Identifying Single Shift Quality Measures in the Case of Nursing Students

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What interactions, events, or environments have the authority to define a shift as "good" or "bad" in a future nurse's eyes? This project determines specific factors that significantly influence these nursing students' perceptions of their abilities, workloads, and stress. After determining a suitable instrument for data collection, interviews were then conducted with nursing students to identify key determinants of shift quality. Data was then synthesized to identify and evaluate the factors contributing to stress.

This research aims to (1) assess the degree to which nursing students can predict a single shift's potential level of stress through the comparison of the student's predicted perceived stressors at the start of the shift with their observed and experienced stressors at the time they clock out; and (2) analyze the factors contributing to perceived SSQ from a student nurse's perspective by identifying changes in indicators from discernable stressors before and after the shift. SSQ seeks to positively impact nursing workflow, improve patient safety, and reengineer shortcomings stemming from inadequate processes in healthcare.

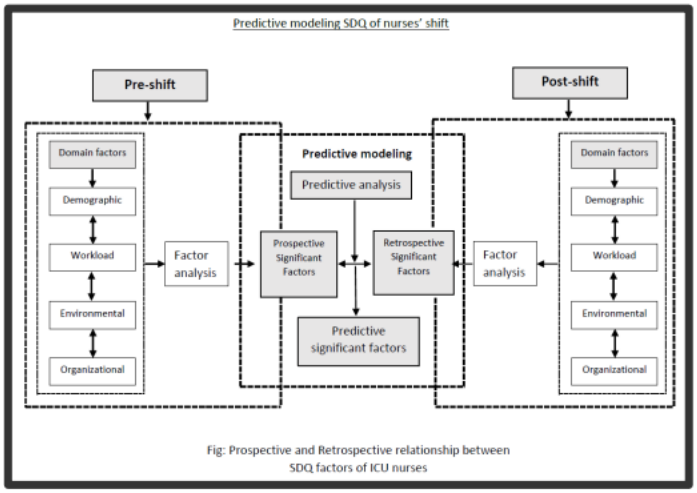

Fig. 1 SSQ predictive modeling.

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This project seeks to evaluate how well nursing students can predict their level of stress in a single shift. The student's prediction of his or her perceived stressors at the beginning of the shift are noted. After the shift, observed stressors are recorded. The two student reports are then compared and analyzed.

Next in the process, variables are investigated and identified. These variables are factors that contribute to perceived single shift quality from a nursing students reported stressors in clinical settings. Changes in the single shift quality indicators from student stressor reports are identified for both the beginning and the end of shift reports provided by the students.

The ability to identify and explain daily stress factors for nursing students in clinical settings allows for our team to determine if there is a causal relationship between their perceptions of these stressors and their expectations of experiencing adversity physically and socially during a particular shift.

With this research, gaps in education and clinical training can be addressed more efficiently and accurately through the assessment of stress on overall student performance.

Figure 1 shows the pre-shift and post-shift domain factors that survey questions are sorted into categorically once answered by the nursing students. These factors are analyzed to find prospective and retrospective factors that appear to be significant in determining shift quality. The factors are then analyzed through predictive analysis to identify predictive significant factors.

The modeling also shows the prospective and retrospective relationship among SDQ factors of ICU nurses, specifically, as shown by the figure.

Correlations found through pre- and post-shift surveys were examined through descriptive statistics. The majority of relations were found to be among workload, patient characteristics, internal environment, leadership, and external environment. The pre- and post-shift survey averages of domains were also compared, with nominal results.

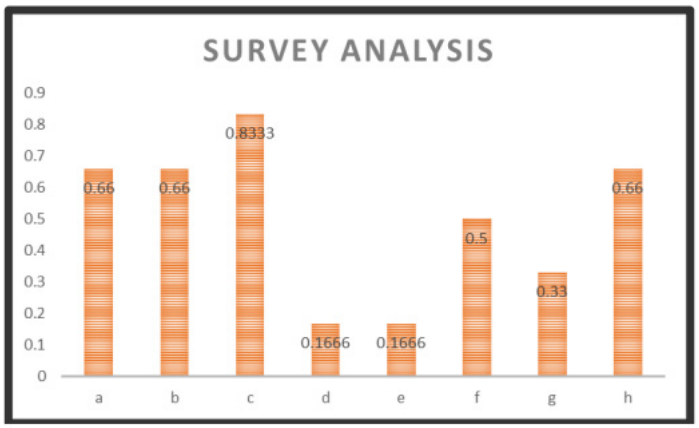

Fig. 2 SSQ survey analysis results.

The survey analysis results can be found above in figure 2. An explanation of letters a-h can be found in this section. Column a shows that 66% of the participants consented to being at their specified unit. Column b shows 66% of participants expected to have positive interactions with other clinicians during their shift. Column c illustrates that more than 83.33% of participants expected to have a good shift based on the race, gender, and first impression of the patients. Column d illustrates that 16.66% of the participants expected discrimination during the shift. Column e shows that 16.66% of the participants expected ingratitude during the shift. Column f illustrates that 50% of the nurses expected that course workloads could affect their quality of care. Column g shows that 33% of the students expected to feel unable to meet the clinical instructor's expectations. Finally, column h shows that 66% of the students expected when they encountered stressful situations to make plans, list priorities, and problem solve.

In the case of single shift quality analysis, perceived stressors were compared prior to and following shifts of student nurses in clinical settings.

Variables are continuing to be identified as more data is collected from participants and more changes in SSQ indicators become identifiable. At the current point in our research, there is a significant correlation found in two domains: between the internal environment and the overall rate, as well as the overall rate and coping strategies.

Statement of Research Advisor

This research seeks to improve the quality of care patients experience in clinical settings, as well as the efficiency of workflows in healthcare organizations. Further understanding the intricacies that cause shifts to be regarded positively or negatively by a nursing student allows us to contribute to these goals. The research team has been more successful because of the effort and work contributed by Kelly.

- Dr. Haneen Ali, Department of Political Science, College of Liberal Arts

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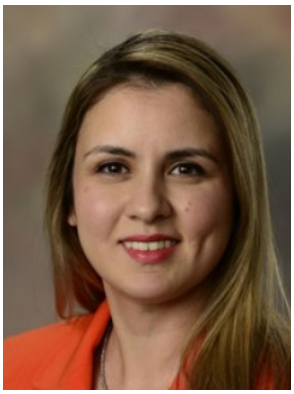
Authors Biography

Kelly Moore is a senior year student pursuing a B.S. degree in Health Services Administration at Auburn University. She has played key research roles in the single shift quality study as she has researched alongside Dr. Haneen Ali. Moore is from Muscle Shoals, Alabama, and is currently completing her internship requirement at UAB Huntsville Regional Medical Campus in the Office of Family Health, Education & Research. She has held numerous leadership positions on campus within the Student Government Association, Panhellenic Council, and Health and Hospital Administration Organization. She is honored to be an Undergraduate Research Fellow and credits this program with giving her the exposure to shortcomings in healthcare that will allow her to become a better healthcare administrator.



Haneen Ali is an associate professor in the Health Services Administration Program at Auburn University. She received her PhD in industrial and systems engineering from the State University of New York at Binghamton in 2016. Ali holds a BS in biosystems engineering and an MS in industrial engineering, and she is a certified Lean Six Sigma Black Belt. Her research areas of interest are in healthcare delivery systems, applications of systems engineering and Lean Six Sigma in healthcare, and human-computer interaction. She has been leading a wide spectrum of projects in the healthcare delivery systems. The focus of these projects can be broadly classified under (1) safety and quality of care, (2) process improvement and system redesign, (3) evaluation of work systems, and (4) technology and innovation.