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## Emotional Intelligence and SRNA Success Utilizing a SIM Experience

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## **Executive Summary**

### **Introduction**

Emotional management and interpersonal skills are imperative in providing safe and quality care in anesthesia. The quintessential anesthesia provider exudes the tenets of emotional intelligence, maintaining a calm composure while navigating continuing challenges and providing effective, safe patient care in high-stress environments. Peter Salovey and John D. Mayer, the leading researchers on emotional intelligence (EI), define EI as the ability to monitor the feelings and emotions of oneself and others, discriminate among them, and use the information gained to guide one's actions and thinking (Salovey & Mayer, 1990). According to Mayer and Salovey (1997), there are four branches of EI: perceiving emotions, reasoning with emotions, understanding emotions, and managing emotions, the latter as the most crucial element. Elevated levels of EI allow individuals to process varying experiences and emotions while remaining calm with a keen self-awareness to deliver holistic, patient-centered care with lasting positive outcomes (Christianson et al., 2020). Furthermore, EI enhances the ability to effectively handle conflict while understanding diverse emotions and feelings to achieve positive outcomes in high-stress situations (Collins, 2013).

This doctoral project's focus examines student registered nurse anesthetists' ability to develop and enhance their EI skill set through active learning strategies that culminate in a high-fidelity simulation prior to entering the clinical arena. EI is a vital skill set that provides student registered nurse anesthetists (SRNAs) with the necessary tools to face the high-stress environment in the operating room during clinical training along with the rigors of academic study, which overall improves their success. For this project, EI training involved the introduction and delivery of multiple EI presentations coupled with active learning strategies for

reinforcement in the classroom. Following EI classroom training, 30 first-year SRNAs participated in a high-fidelity simulation giving them the opportunity to utilize their EI skill sets firsthand. Within this EI training, it is proposed that first-year SRNAs will improve their EI abilities as evidenced by improved scores on the Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT) following training and simulation, as compared to their initial MSCEIT scores prior to beginning the program.

### **Literature Review**

The literature review's main objectives were to analyze the significance of EI for anesthesia practice and examine the clinical and academic relationships between EI and SRNA success. The articles were collected between June and November 2022. Apart from Salovey and Mayer's 1990 article introducing EI, articles included were published after 2008 and written in the English language. Six databases were utilized including American Psychological Association (APA) PsychInfo, Cumulative Index to Nursing and Allied Health Literature (CINAHL), EBSCOhost, Educational Resources Information Center (ERIC), Google Scholar, and MEDLINE Complete. Original search terms were expanded to include other high-stress professions due to the limited amount of dedicated research on EI, SRNA success, and certified registered nurse anesthetist (CRNA) practice, producing 31 articles for this literature review.

Multiple themes emerged from this literature review. Several articles revealed existing barriers for CRNAs related to stress and burnout, affecting interpersonal relationships among staff, potentially compromising patient care, and further emphasizing the value of EI in the clinical setting across healthcare disciplines (Bittinger et al., 2020; Codier et al., 2008; Tracy, 2017; Cooper, 2018; Luedi et al., 2017; Nin et al., 2022). The literature also revealed that although SRNAs face complex challenges during their training, effective utilization of their EI

skill sets allows them to develop and enhance their self-awareness, manage their emotions more effectively, and handle the rigors of academic and clinical training, which is crucial to their personal and professional well-being (Mesica & Manwaring, 2021; Collins, 2013; Lowrance, 2021; Collins & Andrejco, 2015). Furthermore, there is a positive correlation between EI scores and SRNAs' academic and clinical performance (Wijekoon et al., 2017; Talarico et al., 2013). Regarding EI training in nurse anesthesia educational programs, an active approach provides a greater benefit to SRNAs rather than a passive approach (Collins & Andrejco, 2015; Collins, 2013; Christianson, 2020). Additionally, EI simulation allows participants to gain perspective and awareness in a controlled, potentially stressful situation without compromising patient safety, allowing for self-reflection and personal and professional growth (McKinley & Phitayakorn, 2015; Moriber & Beauvais, 2017). Therefore, developing and utilizing the tenets of EI throughout SRNA education enables the development of a CRNA that demonstrates heightened self-awareness, excellent communication strategies, teamwork, and the ability to provide safe patient care in high-stress environments.

### **Project Methods**

The goal of this project was to determine the efficacy of a high-fidelity simulation experience for strengthening the emotional intelligence skill sets of first-year SRNAs enrolled in a nurse anesthesia doctoral program at a mid-sized state university in the Midwestern United States during the Spring 2023 semester in preparation for their first clinical rotation. Before participating in the simulation experience, first-year students completed a five-session EI training module focusing on Mayer and Salovey's ability-based EI model. The simulation experience was also based on this EI model and consisted of eight groups of students rotating through three sessions: preliminary, high-fidelity simulation, and debrief. The students were then asked to

complete the MSCEIT, an ability-based EI assessment that most candidates had voluntarily completed before enrolling in the nurse anesthesia program in the summer of 2021. MSCEIT scores were then compared to pre-admission MSCEIT scores to determine the efficacy of this project. Anonymous Likert-style surveys on self-perceptions of EI and the intervention's effectiveness were distributed immediately following the simulation and at the conclusion of the students' first clinical rotation.

### ***Emotional Intelligence Training***

The simulation was designed to build upon a previously established EI training module developed through a collaboration between the university psychology department's Industrial-Occupational Psychology (IOP) expert and the nurse anesthesia program. The EI training module was originally presented by the IOP expert and consisted of an overview of EI and a discussion of the four branches of Mayer and Salovey's ability-based EI model in relevance to nurse anesthesia. As part of a previous doctoral project, a second-year SRNA divided the EI training module into a 1-hour introductory seminar and four 30-minute active learning sessions corresponding with the four EI branches and presented them to first-year students during the Spring 2022 semester. Each session included a PowerPoint presentation, case studies, and discussions among small groups and the class. For this project, the four sessions were enhanced with updated case studies and presented to first-year students from February through March 2023 following the introductory seminar presented by the IOP expert in January 2023.

### ***High-Fidelity Simulation Experience***

After completing the EI training module, the first-year students participated in the high-fidelity simulation in the university's mock operating room simulation lab in April 2023. The cohort's 32 students assigned themselves to one of eight groups, with four students per group to

accommodate their schedules. All but one of the 32 students participated in the simulation experience, and 30 of the 31 participants completed the experience from start to finish. Each group spent 45 minutes rotating through three sessions (preliminary, high-fidelity simulation, and debrief) and was followed through each session by one of two observer-debriefer teams consisting of one of the two primary student researchers and a university faculty member (the IOP expert or the lead faculty researcher, a nurse anesthesia instructor).

**Preliminary Session.** On the day of implementation, each group began by spending 10 minutes in the preliminary session. The project's primary researchers led the discussion for their respective groups about a clinically relevant case scenario that differed from the simulation scenario; this scenario was distributed to the first-year students the day before in an email to stimulate ideas for emotional management in preparation for the simulation. The students were briefed on the high-fidelity simulation and randomly drew numbers assigned to one of the four participant roles: second-year SRNA, circulating nurse, scrub nurse, and surgeon. The students were given prompts corresponding to their roles and instructed to incorporate as much from the four branches of EI as possible. The second-year SRNA was the most involved role and focused on preparing for and carrying out a rapid-sequence induction and intubation for a patient undergoing an urgent laparoscopic appendectomy. The circulating nurse, scrub nurse, and surgeon prompted the participants to assist with induction and intubation as needed and contribute to the conversation in the room as they would but without obligation.

**High-Fidelity Simulation Session.** After the preliminary session, each group entered the mock operating room and was given 10 minutes to navigate a scenario beginning with an anesthetic induction sequence. The scenario involved a visibly angry CRNA suddenly entering the room and reluctantly assuming the role of the second-year SRNA's preceptor prior to

induction. The CRNA was portrayed by a third-year nurse anesthesia student volunteer nearing graduation who was instructed to elicit authentic emotions from each group through verbal and non-verbal communication. General prompting was provided to the volunteer actor to guide the second-year SRNA through a rapid-sequence induction, intubation, and subsequent events; however, the actor was encouraged to take creative control to elicit strong emotions from each group. Another third-year nurse anesthesia student volunteer was recruited to operate the high-fidelity simulation technology from a nearby control room and manipulate the simulation mannequin's vital signs and anesthesia machine data according to the events occurring in the mock operating room. The observer-debriefer teams originally planned to observe their respective groups via a live video stream from the control room. However, on the day of implementation, it was decided that direct observation in the mock operating room was ideal for clear identification of facial expressions and other nonverbal behaviors. The observer-debriefer teams observed from the corner of the mock operating room for each high-fidelity simulation session and refrained from providing verbal and nonverbal feedback to the participants until the debriefing sessions. Additionally, the observer-debriefer teams used the evaluation tool developed for this project in the initial high-fidelity simulation sessions, but it was found to be a distraction from the events in the room. Therefore, the evaluation tool was not used for Groups 3 through 8. Each simulation stopped after 10 minutes, and the students were escorted to a debriefing room.

**Debrief Session.** Following the high-fidelity simulation, each group participated in a 25-minute debrief session led by the faculty member in their observer-debriefer team. A debriefing tool was specifically developed for this project to focus the discussion on each group's utilization of the four EI branches to navigate the high-fidelity simulation scenario. However, the faculty

members involved in the observer-debriefer teams suggested that the debriefing sessions should be more conversation-like and personal to encourage authentic discussions, so the debriefing tool was not utilized in any of the eight debriefing sessions. Additionally, it was determined that utilizing all four EI branches was not feasible for the participants due to the 10-minute time limit for each high-fidelity simulation session. At the end of each debrief session, the students were encouraged to complete a survey via a QR code about their perceived EI after the simulation and provide feedback about the experience. Students later completed the MSCEIT and the post-clinical follow-up survey at the end of their first clinical rotation in August 2023.

## **Evaluation**

Data collection and analysis for this project consisted of surveys distributed immediately following the simulation experience and at the conclusion of the participants' first clinical rotation, and pre-admission and post-intervention MSCEIT results. Both surveys included Likert-style questions analyzed using descriptive statistics and open-ended questions reviewed for emerging themes. Objective data obtained from the MSCEIT results were analyzed and compared through paired sample t-tests for each branch, area, task, and total score.

Of the 31 simulation participants, 27 completed the post-simulation survey. Results showed that 83 to 92% of participants agreed or strongly agreed that the simulation experience enhanced their perceived abilities to identify, use, understand, and manage emotions. The survey results also demonstrated a positive impact on perceived clinical preparedness, with 92% of participants agreeing or strongly agreeing that the simulation experience enhanced their EI skills in preparation for the challenges they could encounter during their first clinical rotation. Themes emerging from the open-ended response questions include comments on the realistic nature and relevancy of the experience and requests such as repeating the simulation for future students,



allowing all students to portray the SRNA role, creating more involvement for the other participant roles, and providing advanced notice of clinical skill involvement.

The post-clinical follow-up survey, distributed at the conclusion of the students' first clinical rotation, was completed by 23 of the 31 simulation participants. Results revealed that 74 to 79% of participants agreed or strongly agreed that the simulation experience enhanced their perceived abilities to identify their own emotions and those of staff and use them constructively and appropriately during their first clinical rotation. Additionally, 70% of participants agreed or strongly agreed that the simulation enhanced their perceived abilities to understand the reasons behind their emotions and behaviors alongside the emotions and behaviors of the staff at their clinical sites. The simulation experience had a positive impact on the students following their first clinical rotation, with 61% of survey participants agreeing that they felt more prepared to face the challenges they encountered during clinical after participating in the simulation. The themes emerging from the open-ended response questions were like those noted in the post-simulation survey results. Participants also commented on the value of learning to navigate situations involving conflicting personalities in a safe environment and suggested adding similar or more positive scenarios. Compared to the post-simulation survey scores, the post-clinical follow-up survey reflected the participants' decreased confidence in the simulation experience's impact on clinical preparedness. Factors influencing the decreased post-clinical survey scores include inflated post-simulation survey scores due to emotional response bias, a three-month time gap between surveys, participants not experiencing negative situations during clinical that were like the simulation scenario, anxiety about beginning clinical training after the simulation, and less focus on positive clinical experiences during the simulation.

All 32 first-year SRNAs completed the MSCEIT following the simulation experience and their first clinical rotation. Only 30 of the 32 candidates completed the MSCEIT before enrolling in the nurse anesthesia program, thus allowing for statistical analysis for those with both pre-admission and post-intervention data. MSCEIT results revealed slight increases in branch two (using emotions) and area one (emotional experiencing) and decreases in all other categories: branches one (perceiving emotions), three (understanding emotions), and four (managing emotions), as well as area two (emotional reasoning). Further analysis of the scores revealed marginal increases in tasks A (perceiving emotions through facial expressions), B (facilitating thought with emotions), and F (sensing and comparing emotions), which correlate with the branches involving identifying and using emotions. Decreases were noted in all other tasks: C (understanding changes in emotions), D (regulating emotions strategically), E (perceiving emotions through pictures), G (understanding complex blends of emotions), and H (navigating social-emotional relationships). Total MSCEIT scores demonstrated a marginal decrease from 102.4 to 102.0.

It should be noted that within a 95% confidence interval, none of the MSCEIT results demonstrated any measurable, statistically significant increases in EI abilities. However, the benefits of implementing a high-fidelity EI simulation were noted in the debriefing conversations with the participants and in both surveys. Although quantitative and qualitative data were not collected during the simulation experience, the researchers of this project observed authentic emotions from the participants during the high-fidelity simulation sessions, allowing for meaningful, thought-provoking conversations while debriefing. Notably, the project succeeded in improving the SRNAs' self-perceived awareness and ability to respond to emotionally

challenging situations in the clinical arena, which will be beneficial throughout their clinical training and future careers as CRNAs.

Several limitations were noted throughout this project, including small sample size, inconsistent demographic data collection, timing and scheduling constraints, lack of formal data collection during the simulation experience, the possibility of bias associated with self-perceived EI measurements, and post-intervention MSCEIT completion outside of a controlled setting. Only eight of the 32 participants could apply their EI skills in the SRNA role during the high-fidelity simulation sessions, which was the most prominent disadvantage of the project design noted in both surveys. Furthermore, a short time frame between the training modules and simulation experience was a notable disadvantage as EI skills tend to develop over time (Collins, 2013). Although all 32 first-year SRNAs completed the post-intervention MSCEIT, it may have been viewed as a task rather than an assessment of their EI progress since several reminder emails were sent to encourage completion.

### **Impact on Practice**

SRNAs face many challenges during their nurse anesthesia education, and transitioning into clinical practice entails long hours, increasing expectations, a higher level of decision-making, and integration of complex medical knowledge (Mesisca & Mainwaring, 2021). The goal of this project was to improve first-year SRNAs' EI skills through high-fidelity simulation, allowing them to better navigate challenges faced during their academic and clinical training. Enhancing SRNAs' abilities to identify, use, understand, and manage emotions promotes problem-solving, flexibility, self-awareness, personal well-being, effective communication, and positive interpersonal relationships, all of which can contribute to academic and clinical success (Salovey & Mayer, 1990).

EI-based simulation provides a unique subjective learning encounter to increase self-knowledge, allowing individuals to gain a clearer perspective and awareness of behavior patterns related to the management of emotional strategies (McKinley & Phitayakorn, 2015). Moriber and Beauvais (2017) designed and implemented an EI-based high-fidelity simulation to enhance first-year SRNAs' abilities to perceive emotions in themselves and others. The authors concluded that critical thinking and decision-making are influenced by emotions, and simulation allows SRNAs to see the effects of emotions on their abilities to reason and make decisions while in an environment without judgment or the risk of patient harm (Moriber & Beauvais, 2017). Additionally, Dix et al. (2021) studied the effects of a simulation designed to facilitate clinical judgment development in senior nursing students and found that high-fidelity simulation decreased anxiety, promoted self-awareness and self-regulation, and emotionally prepared students for challenges in the clinical setting. The advantages of EI-based simulation demonstrated by the literature create a compelling argument for implementation into nurse anesthesia educational programs.

## **Conclusion**

Emotional intelligence remains a new concept in the education of healthcare professionals, especially in highly stressful professions like anesthesia. This project provides the groundwork for future research projects involving EI-based simulation by exposing nurse anesthesia students to emotionally challenging situations in a safe, controlled environment before experiencing these scenarios in the perioperative setting. The resulting positive feedback from the participants demonstrates the importance of including EI education in nurse anesthesia programs to promote student and professional success, career longevity, patient safety, and satisfaction. Early incorporation of EI simulation demonstrated that students focused more on

anesthetic induction and maintenance algorithms than the emotions and stress levels in the operating room. Future researchers should consider implementing EI simulation later in nurse anesthesia clinical rotations. Incorporating EI simulation further into nurse anesthesia education gives SRNAs a degree of operating room exposure and relatable experiences to adapt to the changing environment. Allowing SRNAs more time to develop their EI skills before applying them in simulation may be beneficial as EI skills develop over time (Collins, 2013). Ideally, each nurse anesthesia student should have the opportunity to portray the lead anesthesia provider role to experience the full potential of high-fidelity simulation as an EI educational tool. Other implications for further research include formal data collection during high-fidelity simulation and debriefing, administering the MSCEIT in a controlled setting, and recruiting a larger sample size. Although EI is in its infancy, the value of addressing the emotional and mental well-being of providers working in highly stressful environments can produce multilayered benefits for patients and providers. Institutions and universities periodically review their healthcare programs to ensure academic excellence in knowledge and skills but currently need quality improvement in recognizing the benefits of integrating courses that provide students with opportunities to develop their EI skills.

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