

# The Correlation Between First Attempt Self Evaluation Exam and National Certification Exam Scores

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## Problem

The Self Evaluation Exam (SEE) is taken by Student Registered Nurse Anesthetists (SRNAs) in most nurse anesthesia programs. The SEE's purpose is to prepare SRNAs for the National Certification Exam (NCE) In 2016, the NBCRNA reformatted the SEE to better align with the NCE. Considering the shortage of anesthesia providers, the negative implications to anesthesia programs with declining scores on the NCE, and the complex burden that SRNAs undertake to complete anesthesia school (average cost 161,000+), it is important to evaluate potential relationship of the SEE performance and success on the NCE.

- Nurse Anesthesia programs' accreditation status will be affected if there is a demonstration of poor quality or serious deficiency in student's education (COA, 2019).
- NCE first attempt pass rates at AHU have declined from 84.6% in 2018 to 75% in 2019 (AdventHealth University, n.d.).

Although NBCRNA published a study in 2018 stating a reliable correlation exists between SEE and NCE scores, it is unknown if the correlation exists in AdventHealth University Masters of Science in Nurse Anesthesia (MSNA) graduates 2017-2019.

## Literature Review

Although studies exist correlating admission factors with NCE 1st attempt scores, correlational studies on the SEE and NCE were limited. Correlation of interim exams with success on board certification exams in other healthcare fields were examined. All showed a positive correlation.

### Importance of Identifying success factors for the NCE:

- Exams are costly: NCE \$995, SEE \$250
- NCE necessary for certification for entry into practice, regardless of education completed.
- Student debt accumulated up to \$100,000+
- Time invested by student approximately 2-3 years

### Importance of passing NCE on first attempt for NAP:

- Reduction of 1st attempt NCE pass rate can affect accreditation status
- Reduction of 1st attempt NCE pass rate can reduce interest from future students

## Methods

**Project design:** quantitative, retrospective, correlational.

**Inclusion Criteria:** 1st attempt SEE scores in the 2nd year and corresponding 1st attempt NCE scores from AHU MSNA cohorts graduating in 2017-2019

**Exclusion Criteria:** SEE and NCE scores prior to 2016, 2nd attempt NCE scores, 1st year SEE scores, and repeat 2nd year SEE scores, Students who exited the program

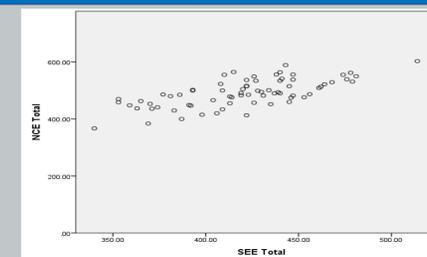
**Setting:** AdventHealth University, small private Christian University in Southeast. Convenience sample of n=72  
Research department identified as QI project (IRB exempt)

De-identified randomized data obtained from AHU NAP. Statistical analysis with SPSS v. 21.0 Pearson r analysis. Pearson product-moment correlation coefficient used to compute a relationship between first attempt SEE and NCE scores with alpha value <0.05. Once significance obtained, multiple regression analysis was performed to determine a statistically significant correlation with SEE and NCE individual content domains,  $p < 0.05$ .

## Results

- Using SPSS, a Pearson r correlation analysis demonstrated a positive correlation between first attempt SEE and NCE total scores ( $r = .683, p < .005, 2$  tailed).
- Total SEE score accounted for 46% of the variation in the total NCE scores as evidenced by an adjusted  $R^2$  value of 0.46 and Durbin Watson value of 2.164
- Regression analysis indicated that the predictive model is statistically significant  $F(1,70) = 61.360, p < .005$ ; therefore, it can be concluded that the total SEE scores from the first SEE attempt in year two significantly predict NCE total scores.
- Correlation matrix evidenced that every possible pair of variables is significantly correlated for the 4 sub-categories.
- The mean SEE score that correlated with passing (>450) at AHU on the NCE was 429 (minimum SEE 353, maximum 514) (see table 1).
- Mean SEE score was 420.

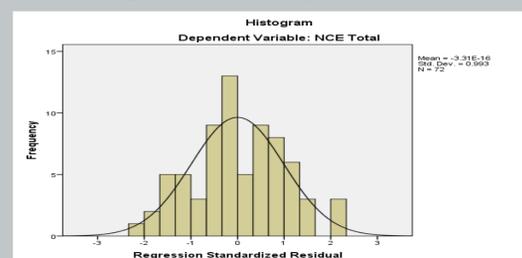
## Figure 1



**SEE and NCE Total Scatterplot**  
(Identifies linear relationship, no outliers in data, both variables are paired and continuous)

## Figure 2

**Histogram**  
Demonstrates normal distribution



## Table 1

Minimum, Maximum, and Mean Scores on SEE Second year that correlated with passing on NCE first attempt (score 450 or greater) AHU Cohorts graduating 2017-2019 (n=58)

	Min	Max	Mean	SD
SEE total (2 <sup>nd</sup> year)	353	514	429.3	32.4
SEE Basic Sciences	326	546	420.2	42.3
Equipment, Technology	348	497	431.2	33.6
SEE Basic Principles	327	517	434.2	38.3
SEE Advanced Principles	323	529	434.3	41.4

## Discussion & Implications

A statistically significant relationship existed between the 1st attempt SEE scores in the 2nd year and 1st attempt NCE scores. All content domains revealed a strong positive correlation. Due to small data set, there was a potential risk for false positive result. Since SEE revision, the national SEE score that correlated to passing the NCE on the first attempt has increased, from 423.7 in 2017 to 437.5 in 2019. Since data set was randomized, it was impossible to compare scores by year. Compared with the national scores in 2019, the scores from AHU MSNA 2017-2019 demonstrated higher mean scores on the SEE and yet lower scores on the NCE, although only by a few points for each category.

## Conclusions

This study confirmed that the SEE can serve as a reliable tool to help predict future performance on the NCE. Current policy at AHU requires the student to take the SEE in the 2<sup>nd</sup> year and 3<sup>rd</sup> year and repeat the exam until a minimum score is obtained. Since students can see their score immediately, they can utilize this to guide their studies. Faculty may utilize scores to identify weaknesses for students and provide remediation or content changes. Although high performance on the SEE does not guarantee passing the NCE, it is recommended the SRNA utilize it as a tool in addition to other board preparation methods. Further studies are recommended for qualitative feedback on the SEE and NCE preparation methods, as well as studying the correlation of repeat SEE attempts and NCE attempts.

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