN EMOTIONAL INTELLIGENCE, EMPATHY, AND SOCIAL DETERMINANTS OF HEALTH AMONG ACCELERATED BACHELOR OF SCIENCE IN NURSING STUDENTS: A MULTI-STATE CROSS-SECTIONAL DESCRIPTIVE STUDY (H2306125)

Dear Ms. Thomas:

On behalf of Mercer University's Institutional Review Board for Human Subjects Research, your application submitted on 26-Jun-2023 for the above referenced protocol was reviewed in accordance with the 2018 Federal Regulations 21 CFR 56.110(b) and 45 CFR 46.110(b) (for expedited review) and was approved under category(ies) _7 per 63 FR 60364.

Your application was approved for one year of study on 27-Jun-2023. The protocol expires on 26-Jun-2024. If the study continues beyond one year, it must be re-evaluated by the IRB Committee.

Item(s) Approved:
The purpose of this study is to determine if there is an association between Emotional Intelligence (managing and understanding), empathy, and social determinants of health among accelerated Bachelor of Science in Nursing (ABSN) students.

NOTE: You **MUST** report to the committee when the protocol is initiated. Report to the Committee immediately any changes in the protocol or consent form and **ALL** accidents, injuries, and serious or unexpected adverse events that occur to your subjects as a result of this study.

We at the IRB and the Office of Research Compliance are dedicated to providing the best service to our research community. As one of our investigators, we value your feedback and ask that you please take a moment to complete our Satisfaction Survey and help us to improve the quality of our service.

It has been a pleasure working with you and we wish you much success with your project! If you need any further assistance, please feel free to contact our office.

Respectfully,

Ava Chambliss-Richardson, Ph.D.
Director of Research Compliance
Member
Institutional Review Board

"Mercer University has adopted and agrees to conduct its clinical research studies in accordance with the International Conference on Harmonization's (ICH) Guidelines for Good Clinical Practice."

Mercer University IRB & Office of Research Compliance
Phone: 478-301-4101 | Email: ORC_Mercer@Mercer.Edu | Fax: 478-301-2329
1501 Mercer University Drive, Macon, Georgia 31207-0001

IRB Agreement to external research with EU community participants

Eastern IRB <irb@eastern.edu>
Wed 10/25/2023 2:32 PM
To:Kwanza Thomas <Kwanza.Thomas@usm.edu>

Dear Kwanza Thomas,

Thank you for submitting your external research project to the Eastern University Institutional Review Board (EUIRB) for evaluation.

Based on the approval of your Institutional Review Board and our review, we are pleased to agree that your research move forward with under these conditions:

1. As with any research conducted on members of our community, a condition of our participation is that we are given a copy of the final results, at no cost to us, so that we may use those results internally as best fits our institutional needs. These may be shared with us at irb@eastern.edu.

2. This agreement does not give permission for the institution to be identified in the dissemination of the results.

3. Please make sure you follow the research procedures you described in your application when you conduct your research. Report to the IRB for any ethical issues, violations, or complaints. This approval is effective for a year and will expire one year from the date on this notice.

You may contact Denise Vanacore to discuss your request for participation with the ASBN program: denise.vanacore@eastern.edu.

Note: An approval by the EUIRB signifies only that the proposal adequately satisfies requirements for the protection of research participants. It does not imply, indirectly or directly, any institutional support or permission to conduct the study.

Sincerely,

The IRB

IRB Chair: Erin Rappuhn, Ph.D.
Assistant IRB Chair: Jarrett Henderson, Psy.D.
Eastern University Institutional Review Board
irb@eastern.edu

UNIVERSITY OF ST. THOMAS

Institutional Review Board Decision Letter

Date: 2 July 2023

IRB #: 2023_037

Name of Applicant: Kwanza Thomas

Title of Study: The Association Between Emotional Intelligence, Empathy, And Social Determinants of Health Among Accelerated Bachelor of Science in Nursing Students: A Multi-State Cross-Sectional Descriptive Study

Dear researcher,

Thank you for submitting your application to the University of St. Thomas Institutional Review Board for review. Your application status appears below. *Items to address (if any) are included on the next page; please review them carefully before responding.*

Review Category:

☐ **Exempt.** Your study meets criteria for research that is exempt from IRB review. No additional action is needed, and you may begin data collection.

☒ **Expedited.** Your study meets criteria for expedited review. The IRB Chair or designee has reviewed the application, and your status is indicated below.

☐ **Full Review.** Your study meets criteria for full review. The IRB members have reviewed the application, and your status is indicated below.

Application Status:

☒ **Approved.** No additional action is needed, and you may begin data collection.

☐ **Contingently approved.** Documentation of additional permission(s) and/or other action is required before you may begin data collection. See next page for details.

☐ **Revise and resubmit.** Your application requires revisions. Resubmit your application with a cover letter explaining your response to each revision requirement, and highlight the changes in the application itself. See next page for details.

☐ **Reject.** The IRB has substantial concerns about your application. You are invited to contact the IRB Chair to schedule a time to discuss the concerns at a future IRB meeting. See next page for details.

UNIVERSITY OF ST. THOMAS

Institutional Review Board Decision Letter

Items to Address:

Next Steps:

- If your application status is contingently approved or revise and resubmit, address the items above and submit any additional documentation or revision with cover letter to the IRB. If your application status is rejected, contact the IRB Chair to schedule a meeting.
- The approval period is one year from the date on this document. If you wish to receive an extension, please submit an extension request.
- Submit an amendment form prior to making any changes to your study procedures.
- If an unanticipated problem related to the research occurs, contact the IRB Chair as soon as possible.

If you have any questions, please contact me at 713-942-5943 or IRB@stthom.edu

Sincerely,

Victoria Wagner

Victoria Wagner, PhD
Chair, Institutional Review Board

APPENDIX B – Questionnaire

1. What is your age group?
    a. 18 to 24
    b. 25 to 29
    c. 30 to 39
    d. 40 to 49
    e. 50 to 59
    f. 60 or over
    g. Prefer not to respond.

2. Which gender best describes you?
    a. Male
    b. Female
    c. Transgender
    d. Non-binary/non-conforming
    e. Prefer not to respond.

3. Which race best describes you?
    a. American Indian or Alaska Native
    b. Asian
    c. Black or African American
    d. Native Hawaiian or Other Pacific Islander
    e. White/Caucasian
    f. Two or more
    g. Prefer not to respond.

4. Which ethnicity best describes you?
    a. Hispanic, Latin(a/o), Latinx
    b. Not Hispanic, Latin(a/o), Latinx
    c. Prefer not to respond.

5. Which best describes your marital status?
    a. Single never married.
    b. Single cohabitating
    c. Married
    d. Separated
    e. Divorced
    f. Widowed

6. Which best describes your caregiver status?
    a. I am a caregiver for my child(ren)
    b. I am a caregiver for my parents.
    c. I am a caregiver for other relatives/loved ones.
    d. I am not a caregiver.

7. Which best describes your employment status?
    a. Employed full-time.
    b. Employed part-time.
    c. Employed less than part-time.
    d. Not employed

8. Which best describes your household income?
    a. Less than $9,999
    b. $10,000 – $19,999
    c. $20,000 – $39,999
    d. $40,000 – $59,999
    e. $60,000 – $79,000
    f. $80,000 – $99,999
    g. $100,000 or more

9. In which field did you obtain your first bachelor's degree?
    a. Arts and Humanities (music, art, philosophy, religion, languages, literature)
    b. Business (accounting, finance, economics, marketing, human resources)
    c. Interdisciplinary Health Science (exercise science, kinesiology, sports & fitness, physical therapy)
    d. Social Sciences (psychology, social work, criminology, education, political science)
    e. STEM (biology, chemistry, engineering, animal sciences, computer science, information science, public health, astronomy)
    f. Other

10. Do you have previous work experience working in a healthcare or hospital setting?
    a. I have previous experience working in a hospital setting.
    b. I have previous experience working in a healthcare setting.
    c. I do not have previous experience working in a healthcare or hospital setting.

11. In which state is your ABSN program located?
    a. Georgia
    b. Pennsylvania
    c. Texas

12. In which semester of the nursing program are you enrolled?
    a. 1
    b. 2
    c. 3

13. How many nursing clinical rotations (not hours) have you completed?

a. 0-1
b. 2-3
c. 4-5
d. 6 or more

APPENDIX C – Situational Test of Emotional Management – Brief (STEM–B)

Situational Test of Emotion Management - Brief (STEM-B)

Reference:
Allen, V. D., Rahman, N., Weissman, A., MacCann, C., & Roberts, R. D. (2014, submitted). Development and Validation of the Situational Test of Emotional Management – Brief (STEM-B) Using Item Response Theory and Latent Class Analysis. *Personality and Individual Differences*. [Short Form]
MacCann, C., & Roberts, R. D. (2008). New Paradigms for Assessing Emotional Intelligence: Theory and Data. *Emotion, 8,* 540-551. [Long form]

Description: This situational judgment test assesses emotion management, a key component of emotional intelligence. In each item, the test-taker is required to select the most effective response to manage an emotional situation. The long form consists of 44 items and the short form consists of 18 items.

Test development. The test was developed based on qualitative analysis of semi-structured interviews, and is scored by expert judgment. For more information on test development, see MacCann and Roberts (2008).

Reliability. The Cronbach's alpha for the short form is 0.84.

Instructions (multiple-choice form)

In this test, you will be presented with a few brief details about an emotional situation, and asked to choose from four responses the most effective course of action to manage both the emotions the person is feeling and the problems they face in that situation.

Although more than one course of action might be acceptable, you are asked to choose what you think the most effective response for that person in that situation would be.

Remember, you are not necessarily choosing what you would do, or the nicest thing to do, but choosing the most effective response for that situation.

Test items

1. Wai-Hin and Connie have shared an office for years but Wai-Hin gets a new job and Connie loses contact with her. *What action would be the most effective for Connie?*
(a) Just accept that she is gone and the friendship is over.
(b) Ring Wai-Hin and ask her out for lunch or coffee to catch up.
(c) Contact Wai-Hin and arrange to catch up but also make friends with her replacement.
(d) Spend time getting to know the other people in the office, and strike up new friendships.

2. Manual is only a few years from retirement when he finds out his position will no longer exist, although he will still have a job with a less prestigious role. *What action would be the most effective for Manual?*
(a) Carefully consider his options and discuss it with his family.
(b) Talk to his boss or the management about it.
(c) Accept the situation, but still feel bitter about it.
(d) Walk out of that job.

3. Surbhi starts a new job where he doesn't know anyone and finds that no one is particularly friendly. *What action would be the most effective for Surbhi?*
(a) Have fun with his friends outside of work hours.
(b) Concentrate on doing his work well at the new job.
(c) Make an effort to talk to people and be friendly himself.
(d) Leave the job and find one with a better environment.

4. Andre moves away from the city his friends and family are in. He finds his friends make less effort to keep in contact than he thought they would. *What action would be the most effective for Andre?*
(a) Try to adjust to life in the new city by joining clubs and activities there.
(b) He should make the effort to contact them, but also try to meet people in his new city.
(c) Let go of his old friends, who have shown themselves to be unreliable.
(d) Tell his friends he is disappointed in them for not contacting him.

5. Clayton has been overseas for a long time and returns to visit his family. So much has changed that Clayton feels left out. *What action would be the most effective for Clayton?*
(a) Nothing – it will sort itself out soon enough.
(b) Tell his family he feels left out.
(c) Spend time listening and getting involved again.
(d) Reflect that relationships can change with time.

6. Daniel has been accepted for a prestigious position in a different country from his family, who he is close to. He and his wife decide it is worth relocating. *What action would be the most effective for Daniel?*
(a) Realize he shouldn't have applied for the job if he didn't want to leave.
(b) Set up a system for staying in touch, like weekly phone calls or emails.
(c) Think about the great opportunities this change offers.
(d) Don't take the position.

7. Mei Ling answers the phone and hears that close relatives are in hospital critically ill. *What action would be the most effective for Mei Ling?*
(a) Let herself cry and express emotion for as long as she feels like.
(b) Speak to other family to calm herself and find out what is happening, then visit the hospital.
(c) There is nothing she can do.
(d) Visit the hospital and ask staff about their condition.

8. Shona has not spoken to her nephew for months, whereas when he was younger they were very close. She rings him but he can only talk for five minutes. *What action would be the most effective for Shona?*
(a) Realize that he is growing up and might not want to spend so much time with his family any more.
(b) Make plans to drop by and visit him in person and have a good chat.
(c) Understand that relationships change, but keep calling him from time to time.
(d) Be upset about it, but realize there is nothing she can do.

9. Mina and her sister-in-law normally get along quite well, and the sister-in-law regularly baby-sits for her for a small fee. Lately she has also been cleaning away cobwebs, commenting on the mess, which Mina finds insulting. *What action would be the most effective for Mina?*
(a) Tell her sister-in-law these comments upset her.
(b) Get a new babysitter.
(c) Be grateful her house is being cleaned for free.
(d) Tell her only to baby-sit, not to clean.

10. Juno is fairly sure his company is going down and his job is under threat. It is a large company and nothing official has been said. *What action would be the most effective for Juno?*
(a) Find out what is happening and discuss his concerns with his family.
(b) Try to keep the company afloat by working harder.
(c) Start applying for other jobs.
(d) Think of these events as an opportunity for a new start.

11. Mallory moves from a small company to a very large one, where there is little personal contact, which she misses. *What action would be the most effective for Mallory?*
(a) Talk to her workmates, try to create social contacts and make friends.
(b) Start looking for a new job so she can leave that environment.
(c) Just give it time, and things will be okay.
(d) Concentrate on her outside-work friends and colleagues from previous jobs.

12. A demanding client takes up a lot of Jill's time and then asks to speak to Jill's boss about her performance. Although Jill's boss assures her that her performance is fine, Jill feels upset. *What action would be the most effective for Jill?*
(a) Talk to her friends or workmates about it.
(b) Ignore the incident and move on to her next task.
(c) Calm down by taking deep breaths or going for a short walk.
(d) Think that she has been successful in the past and this client being difficult is not her fault.

13. Blair and Flynn usually go to a cafe after the working week and chat about what's going on in the company. After Blair's job is moved to a different section in the company, he stops coming to the cafe. Flynn misses these Friday talks. *What action would be the most effective for Flynn?*
(a) Go to the cafe or socialize with other workers.
(b) Don't worry about it, ignore the changes and let Blair be.
(c) Not talk to Blair again.
(d) Invite Blair again, maybe rescheduling for another time.

14. Michelle's friend Dara is moving overseas to live with her partner. They have been good friends for many years and Dara is unlikely to come back. *What action would be the most effective for Michelle?*
(a) Forget about Dara.
(b) Spend time with other friends, keeping herself busy.
(c) Think that Dara and her partner will return soon.
(d) Make sure she keeps in contact through email, phone or letter writing.

15. Hannah's access to essential resources has been delayed and her work is way behind schedule. Her progress report makes no mention of the lack of resources. *What action would be the most effective for Hannah?*
(a) Explain the lack of resources to her boss or to management.
(b) Learn that she should plan ahead for next time.
(c) Document the lack of resources in her progress report.
(d) Don't worry about it.

16. Reece's friend points out that her young children seem to be developing more quickly than Reece's. Reece sees that this is true. *What action would be the most effective for Reece?*
(a) Talk the issue over with another friend.
(b) Angrily confront her friend about making such statements.
(c) Realize that children develop at different rates.
(d) Talk to a doctor about what the normal rates of development are.

17. Jumah has been working at a new job part-time while he studies. His shift times for the week are changed at the last minute, without consulting him. *What action would be the most effective for Jumah?*
(a) Refuse to work the new shifts.
(b) Find out if there is some reasonable explanation for the shift changes.
(c) Tell the manager in charge of shifts that he is not happy about it.
(d) Grumpily accept the changes and do the shifts.

18. Julie hasn't seen Ka for ages and looks forward to their weekend trip away. However, Ka has changed a lot and Julie finds that she is no longer an interesting companion. *What action would be the most effective for Julie?*
(a) Cancel the trip and go home.
(b) Realize that it is time to give up the friendship and move on.
(c) Understand that people change, so move on, but remember the good times.
(d) Concentrate on her other, more rewarding friendships.

Scoring the multiple-choice STEM in SPSS

The following SPSS syntax can be used to score the 44 items of the multiple-choice STEM. This assumes that the variable names for the items are STEM01, STEM02, STEM03, STEM04 etc up to STEM18, and that the responses are coded as A=1, B=2, C=3, and D=4.

```
IF STEM01 = 1 STEM_R01 = 0 .
IF STEM01 = 2 STEM_R01 = 0 .
IF STEM01 = 3 STEM_R01 = 0.916666667 .
IF STEM01 = 4 STEM_R01 = 0.083333333 .

IF STEM02 = 1 STEM_R02 = 0.75 .
IF STEM02 = 2 STEM_R02 = 0.25 .
IF STEM02 = 3 STEM_R02 = 0 .
IF STEM02 = 4 STEM_R02 = 0 .

IF STEM03 = 1 STEM_R03 = 0 .
IF STEM03 = 2 STEM_R03 = 0.166666667 .
IF STEM03 = 3 STEM_R03 = 0.833333333 .
IF STEM03 = 4 STEM_R03 = 0 .

IF STEM04 = 1 STEM_R04 = 0 .
IF STEM04 = 2 STEM_R04 = 1 .
IF STEM04 = 3 STEM_R04 = 0 .
IF STEM04 = 4 STEM_R04 = 0 .

IF STEM05 = 1 STEM_R05 = 0 .
IF STEM05 = 2 STEM_R05 = 0.166666667 .
IF STEM05 = 3 STEM_R05 = 0.75 .
IF STEM05 = 4 STEM_R05 = 0.083333333 .

IF STEM06 = 1 STEM_R06 = 0 .
IF STEM06 = 2 STEM_R06 = 0.833333333 .
IF STEM06 = 3 STEM_R06 = 0.166666667 .
IF STEM06 = 4 STEM_R06 = 0 .

IF STEM07 = 1 STEM_R07 = 0.083333333 .
IF STEM07 = 2 STEM_R07 = 0.916666667 .
IF STEM07 = 3 STEM_R07 = 0 .
IF STEM07 = 4 STEM_R07 = 0 .

IF STEM08 = 1 STEM_R08 = 0 .
IF STEM08 = 2 STEM_R08 = 0.25 .
IF STEM08 = 3 STEM_R08 = 0.75 .
IF STEM08 = 4 STEM_R08 = 0 .

IF STEM09 = 1 STEM_R09 = 0.75 .
IF STEM09 = 2 STEM_R09 = 0 .
IF STEM09 = 3 STEM_R09 = 0.166666667 .
IF STEM09 = 4 STEM_R09 = 0.083333333 .

IF STEM10 = 1 STEM_R10 = 0.75 .
IF STEM10 = 2 STEM_R10 = 0 .
IF STEM10 = 3 STEM_R10 = 0.25 .
IF STEM10 = 4 STEM_R10 = 0 .
```

```
IF STEM11 = 1 STEM_R11 = 0.916666667 .
IF STEM11 = 2 STEM_R11 = 0 .
IF STEM11 = 3 STEM_R11 = 0 .
IF STEM11 = 4 STEM_R11 = 0.083333333 .

IF STEM12 = 1 STEM_R12 = 0 .
IF STEM12 = 2 STEM_R12 = 0 .
IF STEM12 = 3 STEM_R12 = 0.083333333 .
IF STEM12 = 4 STEM_R12 = 0.916666667 .

IF STEM13 = 1 STEM_R13 = 0.166666667 .
IF STEM13 = 2 STEM_R13 = 0 .
IF STEM13 = 3 STEM_R13 = 0 .
IF STEM13 = 4 STEM_R13 = 0.833333333 .

IF STEM14 = 1 STEM_R14 = 0 .
IF STEM14 = 2 STEM_R14 = 0.083333333 .
IF STEM14 = 3 STEM_R14 = 0 .
IF STEM14 = 4 STEM_R14 = 0.916666667 .

IF STEM15 = 1 STEM_R15 = 0.166666667 .
IF STEM15 = 2 STEM_R15 = 0 .
IF STEM15 = 3 STEM_R15 = 0.833333333 .
IF STEM15 = 4 STEM_R15 = 0 .

IF STEM16 = 1 STEM_R16 = 0 .
IF STEM16 = 2 STEM_R16 = 0 .
IF STEM16 = 3 STEM_R16 = 0.25 .
IF STEM16 = 4 STEM_R16 = 0.75 .

IF STEM17 = 1 STEM_R17 = 0 .
IF STEM17 = 2 STEM_R17 = 0.75 .
IF STEM17 = 3 STEM_R17 = 0.25 .
IF STEM17 = 4 STEM_R17 = 0 .

IF STEM18 = 1 STEM_R18 = 0 .
IF STEM18 = 2 STEM_R18 = 0 .
IF STEM18 = 3 STEM_R18 = 0.916666667 .
IF STEM18 = 4 STEM_R18 = 0.083333333 .
```

APPENDIX D – Situational Test of Emotional Understanding – Brief (STEU–B)

Items from the Situational Test of Emotional Understanding (STEU)

Reference:
Allen, V. D., Weissman, A., Hellwig, S., MacCann, C., & Roberts, R. D. (2014). Development of the Situational Test of Emotional Understanding – Brief (STEU-B) using Item Response Theory. *Personality and Individual Differences, 65,* 3-7. [Short Form]
MacCann, C., & Roberts, R. D. (2008). New Paradigms for Assessing Emotional Intelligence: Theory and Data. *Emotion, 8,* 540-551. [Long Form]

Description of test. This test assesses emotion understanding, a key component of emotional intelligence. In each item, the test-taker is required to choose which of five emotions is most likely to result from an emotional situation. The long form consists of 42 items and the short form consist of 19 items.

Test development. Roseman's (2001) appraisal theory was as the basis for item construction and scoring of the STEU. For more information on test development, see MacCann and Roberts (2008).

Reliability. This Cronbach's alpha for the short form of this test is .63 (Allen et al., 2013).

Instructions
The following questions each describe a situation, and ask you to choose which of five emotions is most likely to result from that situation.

Here is an example:

Clara receives a gift. Clara is most likely to feel?
(a) happy (b) angry (c) frightened (d) bored (e) hungry

If you think Clara would feel happy, you would mark option A and then move to the next question. There are 19 questions.

Test items

1. Xavier completes a difficult task on time and under budget. *Xavier is most likely to feel?*
(a) Surprise
(b) Pride
(c) Relief
(d) Hope
(e) Joy

2. If the current situation continues, Denise's employer will probably be able to move her job to a location much closer to her home, which she really wants. *Denise is most likely to feel?*
(a) Distress
(b) Joy
(c) Surprise
(d) Hope

(b) Excitement
(c) Contempt
(d) Shame
(e) Horror

4. Charles is meeting a friend to see a movie. The friend is very late and they are not in time to make it to the movie. *Charles is most likely to feel?*
(a) Depressed
(b) Frustrated
(c) Angry
(d) Contemptuous
(e) Distressed

5. Someone believes that another person harmed them on purpose. There is not a lot that can be done to make things better. *The person involved is most likely to feel?*
(a) Dislike
(b) Rage
(c) Jealousy
(d) Surprise
(e) Anxiety

6. Jim enjoys spending Saturdays playing with his children in the park. This year they have sporting activities on Saturdays and cannot go to the park with him any more. *Jim is most likely to feel?*
(a) Angry
(b) Sad
(c) Frustrated
(d) Distressed
(e) Ashamed

7. Megan is looking to buy a house. Something happened and she felt regret. *What is most likely to have happened?*
(a) She didn't make an offer on a house she wanted, and now she is trying to find out if it is too late.
(b) She found a house she liked that she didn't think she would find.
(c) She couldn't make an offer on a house she liked because the bank didn't get her the money in time.
(d) She didn't make an offer on a house she liked and now someone else has bought it.
(e) She made an offer on a house and is waiting to see if it is accepted.

8. Mary was working at her desk. Something happened that caused her to feel surprised. *What is most likely to have happened?*
(a) Her work-mate told a silly joke.
(b) She was working on a new task she hadn't dealt with before.
(c) She found some results that were different from what she thought they would be.
(d) She realized she would not be able to complete her work.
(e) She had to do a task she didn't normally do at work.

9. Someone thinks that another person has deliberately caused something good to happen to them. *They are most likely to feel?*
(a) Hope
(b) Pride
(c) Gratitude
(d) Surprise
(e) Relief

10. By their own actions, a person reaches a goal they wanted to reach. *The person is most likely to feel?*
(a) Joy
(b) Hope
(c) Relief
(d) Pride
(e) Surprise

11. An unwanted situation becomes less likely or stops altogether. *The person involved is most likely to feel?*
(a) Regret
(b) Hope
(c) Joy
(d) Sadness
(e) Relief

12. Hasad tries to use his new mobile phone. He has always been able to work out how to use different appliances, but he cannot get the phone to function. *Hasad is most likely to feel?*
(a) Distressed
(b) Confused
(c) Surprised
(d) Relieved
(e) Frustrated

13. Dorian's friend is ill and coughs all over him without bothering to turn away or cover his mouth. *Dorian is most likely to feel?*
(a) Anxiety
(b) Dislike
(c) Surprise
(d) Jealousy
(e) Rage

14. Quan and his wife are talking about what happened to them that day. Something happened that caused Quan to feel surprised. *What is most likely to have happened?*
(a) His wife talked a lot, which did not usually happen.
(b) His wife talked about things that were different to what they usually discussed.
(c) His wife told him that she might have some bad news.
(d) His wife told Quan some news that was not what he thought it would be.
(e) His wife told a funny story.

15. A supervisor who is unpleasant to work for leaves Alfonso's work. *Alfonso is most likely to feel?*
(a) Joy
(b) Hope
(c) Regret
(d) Relief
(e) Sadness

16. The nature of Sara's job changes due to unpredictable factors and she no longer gets to do the portions of her work that she most enjoyed. *Sara is most likely to feel?*
(a) Ashamed
(b) Sad
(c) Angry
(d) Distressed
(e) Frustrated

17. Leila has been unable to sleep well lately and there are no changes in her life that might indicate why. *Leila is most likely to feel?*
(a) Angry
(b) Scared
(c) Sad
(d) Distressed
(e) Guilty

18. Someone believes another person has deliberately caused something good to stop happening to them. However, they feel they can do something about it. *They are most likely to feel?*
(a) Angry
(b) Contemptuous
(c) Distress
(d) Depressed
(e) Frustrated

19. Matthew has been at his current job for six months. Something happened that caused him to feel regret. *What is most likely to have happened?*
(a) He did not apply for a position he wanted, and has found out that someone else less qualified got the job.
(b) He did not apply for a position he wanted, and has started looking for a similar position.
(c) He found out that opportunities for promotion have dried up.
(d) He found out that he didn't get a position he thought he would get.
(e) He didn't hear about a position he could have applied for and now it is too late.

Scoring the STEU in SPSS

The following SPSS syntax can be used to score the 19 items of the STEU. This assumes that the variable names for the items are STEU01, STEU02, STEU03, STEU04 etc up to STEU19, and that the responses are coded as A=1, B=2, C=3, D=5, and E=5.

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RECODE STEU02 (1=0) (2=0) (3=0) (4=1) (5=0) INTO STEU_R02.
RECODE STEU03 (1=0) (2=0) (3=1) (4=0) (5=0) INTO STEU_R03.
RECODE STEU04 (1=0) (2=0) (3=1) (4=0) (5=0) INTO STEU_R04.
RECODE STEU05 (1=1) (2=0) (3=0) (4=0) (5=0) INTO STEU_R05.
RECODE STEU06 (1=0) (2=1) (3=0) (4=0) (5=0) INTO STEU_R06.
RECODE STEU07 (1=0) (2=0) (3=0) (4=1) (5=0) INTO STEU_R07.
RECODE STEU08 (1=0) (2=0) (3=1) (4=0) (5=0) INTO STEU_R08.
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RECODE STEU13 (1=0) (2=1) (3=0) (4=0) (5=0) INTO STEU_R13.
RECODE STEU14 (1=0) (2=0) (3=0) (4=1) (5=0) INTO STEU_R14.
RECODE STEU15 (1=0) (2=0) (3=0) (4=1) (5=0) INTO STEU_R15.
RECODE STEU16 (1=0) (2=1) (3=0) (4=0) (5=0) INTO STEU_R16.
RECODE STEU17 (1=0) (2=0) (3=0) (4=1) (5=0) INTO STEU_R17.
RECODE STEU18 (1=1) (2=0) (3=0) (4=0) (5=0) INTO STEU_R18.
RECODE STEU19 (1=1) (2=0) (3=0) (4=0) (5=0) INTO STEU_R19.
```

APPENDIX E – Author Permission

Kiersma-Chen Empathy Scale – Revised (KCES–R)

Re: KCES-R

Chen, Aleda M <amchen@cedarville.edu>
Mon 4/3/2023 10:34 AM

To:Kwanza Thomas <Kwanza.Thomas@usm.edu>
Cc:Benjamin Aronson <benjamin.aronson@findlay.edu>;Mary Kiersma <mkiersma@acpe-accredit.org>

2 attachments (182 KB)
KCES-R Modifiable Scale.docx; KCES-R Scoring Updated.pdf;

Kwanza,

Thanks for sharing about your project! It sounds interesting! I have attached a copy of the KCES-R (modifiable for your specific target patient population) and scoring instructions. As a note, we did update the KCES recently to the KCES-R. We have a patient (validation study published) and rater (validation study in progress) version as well if that is something you would be interested in. (Sounds like the KCES-R is all you need.)

We do not charge for use of the scale; however, we do ask that you share the KCES-R data (de-identified) for further scale validation (if possible) as well as cite us in any manuscript or publication (https://doi.org/10.5688/ajpe8685).

Please let me know if you have any questions.

Thanks,

Aleda

Aleda M. H. Chen, PharmD, PhD, FAPhA
Professor and Associate Dean (Assessment & Research)
School of Pharmacy
Cedarville University
o: 937-766-7454
f: 937-766-7410
cedarville.edu/pharmacy

APPENDIX F – Kiersma-Chen Empathy Scale – Revised (KCES–R)

KCES-R

The following questions pertain to your attitudes and feelings **toward patients**. Please mark the circle on the scale below that best represents your response.

Section 1. How necessary is it for healthcare professionals to be able to…

	Unnecessary			Moderately necessary			Extremely Necessary
1. Comprehend patient's experiences.	○	○	○	○	○	○	○
2. Express an understanding of patient's feelings.	○	○	○	○	○	○	○
3. Value patient's point of view.	○	○	○	○	○	○	○
4. Consider patient's feelings to provide patient-centered care.	○	○	○	○	○	○	○
5. Be caring in order to build a strong relationship with patients.	○	○	○	○	○	○	○
6. Identify with patient's feelings.	○	○	○	○	○	○	○
7. View the world from the patient's perspective.	○	○	○	○	○	○	○

Section 2. I am able to…

	Does not describe me			Describes me moderately well			Describes me extremely well
8. Comprehend patient's experiences.	○	○	○	○	○	○	○
9. Express an understanding of patient's feelings.	○	○	○	○	○	○	○
10. Value patient's point of view.	○	○	○	○	○	○	○
11. Consider patient's feelings to provide patient-centered care.	○	○	○	○	○	○	○
12. Be caring in order to build a strong relationship with patients.	○	○	○	○	○	○	○
13. Identify with patient's feelings.	○	○	○	○	○	○	○
14. View the world from patient's perspective.	○	○	○	○	○	○	○

APPENDIX G – American Academy of Family Physicians (AAFP) Social Needs Screening Tool

AAFP
AMERICAN ACADEMY OF FAMILY PHYSICIANS

Social Needs Screening Tool

HOUSING

1. Are you worried or concerned that in the next two months you may not have stable housing that you own, rent, or stay in as a part of a household?[1]
   - ☐ Yes
   - ☐ No

2. Think about the place you live. Do you have problems with any of the following? (check all that apply)[2]
   - ☐ Bug infestation
   - ☐ Mold
   - ☐ Lead paint or pipes
   - ☐ Inadequate heat
   - ☐ Oven or stove not working
   - ☐ No or not working smoke detectors
   - ☐ Water leaks
   - ☐ None of the above

FOOD

3. Within the past 12 months, you worried that your food would run out before you got money to buy more.[3]
   - ☐ Often true
   - ☐ Sometimes true
   - ☐ Never true

4. Within the past 12 months, the food you bought just didn't last and you didn't have money to get more.[3]
   - ☐ Often true
   - ☐ Sometimes true
   - ☐ Never true

TRANSPORTATION

5. Do you put off or neglect going to the doctor because of distance or transportation?[1]
   - ☐ Yes
   - ☐ No

UTILITIES

6. In the past 12 months has the electric, gas, oil, or water company threatened to shut off services in your home?[4]
   - ☐ Yes
   - ☐ No
   - ☐ Already shut off

CHILD CARE

7. Do problems getting child care make it difficult for you to work or study?[5]
   - ☐ Yes
   - ☐ No

EMPLOYMENT

8. Do you have a job?[6]
   - ☐ Yes
   - ☐ No

EDUCATION

9. Do you have a high school degree?[6]
   - ☐ Yes
   - ☐ No

FINANCES

10. How often does this describe you? I don't have enough money to pay my bills:[7]
    - ☐ Never
    - ☐ Rarely
    - ☐ Sometimes
    - ☐ Often
    - ☐ Always

PERSONAL SAFETY

11. How often does anyone, including family, physically hurt you?[8]
    - ☐ Never (1)
    - ☐ Rarely (2)
    - ☐ Sometimes (3)
    - ☐ Fairly often (4)
    - ☐ Frequently (5)

12. How often does anyone, including family, insult or talk down to you?[8]
    - ☐ Never (1)
    - ☐ Rarely (2)
    - ☐ Sometimes (3)
    - ☐ Fairly often (4)
    - ☐ Frequently (5)

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Advancing health equity in every community

13. How often does anyone, including family, threaten you with harm?[8]
    - ☐ Never (1)
    - ☐ Rarely (2)
    - ☐ Sometimes (3)
    - ☐ Fairly often (4)
    - ☐ Frequently (5)

14. How often does anyone, including family, scream or curse at you?[8]
    - ☐ Never (1)
    - ☐ Rarely (2)
    - ☐ Sometimes (3)
    - ☐ Fairly often (4)
    - ☐ Frequently (5)

ASSISTANCE

15. Would you like help with any of these needs?
    - ☐ Yes
    - ☐ No

SCORING INSTRUCTIONS:

For the housing, food, transportation, utilities, child care, employment, education, and finances questions: Underlined answers indicate a positive response for a social need for that category.

For the personal safety questions: A value greater than 10, when the numerical values are summed for answers to these questions, indicates a positive response for a social need for personal safety.

Sum of questions 11–14: _____
Greater than 10 equals positive screen for personal safety.

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