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Building Early Confidence in Novice Nursing Students

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Abstract

A core tenet of the nursing profession is to provide effective and efficient patient care, focusing on improved safety and quality with improved outcomes. Nursing education has strengthened this dynamic combination of theoretical information and practical application. This quasi-experimental study aimed to investigate whether learning foundational nursing skills before entering the hospital impacts anxiety and confidence levels in novice nursing students. The theoretical framework was based on the experiential learning theory, which looks at the learning styles model of learners. The research questions investigated the relationship between frontloading foundational skills and confidence levels in novice nursing students and the

relationship between frontloading foundational skills and anxiety levels in novice nursing students. In addition, an independent samples t-test was performed to determine differences between course timing groups. Seventy-two participants were surveyed, and A Power analysis was performed using G* Power. Findings revealed that novice nursing students are challenged with applying theoretical knowledge to practice while simultaneously learning to care for patients, causing them to experience high anxiety levels and low confidence. Increased anxiety and low confidence are notable barriers that impede learning and affect patient safety outcomes.

Keywords: Nurse Education, Novice Nurses, Nursing and Training, Educational Learning

Introduction

The Future of Nursing, a report first published in 2011 by the Institute of Medicine (IOM), was a call to examine the growing complexities facing the United States (U.S.) healthcare system. This report opened the door to discussing timely solutions for improving healthcare and health equality (Odom-Forren, 2011) ^[18]. Strengthening the nursing profession became a foundational focus for helping healthcare become more effective and efficient, stating that "what nursing brings to the future is a steadfast commitment to patient care, improved safety and quality, and better outcomes" (Odom-Forren, 2011, p. xi) ^[18]. Odom-Forren (2011) ^[18] made several recommendations for reconceptualizing the nurse's role and eliminating the scope of practice barriers: expanding nursing faculty, reimagining nursing programs, and curriculum, and implementing new and innovative continuing education approaches to meet the changing needs of healthcare (IOM, 2011). Since strengthening the nursing profession is critical to care for the increased demand for healthcare, ensuring nursing faculty can continually educate and train nursing students to meet these demands is an emerging challenge (Pinkerto *et al.*, 2021). Nursing education is a dynamic combination of theoretical information and practical application. Nursing faculty are responsible for facilitating learning and assisting students with learning their new nursing roles and responsibilities. Equally, nursing students are charged with understanding the complementary relationship between theory and practice and combining them to provide safe and effective patient care (Baksi *et al.*, 2017) ^[4]. It is challenging to apply theoretical knowledge to practice while simultaneously learning to care for patients; therefore, nursing students experience high anxiety and low confidence levels (Baksi *et al.*, 2017) ^[4]. These impact learning and can potentially impact clinical and patient safety outcomes (Simpson & Sawatzky, 2020) ^[24].

The Future of Nursing 2020-2030 report suggested using embedded experiential experiences to facilitate foundational learning that would allow students to "apply their knowledge, build their skills, and reflect on their experiences," ultimately preparing them for the nursing workforce (Pinkerton *et al.* 2021, p. 233). Adapting how nursing schools teach their students may broaden

the educational scope to create more meaningful preparation similar to real-life clinical practice without the responsibility of the real-life practice. To better understand how to improve experienced barriers that impact student learning and preparation, this study intended to examine the timing of foundational learning and its effect on anxiety and confidence levels in novice nursing students.

Background

Historical Context

In 2008, the American Nurses Association (ANA) suggested nursing serve as an educational stage for lifelong learning that would allow nurses to transition into higher degree programs. The IOM reinforced this challenge in 2011 with *The Future of Nursing* report, which discussed how nursing education should change to help meet the demands in preparing nurses to work in an increasingly complex healthcare system. In 2019, the National Council of State Boards of Nursing (NCSBN) increased the demands and rigor of nursing education. Their close proximity to patients grants nurses an excellent opportunity to lead change efforts to improve the healthcare system and their practice environment (IOM, 2011; Sherwood, 2021) [23]. First, however, nursing education programs must understand what outcomes need to be met to ensure their curricula adequately prepare students to transition to practice safely and effectively (NCSBN, 2019) [17].

The American Association of Colleges of Nursing (AACN, 2019) postulated that education significantly impacted the knowledge and competence of nursing professionals. The AACN has been a leader in nursing education by creating and disseminating *The Essentials: Core Competencies for Professional Nursing Education*, which was most recently updated in 2021. This framework is used in programs across the country to help prepare the future nursing workforce. *The Essentials* emphasize that baccalaureate-prepared nurses should be trained to think critically, problem-solve, and address the complexities involved in patient care, making early nursing education critical to students' success and paramount to patient safety (AACN, 2019; AACN, 2021) [1, 2]. In addition, the *Essentials* suggested using practice synthesis experiences to help students integrate knowledge with practice to build their confidence, professional identity, and sense of belonging (AACN, 2021) [2]. While practice synthesis experiences may vary, their outcomes should be the same: "achievement of learning goals and ongoing attainment of competencies required for practice" (AACN, 2021, p. 4) [2].

According to Cronenwett *et al.* (2007) [9], The Quality and Safety Education for Nurses (QSEN) project also created a framework with six competencies to support the improvement of the healthcare system through nursing education. Each competency reflects education and safe practices helping the student transition to a professional nurse (Sherwood, 2021) [23]. Nurse educators must engage in crucial conversations to determine how the knowledge, skills, and attitudes required for professional nursing can be effectively taught. Such conversations may lead to redesigning, reimagining, and reinventing the facilitation of learning to help students improve patient safety outcomes (Sherwood, 2021) [23].

The Impact of Anxiety and Confidence on Learning

Approximately 30% of nursing students express high

anxiety levels and decreased confidence related to clinical preparation and clinical experience, suggesting that students do not feel prepared for a high-stakes hospital setting (Baksi *et al.*, 2017) [4] identified that a lack of basic clinical skills can significantly affect patient safety outcomes and suggested educational measures that focus on proper clinical preparation to influence knowledge, attitudes, and confidence in performance. Novice nursing students require repetitive and reflective practice opportunities to reduce pre-clinical anxiety (Armstrong & Jarriel, 2015) [3]. These reflective practice opportunities grant them the opportunity to practice the required skills in the context of patient care. Ozturk *et al.* (2020) [19] studied the effects of repeating foundational skills on student confidence and discussed that repetitive practice contributes to improving skills and self-confidence. Ozturk *et al.* (2020) [19] noted that students could master or demonstrate improved competence in their foundational learning as student confidence increased and anxiety decreased. Improved confidence and anxiety are crucial for nursing students and professionals to participate as effective healthcare team members and support their ability to provide safe patient care (Cura *et al.*, 2020) [10].

Problem Statement

The problem was it was unclear whether learning foundational nursing skills before entering the hospital setting impacts confidence and anxiety levels in novice nursing students. Decreased confidence and high anxiety in nursing practice have major implications for patient safety. They are often caused by a lack of familiarity in the hospital setting or lack of experience (Li *et al.*, 2021). The hospital setting is filled with high-stakes situations that require critical thinking, clinical judgment, and problem-solving skills, which are elements that novice nursing students have little experience with (Moots, 2021) [16]. Students are expected to function safely and effectively in this high-stakes environment while learning their role as nurses (Levett-Jones *et al.*, 2020) [14]. Given the nature of clinical learning, heightened anxiety and lack of confidence are likely factors that occur in this environment; preparing to be in the hospital setting is a significant contributor to experienced anxiety and diminished confidence for novice nursing students (Simpson & Sawatzky, 2020) [24]. If anxiety levels are too high and confidence levels are too low, clinical performance, including working memory, problem-solving, concentration, and student outcomes, are severely reduced (Baksi *et al.*, 2017) [4]. Novice nursing students entering the clinical setting for the first time are likely to experience low confidence levels. Lack of confidence is most often related to the perception of their ability to safely and successfully work in the clinical environment (Simpson & Sawatzky, 2020) [24]. An emerging body of research focused on the Cognitive Load Theory, demonstrating the connection between students' abilities to learn specific tasks at varying cognitive levels (Kalyuga & Singh, 2016). The theory surmises that when a learning task is too great for the learner, learning will not occur because the brain cannot commit what is being learned to working memory; therefore, the brain becomes quickly overloaded and overwhelmed (Kalyuga & Singh, 2016). These findings provide evidence that there was a need for teaching and learning practices to be developed in such a way that the cognitive load for students would not be too great, thereby allowing learning to occur, thus building confidence, and

lowering anxiety before entering a high-stakes learning environment where patient safety and positive clinical outcomes are paramount (Li *et al.*, 2021).

Building novice nursing students' confidence by increasing exposure through repetition and experience in foundational nursing skills before applying these in real-life patient care situations is vital to adequate preparation and improved clinical outcomes for students and patients (Ozturk *et al.*, 2020) ^[19]. Facilitating an environment of safety by introducing low-stakes exposure and practice of these skills will assist in reducing anxiety through the reduction of cognitive load and confidence building, allowing novice nursing students to carry out learned skills with more confidence in patients in the clinical setting, a higher-stakes environment (Ozturk *et al.*, 2020) ^[19]. In addition, repetitive, hands-on practice can build a frame of reference that can decrease anxiety and build confidence (Barron *et al.*, 2017) ^[6]. Finally, the timing of learning foundational skills before entering the hospital setting, known as frontloading, allows novice nursing students to focus on foundational skill attainment before caring for live patients.

Purpose of Study

This quantitative quasi-experimental study aimed to investigate whether learning foundational nursing skills before entering the hospital impacts anxiety and confidence levels in novice nursing students. The study aimed to determine the timing of learning foundational skills before entering the hospital setting and its impact on student anxiety and confidence. In addition, this study sought to provide a quantifiable level of anxiety and confidence novice nursing students experience through frontloading foundational skills versus learning skills that are integrated with clinical activities. Identifying perceived barriers causing high anxiety or low confidence can help direct more explicit learning approaches that will allow students to achieve decreased anxiety and increased confidence in performing skills required for clinical practice, thus promoting patient safety. The independent variable includes placement (or timing) of skills learned and frontloading versus integrated learning (Grove *et al.*, 2017) ^[11]. The dependent variables include anxiety and confidence level (Grove *et al.*, 2017) ^[11].

For this study, the following research questions were developed to evaluate the impact of frontloading versus integrated learning (timing, of course) on novice nursing students' anxiety and confidence levels before entering the hospital setting. The independent variable was course timing, known as frontloading and integrated learning. The dependent variables were anxiety and confidence levels and the self-reported feelings of adequate preparation to perform learned skills for patient care (Cura *et al.*, 2020) ^[10].

The following research questions guided this quantitative quasi-experimental study:

R.Q. 1: Is there a relationship between frontloading foundational skills and confidence levels in novice nursing students?

R.Q. 2: Is there a relationship between frontloading foundational skills and anxiety levels in novice nursing students?

Hypotheses

According to Grove *et al.* (2017) ^[11], hypotheses specify

variables to be measured, identify the population under examination, and identify the type of research. In addition, simple and directional hypotheses predict relationships and the nature of the relationship's direction between the variables (Grove *et al.*, 2017) ^[11]. The following hypotheses for this quantitative quasi-experimental study are listed below.

H 1: There is relationship between frontloading foundational nursing skills prior to entering the hospital setting and confidence levels in novice nursing students.

H 2: There is a relationship between frontloading foundational skills and anxiety levels in novice nursing students.

Data Collection

The study used a sample of 72 novice nursing students from one university. This sampling was chosen because of the accessibility to the students, also called convenience sampling (Grove *et al.*, 2017) ^[11]. Novice nursing students were the targeted population and provided insight into how frontloading foundational skills before entering the hospital impacted their anxiety and confidence levels. The sampled population for this study was considered appropriate because novice nursing students were the target population that helped address this study's problem, purpose, and research questions. The sample comprised admitted level one novice nursing students out of a 4-level nursing program at one university. As part of the inclusion criteria, each student was enrolled and admitted to level one of the studied nursing programs. The exclusion criteria included any student repeating level one or upper-level students, including levels 2, 3, and 4.

Power analysis was performed using G* Power 3.1.9.7, a power of 0.95, an alpha level of 0.01, and a medium effect size of 0.5. The determined minimum sample size required to achieve adequate power was 47 participants from this calculation. A power of 0.95 was used to indicate a 95% chance of detecting a statistical difference between variables should one exist, which was well above the required 0.8 or 80% standard (Grove *et al.*, 2017) ^[11]. An alpha level of 0.01 was used as the level of significance. Alpha, the probability of rejecting the null hypothesis when it is true, also known as a type I error, is usually set at 0.05 (Grove *et al.*, 2017) ^[11]. A more stringent alpha of 0.01 further minimized the probability of a type I error occurring (Grove *et al.*, 2017) ^[11]. Larger samples are ideal because small sample sizes may result in findings that cannot be generalized and could skew the distribution; therefore, the recommendation was to use approximately 15 participants per predictor (Grove *et al.*, 2017) ^[11].

The novice nursing students attended a skills lab once a week. Group A (frontloaded) attended once per week for the first seven weeks of a 14-week semester. Group B (integrated) attended once per week for the entire length of the 14-week semester. The instrument for this study was the Nursing Anxiety and Self-Confidence with Clinical Decision-Making Scale (NASC-CDM ©). White (2014) ^[26] developed and validated this scale after reviewing literature that rendered limited instruments to measure perceived levels of self-confidence and anxiety in nursing students as they progress through learning clinical decision making. It was surmised that nurses make daily clinical decisions that

impact patient safety and patient outcomes; thus, a reliable tool should be available to measure these characteristics. Barriers that impede a nursing student from learning safe and effective clinical decision-making skills are decreased confidence and increased anxiety (White, 2014) [26]. Using the existing literature, the author developed anxiety and self-confidence with a clinical decision-making scale, acknowledging that the current instrumentation lacked psychometric stability or testing. Because these barriers directly impact patient care, developing, testing, and validating an instrument with psychometric properties was imperative. The original survey consisted of 82 items that were reduced to 41 after an initial content and face validity phase was completed.

Additionally, based on feedback from an expert panel, a 6-point, forced-choice Likert scale (0= not at all to 6= totally) was determined to provide the most reliable responses and avoid ambiguity or neutrality (White, 2014) [26]. White (2014) [26] used five nurse educators as an expert panel to independently review the scales' factor structures and assigned labels to ensure the scale questions fit into the appropriate overarching domains derived from the literature, investigating information and cues, interpreting information and meaning, integrating findings and illuminating options, and intervening and reflecting on decision making. The author measured reliability using Cronbach's alpha to determine the internal consistency of the survey items, which was 0.98 for the self-confidence subscale and 0.97 for the anxiety subscale.

The demographic questions at the beginning of the tool used for this study were developed by the researcher to best suit the needs of this study. Permission and written consent were obtained from the author to use the NASC-CDM scale © (Appendix D). The final revised 27-item NASC-CDM scale © ascertaining learner anxiety and self-confidence was used in the context of discovering the relationship of the two dependent variables (anxiety and confidence) to the independent variable (course timing). Responses were recorded using a 6-point Likert scale (1=not at all and 6= totally).

Data Analysis

The data was collected using Qualtrics, and analysis was performed using the SPSS (version 28) software system to analyze the raw data from the NASC-CDM scale ©. The data analysis comprised descriptive statistics that revealed characteristics of the data set and helped the researcher understand the participants and variables being studied (Grove *et al.*, 2017) [17]. Descriptive statistics report the sample size (*n*), mean, median, and standard deviation.

An independent samples t-test was performed to determine differences between group A (frontloaded) and B (integrated), the independent variable of course timing, and the dependent variables, anxiety and self-confidence (Pallant, 2020) [20]. Independent sample t-test analyses assume the populations from which the sample was taken are typically distributed, remain robust, and can handle slight violations of statistical assumptions (Pallant, 2020) [20]. T-test analyses are able to determine statistically significant differences between groups and determine a relationship between variables, helping to answer the research questions.

Findings

This quantitative quasi-experimental study aimed to investigate whether learning foundational nursing skills before entering the hospital impacts anxiety levels and self-confidence in novice nursing students. An independent samples t-test was conducted to examine the relationship between the independent (course timing) and dependent variables (anxiety and self-confidence). This researcher determined no statistically significant difference between anxiety levels and self-confidence in novice nursing students and course timing. Therefore, the null hypotheses were accepted.

Research Question 1: Is there a relationship between frontloading foundational skills and confidence levels in novice nursing students?

Regarding R.Q. 1, there was no significant relationship between frontloading foundational skills and self-confidence in novice nursing students. However, the literature supports an active learning approach for practice-based disciplines through experiential learning or learning by doing to help increase student self-confidence. Additionally, previous educational research has identified that students who can apply their classroom knowledge to a learning environment that allows for critical thinking, hands-on practice, and problem-solving further increase their self-confidence.

Research Question 2: Is there a relationship between frontloading foundational skills and anxiety levels in novice nursing students?

Regarding R.Q. 2, there was no significant relationship between frontloading foundational skills and anxiety levels in novice nursing students. The literature identified that students need some anxiety to help with awareness in learning, but when anxiety becomes too great, the student becomes cognitively overloaded, and learning becomes impeded. A learning approach allows the student to create a frame of reference that can minimize fear of the unknown, thus helping to decrease anxiety. Additionally, practicing skills for novice nursing students is a way to decrease their cognitive load by having hands-on practice helping their ability to transfer the skill into long-term, usable working memory, thus decreasing their anxiety.

Concerning the theoretical framework through which the variables in this study were considered, experiential learning was the basis for both the frontloaded and integrated students to learn their foundational skills. Each group of students had access to a learning environment that provided low-stakes critical thinking, problem-solving, and hands-on practice of skills that they would transfer to the hospital setting to care for real-life patients. Nurses are required to make safe and effective patient care decisions; thus, early nursing education must simultaneously allow the students to apply theoretical knowledge to patient care scenarios as this will increase their self-confidence and limit anxiety in the face of real-life situations (Baksi *et al.*, 2017; Simpson & Sawatzky, 2020) [4, 24]. In addition, experiential learning facilitates the student's ability to apply their knowledge, build skills, and reflect on their experiences (The National Academies of Sciences, Engineering, and Medicine, 2021; White, 2014) [25, 26].

Studies have been done on the course timing, also known as

a condensed or accelerated course (Carmen & Bartsch, 2017; Holston, 2020) [8, 12]. However, the literature lacks sufficient evidence of using a condensed course mixed with experiential learning to facilitate nursing student learning before entering the hospital setting for the clinical requirement. As an experiential, active learning pedagogy, condensed courses were evidenced to build early confidence and minimize learner anxiety related to early exposure to foundational concepts imperative to student success (Carmen & Bartsch, 2017) [8]. There was no statistically significant difference between integrated and frontloaded groups, so nursing programs can make course scheduling decisions that address many factors. Factors may include individual student learning needs, faculty preferences, instructional resource accessibility, and clinical partnership availability. This study's quantitative analysis identified several new perspectives that can lead to additional research to improve further novice nursing student preparation for safe and effective patient care.

Discussion

The purpose addressed in this study was whether learning foundational nursing skills before entering the hospital setting impacted confidence and anxiety levels in performing clinical skills in novice nursing students. In this quantitative quasi-experimental study, self-confidence and anxiety levels were explored and analyzed based on the timing of learning foundational skills. This study contributed to a better understanding of novice nurses' confidence and anxiety levels and how faculty can make more impactful curricular changes to prepare novice nursing students for real-life practice.

One limitation of this study was related to the sampling of participants. A convenience sample was used at one university, in addition to a non-randomized selection of participants. This limitation may decrease the generalizability of the study's findings to the general population (Grove *et al.*, 2017) [11]. Other limitations of the study included response bias. The participants completed the NASC-CDM scale © in a group setting. As a result, participants may have provided socially acceptable responses to the NASC-CDM scale ©, thinking they should feel a particular way about their confidence and anxiety levels.

Additionally, because the survey was completed in a group setting, some participants completed the survey quickly, potentially causing a bias in response timing, leading others to complete the survey faster. Since some participants completed the survey within a brief period, accuracy was potentially hindered in following the instructions or reading the scale questions accurately. Another limitation could have been with the survey itself. The NASC-CDM scale © was comprised of 27 Likert scale questions. Participants could have become indifferent to completing the survey and dropped off, leading to data inaccuracies.

Recommendations and Conclusions

Nursing education has been at the forefront of the discussion of professional nursing organizations for over a decade. Nursing has been recognized as a critical profession for patient care, management, and treatment (National Academies of Sciences, Engineering, and Medicine, 2021) [25]. As such, professional nursing organizations have

postulated the role of the nurse needs to change to meet the demands of a rapidly evolving healthcare system and continue to roll out the vital responsibilities of patient care. *The Future of Nursing 2020-2030* envisioned the nurse's role to assume an expanded scope of practice with a higher skill set (Bocskor *et al.*, 2017) [7]. Nursing education must improve teaching and learning processes that allow students to apply theoretical knowledge to a patient care situation (AACN, 2019 [1]; IOM, 2011; NCSBN, 2019) [17]. However, a continued challenge is that students consistently meet barriers that impact or impede their learning ability. Throughout the literature, low confidence and high anxiety are two barriers directly linked to poor student performance and adverse patient outcomes (Baksi *et al.*, 2017; Simpson & Sawatzky, 2020) [4, 24]. Therefore, it is recommended that further research be done to determine which methods are most effective in promoting confidence and lowering anxiety in novice nursing students so that patient care and clinical decision-making are not interrupted.

This study sought to fill a gap in the literature by examining the differences in confidence and anxiety levels in novice nursing students and the timing of learning foundational skills. The findings of this study contribute to the existing body of literature by describing the timing of learning foundational skills and its impact on improving student confidence and anxiety in the preparation of caring for patients. In addition, the findings of this study can be utilized to inform various practice-based disciplines in educating their specific student population. Future research will be able to replicate this study to continue the investigation of novice nursing students' confidence and anxiety levels in preparation for patient care. Nursing programs must include active learning pedagogies that allow novice nursing students hands-on problem solving and continual exposure to repetitive real-life scenarios that may be encountered in the hospital setting (Baksi *et al.*, 2017) [4]. As a curricular framework, experiential learning allows flexibility in learning because 'learning by doing can look different depending on the level of learner or the content being learned (Ozturk *et al.*, 2020) [19].

Additional research can add to the literature by testing frontloading foundational skills' impact on novice nursing students' self-efficacy. As proposed by Albert Bandura, self-efficacy refers to an individual's belief in their ability to execute behaviors required for certain performance attainment (Bandura, 1997; Schunk *et al.*, 2014) [5, 22]. Intuitively linked to self-efficacy is motivation, which can be further investigated and compared to confidence and anxiety levels (Schunk *et al.*, 2014) [22]. Another area of research could explore the perspectives of novice nursing students' perceptions of their perceived learning barriers and recommendations for overcoming them to achieve academic success. The faculty's perceptions of frontloading foundational skills, student preparedness, and clinical outcomes could be another area of further research.

Finally, this study identified gender as a variable approaching confidence-related significance. Further research needs to investigate gender's relationship with confidence levels in novice nursing students. This insight would allow nurse educators to study variables that impact confidence in male, female, and non-binary students, such as motivation, self-efficacy, life experience, previous degrees, or age (Williams *et al.*, 2008) [27].

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