Short Communication

Quizzing in Baccalaureate Nursing Education and the Impact on National Council Licensure Examination for Registered Nurses Success

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Abstract

Objective: Educators prepare students for success as new graduates, to ensure they are safe clinicians in the clinical environment. Utilization of quizzes as a study strategy increases knowledge retention, as shown by improved academic performance.

Methods: This quantitative, quasi-experimental study utilized a convenience sample of recent nursing graduates. The control group received only unit exams and a final exam. The experimental group received unit exams, a final exam, and quizzes. This study evaluated if the addition of quizzing had any impact on the long-term retention of knowledge, as evidenced by improved National Council Licensure Examination for Registered Nurses (NCLEX-RN) success.

Results: The results of the study showed that there were no significant statistical differences noted in NCLEX-RN scores for students who participated in quizzes (97.6%) versus those who did not (96.1%) (P=0.3627). Therefore, the study did not demonstrate a correlation between the use of quizzing and pass rates.

Conclusion: While the current experiment did not demonstrate a correlation between the use of quizzing and pass rates, additional studies should be conducted to further investigate the long-term benefits to students.

Keywords: quizzing, study strategies, NCLEX-RN

1 INTRODUCTION

Nurse educators play a critical role in preparing nursing students to succeed as new graduates, with a predominant goal of ensuring novice nurses can provide safe and effective care in the clinical environment. To achieve this goal, students must first pass the National Council Licensure Examination for Registered Nurses (NCLEX-RN). To ensure positive student outcomes at the program's culmination, faculty are continually seeking effective teaching strategies. One such strategy is the

utilization of quizzes as a study tool throughout a course. Quizzing has been found to increase knowledge retention, as demonstrated by improved academic performance when compared to peers who did not use quizzing as a study strategy. Quizzing allows students to identify areas of weakness and provides opportunities for remediation, reinforcing the learning process. By incorporating quizzes into their teaching, nurse educators can enhance their students' learning experience and increase their chances of success on the NCLEX-RN exam. Moreover, this approach can help to cultivate critical thinking skills, promote active learning, and foster a culture of lifelong learning among nursing students. As such, the utilization of quizzes as a study strategy is a valuable tool in the nurse educator's arsenal and should be considered as part of a comprehensive approach to nursing education[1,2].

Historically, nursing faculty have relied on unit exams and a comprehensive final exam to gauge students' knowledge base[3]. However, administering assessments to students more frequently offers several advantages. First, faculty can evaluate individual and collective performance to identify areas requiring improvement. Additionally, students can receive immediate performance feedback before the information is encoded in long-term memory incorrectly[4,5]. Ultimately, testing facilitates the transfer of knowledge from short-term to long-term memory, which enhances long-term knowledge retention and allows for easier recall of information[6,7].

Nursing students cannot simply memorize information for later recall and be successful. They are tasked with understanding and applying concepts to a variety of patient care scenarios. Testing stimulates a deeper level of learning; thus, allows students to better understand concepts[1]. When students repetitively retrieve information, it aids with the encoding of data, making it easier to retrieve information in the future[8]. This means students who use quizzing as a study strategy rather than solely an evaluative process have a greater likelihood of recalling data long-term[9]. The testing effect has been widely evaluated in other disciplines; however, less research has been conducted to evaluate its long-term effectiveness in nursing education. This gap substantiates the need for additional research on this subject within nursing education.

The objective of this study was to assess the effectiveness of incorporating quizzing as a study strategy in undergraduate nursing education. Specifically, the study aimed to determine whether quizzing would lead to enhanced long-term knowledge retention, as reflected by improved performance on the NCLEX-RN. To achieve this goal, the study employed a comparative approach, comparing the success rates of first-time test takers between cohorts who utilized quizzing as a study strategy and those who did not. The study examined the performance of these two groups to evaluate the long-term impact of quizzing and NCLEX-RN success.

By examining the impact of quizzing on NCLEX-RN success, this study sought to provide evidence-based recommendations for nurse educators seeking to enhance the effectiveness of their teaching practices. Moreover, the study aimed to contribute to the broader literature on nursing education, providing insights into the effectiveness of specific teaching strategies and their impact on student outcomes.

2 REVIEW OF LITERATURES

Testing should be regarded as more than just an evaluative tool and recognized for its value in learning. Research suggests that learning which carries some level of difficulty is more effective in retaining information than studying materials alone[10]. Retrieval practice is a powerful learning method that involves actively retrieving information from memory to facilitate encoding of new information[8]. This practice is particularly beneficial for mastering complex materials and promoting long-term retention of knowledge. The use of quizzing as a learning tool, known as the testing effect, has been found to improve test performance long term because it improves the transfer of learning[1].

Nurse educators have a crucial role in promoting effective learning strategies for nursing students. It is well established in the literature that students often prefer more passive study methods, such as restudying material, over active retrieval practice like quizzing[5,8]. Research suggests that quizzing is a more effective learning strategy for long-term retention of knowledge, as the act of retrieving information reinforces memory better than repetitive exposure alone. Despite the proven effectiveness of quizzing as a learning strategy, neither students nor faculty use it routinely in their studying practices[10,11]. By integrating quizzing as a learning strategy, educators can provide students with a more effective approach to learning and prepare nursing students for success on standardized exams, such as the NCLEX-RN. Knowing this, nurse educators need to prioritize the integration of quizzing as a learning strategy in their teaching practices. By doing so, they can enhance their students' learning experience, improve their long-term retention of knowledge, and increase their chances of success in the nursing profession.

It is common for students to rely on study methods that are comfortable or familiar to them, even if they are not the most effective methods for retaining and recalling information. This can be due to a lack of knowledge about evidence-based study strategies or due to a reluctance to try new techniques. However, it is important to understand that just because a method feels comfortable or familiar, it does not necessarily mean it is

the most effective approach.

As educators, it is our responsibility to help students develop effective study habits by providing guidance and evidence-based strategies. This can involve teaching students how to prioritize their studying, break down complex concepts into smaller, more manageable pieces, and create a study plan that fits their learning style. Additionally, educators can encourage students to practice self-regulation, which involves monitoring and adjusting their learning strategies to improve their performance over time.

By teaching students better approaches to studying and encouraging them to practice self-regulation, we can help them develop habits that are more likely to result in positive outcomes. This includes not only improved academic performance but also increased confidence in their abilities and a greater sense of control over their learning. Ultimately, the goal is to help students become lifelong learners who can adapt to new challenges and continue to grow and develop their skills[11-13].

3 METHODS

3.1 Study Design

This research was built upon a previous study that examined the effectiveness of quizzing as a study tool in a fundamental nursing course. Following institutional review board approval, this quantitative, quasi-experimental study was conducted utilizing four cohorts of students from the above noted previous study and was a convenience sample of recent graduates from the college of nursing. The students were placed into cohort groups, and subsequently, the control and intervention groups, based on when their fundamentals of nursing course was completed within the nursing program as well as their graduation date.

The initial study was conducted in the students' first clinical course. During this course, cohorts one and two (control group) participated in the usual coursework, consisting of only unit exams and a final exam. The subsequent cohorts (cohorts three and four - experimental group) also received unit exams and a final exam; however, content-based quizzes were added as a required part of their course grade. These content-based quizzes were shorter, 20-30 question quizzes, designed to concentrate on distinct subject areas rather than addressing multiple topics simultaneously, as the unit and comprehensive final exams do. These quizzes were administered immediately following the lecture content, and emphasized in-depth evaluation of specific areas, allowing students to better assess their knowledge regarding a particular subject. This approach enhances the effectiveness of the assessment process by providing targeted evaluation and feedback on the topic, allowing for immediate remediation when necessary.

Between these two groups of students, the college of nursing adopted the use of a learning solution offered by Assessment Technologies Institute. This learning solution offered content specific quizzes as a component of their product offering, and these formalized quizzes were used as a component of student coursework. Besides adding the required quizzes, no significant changes were made between the control and experimental groups.

The current study, conducted in 2021, expanded upon this previous research to determine if the instructional strategy of content-based quizzes had any impact on long-term retention of knowledge, as shown by improved first-time NCLEX-RN success. To test this hypothesis, the control group and intervention group's first-time NCLEX-RN pass rates were compared to determine if there was statistical significance in the proportion of passing scores for students who took quizzes and those who did not.

3.2 Statistical Analysis

Statistical analysis was completed using JMP Pro 15 software. A P-value less than 0.05 was considered statistically significant for indicating significant differences between groups. The study analyzed the data of a total of 417 students (n=205 control group; n=212 intervention group). Participants were also given the option to complete a survey, which was used to gather demographic information. Of the 417 participants, 207 chose to complete the optional survey, accounting for 49.6% of the total sample size.

4 RESULTS

There were no significant differences in basic information such as gender, race, age, or baseline GPA between the two groups of study subjects (P>0.05), indicating comparability. The survey results showed that the majority of respondents were female (94.2%; n=195), and most fell within the 19-21 age range (92%; n=191). In terms of ethnicity, 91.3% (n=189) of respondents identified as Caucasian, 4.83% (n=10) as African American, 2.9% (n=6) as Hispanic or Latino, and less than 1% (n=1) as Native American / American Indian or Asian / Pacific Islander.

The results of the study indicated that the use of content-based quizzes did not have a statistically significant impact on the proportion of passing scores among students. Specifically, the pass rates for both the control group and the intervention group were found to be remarkably similar, with a pass rate of 96.1% for the control group and a pass rate of 97.6% for the intervention group. Although the intervention group had a slightly higher pass rate, this difference was not statistically significant (P=0.3627). These findings suggest that while content-based quizzes may have some

benefits for student learning, they may not be a critical factor in determining student success on assessments.

5 DISCUSSION

Considerable research has determined the use of quizzing as a study strategy is beneficial to student learning; however, much is still to be learned regarding best practices. The overarching goal of this study was to determine if the use of quizzing as a study strategy in undergraduate nursing education improved long-term knowledge retention, as evidenced by improved NCLEX-RN performance. The present study found no correlation between content-based quizzing use and increased first-time pass rates in a traditional baccalaureate nursing program. The hope was to introduce the study strategy in a fundamental level course as a requirement, and by providing students with evidence supporting the use of the study strategy, students would adopt the approach on their own. Anecdotally, findings indicated students continued to focus on "here and now" approaches to learning, utilizing read / re-read and / or cramming as study methods. When left to choose, their focus continued to remain on passing the assessment in front of them rather than selecting strategies that foster long-term learning.

Earlier studies have revealed that students who receive instruction on the advantages of using quizzing as a learning strategy are more inclined to employ these techniques autonomously, without guidance from instructors[11,12]. However, in the current study, this trend was not observed. Much of the previous research has only looked at short-term results from quizzing; therefore, the results from this study may reflect similar findings. This result may be attributed to participants only being exposed to one educational session on the topic. It is possible that incorporating additional learning sessions throughout the program would have a positive effect on student behavior in this regard. In addition to ensuring students are properly educated on the benefits of quizzing as a study strategy, the learning approach could be more fully integrated throughout the curriculum to help engage students with this learning style, which could result in a more significant difference in outcomes.

5.1 Limitations

The study was limited by the lack of availability of individualized data from the state's board of nursing, which restricted the scope of data analysis. This constraint posed a challenge to the scope of the data analysis, as a more thorough analysis could have been conducted if the study had access to individualized, longitudinal data rather than aggregate data. It is worth noting that such data would provide more valuable insights for future research. Moreover, it is essential to acknowledge that the college has consistently achieved high pass rates on NCLEX-RN exams; therefore, this must be considered when reviewing the data.

6 CONCLUSION

Over the years, there has been a growing body of research exploring the effectiveness of various study strategies in nursing education. One strategy that has gained significant attention is quizzing. Earlier investigations have provided compelling evidence in support of using quizzing as an effective study strategy in nursing education. This is because the testing effect of quizzing has been shown to enhance the encoding of information, leading to improved long-term retention of knowledge. When students engage in quizzing, they are required to retrieve information from memory and actively recall it, which helps to strengthen the neural pathways associated with that information. This not only makes it easier to retrieve that information later but also helps to solidify it in long-term memory. In the field of nursing, where quick recall of information is critical for providing safe and effective patient care, the benefits of quizzing as a study strategy are particularly important. Nurses are often required to make quick decisions and recall critical information under pressure, and the ability to do so accurately and efficiently can have a direct impact on patient outcomes. Quizzing can also be an effective way to identify areas where students may need additional support or review. By actively engaging with the material and testing their knowledge, students can identify gaps in their understanding and focus their study efforts on the areas that need the most attention.

While the study did not reveal a clear association between the use of quizzing and first-time NCLEX pass rates, it is important to note that the study's findings do not necessarily negate the potential benefits of quizzing as a learning strategy. Quizzing has been shown to enhance long-term retention of knowledge, which can benefit nursing students, including improved critical thinking skills and better clinical decision-making. Moreover, the current study's findings highlight the need for further investigation into the long-term advantages of quizzing as a learning strategy for undergraduate nursing students.

Given the potential benefits of quizzing, it is recommended that nurse educators continue to integrate this strategy into their teaching practices. By providing students with opportunities to actively engage with course material through quizzing, nurse educators can promote deep learning and enhance their students' ability to retain and recall information over the long term.

Moreover, more research is needed to explore the potential impact of quizzing on other outcomes relevant to nursing education, such as clinical performance and job

readiness. By building on the current study's findings, future research can provide a more comprehensive understanding of the role that quizzing can play in preparing nursing students for successful careers as registered nurses.

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Conflicts of Interest

The author declared no conflict of interest.

Author Contribution

The author solely contributed to the manuscript and approved the final version.

Abbreviation List

NCLEX-RN, National Council Licensure Examination for Registered Nurses

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