Relationship Between Stress and Performance in Skills Competencies in an Undergraduate Nursing Program

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RELATIONSHIP BETWEEN STRESS AND PERFORMANCE IN SKILLS COMPETENCIES

IN AN UNDERGRADUATE NURSING PROGRAM

By

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DEDICATION

For my father, William Baughman and my mother, Diana Baughman. Dad, you were always there when I had a question or needed to be brought back down to reality. You are my hero. Mom, you always lent me your faith when I was in doubt. I could not have done it without both of you. You both never failed to remind me that God is ultimately in control and to never lose sight of Him and His great works.

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ABSTRACT

This research study describes the potential relationship between perceived high stress levels and failure in high-stakes performance testing in a baccalaureate undergraduate nursing environment. In addition, it determines if there is a marked difference between perceived stress levels in accelerated and traditional students. To answer these questions, the researcher administered the Cohen's self-report Perceived Stress Scale (PSS) to baccalaureate nursing students fifteen minutes before high-stakes performance skills competency testing. Of 102 voluntary participants, 33 were of the accelerated nursing track and 69 were of the traditional track. Encompassing both groups, nine students failed the skills competency test.

The results showed no relationship between high perceived stress levels and failing high-stakes performance testing. It also did not show a significant difference between perceived levels of stress between accelerated and traditional nursing students. Results did, however, reveal a commonality of moderate stress levels amongst both groups. This result has further implications for stress reduction techniques and coaching to address student anxiety.

Keywords: Stress, High-Stakes Testing, Nursing Student, Perceived Stress Scale

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Nursing Program

CHAPTER 1: INTRODUCTION

Nursing school presents multiple unique stressors from the classroom and the clinical

environments. Due to the nature and requirements of an undergraduate baccalaureate nursing

degree, student stress levels tend to be particularly high (Tagher & Robinson, 2016). From the

demands of lengthy lecture classes and extensive material knowledge, clinical components, and

skills competencies, nursing students walk into a new world of stress when they are accepted into

a nursing program. For most, up until this point, knowledge is assessed through written exams.

In nursing education, it is common practice to have mandatory clinical skills assessments

to evaluate competence and safety of psychomotor and cognitive abilities prior to working with

patients. The nature of this type of testing mixed with probable performance and test anxiety

becomes compounded with the fact that it is considered high-stakes testing. According to the

American Educational Research Association, American Psychological Association, & National

Council on Measurement in Education, a high-stakes test by definition is "a test used to provide

results that have important, direct consequences for examinees, programs, or institutions

involved in the testing" (1999). High stakes testing is used in nursing schools to further prepare

students for the National Council Licensure Examination for Registered Nurses (NCLEX-RN)

and gauge the probability of successfully passing the exam (Hunsicker & Chitwood, 2018). In

nursing school, these assessment results can determine continuation in a course, clinical,

program, or even eligibility for graduation.

With psychomotor testing of great importance in baccalaureate nursing education, stress

can inevitably occur. Tagher and Robinson (2016) noted that high-stakes testing has a positive

correlation with high stress levels. In the clinical competency environment, students are expected to physically perform specific abilities and skills in a live demonstration for observing faculty. Scores from the psychomotor tests often determine progression in the program for the students.

Stress in graded observed performance situations can be either helpful or a hindrance to student performance. Some degree of stress can help students stay alert and astute in observation. But for others, stress can become overwhelming and cause performance to suffer. Elevated levels of stress have been found to diminish academic performance in students and can lead to a decrease in physical and mental health (Aafreen, Priya, & Gayathri, 2018). High stress levels can occur even when a student is competent. By reducing stress associated with observed performance assessments, nurse educators may get a more accurate assessment of students' clinical competence and proficiency. The stress related to skills competencies can be detrimental during the early phases of nursing school. It can interfere with students' progression in the program. Consequently, any intervention, whether it is behavioral adjustments or further instruction by faculty, should be implemented to decrease student stress.

Purpose

The purpose of this research study was to determine if there is a relationship between high stress levels experienced by baccalaureate nursing students and their subsequent failure in high-stakes performance testing. High-stakes performance testing refers to testing that holds significant consequences based on the results, such as eligibility for graduation based on passing a particular exam. This descriptive research was conducted to help further assess the effect of high-stakes testing on students' self-reported stress levels. It may identify a need to investigate methods of stress reduction and coping in the performance testing environment. High stress

levels related to performance assessments in nursing students have the potential to affect the ability for competent future nurses to progress in school thereby limiting potentially qualified nurses from practice.

Problem Statement

Research is needed to further investigate if elevated stress levels in undergraduate nursing programs affects student's ability to pass skills competency assessments. Not only can high levels of stress in nursing school impact a students' progress toward graduation, but it may also carry into these future nurses' careers. Learning stress coping methods is vital for handling the common stressors in the nursing school environment. Lack of appropriate stress coping techniques may transfer to the newly graduated nurses' working environment as stress-related ill health. Newly graduated nurses were found to experience a high level of stress-related ill health once they began working in the healthcare field (Laschinger, Finegan, & Wilk, 2009). These levels of stress were found to not only affect the nurses' ability to work, but the safety and quality of care (Poghosyan, Clarke, Finlayson, & Aiken, 2010). Newly licensed registered nurses with high levels of stress also incur more absences from work due to illness (Davey, Cummings, Newburn-Cook, & Lo, 2009). With the current nursing shortage, this can potentially lead to further under-staffing of facilities that serve the public and communities.

There is also limited research comparing accelerated and traditional student stress levels in nursing school. Because of the differences in academic backgrounds and life experiences of the different groups of students in schools of nursing today, it is necessary to understand if they are affected differently by performance stress. Accelerated students are students who hold a previous baccalaureate degree in another area of study and are in an expedited program that is four semesters long. These students experience the same courses as traditional-track students;

however, they are completed at a hastened pace and workload. Comparatively, traditional students may or may not hold a previous degree but experience the program at the typical pace of five semesters. It is important to identify if there is a variance in the level of perceived stress between the two groups. This can, in turn, help determine if there are different needs for stress coping education in the separate groups.

Background and Significance

Nursing shortages in the United States are anticipated to continue to rise as the population ages and health care demands escalate (Pitt, Powis, Levett-Jones, & Hunter, 2012). Across the United States, there has been an increase in student enrollment in pre-registration nursing educational programs to combat this shortage (Pitt et al., 2012). Hunsicker and Chitwood (2018) noted that with greater student numbers and a need to assure proficiency in all, high-stakes testing is being implemented in more nursing schools. High-stakes testing is a common method of evaluation used in nursing education to predict student success on the NCLEX-RN exam.

According to a concept analysis conducted by Sullivan (2014), high-stakes testing in nursing education has four defining attributes. High-stakes testing hold nursing students accountable as the tests carry serious consequences with failure, and they hold schools accountable as schools with low first-time NCLEX-RN pass rates may lose accreditation. With high-stakes testing there must be a clear distinction between outcomes for passing and outcomes for failing, and all students who take the tests have vested interests in the exams whether it be personal, monetary, or emotional.

Equipment utilized for high-stakes performance testing often includes high fidelity mannequins and simulation equipment. Faculty are able to digitally record student performances and observe from behind a one-way mirror while simultaneously controlling the simulators

remotely. In this way, students are required to take their knowledge of the subjects and utilize it physically through nursing interventions and assessments with the simulator. Performance scenarios are often stressful for undergraduate students as this assessment strategy is new to them, and the examination is a performance rather than a written evaluation of knowledge.

Students who have higher ratings of internal stressors such as anxiety, loneliness, emotion, guilt, or test anxiety were found to be less successful in taking the NCLEX-RN (Schwarz, 2005). Students who reported fewer family demands and responsibility were more successful on the NCLEX-RN (Sears, Othman, & Mahoney, 2015). According to a study in 2016 by Tagher and Robinson, stress is often related to the fear of failing out of nursing school. The authors also noted that high stakes testing has been shown to correlate with high stress levels. The findings from their study demonstrated that students experience issues balancing their studies and personal lives and often feel isolated from their peers due to their studies. The stress can present with both psychological and visceral manifestations. With the increase in stress and implementation of high-stakes testing comes the need to reduce any unnecessary pressures when able, and investigate ways to assist with student coping skills regarding stress. By identifying and understanding components of education that are prone to causing excessive stress, future researchers have the ability to identify and implement interventions for reduction whilst maintaining the integrity of a high-stakes testing environment.

As we cannot eliminate all stress associated with nursing school nor clinical practice beyond the academic setting, it is important to recognize opportunities and arenas in which stress coping skills would be beneficial to nursing students. For competent nurses, being able to cope and handle stressful situations is essential. This study will help identify if high-stakes performance testing regarding skills competency is an area in which students experience

increased stress and possible failure of the examination. If so, this could open doors for investigation of stress reduction techniques and education on coping skills to help reduce the impact of the stressful testing environment.

Research Questions

The research questions that will be addressed in this study are:

1) Is there a relationship between self-reported high stress levels and subsequent failure of baccalaureate nursing students during high-stakes performance testing?

2) Is there a difference in self-reported stress during high-stakes testing between traditional and accelerated students?

Theoretical Framework

The theoretical framework foundational to this study is the biopsychosocial model (BPSM) of challenge and threat (CAT). This theory is a combination of the transactional stress theory of Lazarus and Folkman (1984) and the theory of mental toughness by Dienstbier from 1989 (Hase, Moore, O'Brien, & Freeman, 2018). Lazarus (1993) focused on how and why people perceived and reacted differently to the same stress stimuli (Papathanasious, Tsaras, Neroliatsious, & Roupa, 2015). The research explored the factors that contributed to how some people were able to cope quite effortlessly with stressors and perceived the situation as a challenge, while others struggled and perceived it as a threat. Lazarus' model incorporated cognitive factors in addition to environmental stimuli including personality characteristics, personal beliefs, motivation, skill set, and cognitive resources (Papathanasious et al., 2015). The theory of physiological toughness proposes that occasional exposure to challenge leads to higher task performance (Dienstbier, 1989). Research has shown that often challenge is associated with

higher performance rather than threat, although not exclusively (Fonseca, Blascovich, & Garcia-Marques, 2014).

Lazarus' stress theory formed the foundation for continued stress research and expanding the idea of stressors beyond environmental stimuli (1993). This concept is paramount in studying stress as the body's fight or flight reaction comes in to play when great stress is applied. Lazarus sought to investigate the factors that affect a person's response to stress in addition to the environment.

For this 2019 research study, the setting remained the same, however different factors may have contributed to students' interpretations of stressors. The study investigated the psychological toughness of the accelerated students by examining if there is a difference between these students and the traditional students in perceived levels of stress. It also examined if the occasional exposure to stress leads to better performance in some students by comparing stress levels and competency results.

Conceptual Variable Definitions

Traditional Nursing Student. A student participating in a traditional five or six-semester baccalaureate degree nursing program.

Accelerated Nursing Student. A student, who holds a baccalaureate degree in another discipline, participating in a condensed four-semester baccalaureate degree nursing program.

High-Stakes Performance Testing. Testing that has direct and decisive consequences (e.g., performance testing that affects passing or failing a course, progression in clinical studies, graduation eligibility, etc.).

Stress. The body's reaction to feelings of mental, physical, or emotional strain resulting from any change requiring an adjustment or response.

NCLEX-RN. Abbreviation for the National Council Licensure Examination for Registered Nurses, a mandatory standardized test for licensure as a registered nurse required prior to practicing nursing in the United States.

Operational Variable Definitions

Student's Stress Level. Stress will be measured by utilizing Cohen's Perceived Stress Scale (PSS). The scale measures stress levels through a self-reported 10-question survey that are rated according to the frequency of particular feelings or thoughts.

Cohen's Perceived Stress Scale. Self-reporting rating instrument to assess stress levels.

Assumptions

Assumptions for this study include the following: 1) participants will assess their anxiety honestly and independently using the PSS, without bias or outside influence; 2) participants will complete the PSS self-assessments before high-stakes testing at the preconceived time.

Limitations

Limitations to this study include the nature of a self-report survey. This is a limitation as responses may also be influenced by the phenomenon of response bias where the participant wants to be shown in a positive light even if the survey is anonymous. Answers may be exaggerated or understated. A convenience sample of second-semester undergraduate nursing studies will be taken, utilizing one university's nursing program. This may limit generalizability of data findings. Sample size may be a limitation. The timing of the self-report survey may be a limitation if it corresponds with other academic demands.

CHAPTER 2: REVIEW OF THE LITERATURE

Stress and nursing school seem to be synonymous. With rigorous academic and clinical demands, students and faculty alike perceive that nursing students tend to have increased anxiety and stress levels compared to other college students (Reeve, Shumaker, Yearwood, Crowell, & Riley, 2013). High-stakes performance testing in nursing school can contribute to this stress (Tagher & Robinson, 2016). This literature review provides a background concerning the effects of stress in nursing school, high stakes performance testing and stress, and current findings of pertinent research.

Stress in Nursing School

Previous studies on stress in nursing school have shown a correlation between high-stakes performance testing and elevated stress levels. In a phenomenographical study in 2016, Tagher and Robinson interviewed a small, purposeful sample of five nursing students regarding their experience of stress. This study stemmed from faculty observation of vast changes in student behaviors and evidence of stress and emotional strain after the implementation of high-stakes testing in the nursing program. Individuals in Tagher and Robinson (2016) sample were of different ages, genders, and had different grade point average (GPA). Their assumption was that the students' perceptions would be varied due to their different demographics.   The sample included: a student from the top third of the class regarding GPA, a student from the middle third of the class GPA, a student from the bottom third GPA, a male nursing student, and a nontraditional student. Interview questions were open ended to help encourage reflective responses. The study found that stress was often related to the fear of not graduating, both psychological and physical manifestations, problems balancing academics and personal life, feeling isolated and withdrawn, and the dichotomy of feeling prepared versus feeling

overwhelmed. Tagher and Robinson (2016) concluded that all students experienced stress with

the high-stakes testing although in various ways and manifestations. This study shows a need for

a decrease in stress and encourage support measures regarding high-stakes performance testing

environments and a need to identify at-risk students.

Researchers have compared the differences between traditional and accelerated nursing

students regarding stressors. Using an embedded mixed method, Wolf, Warner, Stidham, and

Ross (2015) administered a questionnaire packet to 210 BSN third- and fourth-year nursing

student participants in order to identify stress predictors and describe the stressors and coping

mechanisms comparatively between accelerated and traditional students. The participants were

made up of 75 accelerated track students and 135 traditional track students at two Midwestern

universities. The questionnaire packet included student demographics, the Rosenberg Self-

Esteem Scale, history of depression, the Perceived Stress Questionnaire, and the

Multidimensional Scale of Perceived Social Support. The researchers also utilized open-ended

questions at the end of a class. Simultaneous multiple regression and content analysis were used

to analyze the study data. There was no significant difference between the two groups in the

independent t-test ($t = 0.46$, $p = .65$). Simultaneous multiple regression showed that the program

track of the student was not associated with the level of stress. However, history of depression

and the student's semester in the program positively correlated with stress level ($\beta = .166$ and β

$=.159$ respectively). Those reporting higher self-esteem correlated with lower perceived stress

than those reporting lower self-esteem ($\beta = -.270$). Additionally, students who endorsed good

emotional support experienced less stress than those with less support ($\beta = -.179$). Three stressor

categories emerged from the study: fear of failure and clinical incompetence, time management

problems, and problems in relationships. Wolf et al. (2015) concluded that history of previous

depression, little social support, and low self-esteem correlated with higher stress levels in senior

students. By identifying these factors, educators can help identify at-risk students and begin

stress reduction interventions early in the students' nursing careers.

Reeve, Shumaker, Yearwood, Crowell, & Riley (2013) also conducted a study comparing

traditional and second-degree nursing students regarding stress. The researchers completed a

mixed method study using an online survey with both quantitative and qualitative questions. The

objective of the study was to investigate stress experience and role of social support in both

traditional and second-degree nursing students. One hundred seven baccalaureate nursing

students were polled. Forty-nine of the students were in a traditional nursing track while 58 were

in a second-degree track. Five tools were combined into a singular online survey to assess stress

response, coping mechanisms, and perceived social support. The scales used were the

Multidimensional Scale of Perceived Social Support, the Social Support Questionnaire, the

Deakin Coping Scale, and the Student Life Stress Inventory. Upon data analysis, it was shown

that 95.7% ($n = 102$) reported feelings of anxiety while under stress. Over 87% of students

endorsed feeling worried ($n = 94$). Depressed feelings in stressful situations were reported by

42.1% of students ($n = 45$). Regarding mechanisms for coping with stress, talking with family

decreased with age and progression through the program from sophomore (91.7%, $n = 11$) to

senior year (68.8%, $n = 11$). Overall, second-degree nursing students reported more "moderate"

alcohol consumption compared to traditional students. Reeve et al. (2013) concluded that there

is great evidence of high levels of stress in nursing students that influences their school

experiences. This may affect their personal relationships and professional careers. Therefore,

there is a need for social support and development of coping skills in nursing students in order to

promote success.

In 2012, Shaban, Khater, and Akhu-Zaheya studied Jordanian nursing students' sources

of stress and coping strategies. The study was a descriptive cross-sectional design. One hundred

eighty-one baccalaureate nursing students completing their final week of their third semester

composed the study sample. Common stressors identified in order of rank included stress from

assignments and workload, stress from the environment, stress from teachers and nursing staff,

stress from lack of professional knowledge and skills, stress from peers and daily life, and stress

from taking care of patients. Thirty-one percent of students reported experiences two kinds of

stressors while 55% experienced more than three. Major stressful events identified included

worry about academic grades, early duty at the hospital, and general pressure from clinical.

Primary coping behaviors reported include problem solving, being optimistic and positive, and

transference. Evasion was not as frequently reported. Only 19.3% of the nursing students

reporting using a single coping mechanism while 70.1% reported adopting multiple methods.

Shaban et al. (2012) concluded that nursing students perceive a moderate amount of stress during

school and clinical studies. Effective coping mechanisms for the students included optimism,

transference, and using problem solving.

Performance Testing and Stress in Nursing School

Compounding the stress of nursing school is the fact that students must perform skills and

demonstrate competency for faculty. This adds another layer of stress for students. Students

need to understand and comprehend the knowledge upon testing and be on display and recorded

for accuracy in a live testing environment using simulation technologies.

Burbach, Struew, Young, and Cohen (2018) used a mixed-methods design to study how

students' performance in low stakes, high fidelity patient simulation (HFPS) related to their

anxiety, self-efficacy, and overall nursing knowledge. Qualitative data collection occurred

during debrief post-simulation. The study participants included 107 second semester nursing

students from two campus locations of a Midwestern university. The mean levels for students'

anxiety levels using the Spielberger State-Trait Anxiety Inventory (STAI) were as follows: State

(38.85 ± 9.1) and Trait (37.21 ± 8.8). Compared to published standards of anxiety levels, these

reflect slightly higher scores. However, the levels fell below those typically associated with

testing conditions, indicating to researchers that the students did not experience much anxiety

going into the simulation. Self-reports of anxiety contrasted with the quantitative data collected.

An average score of 12.11 ± 2.09 (out of a maximum possible 17) was earned by students

indicating considerable anxiety. Eighty-three percent of the students made at least one error

during the simulation. Additionally, 38% of students failed to provide evidence-based answers

when educating the patient during simulation. At the end of the study, Burbach et al. (2018)

concluded that knowledge of nursing and its relationship to simulation performance supports

simulation as an effective means to evaluate nursing knowledge application.

Horsley and Wambach (2015) sought to determine the effect the presence of nursing

faculty during simulation had on students' anxiety levels. The researchers used a quasi-

experimental research design with pre- and post-tests with two groups of students. The study

tools used to gauge anxiety, self-confidence, and student satisfaction included the Nursing

Education Simulation Framework, the Student Satisfaction and Self-Confidence in Learning

Scale (SCLS), the State-Trait Anxiety Inventory (STAI), and the Clinical Performance

Evaluation Tool (CPET). The sample included 91 baccalaureate nursing students in their junior

medical-surgical clinical course from fall 2011 semester and spring 2012 semester. The

experimental group consisted of 49 students from fall semester (n=20) and spring semester

(n=29). The control group consisted of 42 participants from the fall semester (n=19) and spring

semester (n=23). Horsley and Wambach (2015) used Pearson's correlation to analyze

relationships between student's post-test anxiety levels, clinical performance, and self-

confidence. There was a low negative correlation between self-confidence and state anxiety, $r =$

-0.14, p - .20; clinical performance and self-confidence, $r = -0.04$, $p = .71$; and clinical

performance and state anxiety, $r = -0.12$, $p = .25$. Due to these small correlations, a separate

ANCOVA analysis was conducted and revealed there were no significant differences in the state

anxiety scores between groups. There was no significant difference in satisfaction scores of the

groups. These results indicate that the presence of the nursing faculty in a simulation evaluation

negatively impacted nursing student anxiety, self-confidence, and overall performance. Horsley

and Wambach (2015) suggested that nursing faculty may create an optimal environment for

learning by observing through a one-way mirror during simulation.

High-stakes testing is not limited to performance competencies and standardized testing

in nursing school. For example, Røykenes, Smith, and Larsen (2014) completed a study

investigating high-stakes drug calculation testing and nursing student experience and perception.

It was conducted as a mixed methods design in which students were given a survey (quantitative

data) followed by a focus group interview (qualitative data). Two hundred and five freshman

nursing students at two colleges completed the survey and six students participated in the focus

interview two years later. The six students attended an interventional program for students with

low perception of mathematics ability and/or high test anxiety levels regarding drug calculation

exams following the initial survey. The survey revealed that 42.4% (86) of students reported low

Maths Self-Concept (MSC1) at the beginning of their nursing program, while 9.4% (19) reported

a high MSC1. Of all of the surveyed students, 25.6% ($n = 52$) endorsed a high MSC2, or

negative Maths Self-Concept. Months before the high-stakes drug calculation exam, 44.3% ($n =$

90) of students reported high Maths Test Anxiety (MTA) in contrast to 7.9% who reported low

MTA. The study showed that the students' perceptions bore great significance in relation to

reports of test anxiety. Both low self-concept and high or medium self-concept students

experienced elevated test anxiety with high-stakes testing. Røykenes et al. (2014) concluded that

high-stakes testing increases students' test anxiety dramatically for all the nursing students in the

study.

        Further literature review expands to clinical performance experiences by students. Pai,

Wei, Chen, Tsai, and Yen (2018) conducted a research study to examine the experiences of

clinical performance among nursing students. Researchers sought to investigate whether or not

work task load and student anxiety directly related to skills performance and characteristics of

the tasks. A quantitative approach was used with a sample of 266 nursing students from one

university and two colleges in Taiwan. Their questionnaire included a combination of five

instruments: (1) Task Characteristic Subscale, (2) Task Cognitive Loading Scale, (3) Simulation

Learning Effectiveness Scale, (4) State-Trait Anxiety Inventory, and (5) the clinical practice

exam. Self-effectiveness was measured using the Simulation Learning Effectiveness Scale and

results showed it to be a strong positive predictor of task autonomy (referring to autonomy in

decision making, work scheduling, and work methodology); task variety, identity, and

significance; and task feedback (β = 0.22, 0.35, and 0.47 respectively, p < .001). Task autonomy

did not have a strong link with clinical exam performance (β = -0.03, p > .05). Task variety,

identity, and significance and task feedback were found to be strongly linked to the clinical exam

performance (β = -0.26 and 0.20, respectively, p < .001). Task autonomy and task feedback

were not shown to be significantly correlated with performance (β = -0.07, 0.12, p > .05).

Anxiety was found to be a positive predictor of task cognitive load (β = 0.58, p .001). Pai et al.

(2018) found that clinical performance was directly affected by task characteristics. The study demonstrated that anxiety has a direct effect on student's clinical performance.

In 2016, Gosselin, Holland, Mulcahy, Williamson, and Widacki studied performance anxiety and learning in baccalaureate nursing students. They employed a randomized control group pretest-posttest design to investigate how listening to music affects self-efficacy, anxiety, and ability to learn in simulation. Two groups were randomly assigned with a control group receiving no intervention and the treatment group receiving a 30-minute music-listening intervention prior to simulation. The sample size was 38 second semester nursing students with 19 in the control group and 19 in the treatment group. The findings revealed a significant disparity between the control and treatment groups. Heart rate, mean arterial pressure, and state-trait anxiety level scored lower in the treatment group, $F(3, 35) = 6.55$, $p = .02$, $\eta^2 = 0.27$. In contrast, instructor performance ratings were higher in the control group ($p = .009$). The instructors were blind to any intervention conditions. There were no differences found in self-efficacy scores ($p = .37$). Gosselin et al. (2016) concluded that anxiety can be reduced with musical therapy prior to simulation experiences. This is a relatively low-cost intervention to help with student anxiety and therefore increase the effectiveness of student learning.

Khalaila (2015) studied a convenience sample of 170 nursing students in Israel in 2015 to observe the effects of academic self-concept (ASC) on student achievements in their academic studies. A descriptive-correlational study was conducted using ASC, motivation and test anxiety scales. Academic achievement was found to be directly correlated with academic motivation [$B = 0.77$, $t(110) = 4.8$, $p <0.00$], test anxiety [$B = -1.1$, $t(110) = -1.6$, $p > 0.05$], and test anxiety-motivation interaction [$B = 0.38$, $t(110) = 2.0$, p, 0.05]. The research supported several previous studies stating that students who feel confident and remain positive about their own capabilities

were more likely to experience success. A negative relationship between academic achievement and test anxiety was revealed during the study consistent with previous research as well. Khalaila (2015) found academic self-concept and achievement to be directly related to test anxiety and intrinsic motivation. This highlights the importance of sufficient emotional support and academic support to encourage positive self-concept in students and motivational drive.

Summary

Many studies have found stress to be a prominent obstacle for students in undergraduate nursing programs. Particularly elevated stress levels were seen with implementation of high-stakes testing. Common factors related to stress included test anxiety, fear of failure, pressures, and academic workload. There were several coping mechanisms shared across the different studies including listening to music, positive thinking, and talking with friends and family about stressors. History of depression and low self-esteem were found to correlate with higher stress levels in students. High risk students were identified in multiple studies and helped highlight the need for appropriate, supportive learning environments and stress reduction programs.

Conclusion

Although there have been numerous studies related to stress and nursing students as well as generalized test anxiety and performance, there is a knowledge gap regarding the correlation with skills competencies and stress levels. High-stakes testing is being implemented more in nursing schools and needs further study to see the extent of its effect on student's stress and overall performance level (Spurlock, 2006). Benefits and disadvantages require further scrutiny to ensure effective testing methods as well as effective, supportive learning environments. Therefore, further research should be conducted to investigate high stakes testing and its effect on student psyche and physical wellness.

CHAPTER 3: METHODS

This chapter describes the design of the study, setting, population and sample, data collection procedure, and instrument utilized. Threats to validity will also be discussed along with statistical analysis and confidentiality maintenance. The study was a quantitative study with a single survey design. This study design was utilized to gauge the students' stress level and its relationship to performance in skills competency assessments. All students were required to participate in the simulation for the course, but participation in the study survey was voluntary. In this research design, all participants underwent the same competency procedure and evaluation by nursing faculty after completion of their survey.

Setting

The setting of the study was a school of nursing at a university in Georgia. Institutional Review Board (IRB) approval was obtained for this study prior to data collection. Recruitment occurred in the skills laboratory with nursing students in the second semester adult health course in the school of nursing. Surveys were administered in summer and fall semesters for accelerated and traditional students respectively. Two sets of surveys were collected as courses were conducted in the summer for accelerated students and the fall for traditional students. Accelerated students are those who hold a previous baccalaureate degree in another field and opt to complete the nursing program with an expedited schedule of four semesters. Traditional students complete the same program and education at the standard pace of five semesters.

Population and Sample

The population was undergraduate baccalaureate nursing students at a university in Georgia. Participants were from the traditional and accelerated tracks and included male and female students. A total of 102 students participated in the study. Thirty-three accelerated

students participated in the summer semester of 2019 and 69 traditional students participated in

fall of 2019. The sample was obtained from this university due to accessibility and pertinence of

the study to this program.

Data Collection

All undergraduate nursing students who would be examined via high-stakes performance

testing in the summer and fall semesters were approached as a collective group in the skills lab

setting by the main researcher. The researcher went to each of the two classrooms on each of the

two days and presented the research study participation opportunity. The process of the study

was explained to the students and questions were answered. On the days of skills competency

testing for each group, the researcher met students at a table in the hall where students waited to

be called for testing. The researcher presented pre-created packets, clipboards, and writing

utensils to each participant. The survey packets included a demographic information sheet

(including ID number, gender, course, semester, and accelerated or traditional track), consent

form with a duplicate for the participant's records, and the PSS survey instrument.

The survey packets were distributed to volunteer participants when the individuals

arrived 15 minutes before their competency assessment time. Each participant returned the

packet to the researcher that included one copy of the signed informed consent and the

completed PSS questionnaire and demographic information. All materials were returned in a

sealed envelope

The completed surveys were kept in a locked cabinet accessible by the researcher until

data collection was complete for both semesters. The self-reported PSS questionnaires were

scored according the instrument guidelines as low, moderate, or high stress level. Pass or failure

results for each participant on their competency assessment was compiled by a faculty member

in the skills lab and provided to the researcher without participant names. The information was

comprised of the participant identification number and the pass/fail assessment result that

matched the identification number on the participant PSS survey.

Instrument

The instrument used to measure student stress in this study is Cohen's PSS, a public

domain publication. It is the most widely used instrument to measure perceived stress and is

used internationally with multiple translations. In this 10-question Likert scale, participants rate

each symptom based on how often they have experience it in the past 30 days (Cohen, Kamarck

& Mermelstein, 1983). The raw scores range from 0 to 40 and indicate normal, mild, or severe

stress levels. Scores of 0 to 13 reflected low stress levels; 14 – 26 reflected moderate stress; and

27 – 40 reflected high stress levels.

The PSS scale was used in the study due to its brevity of administration. The self-report

questionnaire takes five to ten minutes for completion. It was developed for community

sampling of individuals with at least a junior high school education (Cohen et al., 1983). Cohen

and Williams (1988) reported that the scores of the PSS-10 demonstrated adequate internal

consistency and reliability at $\alpha = .78$. Moderate concurrent criteria and validity was also reported

by these researchers ($r = .39$, $p < .001$). In addition, adequate convergent validity associated

with perceived health occurred ($r = -.22$, $p < .001$) (Baik et al., 2019). Barbosa-Leiker et al.

(2013), Reis, Hino, and Anez (2010), and Golden-Kreutz, Browne, Frierson, & Andersen (2004)

noted similar findings. See Appendix A.

Validity

Study validity may be threatened if other major stressors such as those of an academic

nature, personal events, or physical ailments coincide with the timing of the study. Results may

be exaggerated or inconclusive. Self-reported findings are subject to response bias. Participants were educated to answer items quickly, as per the instruments instructions, as this yields the most accurate result.

Statistical Analysis

The average scores of the self-report survey prior to skills competency testing were calculated and compared amongst the entire sample and among traditional and accelerated students. Stress level scores were examined against competency assessment results. A cross-tabulation was conducted to examine the percentages of low, moderate, and high perceived stress levels amongst students who passed versus students who failed. The Chi-Square test of independence was used to determine if high perceived stress levels and subsequent failure in the high-stakes performance competency testing were associated. An independent samples t-test was also used in order to compare the average PSS score between the two groups. The goal was to determine whether there was statistical evidence that the associated means were significantly different between accelerated and traditional participants.

Confidentiality

An informed consent document was completed by each participant before the commencement of the study. Participant confidentiality was maintained by utilizing ID numbers to compare pre-test scores and competency results. Names and other identifying sensitive information were not collected nor associated with any data. The results of this participation remain confidential. Students were identified by student identification number only. This identification was to enable the researcher to pair survey information with skills competency test results. The competency results were provided by the nursing instructor and results were reported only by the student ID number. All information collected from participants was kept in

a sealed envelope until analysis began. Data was then transferred to an encrypted USB drive and

locked file box at the completion of analysis. Per federal regulations, research records will be

retained for three years after completion of the research study. Only the researcher, thesis

committee faculty, and statistician were privy to information in this study.

CHAPTER 4: RESULTS

This chapter will explain the results of the study in detail including statistical analysis. The anticipated sample size was 75 undergraduate baccalaureate nursing students at a university in Georgia. The actual study yielded a total of 102 participants with 33 accelerated participants (32.4%) and 69 traditional participants (67.6%). The sample in the result was similar to the population in current nursing practice as participants consisted of 82 women (80.4%) and 20 men (19.6%). Two semester groups were compared in this study. The summer semester participants consisted solely of accelerated track students whilst the fall semester students were of the traditional track. All participants were completing competency assessments for the adult health course in the second semester of the baccalaureate nursing program.

Analysis of Perceived Stress Scale Results

The survey tool utilized in this study was Cohen's PSS (Cohen et al., 1983). Regarding the frequency of low, moderate, and high self-perceived stress levels amongst the participants, 32 students (31.4%) rated their stress level as low. Only 4 students (3.9%) rated their stress level as high whilst 66 of the 102 participants (64.7%) rated their stress level as moderate (Figure 1). Examination of the individual education tracks revealed that 11 out of 33 accelerated track students rated their stress level as low (33.3%). The remaining 22 students (66.7%) rated their stress level as moderate. No accelerated students rated their stress level as high (Figure 2). In the traditional track, 21 students (30.4%) rated their stress level as low, 44 (63.8%) reported moderate stress, and 4 (5.8%) reported high levels of stress (Figure 3). While the accelerated group had no reports of high stress levels, the comparison between stress levels across both primarily moderate.
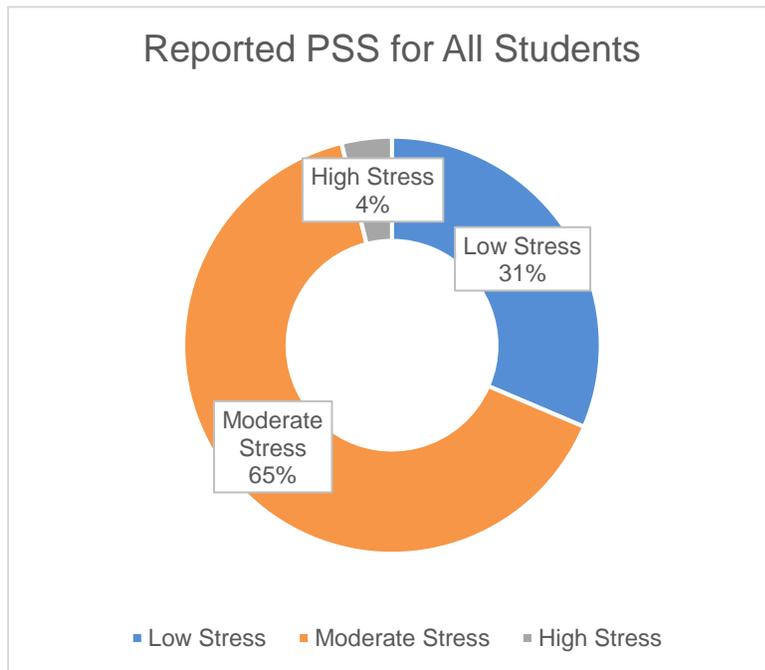
Figure 1 – Reported PSS for All Students. This figure depicts the percentages of traditional and accelerated students combined who reported low, moderate, and high stress levels.
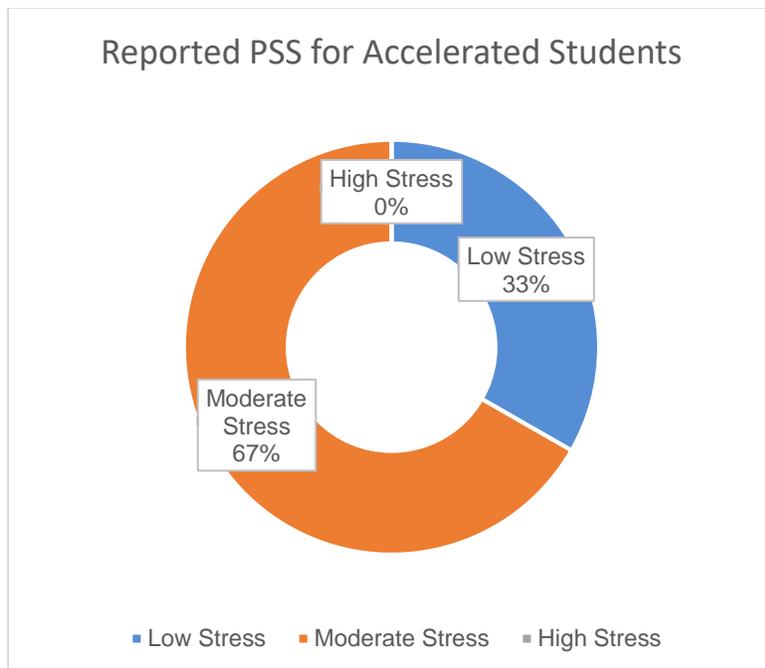

Figure 2 – Reported PSS for Accelerated Students. This figure depicts the percentages of accelerated students who reported low, moderate, and high stress levels.
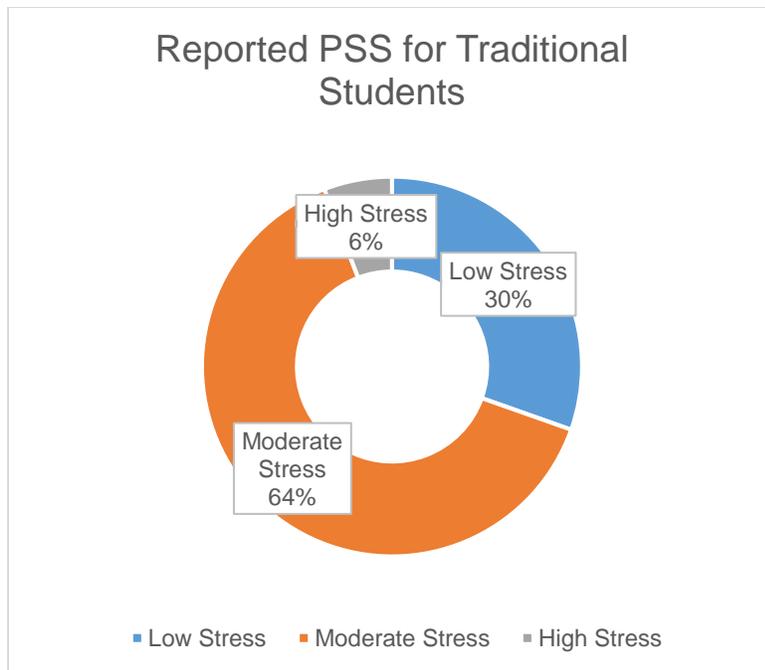
Figure 3 – Reported PSS for Traditional Students. This figure depicts the percentages of traditional students who reported low, moderate, and high stress levels.

Research Question 1 Results

The first research question asked if there was a relationship between self-reported high stress levels and subsequent failure of baccalaureate nursing students during high-stakes performance testing. The research question was addressed using a Chi-Square test to determine whether or not the two categorical variables (high stress levels and competency assessment failure) were associated (Table1). The Chi-square test was used to show the likelihood that an observed distribution is solely due to chance. It measures how well this data distribution fits with the distribution that is anticipated if the variables are independent. No association was found between high perceived stress and failing competency testing ($X^2(2) > = 1.052$, $p = 0.591$).

Table 1

Chi-Square Test

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	1.052[a]	2	.591
Likelihood Ratio	1.354	2	.508
Linear-by-Linear Association	1.017	1	.313
N of Valid Cases	102		

A cross tabulation of low, moderate, and high self-perceived stress level results was also calculated (Table 2). These results showed that in total, 93 students passed the competencies while 9 failed their first attempt. Of the students who did not pass their high-stakes competency test, 4 reported low stress, 5 reported moderated levels of stress, and no students reported high stress. Of those who rated their stress low on the PSS, 87.5% (28 students) passed. Those with moderate stress reported had a 92.4% pass rate (61 students), and 100% of students who reported high stress levels (4 students) passed their competency.

Table 2

Low, Moderate, High / Pass or Fail Crosstabulation

			Pass or Fail		
			Pass	Fail	Total
Low, Moderate, High	Low	Count	28	4	32
		% with Low Stress	87.5%	12.5%	100.0%
	Moderate	Count	61	5	66
		% with Moderate Stress	92.4%	7.6%	100.0%
	High	Count	4	0	4
		% with High Stress	100.0%	0.0%	100.0%
Total		Count	93	9	102
		% within Low, Moderate, High	91.2%	8.8%	100.0%

Research Question 2 Results

Research question 2 examined any difference in self-reported stress during high stakes testing between traditional and accelerated students. Among the 102 participants, there were 9 who failed the competency assessments. Two participants were in the accelerated track and seven were in the traditional track. Of the accelerated students, one was a male who had a low stress score and the other was a female who scored a moderate stress level. Of the traditional students, the failures on the assessment included two males and five female students. Of the males, one scored low levels of self-perceived stress whilst the other scored moderate stress level. Of the females, two scored low and three scored moderate stress levels.

The second research question was analyzed via an independent samples t-test as two separate groups of students, accelerated and traditional, were being compared (Table 3). The *p-*

value of was found to be 0.584 with a mean difference of -0.642. The standard error difference

value was 1.167, and the 95% confidence interval of the difference had a lower value of -2.958

and upper of 1.674. This indicates there is not a difference in perceived stress levels between the

accelerated and traditional nursing students.

Table 3

Independent Samples Test

| | | Levene's Test for Equality of Variances | | t-test for Equality of Means | | | | | 95% Confidence Interval of the Difference | |
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Number Score	Equal variances assumed	.009	.924	-.550	100	.5z84	-.642	1.167	-2.958	1.674
	Equal variances not assumed			-.550	63.276	.584	-.642	1.166	-2.972	1.689

CHAPTER 5: DISCUSSION

This chapter will focus on the culmination of results and their implications for future research and the conclusions. This study sought to examine the relationship between high perceived stress levels in baccalaureate nursing students and failing high-stakes competency skills testing. Overall, the study hypotheses were disproven. There were no participants in this study that reported high self-perceived stress levels that did not pass their high-stakes testing. Only nine participants of the 102 surveyed failed their skills competency testing. No significant differences were found between the stress levels and pass rate of accelerated and traditional students.

Research Question 1 Results

There was no association found between stress levels and students passing or failing high-stakes competency testing. Stress is a highly subjective experience subject to not only situations people face, but also to temperament and personality traits. As supported by the theory of physiological toughness, some stress is actually useful and motivating when internal resources are elicited to combat obstacles faced (Dienstbier, 1989). It is only when stress levels reach a level of excess that there is a point of diminishing return and performance suffers. Therefore, elevated levels of stress, as long as they are not in excess, did not decrease the students' level of performance in the high-stakes testing environment.

Research Question 2 Results

There was no difference found between accelerated students and traditional students related to levels of stress and performance in high-stakes testing. Whether or not a student had a previous degree, it did not appear associated with the level of stress experienced. While having a previous degree would seem to be advantageous, it should be remembered that the testing

material was new for both accelerated and traditional students alike. Previous degrees would not necessarily have any relevant educational areas that would easily translate and therefore result in a stress difference.

Limitations

The sample size was limited to BSN nursing students a single university in Georgia. Having additional participants from multiple states would increase both sample size and diversity of the sample population. The sample for this study was a convenience sample. This can reduce generalizability of the results. Results from students in one university nursing program may not be applicable to the population of nursing students in general.

Future Research

If this study were to be modified and replicated, use of individual scores rather than categorical groupings (low, moderate, and high) may be more revealing. Further research may include replication of this study in other areas of the country where demographics and culture differ and/or where different teaching pedagogies are utilized. Results may differ as a result of these differences in factors due to variance in teaching methodology and/or approach to high-stakes testing. Future research may also include inclusion of multiple schools using different high-stakes testing methods or low-stakes methods to compare stress relationships with student success. And with stress, there are always more factors that can be assessed such as marital status, employment, socio-economic status, age, etcetera. For example, Wolf, Warner Stidham, and Ross (2015) found that students who experience higher levels of emotional support report lower levels of stress. However, difficulties in students' home lives and demands outside of the classroom and clinical environments can affect stress levels negatively. These may also be investigated further to see their influence on stress and student performance.

Another approach may be to use an alternate screening tool that reflects the students' perception of stress in the moment versus in the past 30 days as was the case for the PSS. This may be a more accurate measure of current stress levels of the student just before high-stakes testing. Further research may also be done to assess students earlier in their nursing school for comparison. A hypothesis may be that students in earlier classes with less reference to high-stakes testing may be more likely to have high stress levels and/or fail their first skills competency.

Education

Implications for education based on this study may include implementation of more one-on-one repeat demonstrations to faculty in the classroom setting before high-stakes testing. This could potentially decrease stress levels for students as it would be less of a novelty when entering the testing environment where faculty watch and evaluate versus individual practice or amongst peers. By doing this in class, it would give faculty and educators opportunities to identify errors in skill development early and assist students to take corrective action before experiencing a high-stakes test environment.

Practice

As new graduates, nurses are often required to perform skills for a preceptor during the orientation period at a facility. These assessments are to ensure competence and safe practice with patients. By having decreased stress due to their familiarity with observed performance testing, one may hypothesize that new graduate nurses may feel more confident even as a new nurse related to their experiences with competency assessments during their education.

Conclusion

In conclusion, the study did not find a correlation between high self-reported stress levels in baccalaureate nursing students and failing high-stakes testing. There was not a measurable difference in stress with high-stakes testing between traditional and accelerated students. Both rated their stress levels as predominantly moderate with the accelerated track having no reports of high stress. It is possible that using an alternative stress screening tool or an additional one could have had different results in reported stress levels. The chosen screening tool, Cohen's PSS, reflects on feelings of stress in the last thirty days. A different approach to the same research questions may be to utilize a scale the measures stress felt in the moment.

The study did not find a relationship between high perceived stress levels in baccalaureate nursing students and failing high-stakes performance competency testing. It also did not find a significant difference between stress levels of accelerated students and traditional students. However, the study did find that the majority of baccalaureate nursing students surveyed reported moderate levels of stress. These levels were 66.7% in accelerated students and 63.7% in traditional students respectively. Results demonstrate a need for stress reduction tactics and perhaps inclusion of stress relief techniques in classroom instruction.

If stress is not overwhelming, it does not appear to result in diminished return and actually activates intellectual resources that can be fruitful. As evidenced by research, challenge is more often associated with higher than lower performance (Fonseca et al., 2014). However, if stress levels are excessive, diminished performance would be a logical conclusion. While students surveyed experienced some elevations in stress levels, it did not appear to impede performance.

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APPENDIX A

PERCEIVED STRESS SCALE
IRB Study #19-528

The questions in this scale ask you about your feelings and thoughts during the last month. **In each case, you will be asked to indicate by circling *how often*** you felt or thought a certain way.

Name _____   Date _____

Age _____   Gender (*Circle*):   **M   F**   Other _____

0 = Never   1 = Almost Never   2 = Sometimes   3 = Fairly Often   4 = Very Often

1. In the last month, how often have you been upset because of something that happened unexpectedly?	0 1 2 3 4
2. In the last month, how often have you felt that you were unable to control the important things in your life?	0 1 2 3 4
3. In the last month, how often have you felt nervous and "stressed"?	0 1 2 3 4
4. In the last month, how often have you felt confident about your ability to handle your personal problems?	0 1 2 3 4
5. In the last month, how often have you felt that things were going your way?	0 1 2 3 4
6. In the last month, how often have you found that you could not cope with all the things that you had to do?	0 1 2 3 4
7. In the last month, how often have you been able to control irritations in your life?	0 1 2 3 4
8. In the last month, how often have you felt that you were on top of things?	0 1 2 3 4
9. In the last month, how often have you been angered because of things that were outside of your control?	0 1 2 3 4
10. In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?	0 1 2 3 4

Appendix B

DEMOGRAPHIC INFORMATION FORM

IRB Study #19-528

Student ID number: _____

Gender: _____

Course: _____

Semester (Summer or Fall): _____

Education Track (Accelerated or Traditional): _____

Appendix C

SIGNED CONSENT FORM

IRB Study #19-528

Title of Research Study: RELATIONSHIP BETWEEN STRESS AND PERFORMANCE IN SKILLS COMPETENCIES IN BSN NURSING STUDENTS

Researcher's Contact Information: Erin Ababiy, BSN, RN
ebaughma@students.kennesaw.edu
(770) 316-9072

Introduction
You are being invited to participate in a research study conducted by Erin Ababiy, BSN, RN as part of the requirements for the Master of Science in Nursing degree at Kennesaw State University. This research project is being supervised by Dr. Jane Brannan. If you have any questions or concerns, you may contact Dr. Brannan at jbrannan@kennesaw.edu . Before you decide to participate in this study, you should read this form and ask questions about anything that you do not understand.

Description of Project
The purpose of the study is to examine the relationship between perceived stress and performance in skills competency testing in undergraduate nursing students.

Explanation of Procedures
Participants will be asked to complete a questionnaire packet 30 minutes before competency testing in their course. The packet will include two informed consent forms (one of which the participant will keep), demographic information sheet, and a survey instrument. The packet will be sealed by the participant upon completion and given to the researcher or appointed instructor and secured in a locked file box.

Time Required
Completing of the demographic data form and instrument should take no more than ten minutes.

Risks or Discomforts
There are no known risks anticipated because of taking part in this study.

Benefits
There are no known benefits to participating in this study. However, the researcher may learn more about stress levels and student performance in nursing skills competencies in undergraduate nursing programs.

Confidentiality
The results of this participation will be confidential. You will be identified by your student ID number only. You will be identified this way to enable the researcher to pair survey information

with skills competency test results. The competency results will be provided by the course instructor and will be reported only by the student ID number. Participant names will not be collected nor associated with any data for this research study. Any and all information collected from participants will be kept in a sealed envelope until analysis begins. Results of the study will be reported as a group with no names or personal identifying information associated. Data will be transferred to an encrypted USB drive and/or locked file box at the completion of analysis. Only the researcher, KSU thesis committee faculty, and KSU statistician will be privy to information in this study.

Inclusion Criteria for Participation
Participants must be 18 years or older to be involved in this study. Participants must be enrolled in the Nursing 3313 course for Summer 2019 semester or Fall 2019 semester, or enrolled in Nursing 4417 course for Fall 2019 semester.

Signed Consent
I agree and give my consent to participate in this research project. I understand that participation is voluntary and that I may withdraw my consent at any time without penalty.

_____
Signature of Participant, Date

I understand and give permission for my class instructor to provide my competency results confidentially to the researcher for this research study. I understand that my competency results will be maintained in a locked file and not shared with anyone who is not associated with this study. All scores will be identified only by ID number during analysis and presented in an aggregate manner. At the conclusion of the study all ID numbers will be removed from the materials.

_____
Signature of Participant, Date

_____
Signature of Investigator, Date

_____

PLEASE SIGN BOTH COPIES OF THIS FORM, KEEP ONE AND RETURN THE OTHER TO THE INVESTIGATOR

Research at Kennesaw State University that involves human participants is carried out under the oversight of an Institutional Review Board. Questions or problems regarding these activities should be addressed to the Institutional Review Board, Kennesaw State University, 585 Cobb Avenue, KH3417, Kennesaw, GA 30144-5591, (470) 578-6407.