



# The Effect of Emotional Intelligence on Academic Performance of Student Registered Nurse Anesthetists

Dorcas Cruz, BSN, RN; Marissa Lembo, MS, RN; and Andre Skala, BSN, RN  
 Jodi Della Rocca, PhD, CRNA; Meghan McCreedy, DNAP, CRNA  
 Center for Nurse Anesthesiology at Albany Medical College



## Introduction

- Emotional Intelligence (EI) is the ability to recognize, understand, and manage the emotions of oneself and of others.<sup>1</sup> EI can be quantified using various tools. It commonly incorporates elements such as emotional expression and regulation, self-awareness, and empathy.<sup>1</sup> Emotional Intelligence is popular in the corporate world in predicting various markers of success.<sup>1</sup> It has shown that for graduate level medical studies, emotional intelligence may play an important factor in predicting academic success.<sup>2-8</sup>
- One validated tool to measure EI is the Bar-On Emotional Quotient Inventory (EQ-i). This tool uses standardized questions to measure EI in 5 main categories: intrapersonal, interpersonal, stress management, adaptability, and general mood. This is further broken down into 15 subscales including empathy, self-regard, independence, and social responsibility.<sup>21-24</sup>
- The Center for Nurse Anesthesiology (CNA) at Albany Medical College (AMC) obtains an EI score from all interviewees during the admissions process using an internally validated tool based on the Bar-On EQ-i.

## Purpose

- Enrollment in a Certified Registered Nurse Anesthetist (CRNA) program is a challenging endeavor. Significant financial, time, and emotional commitments are required.<sup>10</sup> If EI scores can be a predictor of a student's academic performance, faculty may be able to use EI scores to help predict a student's success in the program.

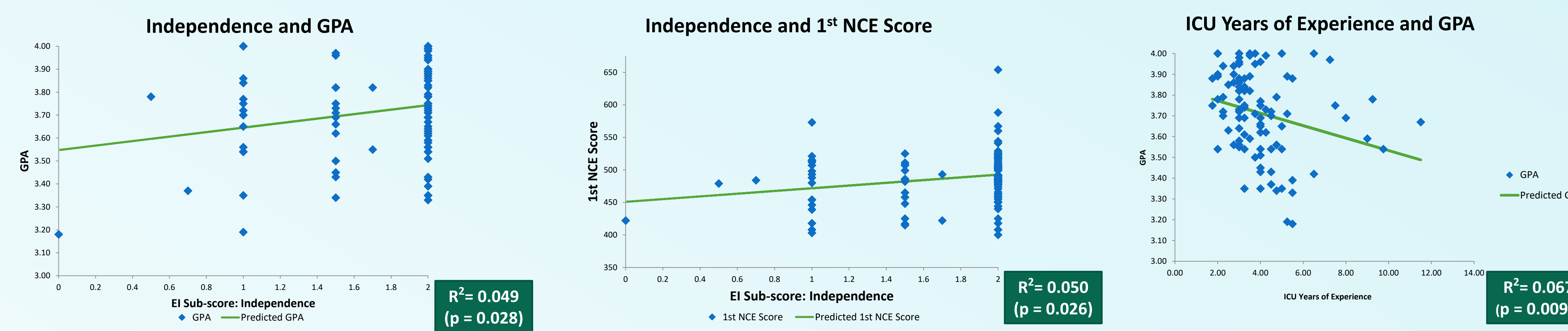
## Methods

- Project Design:**
- Observational cohort study with no intervention; Retrospective
- Methods:**
- Data collection between 2020-2023
  - Data collected: Age, Years of ICU experience, EI Scores, GPA, SEE scores, NCE scores, # of NCE Attempts
  - All data de-identified by CNA faculty
  - No consent needed from subjects and IRB approval not required
  - Study took place at Center for Nurse Anesthesiology at AMC
- Subjects:**
- Former nurse anesthesia masters level students from AMC who graduated between years 2020-2023
  - All subjects successfully graduated the program and had taken the NCE exam
  - 100 subjects enrolled in the study, 1 subject removed due to no EI score collected
  - All subjects had intensive care unit nursing experience
- Analysis:**
- A power analysis was performed using clincalc.com on the main outcome variables of GPA, SEE Score, and NCE score to ensure adequate power<sup>25</sup>
  - Data was tested for normal distribution via Jarque-Bera test, Shapiro-Wilk Test, and d'Agostino-Pearson Test
  - Normally distributed data was analyzed via Pearson Correlation and Non-Normal Data via Spearman Rank
  - Linear regression analysis was performed if statistically significant correlation exists. Poisson Regression was used for NCE # of attempts since it is "count data"

## Results

Independence EI Score is *mildly predictive* of GPA and NCE Score

Overall EI score is *not predictive* of GPA, SEE, NCE



Predictive Variable	Outcome Variable	Significance
Overall EI	GPA 1st SEE Score 1st NCE Score # NCE Attempts	None were Statistically Significant
Independence (EI Subscore)	GPA	Weak predictor but significant Statistically significant Spearman = 0.164 (Weak Correlation). Linear Regression p = 0.0276 with R Squared = 0.049
	1st SEE Score	Not Statistically Significant
	1st NCE Score	Weak predictor but significant Statistically significant Spearman = 0.219 (Weak/Moderate Correlation). Linear Regression p = 0.026 with R Squared = 0.05
Self-Regard (EI Subscore)	# NCE Attempts	Not a Statistically Significant Predictor
	GPA	Not Statistically Significant Predictors
Overall EI Subscores	1st SEE Score	Not Statistically Significant
ICU Years of Experience	GPA	Weak Predictor but significant Statistically Significant Spearman = -0.361 (Moderate Negative Correlation). Linear Regression p = 0.0095 and R Squared = 0.067
	1st SEE Score 1st NCE Score # NCE Attempts	None were Statistically Significant Predictors
	Overall EI Self-Regard (EI Subscore)	Neither Statistically Significant
Age	GPA	Not a Statistically Significant Predictor
	1st NCE Score Overall EI Empathy Social Responsibility	None were Statistically Significant
	GPA	GPA is a Moderate to Strong Predictor of 1st SEE Score Spearman = 0.716 (Strong Correlation). Linear Regression p<0.001 and R Squared = 0.491 GPA is a Moderate to Strong Predictor of 1st NCE Score Spearman = 0.654 (Strong Correlation). Linear Regression p<0.001 and R Squared = 0.429 GPA is a Moderate Predictor of # of NCE Attempts Spearman = -0.524 (Strong Negative Correlation). Poisson Regression p<0.001 and R Squared = 0.368
1st SEE Score	1st NCE Score	1st SEE Score is a Moderate to Strong Predictor of 1st NCE Score Spearman = 0.636 (Strong Correlation). Linear Regression p<0.001 and R Squared = 0.484
	# NCE Attempts	1st SEE Score is a Moderate Predictor of # of NCE Attempts Spearman = -0.498 (Moderate Negative Correlation). Poisson Regression p<0.001 and R Squared = 0.369

Summary Legend
No Statistical Significance
Significant Correlation but not a Predictor (Failed Regression)
Statistically Significant Predictor (Varying Strength)

## Strengths/Limitations

### Strengths

- Additional data was also analyzed such as: gender, years of ICU experience, ICU specialty, and age during application

### Strengths & Limitations

- All subjects were matriculated at AMC
- All subjects took the SEE and NCE post-graduation

### Limitations

- The study only included students who graduated from 2020 to 2023
- During the years of this study, it was only a master's degree level curriculum

## Conclusion

- Overall, EI scores did **not** correlate with any academic performance outcomes.
- Independence sub-scores were *mildly correlated* with GPA and 1st NCE score. Independence score were *weakly predictive* of GPA.
- Strong to Moderate correlations were found between:
  - GPA and all 3 other academic outcomes. – **Strong/Moderate Predictor**
  - 1st SEE score and 1st NCE Score and # of NCE Attempts – **Strong/Moderate Predictor**
- Years of ICU experience were mildly correlated to **lower GPA** and was *weakly predictive* of GPA

## Discussion

A statistically significant correlation between EI and academic outcomes could potentially aid in the admissions process. Current research did not favor one result over another. Overall, the data that was collected indicated that there was no correlation amongst EI, SEE scores, GPA, and the NCE. However, the EI sub-score for independence had a mild correlation with all variables. There was a strong correlation between GPA and SEE scores, NCE scores and # of attempts on the NCE.

### Implications for Future Practice and Research:

Since GPA, NCE, and SEE scores correlate, a focus can be placed on providing academic support to those with lower GPAs. This study can be repeated on a larger sample size, as well include other institutions to determine if there is a difference in results. Furthermore, research can be conducted in the future to possibly test whether emotional intelligence has an influence on clinical performance.

## References

