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Title: *Benchmarking Emotional Intelligence in an Allied Health Science Program*

The accompanying research report is submitted to the **University of Wisconsin-Stout, Graduate School** in partial completion of the requirements for the

Graduate Degree/ Major: MS Degree, Career and Technical Education

Research Advisor: Dr. Urs Haltinner, EdD

Submission Term/Year: Summer 2016

Number of Pages: 53

Style Manual Used: American Psychological Association, 6th edition

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Nichols, Heidi M. *Benchmarking Emotional Intelligence in an Allied Health Science Program*

Abstract

The healthcare reimbursement methodologies are rapidly changing the face of medicine. Prior research indicates Emotional Intelligence (EI) is an important attribute for individuals serving patients and has a significant impact on interpersonal relationships which is directly related to patient satisfaction. Based on literature, academic grades and cognitive ability alone will not identify long-term success in the workforce, emotional intelligence assessments are recommended to gain a better perspective of the student's emotional abilities (Becker, 2011). This study aims to illuminate relationships concentrated on EI and the extent to which EI is a good predictor of desired attributes in aspiring healthcare professionals. A total of thirty seven subjects with varying degrees of healthcare experience were categorized into three groups. Sixty-eight percent of subjects are female, 95% White and ranged in age from 19 years to 45 years ($M=27.5$, $SD=6.9$). Using data from both the traditional assessment of intelligence by Health Education System Incorporated (HESI) and emotional intelligence based on the Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT), no significant relationship was found between the two assessments. As predicted, emotional intelligence is a better indicator of emotional and physical performance in a healthcare facility and academic ability is predicted effectively by the HESI assessment.

Acknowledgments

Much gratitude to my husband Philip and two children, Joseph and Mya, who patiently supported me as I worked endless hours to pursue my educational goals. Their support, love, and understanding is the reason this project is now complete. I strive to be a role model, let this serve as a reminder that you can reach your dreams through sacrifice, hard work, and dedication.

I would like to thank my parents, Pat and Charlene, for being an example of what sacrifice, hard work, and dedication should look like. Instilling a strong work ethic into me at a young age has truly paid off. Reflecting back, I am grateful for the hard lessons along the way, these only made me stronger. Dad, even though you are now watch, protect, and guide from above you are still very much in my daily thoughts!

A very special thank you to Marianne Rhodes who has been my mentor for several years through my trailblazing journey. You set the standard extremely high! Without your endless support this goal would not have been achieved. Never once were you too busy to listen or assist. Words alone cannot express the gratitude I have towards you!

To Dr. Haltinner: Thank you for connecting with me and supporting my research. Your gentle demeanor has allowed me to be open and comfortable with this project. The feedback, suggestions, and guidance you have provided are greatly appreciated. I could not be more excited to begin the next chapter in my educational pursuit with you as my program director! Thank you for giving me an opportunity to continue on the treadmill. Here's to another three years!

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Chapter I: Introduction

Patient satisfaction has become a key factor in determining health insurance reimbursements. The Centers for Medicare and Medicaid Services (CMS) initiated patient satisfaction scores and outcome-based models in determining reimbursement methodologies beginning around 2008 (Centers for Medicare and Medicaid Services, n.d). Achieving high patient satisfaction scores is an important goal of healthcare organizations as it has a direct impact on their return on investment.

The patient satisfaction metric is significantly influenced by those practitioners closest to the patient. For this reason it is important to understand healthcare front line employees and their ability to engage with, advocate, and serve their patients in a thoughtful and caring manner. The caregiver's emotional intelligence (EI) is one factor affecting the patient care experience.

Emotional intelligence is defined by Cadman and Brewer (2001) as one's ability to use emotions as guiding behavior to heighten effectiveness and outcomes. Examples of EI are demonstrated by social skills, empathy, self-control, discipline, determination, and motivation which together work to create positive experiences and increase retention in the workplace (Cadman & Brewer, 2001).

This relatively new form of psychology was introduced in the 1990's by Mayer and Salovey. The concept was further refined by the same researchers years later with the additional categorization of EI in four distinct areas identified as:

[1] the ability to perceive accurately, appraise, and express emotion; [2] the ability to access and/or generate feelings when they facilitate thought; [3] the ability to understand emotion and emotional knowledge; and [4] the ability to regulate emotion to promote emotional and intellectual growth. (Salovey, Brackett & Mayer, 2007, p. 35)

These divisions directly relate to an individual's ability to adapt to change, provide empathy and work collaboratively which are all desired traits for students in Allied Health Science programs.

Healthcare organizations identify EI to be a foundation for patient satisfaction. An expectation for healthcare professionals is to establish relationships with patients and assess their needs. Healthcare professionals with low EI struggle to develop patient bonds which may result in decreased patient satisfaction (Cadman & Brewer, 2001). Allied Health Science program students are expected to perform patient care tasks in an effort to meet the patients' expectations. If students have a low EI, their ability to establish the necessary patient relationships may be negatively affected.

In addition, medical professionals providing direct patient care must have the ability to appreciate differing patient desires and still communicate effectively (Mcqueen, 2004). Personnel should be able to manage and understand their own emotions and needs in order to assist patients in dealing with difficult, emotionally-charged situations. Human resource (HR) departments in healthcare settings developed training programs for current employees structured around EI management of interactions and performance with recompense (Gabriel, Cheshin, Moran, & Van Kleef, 2016). In addition, HR departments deployed pre-employment screenings to identify EI traits for future recruitment efforts (Rogers, 2014).

Dulewicz and Higgs (2004) concluded there was evidence supporting the belief that EI could be taught or further developed to increase individual success and improve skillsets. The ability to measure EI is demonstrated by the emotional quotient (EQ) which Kunnanatt (2004) suggests is very similar to measuring traditional intelligence or intelligence quotient (IQ) and identifies several common measuring instruments such as Emotional Competence Inventory (ECI), Bar-On's EQ-I, and Seligman Attributional Style Questionnaire. These measuring tools

are accessible online and could be used to predict student success in a clinical setting if health science programs would utilize this assessment in the student admission process.

Since EI is desired by employers and is being taught to incumbent workers in healthcare facilities, it is appropriate for colleges who are preparing students for employability to consider EI training within healthcare programs. Lyon, Trotter, Holt, Powell, and Roe (2013) suggests using an assortment of methods in recruitment of potential healthcare students. Currently, prospective students complete a pre-admission Health Education Systems Inc. (HESI) examination to assess academic and personal readiness. The examination calculates a composite score based on student ability in general subjects such as Math, Reading and comprehension and the score is used as one of the components for admission to health care programs.

Screening for EI is already part of the admissions criteria for certain healthcare fields. For example, a multi-institutional study indicated EI assessment is already used in the selection process for medical students as a desirable feature for future physicians (Naeem et al., 2014). This evidence demonstrates the importance EI is already playing in healthcare programs.

Murray, Merriman, and Adamson (2008) concluded the HESI exam demonstrated a positive correlation between cumulative score and academic success within the healthcare programs. On the other hand, there is not much evidence proving cognitive skills as expressed by grades and honors in the academic setting ensure a high performing EI employee after graduation (Rogers, 2014). Rather emotional quotient (intelligence) was celebrated as one of the most important factor in high performers in the workforce (Becker, 2011).

General intellect is revealed by the use of the HESI exam, however, this exam fails to provide information regarding the emotional aptitude of the student. The MSCEIT focuses on the emotional information. Mayer, Salovey, and Caruso (2004) suggest direct relationships exist

between ability EI and academics, social skills, and positive interaction, as well as, indirect relationships between EI and negative interactions involving substance usage and nonconformity. These relationships mentioned above appear to support the idea that EI is a contributing factor in overall interpersonal skills and ability.

As part of the Allied Health Science programs, students must participate in clinical rotations. These rotations take place in an actual healthcare facility. In many cases, these clinical rotations are the first time students interact with actual patients. This interaction can be overwhelming to students.

If EI was assessed as part of the admissions process, instructors could weave EI training into curriculum to improve student outcomes in the clinical environment. Without assessing student EI, predicting how a student will perform in the clinical setting is impossible. Assessing EI throughout a program would assist in gaining knowledge about the effectiveness of this tool as it relates to student success.

Statement of the Problem

A growing trend in healthcare organizations is to assess EI during the selection process of potential candidates by requiring pre-employment screening as a part of the candidate selection process. However, there is a void in the current admission process for Allied Health Science programs which does not align with screening methods in healthcare organizations. Many colleges rely solely on an academic readiness tool such as the HESI exam to determine student success. Determining the extent to which EI plays a role in student success would be beneficial to both the student and college. The student would gain information about their interpersonal skill set to use for employment after graduation. A benefit to the college is having an additional

tool to identify areas for growth and incorporate into curriculum. Therefore, this study will use an ability EI assessment to benchmark student scores for future development.

Purpose of the Study

The purpose of this descriptive study is to understanding the extent to which Emotional Intelligence (EI) is a good predictor of desired attributes for aspiring healthcare professionals. More specifically it will facilitate benchmarking the ability of students entering the program and examine how traditional assessments of intelligence (HESI exam) and emotional intelligence (MSCEIT) interact. In doing so, it has the potential to determine which assessment is the best predictor of performance in the workplace. Benchmarking EI scores will help faculty identify area where students excel and struggle in an effort to better prepare students entering the clinical environment and subsequently for employment after graduation.

The following research questions will be addressed in the study:

1. What is the relationship between the traditional measure of intelligence (HESI) scores and the MSCEIT scores?
2. What is the relationship between female and male MSCEIT scores?
3. What is the relationship between amount of time in direct patient contact and MSCEIT scores?

Assumptions of the Study

In regards to this study, the assumptions are as follow:

1. It is assumed participants answered the MSCEIT assessment honestly. In an effort to increase respondents' honesty, anonymity and confidentiality will be preserved and participants voluntarily agreed to participate. All participants were able to withdraw from the study at any time without ramifications.

2. There will be a relationship between duration of patient care contact and MSCEIT scores. It is assumed that students currently in the program are at varying positions in their education based on student success and individual needs. Generally speaking students in their first year will attend clinical 2 days a week while second year students are scheduled 3 days a week.

Definition of Terms

The following terms will be used throughout this study to identify key variables. A definition is provided to assist in more clearly understanding the variables.

Clinical component. Students perform hands-on, practical skills on real patients in a healthcare facility. Students are assigned clinical instructors to assist them during their clinical time. The students are required to complete 16 hours a week during their first year within the program and 24 hours a week during their second year of the program. Emotional intelligence in the clinical component is critical and assessed by patients receiving care. Based on the patient's perception, the hospital receives a score. If the patient was less than satisfied, the patient may report poor scores which directly correlates with insurance reimbursements.

Emotional intelligence. Using one's emotions constructively to provide interpersonal actions for effective interactions with others (Cadman & Brewer, 2001). EI is teachable and could be incorporated into curriculum if students are identified as deficient. EI is especially important in health care settings with critical conversations in dealing with life and death matters. This will be measured by utilizing the MSCEIT assessment.

Emotional quotient. A measurement expressing a person's ability and skill level as it pertains to emotions (Kunnanatt, 2004). The ability to react and adapt to emotions in high stress

career fields such as health science programs is important in achieving personal and professional satisfaction.

Health Education Systems Incorporated (HESI). An entrance exam to evaluate candidates in several academic areas for admission to health science programs. This assessment focuses on reading comprehension, math, chemistry, and anatomy and physiology. A standardized measurement of one's cognitive abilities like thinking and reasoning in relation to one's age expressed as a score identified as intelligence quotient (IQ). This assessment has been widely accepted as the main form to determine intelligence level and academic readiness.

Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT). An exam designed to measure the four branches of emotional intelligence (perception of emotion, integration and assimilation of emotion, knowledge about emotions, and management of emotions. On average this exam takes 40 minutes to complete. This performance-based assessment measures one's ability to solve emotional problems regardless of "self-concept, response set, emotional state, or other confounds" (Mayer, Salovey, & Caruso, 2002, p. 1). A standardized measurement expressed as a standard score (SS) and identified as emotional quotient or emotional intelligence.

Limitations of the Study

Sample size and location are limitations of this study. The small size makes it difficult to find significant correlations from the data. The sample used may not be representative of an entire population of students in the college as a result these findings cannot be generalized beyond the respondents.

Chapter II: Literature Review

Allied Health Sciences programs include a diverse population of healthcare practitioners including laboratory technicians, dental hygienists, occupational therapists, physical therapists, speech pathologist, and imaging technologists. These licensed professionals work collaboratively to support physicians and providers as an integral part of the interdisciplinary healthcare team.

Education in this specific Allied Health Science program culminates with an Associate degree. The students are in their program approximately two years. Historically, the only admission criteria is based on HESI composite scores which identifies academic ability. With the changes in healthcare and patient satisfaction being measured, having the ability to connect with patients is an important skill. Trending in health care facilities is a patient-centered care model where the patient, their needs, emotions, and interactions revolve around the whole being. Unfortunately, healthcare professionals possess varying abilities to emotionally interact and relate to patients. Learning to view healthcare from the patient's perspective is vital to patient-centered care.

Medical colleges and Allied Health programs are more aware of the importance of emotionally connected professionals in healthcare today. Non-academic traits identified through EI assessment may be a new criteria measure for acceptance into healthcare programs based on research that demonstrates a strong correlation of high EI to improved communication skills and professionalism (Ciarrochi, Chan, & Caputi, 2000; Prati, Douglas, Ferris, Ammeter, & Buckley, 2003). The ability to identify low EI scorers early in a program will allow for an opportunity to intervene sooner and further equip individuals to emotionally cope with the demands of the career choice.

The subsequent review of literature will highlight the concepts and attributes associated with the multi-dimensional facets of emotional intelligence while exploring the practice of screening for EI as a tool to assess interpersonal attributes in students as it relates to clinical performance. The following chapter is divided into sections that provide the history and theory of EI and how it relates to healthcare, patient satisfaction, job performance, interpersonal skills, communication, listening skills, professionalism, social awareness, empathy, gender, and intelligence quotient.

History of Emotional Intelligence, the Theory

Concepts of EI date back to the 1920's when Edward Thorndike coined the term of social intelligence. In the 1950's Abraham Maslow used the terminology in describing how people build emotional strength. Then in the 1970's Howard Gardner brings forth the idealism of multiple intelligences. Wayne Payne wrote his doctoral dissertation in 1985 and introduced the term of EI. Five years after the dissertation was published, psychologists Peter Salovey and John Mayer published an article, "Emotional Intelligence" and demonstrated a measurement of EI. Daniel Goleman published the book *Emotional Intelligence: Why it can matter more than IQ* in 1995. Numerous studies since then have built on those same basic theories.

In the early 1990's Peter Salovey with John D. Mayer developed a theory of EI. The basis of this broad framework settled on people having a wide range of measureable intellectual abilities and emotional skills that affect their emotions and actions. Salovey and Mayer built on earlier work by Robert J. Sternberg's research on studied human intelligence and proposed the Triarchic theory of intelligence. This theory identified different intelligences beyond an individual intelligence quotient (IQ). Similarly, this theory focuses on how well an individual can deal with environmental changes (Mayer, Salovey, Caruso, & Sitarenios, 2001).

These theories focus on different skills or branches as part of emotional intelligence. The four-branch ability model “divides the abilities and skills of EI into four areas” the ability to (a) perceive emotions, (b) use emotion to facilitate thought, (c) understand emotions, and (d) manage emotions” (Mayer, Salovey, Caruso, 2004, p. 199). These divisions are the foundation of the ability model and widely accepted as a definition of EI. Previous research from Mayer, Salovey, Caruso, & Sitarenios suggest the ability model can be further characterized as skill which enhances personal growth and social relations to better assess and understand the nature of EI (2001). Golemen (1998) identified employers prefer employees possessing mostly non-academic traits (EI skills) such as: the ability to learn, oral communication, adaptability and interpersonal effectiveness over employees with specific technical skills. Mayur, James, and Swamynathan (2013) concluded, “Emotional intelligence is more useful for effective performance at work” (p. 1802) and reiterates the employability skills in the 21st Century will rely less on academics and more on non-technical skills to meet expectations of consumers especially with corporate downsizing.

Healthcare and Emotional Intelligence

The increasingly competitive healthcare industry, as with many industries, are rapidly changing. The skills required for medical professionals to be successful has evolved significantly in the face of Healthcare Reform. In the past, healthcare was assessed on measures such as survival and mortality rates. It was uncommon to evaluate patient satisfaction. Today, quality improvement measures focus on interpersonal skills which are deemed a necessity in high demand, stressful medical professions.

In May 2005, the National Quality Forum endorsed utilization of Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) survey (*HCAHPS Fact Sheet*,

2015). This is the first nationally used standardized survey of patients' satisfaction in healthcare. The data collected measures perceptions of a patient's recent hospital experience in eleven different categories. These include: communication between nurse and patient, communication between the doctor and patient, responsiveness of hospital staff to the needs of the patient, ability of staff to manage a patient's pain, staff communications with patients regarding medications, type of home care available to the patient, room cleanliness, quietness of patient's room, overall hospital rating, and whether or not the patient would recommend the facility to family and/or friends. Results of these surveys are publicly reported. Furthermore, a percentage of compensation formula is linked to HCAHPS scores which adds a bigger importance to this topic.

Patient Satisfaction

Traditionally, putting the needs and emotions of a patient has not been the root of healthcare decisions. This may be a new concept for some organizations and providers. Shirley and Sanders (2013) assert that patient satisfaction is a combination of a cognitive evaluation and emotional reaction to the care received at a facility. Another study found patient satisfaction and the amount of information a patient received from the encounter were directly related (Hobgood, Riviello, Jouriles, & Hamilton, 2002). Furthermore, one can argue that patients have expectations and meeting or exceeding those expectations determines their level of satisfaction during the visit.

Viewing patients as consumers is an evolving mindset borrowed from the Business and Industry sector. For years, corporations have placed a strong emphasis on customer satisfaction to the extent of incorporating into mission statements and marketing. These metrics have been identified as quality outcome indicators. The healthcare industry is transitioning into a customer driven model as well. Patient satisfaction is measured by HCAHPS and publicly reported as a

means of keeping healthcare consumers at the forefront by being informed consumers and engaged in their clinical decisions.

Job Performance

Human Resource departments in the healthcare industry seek individuals possessing the key interpersonal skills to accurately assess and interact with patients, take calculated risks, and navigate in critical conversations. Joseph and Newman (2010) discloses evidence suggesting the strongest predictor of performance is EI. Top healthcare facilities are targeting interpersonal skills during recruitment and placing “equal or greater emphasis on soft skills over more traditional clinical, technical, and business skills” (Lazarus, 2013, p. 40). High-quality, patient-centered care is the top priority of healthcare facilities today. Ensuring graduates have the interpersonal skills and behavioral characteristics necessary to fulfill these new workplace prerequisites is critical.

Numerous studies have demonstrated a positive correlation between high EI scores and high performance levels in the workplace (Codier, Kooker, & Shoultz, 2008; Lombardo & Eichinger, 2000; Dries & Pepermans, 2007). Healthcare is noted as a complex, high stress, high demand career choice. Goleman (1998) clearly identifies “the more complex the job, the more emotional intelligence matters” (p. 22). Human resource directors are in search of high performing employees that best align with the mission and values of the organization; therefore, recruit individuals possessing high emotional intelligence.

Interpersonal Skills Screening

Methods used to interact with others are referred to as interpersonal skills. These skills are the foundation that enriches our social interactions. EI is based on interpersonal skills which many employers refer to as employability or soft skills (Lazarus, 2013). Employers expect

graduates to possess technical skills, knowledge, and attitudes to be productive in the workplace (Mayur, James, & Swanynathan, 2013). Colleges need to focus on the expectations of the employers and improve the soft skills in students by concentrating on EI.

Building personal and professional relationships requires several interpersonal attributes such as: verbal and nonverbal communication, listening, professionalism, social awareness and empathy. In addition, skills related to patient privacy, patient/student interaction, focus and control during the interaction as also important. Interpersonal skills are the opposite of technical skills but can be relied on in the workplace just as much or more than the technical skills.

Communication

Verbal and nonverbal communication skills are vital to successful patient-centered interactions. Effective interpersonal and communication skills directly relate to EI on the grounds that one must be able to perceive, use, understand and manage emotions to effectively interact with other team members and consumers or patients (Libbrecht, Lievens, Carette, & Côté, 2014). A lack of technical skills are generally not the cause of patient complaints or diminished patient satisfaction. Huntington and Kuhn (2013) report a lack of communication or misinterpretations are often identified as the root of filed complaints, litigation, and lower patient satisfaction scores.

Another lead pioneer working in EI is Daniel Goleman who echoes the concerns regarding the importance of communication and social skills. Goleman shares, “more and more employers are complaining about the lack of social skills in new hires” (Goleman, 1998, p. 12). A lack of social skills was a problem present in 1998 when technology was far from what it is today. Current generations are being raised engrossed with devices and technology that can further interfere with development of social skills.

EI is reported by Carr (2009) to be a predictor of interpersonal and communication skills. Kidd (1998) believed consideration to emotional ability through expression, experience and communication should be a component factored in during career exploration and selection. Health professionals that are unable to effectively perceive and comprehend either verbal or nonverbal forms of communication will have difficulties relating to patients. This in turn will decrease the patients' expectations resulting in lower patient satisfaction.

Listening Skills

Another form of communication involves active listening. This skill works hand in hand to enhance social relationships. Ioannidou and Konstantikaki (2008) assert hearing is the most important skill in communication. Active listening helps to understand a patient's perspectives and motivations for the health decisions. When healthcare professionals can effectively communicate to understand the patients' expectations, resources can be offered to improve the level of patient satisfaction.

Professionalism

The metrics of professionalism within healthcare facilities is evolving. McQueen (2004) reminds us that years ago it was believed to be unprofessional for healthcare providers to divulge personal emotions or emotionally interact with patients. Measures to keep the interactions formal would include maintaining distance, emotional detachment, and incorporating a hands-off approach. Today, the standard of care is very much the opposite; patient to staff involvement, commitment, and open communication are highly encouraged as methods to developing an open partnership with patients (Williams, 2000).

Social Awareness

Holism is an approach to medicine which takes into account the patient's inner emotional needs rather than focusing on the diagnosis (Reynolds, 2009). This type of approach is geared for individualizing care to best meet the needs of each specific patient and their family. Empowering patients to learn about their illness and implement lifestyle changes to improve prevention and health promotion.

A patient-centered, emotional connection in healthcare decisions improves the chance a patient will comply with treatment, reduces hospital admissions and shortens inpatient stays (Proctor & Adams, 2014, p. 543). The concept has been tested by advances in technology and medicine which have created alternative options for patients while improving outcomes (Barry & Edgman-Levitan, 2012). However, conventionally patients were directed by the authority figure (provider) based on standardized protocols rather than allowing an open discussion with the patient about how to proceed. Letting the patient and their family take the lead in clinical decisions and treatment options is the core of patient-centered care.

Educating patients is a critical component to patient-centered care. Providers must take time to create a partnership with the patient to discuss the disease, treatment options, and care decisions. The patient's emotional, psychological, and spiritual needs must be addressed during these interactions. Removing the physician-dominated barriers that focused on the disease instead of an individual is challenging. Carr (2009) reveals medical schools are changing the selection process for medical students with the mindset that EI is a successful predictor of interpersonal and communication skills.

Physicians may need to take more of a counselor role to align with the patient-centered model. Transitioning and concentrating on how to actively engage patients in an empathic,

collaborative, and emotional manner being mindful of a time-constrained schedule. Nurses and other healthcare professionals may also experience barriers to the patient-centered care model to include: workload expectations, labor shortages, non-uniform policies, lack of organizational support, and poor communication skills (Esmacilli, Cheraghi, & Salsali, 2014). These barriers detract from the overall patient experience and diminish patient satisfaction.

Empathy

Empathy is described by Halpern (2003) as learned skill used to communicate and understand the feelings or views of others. In healthcare facilities, empathy is a desired characteristic in personnel supporting the patient-centered model (Pembroke, 2007). Empathy is a large component in EI and continued research confirms individuals with high EI scores demonstrate higher scores in empathy (Mayer, Caruso, & Salovey, 1999; Schutte, et al., 2001). Researchers Reynolds and Scott (2000) postulate a direct relationship between the empathy level of nurses and patient outcomes. These supportive claims deepen the importance of empathy as a core characteristic in healthcare professionals.

Gender

The topic of gender ties very closely in terms of EI as several emotional abilities have been described thus far. Differences in occupational interests between males and females have existed for many centuries. Current research may begin to offer possible reasons for these gender differences. Several studies report women score higher on emotional ability performance measures such as the MSCEIT than their male counterparts (Brackett, Rivers, Shiffman, Lerner, & Salovey, 2006; Mayer, Caruso, & Salovey, 1999; Petrides & Furnham, 2000).

Intelligence Quotient

Intelligence quotient (IQ) is the most commonly assessed form of intelligence. Historically identification of suitable applicants into post-secondary programs is focused on aptitude/cognitive assessments to predict student success and retention. The measure of academic success has been associated with grades and honors. Colleges are realizing that selecting students based on standardized tests and high school transcripts is not enough in today's global marketplace because it fails to evaluate behavioral and character components of the individual.

Business and industry is assessing potential employees with pre-employment testing focused on behavioral characteristics and service competencies rather than only relying on a resume and interview (Chapin, 2015). Academic success does not equate to high performance as an employee. Mayur, James, and Swamynathan (2013) confirmed academic grades inform of intellect level but are unsuccessful at providing data regarding aptitude or technical skill ability. In the workplace today, Goleman reports, "IQ takes second position to emotional intelligence in determining outstanding job performance" (1998, p. 5). Therefore, confirming the idea that EI will be a better predictor of emotional, cognitive, and physical performance in a healthcare facility.

Summary

Measuring emotional intelligence can be accomplished with the assistance of several difference assessments. Majority of these assessments are performed online with an assortment of multiple-choice questions which include face recognition, non-verbal cues and scenarios. The performance-based assessments are associated with positive organizational outcomes and considered a predictor of post-graduation success. Carr (2009) utilized the Mayer- Salovey-

Caruso Emotional Intelligence Test (MSCEIT) to determine positive correlation between clinical performance and EI scores in a nursing study.

EI education can be used to improve student and staff in deficient areas. Research has revealed that EI can be positively increased with age and experience, as well as, with specific training (Chapin, 2015; Sparkman, Maulding, & Roberts, 2012). Face-to-face or web-based education with strategies to include role-playing, discussions and lectures are noted to increase EI among students (Naeem et al., 2014). Educators and employers could deploy curriculum and training specific to improve EI.

Codier and Odell (2014) found a correlation between clinical performance and EI whereas grade point average (GPA) has not consistently predicted clinical performance. To best assess clinical performance components, students should realize patients are not going to ask about GPA but rather base their satisfaction on how the student made them feel (emotional connection). Academic grades alone will not identify long-term success in the workforce. Understanding the relationship between the assessments and EI may help students perform in the academic setting and during their career.

Chapter III: Methodology

A growing trend in healthcare organizations is to assess EI during the selection process of potential candidates by requiring pre-employment screenings. However, the current admission process for Allied Health Science programs does not align with current screening methods in healthcare organizations since many colleges rely solely on the HESI exam as the sole assessment for program selection. The following questions form this study's design: 1) What is the relationship between the traditional measure of intelligence (HESI) scores and the MSCEIT scores, 2) What is the relationship between female and male MSCEIT scores, and 3) What is the relationship between amount of time in direct patient contact and MSCEIT scores?

Determining the extent to which EI assists in predicting student success after graduation will be beneficial to the student and college. Therefore, this study will use the MSCEIT as an EI assessment to investigate possible relationships.

Research Design

This was intentionally designed as a quantitative, descriptive study. The selection process was not random. A convenience sample based on an agreement with the Allied Health program director for program participation was employed. These specific Allied Health program students were pursuing an Associate Degree. Participants voluntarily consented to taking the MSCEIT assessment during the spring 2016 semester. Online MSCEIT assessments were purchased as well as data sets from Multi-Health System Inc. Permission to access program student HESI scores was granted to this researcher through a formalized institutional process within the ethics and responsibility required under IRB protocol. Central tendency and descriptive statistics will be used to identify relationships resulting from respondent data.

Subject Selection and Description

The population for this study are students in an Allied Health Science program at a Wisconsin Technical College. There are three categories of participants in this research. The first group of participants for this study were currently enrolled as first year students pursuing an Associate degree through the targeted program. The second group of participants consisted of currently enrolled second year program students pursuing an Associate degree. The third group of participants consisted of 2014-2015 program alumni.

This is a convenience sample based on the agreement of the targeted Allied Health program director to allow students participate in the study. Current first year participants ranged in age from 19-38 years old, 4 males and 12 females. Second year students ranged in age from 20-31 years old, 6 males and 8 females. Graduate participants ranged in age from 23-45 years old, 2 males and 6 females. All participants were informed that participation in the study was voluntary. The MSCEIT, Version 2.0, was administered during the spring 2016 semester. The HESI exam was completed prior to acceptance into the program. Composite scores will be accessed and used for this research.

All participants had experience in the clinical setting. First year students participated in clinical/direct patient care for 16 hours per week during the fall and spring semesters. Second year students participated in direct patient care consisting of 24 hours per week during their final two semesters and were preparing for graduation. In addition to preparing for graduation the second year students are applying to take the national certification examination. The graduate population consisted of 2014-2015 alumni of this specific Allied Health Science program. All graduates participating in the study were employed within the healthcare profession.

Instrumentation

This research employed validated assessments for all data collection. This was intentional as it represents the research that Allied Health programs draw upon to identify candidates with the aptitude to enter and persist through to program graduation and more importantly enter and persist in their health care occupation. The Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT) and the Health Education Systems Inc. (HESI) assessments structure the instrumentation and data collection of this study. Both assessments contribute to answering the studies research questions.

The Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT) Version 2.0 is a performance-based assessment designed to measure the four branches of EI. The four branches include: perceiving emotions, facilitating thought, understanding emotions, and managing emotions. MSCEIT was administered online. It consisted of 141 items and was estimated to take 40 minutes for completion. This assessment sought to the participant's ability to perceive, use, understand and regulate emotions based on everyday life scenarios similar to what might be encountered in the clinical environment. A classification of average emotional intelligence ability is equivalent to a score of 100 (Mayer, Salovey, & Caruso, 2002, p. 18).

Evaluation of EI is accomplished through both objective and impersonal questions stemming from everyday life scenarios. Participant responses are evaluated according to correctness criteria instead of a 'true-false' self-judgment score. The MSCEIT could be scored on either general or expert consensus scoring methods. General consensus scoring was selected for this study. Respondents received credit for correct answers provided their response matched the normative data of more than 5,000 participants within the database. The other option, expert

scoring takes the participants response in comparison to the consensus of twenty-one international emotion experts (Mayer, Salovey, Caruso, & Sitarenios, 2003).

The examination and scored datasets were purchased through Multi-Health Systems (MHS) of Toronto, Ontario, Canada. Scored dataset presented results divided into 15 main scores: total EI score, two Area scores, four Branch scores, and eight Task scores. The overall reliability of the general consensus scoring $r=.93$ respectively (Mayer, Salovey, Caruso, & Sitarenios, 2003).

The Health Education Systems Inc. (HESI) test from Elsevier's Evolve Corporation, is an admission assessment designed to measure academic ability. This assessment focuses on Anatomy and Physiology, Chemistry, Math, and Reading comprehension. The HESI exam consists of 144 items and estimated to take 2 hours and 45 minutes for completion. Scoring is based on normative data representative of the general US population. Summary reports are broken down into 5 scores: an overall composite score and each individual category score. Elsevier's assessment is determined to be statistically valid and reliable according to numerous sources.

The overall HESI composite score is representative of overall cognitive function. Elsevier does not set the minimum passing score, this is the responsibility of each individual program. Program faculty closely monitor HESI scores with program completion. Historically students within this particular program with a HESI composite score of 83 and above are successful. The top 20 HESI scorers are accepted into the program.

Data Collection Procedures

The instruments utilized consist of the MSCEIT and HESI examinations. These two assessments sought to benchmark the ability of students entering the program and allow the researcher to examine the existence of relationships between traditional assessments of intelligence or cognitive function (HESI exam) and emotional intelligence (MSCEIT) in order to determine which assessment is the best predictor of performance.

The HESI was administered to all applicants applying to the Allied Health Science program and used as a placement tool. This tool was used as a measure of overall cognitive function. Academic areas covered by the instrument include: Anatomy and Physiology, Chemistry, Math, and Reading comprehension. Within the Allied Health Program represented by this study it is employed to identify the top 20 scoring students who will be accepted to the program. This assessment was also used to screen academic readiness and place each subject into the proper program entry curriculum.

The MSCEIT was administered to all first year subjects of this study on May 18th, 2016 and to the second year subjects of this study on May 17, 2016 during normal on-campus classroom time. A brief overview of the assessment was provided to the entire classroom. After the initial overview, any subjects choosing to not participate were allowed to leave the testing area. Laptops were dispersed to all willing subjects. They were notified that their participation was voluntary and their answers will be confidential. A link was provided to them to electronically sign an informed consent form. Once signed each subject received their online assessment website, code, and password. Every subject was granted as much time as needed to complete the MSCEIT. Once they completed the assessment, they were allowed to leave the

computer and exit the testing area. There was no group debriefing of participants. After the last assessment was completed, the researcher gathered materials left the testing room.

Administration of the MSCEIT to the graduate population began with email contact after obtaining the 2014-2015 graduate list. A brief overview of the research was disseminated. Willing subjects responded to the email and electronically signed consent. Once consent was obtained subjects received the online assessment website, code, and password. Subjects were informed to take as much time as needed to complete the MSCEIT.

Data Analysis

The raw data from the MSCEIT and HESI assessments generate composite scores used for analyzing potential relationships through the use of Statistics for the Social Sciences (SPSS) software. Descriptive statistics were applied and analysis of the results were calculated with groups compared using a one-way analysis of variance (ANOVA), with alpha set at $p < .05$. Additional central tendency calculations including means, ranges, and standard deviations aided in the interpretation of relationships.

Limitations

The following are the perceived limitations of this study.

The concept of emotional intelligence is rather new. Mayer and Salovey first started major research 26 years ago, which in terms of research is relatively a short time. The assessment first developed by these leaders has changed and continues to evolve as new research becomes available.

The inability to capture real-time emotions is yet another limitation of this study. Participants were assessed on a preselected date without knowledge of current circumstances or behaviors potentially affecting the student's mood and/or ability at the time of assessment. The

possibility exists that participants could score differently based on their current environment or emotional state.

General consensus scoring rather than expert scoring was used for this study. In general consensus scoring, respondents receive credit for correct answers provided their response matches the normative data representative of more than 5,000 participants within the database. The other option, expert scoring takes the participants response in comparison to the consensus of twenty-one international emotion experts (Mayer, Salovey, Caruso, & Sitarenios, 2003).

Chapter IV: Results

The ability to successfully manage emotions and communication with patients in the workplace is an employee capability desired by healthcare organizations. Emotional intelligence as described earlier by Cadman and Brewer (2001) as one's ability to use emotions to regulate oneself in an effort to heighten efficiency and results in situations. Many interpersonal and social abilities are affected by EI and directly related to patient satisfaction levels.

The purpose of the study was to determine the extent to which EI is a good predictor of desired attributes for aspiring healthcare professionals. More specifically it sought to benchmark the ability of students entering the program and examine the relationship of traditional assessments of intelligence or cognitive function (HESI exam) and emotional intelligence (MSCEIT) in order to determine which assessment is the best predictor of performance.

The following research questions will be addressed in the study: 1) What is the relationship between the traditional measure of intelligence (HESI) scores and the MSCEIT scores, 2) What is the relationship between female and male MSCEIT scores, 3) What is the relationship between amount of time in direct patient contact and MSCEIT scores?

Item Analysis

The following highlights respondent demographics and data derived from the respondent measures of intelligence and emotional intelligence assessments.

Demographic data. A total of thirty eight subjects signed consent to participate in this study. Sixty-eight percent of subjects are female, 95% White and ranged in age from 19 years to 45 years ($M=27.5$, $SD=6.9$). As noted in Table 1, a total of sixteen first year students and fourteen second year students participated resulting in a 100% response rate. The graduate highlights females accounted for more than double the male subjects. Graduate sample totaled

eight subjects resulting in a 40% response rate. Gender is not a screening factor for selection into the Allied Health Science program but males are historically underrepresented.

Note: one male transfer student was accepted halfway through the semester. This first year male did not take an entrance examination (HESI), therefore was excluded as a subject for this study. There were 3 first year males respondents bringing the overall respondents of this study to thirty seven.

Research question 1. This question sought to answer the relationship between the traditional measure of intelligence (HESI) scores and emotional intelligence (MSCEIT) scores.

The MSCEIT mean score, based on the respondent data was calculated from the unadjusted total score provided in the purchased data sets. This score is an average of all 8 individual task scores. The standard deviation was calculated based on this unadjusted total score.

Similarly the HESI mean scores were based on a composite score. This average was calculated from the 4 assessed categories including Reading comprehension, Chemistry, Anatomy & Physiology, and Math. The standard deviation was calculated from the individual composite scores.

Table 1 presents the demographic data by participant group. Each of the participant groups' central tendency for the MSCEIT (emotional intelligence) is slightly above the classification for normal emotional intelligence level.

Table 1

Emotional Intelligence and HESI Descriptive Statistics

Student Status	Assessment	Mean	Std. Deviation	N
Graduate Student	Emotional Intelligence	105.3887	5.83503	8
	HESI	90.6875	3.81667	8
1 st Year Student	Emotional Intelligence	101.8630	8.87051	15
	HESI	87.6333	2.53875	15
2 nd Year Student	Emotional Intelligence	102.7009	12.33928	14
	HESI	87.6071	3.28270	14

The central tendency for the graduate MSCEIT (emotional intelligence) does appear to be the highest mean out of the three groups. With the first year students scoring the lowest overall mean. The HESI findings also classify the graduate central tendency with the highest score of the groups. These findings are not statistically significant and confirm there is no relationship between emotional intelligence (MSCEIT) and traditional intelligence/ cognitive ability (HESI).

Analysis of the data indicates all groups scored higher than what is considered to be average for both assessments. The graduate group on average was the highest scoring on the MSCEIT (emotional intelligence) and HESI (cognitive function). This finding is not statistically significant enough to assume emotional intelligence could predict cognitive function or that the two assessments are strongly related.

Figure 1 represents the graduate scatterplot results. This data demonstrates the participant group is representative of a positive gradient with moderate, positive correlation. There is a linear trend with one notable outlier. There is no significant relationship between the HESI and MSCEIT assessments.

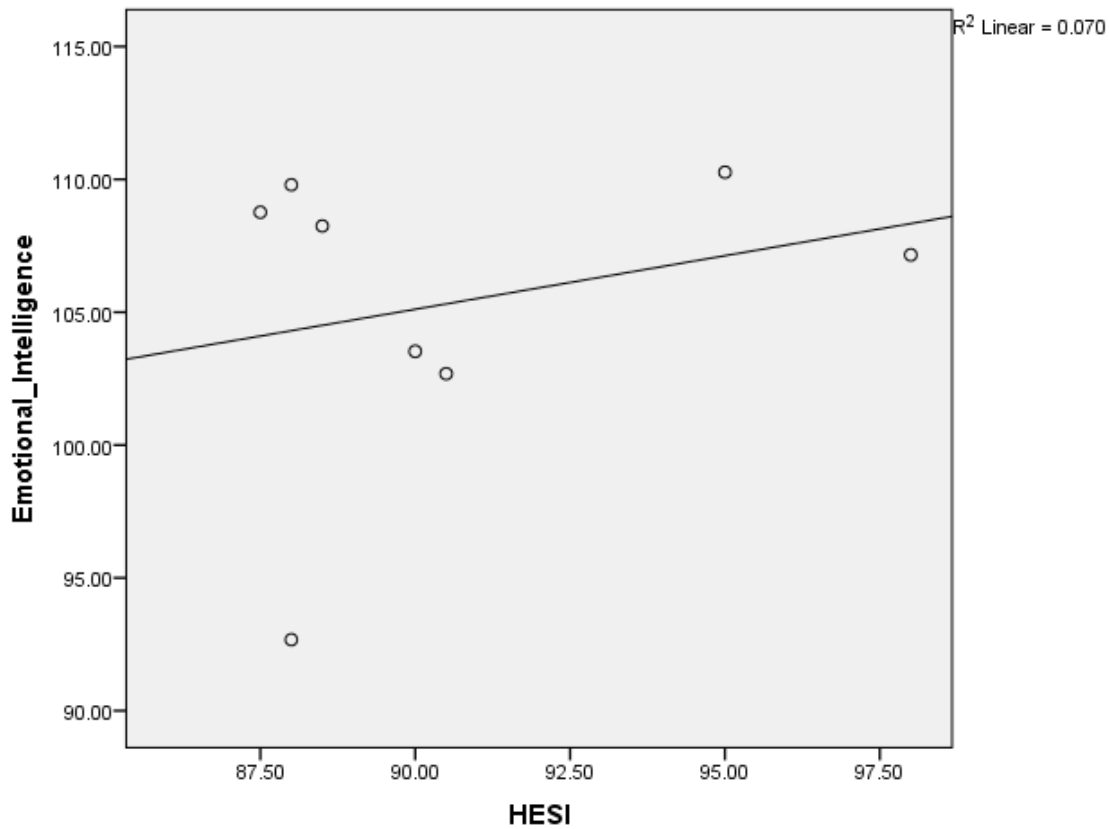


Figure 1. Graduate students MSCEIT versus HESI scatterplot.

The first year scatterplot is represented below. Once again a positive gradient is identify but with a weak correlation. There is a non-linear association of the participants. The traditional intelligence score (HESI) and the emotional intelligence score (MSCEIT) are not significantly correlated as demonstrated on the following scatterplot in Figure 2.

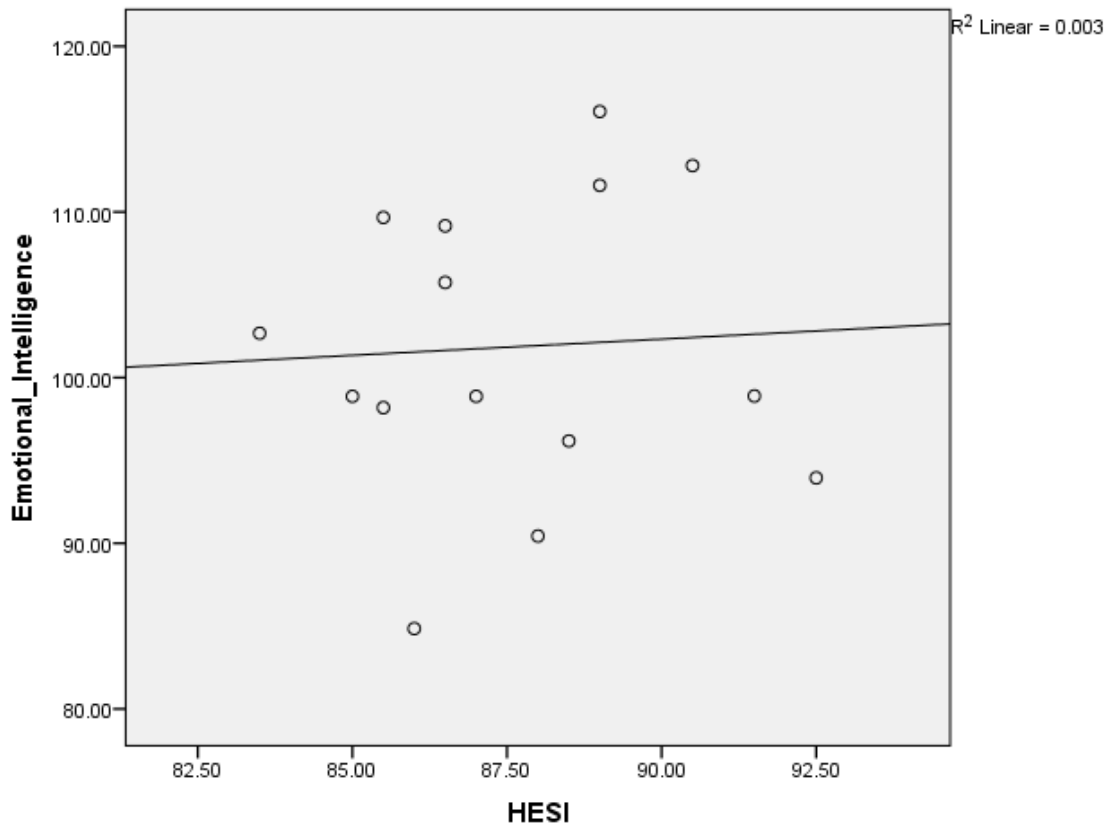


Figure 2. First year students MSCEIT versus HESI scatterplot.

The second year students are represented in the following scatterplot. Once again a positive gradient is identified but with a weak correlation. There is a non-linear association of the participants. The traditional intelligence score (HESI) and the emotional intelligence score (MSCEIT) are not significantly correlated as demonstrated on the following scatterplot in Figure 3.

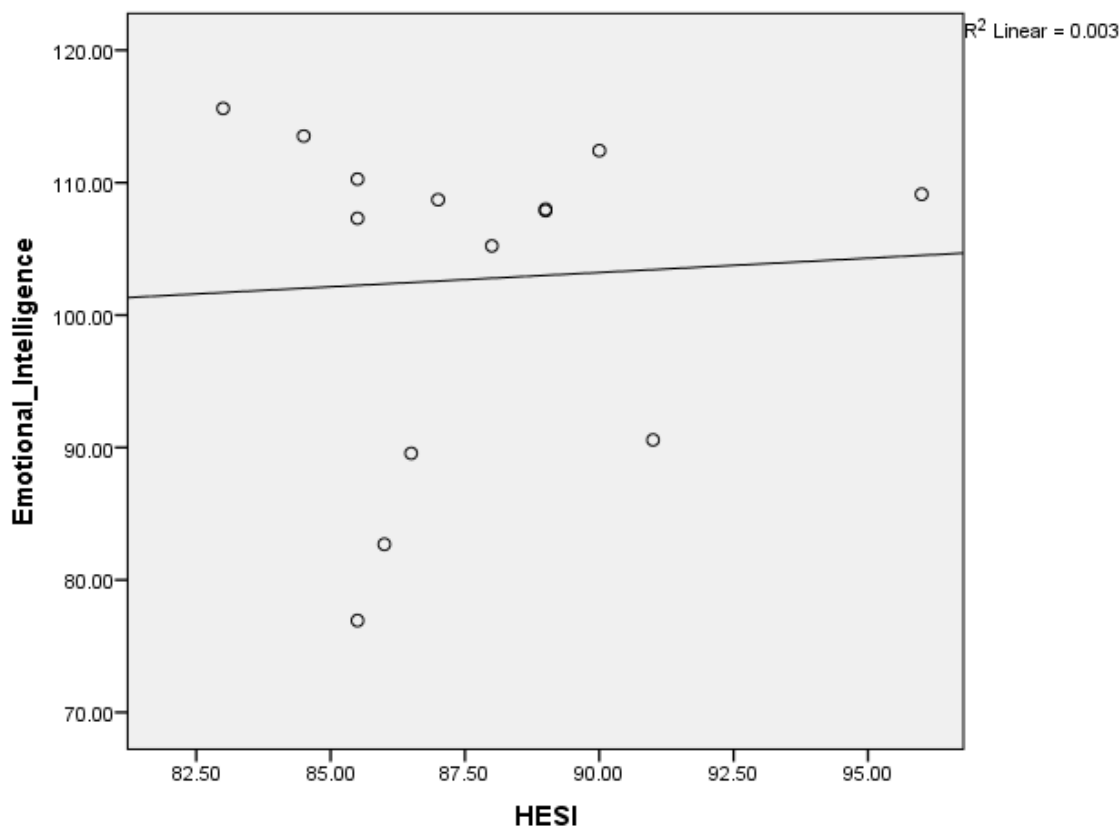


Figure 3. Second year students MSCEIT versus HESI scatterplot.

As validated in the above three scatterplots, this investigation confirmed that cognitive function as assessed by the HESI is not a predictor of emotional intelligence as assessed by the MSCEIT. This finding is consistent with previous research noting academic ability is not an accurate predictor of emotional intelligence.

Research question 2. What is the relationship between female and male MSCEIT scores? The means, standard deviations, and error mean are presented in Table 2. Central tendency was once again utilized to identify relationships existing between female and male MSCEIT scores. The data reveals a slightly higher MSCEIT mean for females compared to males as in Table 2.

Both genders are within the range of being considered normal for emotional intelligence abilities. The female central tendency demonstrated is slightly above what is generally accepted as normal. An independent samples t-test compared emotional intelligence between female and male subjects. There was not a significant difference in the scores for females ($M=104.06$, $SD=8.82$) and males ($M=100.31$, $SD=11.55$) conditions; $t(35)=1.08$, $p = 0.29$. These findings are not statistically significant and do not represent a relationship between female and male MSCEIT scores.

Table 2

Gender Statistics for Emotional Intelligence

	Gender	N	Mean	Std. Deviation	Std. Error Mean
Emotional	Female	26	104.0563	8.81640	1.72904
Intelligence	Male	11	100.3092	11.54861	3.48204

As represented in Figure 4, the mean for the twenty six females in all participant groups on the MSCEIT emotional intelligence assessment totals 104.05. The eleven males participating in this investigation collectively have a mean score of 100.30. As stated previously a score of 100 is considered normal emotional ability on the MSCEIT. In comparison the mean for females landed slightly over this norm while the males were right at the point to be considered normal. These scores are not statistically significant but represent a possible area for further exploration in the future.

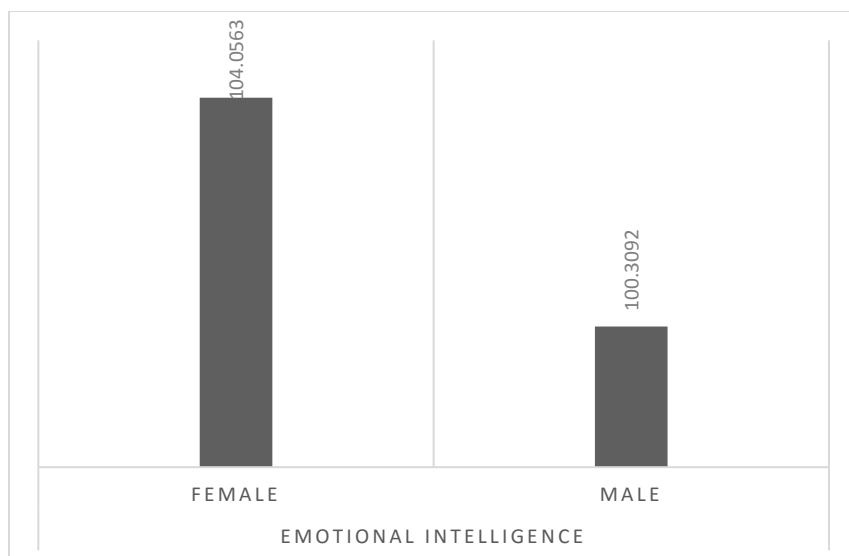


Figure 4. Graph of gender breakdown for emotional intelligence.

Research question 3. What is the relationship between the amount of time in direct patient contact and MSCEIT scores?

According to the data a slight correlation exists between the amount of time a student is in direct patient care and the MSCEIT average. This correlation suggests emotional intelligence can increase with patient care experience. Probably not statistically significant however based on the data the more time and maturation in practice likely equates to higher emotional intelligence ability and skills.

First year students are required to complete 16 hours a week of clinical time during their two semesters within the program. After successful completion of the first year, students transition into 24 hours a week for the remainder of the program. The data is suggestive that maturation and experience dealing with patients can improve emotional intelligence.

The data demonstrates a MSCEIT central tendency score of 102.9 for all participants. The first year students spending the least amount of time in direct patient care score slightly below that mean with 101.8. Conversely, the graduate group lands above the average overall

mean with an average MSCEIT score of 105.3. Table 3 presents the descriptive statistics specific to this question.

Table 3

Patient Care Interaction and MSCEIT Average

Student Status	Mean	Std. Deviation	N
1 st Year Student	101.863	8.87051	8
2 nd Year Student	102.7009	12.33928	15
Graduate Student	105.3887	5.83503	14
Total	102.9423	9.69745	37

The data demonstrates the graduate sample has the highest mean MSCEIT score compared to the first and second year program students. The most likely association is the amount of time graduates are with patients. The graduate participants are employed and working up to 40 hours a week. The direct patient care interactions on a daily or professional basis could be the attributing factor present in the graduate sample as demonstrated in Figure 5.

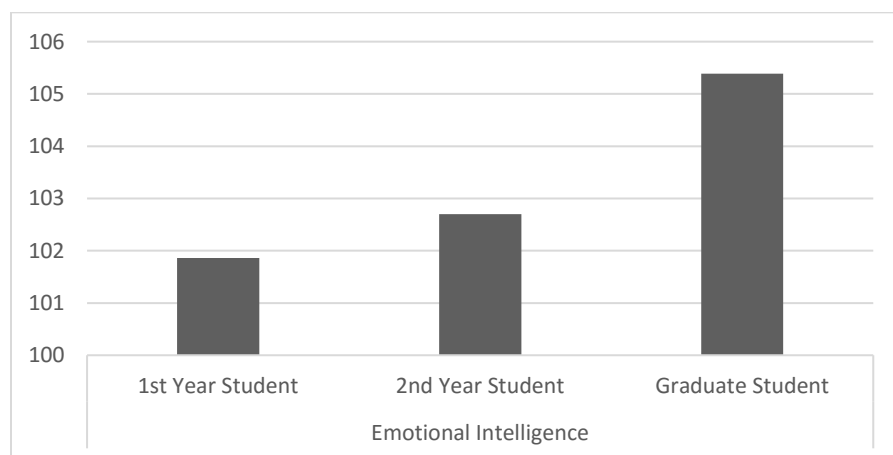


Figure 5. Patient care interaction and MSCEIT graph.

Once again the data does not confirm a significant statistical finding, but rather suggests there may be a relationship between the hours a student participates in clinical rotation and their

emotional intelligence. The data is suggestive of a direct effect on the amount of time a student spends in the clinical environment and their interpersonal skills as it relates to patients. In many cases first year students are not accustomed to providing patient care or working in healthcare facilities.

Chapter V: Discussion, Conclusion and Recommendations

This study examined emotional intelligence in the setting of an Allied Health Science program. This non-experimental, descriptive study examined several relationships to determine the extent in which EI would be a good predictor of desired attributes for aspiring healthcare professionals while benchmarking the ability of students entering the program and examine how traditional assessments of intelligence (HESI exam) and emotional intelligence (MSCEIT) interact. In doing so, it has the potential to determine which assessment is the best predictor of performance. The emotional ability of students entering the program served as a benchmark for additional research and assessment for this specific program. Continued benchmarking of EI scores will guide faculty in areas where students could use additional measures to better prepare them to enter the clinical environment and gain employment after graduation.

Change in the competitive healthcare industry continues to evolve with the addition of Healthcare Reform. Today non-technical skills are essential for medical professionals to be effective. Previously assessing healthcare on measures such as survival and mortality rates were considered the standard. In today's competitive market investigating the patient's experience and their overall satisfaction is the measure of quality and success based on interpersonal encounters. Today, quality improvement measures focus on interpersonal skills which are deemed a vital in high demand, stressful healthcare practitioners.

Discussion

The importance of emotional intelligence in identifying complex healthcare trends is worth exploring. Emotional intelligence research is currently evolving and healthcare is rapidly changing. These shifts reiterate the necessity for individuals to increase self-awareness and development in terms of emotional skillsets. Healthcare organizations are implementing

assessments during recruitment to determine a potential candidates social and emotional interpersonal skills.

The first research question examined whether a relationship exists between the traditional measure of intelligence (HESI) scores and emotional intelligence (MSCEIT) scores? Based on literature, cognitive ability as assessed by the HESI and emotional intelligence as assessed through the use of MSCEIT are related but indirectly. Since academic grades and ability alone will not identify long-term success in the workforce, emotional intelligence assessments are recommended to gain a better perspective of the student's emotional abilities.

Daniel Goleman, a pioneer in emotional intelligence field states "...where professional selection focuses almost exclusively on intellectual abilities, emotional intelligence carries more weight than IQ in determining who emerges as a leader" (1998, p. 19). Even though these two forms of intelligence are not directly related this study suggests emotional intelligence is a better indicator of emotional and physical performance in a healthcare facility. Just as academic ability is predicted effectively by the HESI assessment.

The second question investigated whether there is a relationship between female and male MSCEIT scores? From the overall mean of both participant groups, no significant findings were identified. Conflicting gender differences have been identified in literature further complicating this question. According to Petrides and Furnham significant gender differences as it relates to social skills was uncovered with females scoring higher than males (2000). The same study went on to report males scored higher in self-estimation over their female counterparts (Petrides & Furnham, 2000).

Whereas direct comparisons based on the same assessment (MSCEIT) acknowledged females generally score higher than male counterparts (Brackett & Mayer, 2003; Brackett,

Rivers, Shiffman, Lerner, & Salovey, 2006; Mayer, Caruso, & Salovey, 1999). The differences in literature could be a result of the assessment utilized in the studies. Additionally exploration and comparison to specific scores areas rather than total scores is recommended in future studies to better determine any gender differences.

Lastly, the third question explored the possibility of a relationship between the amount of time in direct patient contact and MSCEIT scores? The data from this investigation suggests that maturation as a result of direct patient care experience has the potential to increase the EI level of an individual. Recent research supports the same thought-provoking idea summarizing that EI can be positively increased with age and experience, as well as, with specific training (Chapin, 2015; Sparkman, Maulding, & Roberts, 2012). Face-to-face or web-based education with strategies to include role-playing, discussions and lectures are noted to increase EI among students (Naeem et al., 2014). With this knowledge, educators and employers have the ability to weave curriculum and training specific skills in an effort to improve EI competency.

Conclusions

This study confirms that emotional intelligence is a concept consisting of understanding and management of emotions. Research proves it is essential for healthcare practitioners to possess non-academic traits such as empathy, active listening, and effective communication skills in the competitive workplaces of today. As mentioned previously, research is suggestive that EI can be effectively taught in the constraints of a classroom (Goleman, 1998). Dedicated program faculty can use this data to bring awareness to Allied Health Science students with the desire to develop and improve interpersonal skills while enrolled in the educational setting incorporating emotional intelligence concepts and skills into curriculum.

While this study did not find any new significant relationships as explored through the research questions its findings further supported previous findings found within the literature. It reinforces that each of the assessments serves a specific purpose; acknowledging that the HESI is a good predictor of cognitive function while the MSCEIT accurately assesses emotional intelligence.

Medical colleges and Allied Health Science programs are more aware of the importance of emotionally connected professionals in healthcare today. EI assessment may be a new criteria and predictive measure of program student success when deciding on acceptance of prospective students into healthcare programs. This is hinted at based on this research and prior research that demonstrating correlation of high EI to improved communication skills and professionalism (Ciarrochi, Chan, & Caputi, 2000; Prati, Douglas, Ferris, Ammeter, & Buckley, 2003). The ability to identify low EI scorers early in a program will allow for an opportunity to design and introduce intentional supports via integrated curricula, prerequisite courses and/or training in hopes of developing a level of emotional intelligence in Allied Health Science program graduates to be successful in the rapidly changing healthcare setting.

Recommendations

This descriptive study was created to target a specific Allied Health Science program. The intention was not to make generalization regarding any or all healthcare training settings.

Future researchers could benefit from a larger sample which could be achieved through involving additional Allied Health Science programs or selection from a larger college setting. The benefit of increasing the sample size would improve the statistical significance of data.

With changes to the current healthcare reimbursement methodology research indicates Emotional Intelligence (EI) is an important attribute for individuals serving patients and has been

linked as a significant aspect of interpersonal relationships which is directly related to patient satisfaction. The focus of this study was to determine the extent to which Emotional Intelligence (EI) is a good predictor of desired attributes in aspiring healthcare professionals. Since current practice for college admissions is focused solely on traditional cognitive abilities as the screening measure, this study confirms the cognitive ability of a student does not predict the emotional skill set needed for delivering effective patient care. Additional assessment measures or further exploration of the specific branch and areas scores are needed to fully capture the interpersonal skillset of the potential applicant.

There is value in identifying supplement tools for selection of students with the desire to become a healthcare professional. A new assessment is being created by the University of Cambridge called the Cambridge Student Personal Styles Questionnaire. As described by Lyon, Trotter, Holt, Powell, and Roe this test will be a new screening tool specific to potential nursing students with a focus areas on critical thinking styles, self-discipline, stress tolerance, and emotional control (2013). Follow up on how this assessment performs in the future will be important.

Additionally, incorporating an interview process or way to assess interpersonal skill set which is necessary in patient care professions. Finding a valid and reliable tool to assess interpersonal attributes such as empathy and compassion is generally considered subjective. A multi-rater assessment would serve to partially resolve the above described limitation.

This study did not explore individual branch scores but rather overall total emotional intelligence scores. With the mindset that emotional intelligence fits into the social intelligence realm, further exploration into the interpersonal scores through the use of area and branch score comparisons could prove beneficial.

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