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Educational Impact and Challenges of Online Return Demonstrations in Nursing Education: A Descriptive-Correlational Study

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Abstract

Traditionally, return demonstrations of clinical procedures in nursing education were conducted face-to-face, providing students with hands-on experience crucial for clinical practice. However, due to COVID-19 restrictions, these demonstrations have been shifted to an online or virtual mode. This study explores nursing students' perceptions of performing online return demonstrations, focusing on their educational impact and the challenges encountered. Using a descriptive-correlational design, the study involved 94 purposively selected level three and four students from Mindanao State University – Buug Campus. Data were collected through validity and reliability-tested questionnaires and analyzed using Pearson correlation. Results indicate that while students viewed online return demonstrations positively in terms of content comprehension, they faced significant challenges, including lack of equipment, environmental distractions, suboptimal devices, and time-consuming resource searches. Additionally, insufficient student-teacher interaction and individual assessment further impeded students' performance. A significant correlation (p-value < 0.05) between educational impact and the student's year level was identified, highlighting that the student's academic standing influenced perceptions of educational effectiveness. While return demonstrations are now resuming on a face-to-face basis, future crises may necessitate a return to online methods. Therefore, it is crucial to strengthen online teaching-learning approaches to ensure better transfer of learning in similar situations.

Keywords: advanced learning, challenges in online learning, digital education, educational impact, education policy, innovation in education, online learning, nursing education

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1. Introduction

The crux of nursing education lies in equipping students with the knowledge and skills necessary for disease prevention, risk reduction, health promotion, and the restoration of health (Shatimwene et al., 2020). At the heart of this education is the integration of Related Learning Experiences (RLE), which form a foundational element of the nursing curricula, especially in countries with a high number of nurses, such as the Philippines. In essence, RLE encompasses two critical components: skills laboratory training and clinical exposure. The skills laboratory functions as a controlled, simulated environment where student nurses can practice and refine essential clinical skills in traditional face-to-face settings

(Koukourikos et al., 2021). This approach is designed to mimic real-world clinical scenarios, allowing students to develop competency in a safe, supportive environment before transitioning to actual patient care during clinical exposures (Goswami et al., 2021). Hence, this study aims to explore the perceptions of third- and fourth-year nursing students at Mindanao State University – Buug Campus regarding the efficacy of online return demonstrations during the COVID-19 pandemic, specifically examining how these students adapted to online learning and the challenges they encountered in the process. In a pandemic situation, learning must be carried out online (Awaludin et al., 2022; Rahmadi et al., 2024; Ratih et al., 2021; Susanti et al., 2023). Online learning is a digital education system in which no physical companions are engaged, and time and location are unrestricted (Islam & Habib, 2021).

In nursing education, the acquisition of skills is integral to preparing student nurses to deliver accurate, effective, and compassionate care. Research underscores the importance of an environment that fosters encouragement and mentorship, where instructors play a vital role in guiding students toward the mastery of necessary skills for both successful practice and continued learning (Gallego, 2018). The role of hands-on training in nursing education cannot be overstated, as it bridges the gap between theoretical knowledge and practical application (Msosa et al., 2022; Saifan et al., 2021).

However, the advent of the COVID-19 pandemic, declared by the World Health Organization (WHO) as a global pandemic in 2020, posed unprecedented challenges to traditional nursing education. With physical interactions severely restricted, educational institutions were compelled to rapidly shift to distance learning modalities to ensure the continuity of nursing education (Shorey et al., 2022). This sudden transition from in-person to online learning presented a complex array of challenges for both educators and students, particularly in a field as hands-on as nursing.

In response, various e-learning strategies were implemented, leveraging available technology to simulate the hands-on experiences typically gained through face-to-face instruction. Online return demonstrations emerged as a critical component of this new learning paradigm (Jung et al., 2022; Kim et al., 2021). These virtual sessions aimed to replicate the traditional face-to-face demonstrations by utilizing video conferencing, virtual simulations, and other digital tools. While these methods provided a temporary solution to the challenges posed by the pandemic, they also highlighted significant gaps in the transfer of practical skills, raising concerns about the overall effectiveness of such approaches (Dewart et al., 2020; Dhawan, 2020).

While e-learning offers numerous advantages, including flexibility and accessibility, it also presents several challenges. These include difficulties in content perception, methodological limitations, connectivity issues, and financial constraints, which can disproportionately affect students in resource-limited settings (Abbasi et al., 2024; Huang & Fang, 2023; Martin et al., 2023). The digital divide, characterized by varying levels of access to reliable internet and technological resources, has exacerbated existing educational inequalities. Furthermore, the absence of physical presence and real-time feedback from instructors has raised concerns about the adequacy of virtual training in developing essential clinical competencies (Gross et al., 2023).

Despite the growing body of literature on e-learning in nursing education, there

remains a gap in understanding the effectiveness of online return demonstrations as substitutes for hands-on training. Existing studies have focused on the broader challenges of e-learning (Kumar et al., 2021; Mojarad et al., 2023), but few have delved into how virtual environments impact the development of practical skills in nursing students. Understanding how nursing students perceive and adapt to such a significant transition is crucial for informing educational policies and practices (Ahmadi et al., 2023). Effective resource allocation and a reorientation of nursing education are necessary to meet the students' needs in an evolving educational landscape, particularly because the COVID-19 pandemic exposed critical weaknesses in maintaining the quality of practical training during the rapid shift to online learning (Aristovnik et al., 2023). While the pandemic has emphasized the need for flexibility and innovation in education, it has also exposed the limitations of current e-learning systems in fully replicating the immersive experiences provided by traditional face-to-face training.

The unprecedented challenges to nursing education brought about by the pandemic, particularly with the suspension of in-person clinical training and return demonstrations, prompted this study to investigate how these disruptions impacted course content understanding and competency development, focusing on the key challenges that hindered effective online learning. Third- and fourth-year students were specifically chosen for this research because they are at the critical stage of completing their nursing education and were most impacted by the lack of hands-on training. By analyzing the educational challenges and their impact, this study aims to shed light on how nursing students adapted to these disruptions and how future crises in education can be better managed to improve learning outcomes. The practical implications of this research are vital for nursing educators to help them identify these challenges and devise strategies to uphold educational standards during future crises. The findings will offer valuable insights into refining online learning approaches to ensure that essential clinical competencies are preserved. Based on the results, this study will provide recommendations on integrating online demonstrations into a more resilient and adaptable nursing education framework. As the world moves beyond the pandemic and face-to-face return demonstrations resume, it is essential to reflect on the lessons learned during this time. Strengthening online teaching methods will be crucial for safeguarding the quality of nursing education and preparing future healthcare professionals for potential crises.

2. Method

This study employed a cross-sectional, self-administered survey to gather data from 94 nursing students enrolled in the third and fourth years at Mindanao State University – Buug Campus. A descriptive-correlational research design was utilized to achieve the study's objectives. This design was chosen to elucidate the relationship between the demographic profiles of the respondents and their perceptions of online return demonstrations, specifically concerning educational impact (including content understanding and content perception challenges) and encountered challenges (comprising methodological, technical, financial, and time management issues).

A total enumeration method with purposive sampling was employed to include all 94 third- and fourth-year nursing students enrolled at MSU-Buug Campus during the second semester of the academic year 2020–2021. This method ensured comprehensive

coverage of the eligible population, allowing for an in-depth analysis of their experiences and perceptions of online return demonstrations. Participants were selected based on the criteria that they were actively enrolled as nursing students during the specified semester and had direct experience with online return demonstrations. This selection criterion ensured that all respondents possessed relevant experience directly aligned with the study's objectives.

The primary data collection tool for this study was a carefully designed, researcher-made questionnaire comprising two sections with a total of 44 items. The questionnaire underwent a rigorous validation process to ensure its effectiveness and relevance. Content and face validity were initially established through revisions made by clinical educators and mentors, who assessed the specificity and alignment of each item with the research objectives. Construct validity was further confirmed through expert evaluation, validity testing, and a comprehensive literature review that guided the questionnaire's development. To enhance validity, a Content Validity Ratio (CVR) analysis was conducted, with items scoring between 0.7 and 0.9 retained, scores between 0.6 and 0.5 revised, and scores between 0.4 and 0.1 excluded. The reliability of the instrument was evaluated through pilot testing, with Cronbach's Alpha calculated to measure internal consistency. The resulting Cronbach's Alpha value of 0.96 indicated high internal consistency among the Likert-type responses, affirming the reliability of the instrument.

The study underwent a thorough review and approval process by the Ethics Committee of the MSU Buug Nursing Department, with ethical clearance granted under reference number NDEC-2022-06. The submission included a detailed research proposal outlining the study's objectives, methods, and data handling procedures. Special ethical considerations included ensuring participant confidentiality and informed consent. Participants were briefed about their rights, the purpose of the study, and the measures taken to protect their anonymity.

Data analysis was performed using the statistical software JASP Version 0.16.4. Descriptive statistics, including means and standard deviations, were utilized to summarize the data. Pearson correlation analysis was employed to assess the relationships among quantitative variables, with statistical significance set at a p-value of < 0.05.

Potential biases in this study include selection bias, given that the sampling method was purposive rather than random, and self-report bias, as responses may reflect students' perceptions rather than objective measures of competency. To mitigate selection bias, the total enumeration method was employed to include all eligible students, ensuring comprehensive coverage of the population. Self-report bias was addressed by ensuring anonymity, which encouraged honest responses, and by using a validated instrument to accurately measure the constructs of interest.

3. Result and Discussion

This section presents the data in tabular form, including frequency and percentage distributions of respondents' socio-demographic profiles, descriptive statistics on student nurses' perceptions of online return demonstrations, and the correlation between respondents' socio-demographic profiles and their perceptions of these demonstrations.

Table 1. Frequency Distribution of the Studied Sample According to Their Sociodemographic Characteristics

Variables		*f*	Percentage
Year Level	Level III	38	40.43
	Level IV	56	59.57
Internet Connectivity	Wi-Fi Connectivity	39	41.48
	Mobile Data	55	58.52
Type of Gadget Used	Smartphone	88	93.62
	Laptop	5	5.32
	Laptop and Smartphone	1	1.06
	Tablet	0	0.00
Monthly Family Income	Less than 5,000 Php	29	30.86
	5,001 to 10,000 Php	33	35.10
	10,001 to 20,000 Php	23	24.47
	20,001 to 30,000 Php	5	5.32
	30,001 to 40,000 Php	1	1.06
	40,001 to 50,000 Php	3	3.19
	50,001 Php or more	0	0.00

Table 1 provides a detailed frequency distribution of the sample based on their socio-demographic characteristics, which offers insight into the profile of the participants in this study. In terms of year level, the distribution is nearly balanced but slightly skewed towards the fourth-year students, who comprise 59.57% of the sample, compared to 40.43% of third-year students. In the curriculum, fourth-year students typically undertake more complex clinical tasks (Moloney et al., 2020; Zulu et al., 2021). With the transition to online return demonstrations, they may require more extensive mentoring and feedback, which are crucial for their final year of training. This could lead to a heightened sensitivity to the limitations of online return demonstrations compared to third-year students, who are still acquiring foundational skills. Thus, the impact of online learning on clinical competency might be perceived more critically by fourth-year students, potentially affecting the overall assessment of online return demonstrations.

While some research findings suggest that e-learning can be an effective approach to enhancing clinical education by addressing students' needs and supplementing traditional methods of teaching clinical skills, it is likely that online methodologies alone may not be sufficient for some students to fully grasp these skills (Jang & Kim, 2014). This underscores the necessity of incorporating additional teaching methods to support and complement the acquisition of these skills.

With regards to internet connectivity, a majority of participants (58.52%) rely on mobile data, while 41.48% use Wi-Fi. The higher reliance on mobile data could be attributed to its widespread availability and flexibility, particularly in areas where Wi-Fi infrastructure may be less developed or unreliable. Mobile data might offer a more convenient option for students who need to access online resources from various locations (Asio et al., 2021). However, mobile data plans can be costly and limited in terms of data usage, which might affect the quality of the online learning experience (Budiman, 2020; Chillemi et al., 2020). The significant proportion of students using mobile data underscores the importance of considering connectivity issues when

evaluating the effectiveness of online education.

The type of gadget used for online return demonstrations reveals a significant preference for smartphones. A substantial 93.62% of the respondents use smartphones, while only 5.32% use laptops, and a mere 1.06% use both laptops and smartphones. No participants reported using tablets, highlighting the dominance of smartphones as the primary device for engaging in online learning activities. The overwhelming preference for smartphones likely reflects their affordability, portability, and multifunctionality. Smartphones are generally more accessible compared to laptops, particularly in lower-income households (Vogels, 2021). However, smartphones might not offer the same level of functionality or user experience as laptops, which could impact students' ability to fully engage with online return demonstrations. The unpopularity of desktop computers is likely due to their bulkiness, difficulty in setting up wireless internet, and lack of built-in batteries, making them impractical during the sudden COVID-19 lockdown and frequent power failures, particularly in rural areas (Gamage & Perera, 2021).

In essence, the preference for smartphones over laptops among respondents has significant implications for learning effectiveness, particularly in the context of online return demonstrations. Smartphones, while highly accessible due to their affordability and portability, present several limitations compared to laptops. The smaller screen size of smartphones can constrain students' ability to view and interact with detailed content and instructional materials, potentially hindering their engagement with complex tasks (Alasmari, 2020). Additionally, the limited processing power of smartphones, short sessions, and single-window visibility might affect the smoothness and functionality of interactive elements within online platforms (Budio, 2015), further impacting the quality of the learning experience. Conversely, laptops offer a larger screen, which facilitates a more comprehensive view of instructional materials and interactive components (Albó et al., 2019). The increased processing power and ergonomic design of laptops can enhance the overall user experience, providing a more effective platform for engaging in detailed and nuanced learning activities. Therefore, the dominance of smartphones as the primary device underscores the need for educational strategies that accommodate these limitations. By addressing these device-specific challenges, educators can help ensure that all students, regardless of their preferred technology, are able to achieve their learning objectives effectively.

Monthly family income data indicates that most respondents come from lower to middle-income backgrounds. The largest group (35.10%) has a monthly family income between 5,001 and 10,000 PHP. This is followed by 30.86% of participants whose families earn less than 5,000 PHP. The number of respondents from higher income brackets decreases significantly, with only 3.19% falling within the 40,001 to 50,000 PHP range, and none reporting incomes above this threshold. The concentration of students in lower to middle-income brackets suggests financial constraints may be a significant factor influencing their access to educational resources. Lower income can limit students' ability to afford high-speed internet, quality devices, and other resources necessary for effective online learning (Miah, 2024). This financial context is crucial for understanding the potential

challenges students face and emphasizes the need for support mechanisms to address these barriers.

Table 2. Descriptive Statistics on the Perception of the Student Nurses on Performing Online Return Demonstrations in Terms of its Educational Impact

Variables	Indicators	Grand Mean	Interpretation
Educational Impact Course Content Understanding	Online return demonstrations offer: • Clear understanding of content • Comprehension of each step and its rationale • Clarity in the terminologies and concepts used • Understanding of the procedures performed • Adequate information from the instructor on performing procedures • Guidance on using each piece of equipment • Well-organized and clear information regarding the procedure/s to be performed • Enhancement of critical thinking skills • Encouragement of creative thinking	2.964	The respondents demonstrate a moderate level of agreement with the indicators, with a grand mean score categorized as "*oftentimes*."

Scaling: 4.00-3.26- Always 2.51-3.25- Oftentimes 1.76-2.50-Sometimes 1.00-1.75-Never

Table 2 presents descriptive statistics regarding nursing students' perceptions of the educational impact of online return demonstrations. The table highlights various indicators associated with course content understanding and evaluates the respondents' agreement levels with these indicators. The grand mean score of 2.964 places respondents' perceptions in the "*oftentimes*" category, indicating moderate agreement that online return demonstrations are useful for understanding course content. However, since the grand mean score is at the lower end of the "*oftentimes*" range, it implies that while these benefits are recognized, they are not experienced consistently by all students. In other words, online return demonstrations may not be perceived as highly effective for all students, potentially affecting their overall perception of these methods' effectiveness. This variability could arise from several factors, including differences in how students engage with online content, the varying quality of digital tools used, and the challenges associated with adapting traditional hands-on skills to a virtual format.

Respondents reported a good grasp of both the content and rationale behind each procedural step, reflecting the effectiveness of these demonstrations in facilitating comprehension. A major advantage of demonstration-based learning is the safe training environment it provides, allowing students to practice and refine their skills repeatedly before real-life clinical application. This approach helps reduce medical errors and emphasizes patient safety, while also ensuring student safety, which is essential for positive staff-patient interactions (Pingue-Raguini et al., 2020). However, some studies argue that online-based simulations have limitations compared

to traditional classroom settings (Spencer et al., 2019), where clinical instructors can directly interact with nursing students to demonstrate and discuss basic nursing skills. In an online environment, virtual meetings serve as the primary means of interaction, and while these platforms allow for clarifications and rationalizations of nursing skills, they are often hindered by external factors. Issues such as poor internet connections, power interruptions, and other technical problems can significantly disrupt the learning experience and impact students' educational outcomes (Magnaye et al., 2023).

They also noted that the terminology and concepts used were "*oftentimes*" explained clearly, and the information provided by instructors was adequate for performing the procedures. This suggests that clarity in communication is generally achieved but may not always be consistent. This implies that while students frequently understand the terms and concepts used during online return demonstrations, there may be occasional instances where explanations are less clear (Cengiz et al., 2022). Additionally, the information provided by instructors was deemed adequate for performing the procedures, indicating that the instructional content generally meets students' needs for effective practice. However, the use of "*oftentimes*" suggests that there could still be variability in the adequacy of the information provided, which may impact the overall effectiveness of the online demonstrations. Therefore, to enhance learning outcomes, it is crucial to address these inconsistencies by implementing strategies for continuous improvement in both instructional clarity and content delivery. This includes regularly reviewing and refining instructional methods to ensure that all students receive consistent and comprehensive support throughout their learning experience.

Moreover, students perceived that the online return demonstrations contribute to enhancing their critical thinking skills and encourage creative thinking. While online learning is recognized as an effective means to develop critical thinking skills, its implementation faces several challenges. These include socio-cultural issues, as well as technical and practical difficulties stemming from the learner's unfamiliarity with the online environment, which complicates the design and selection of suitable topics and methods (Tathahira, 2020).

Table 3. Descriptive Statistics on the Perception of the Student Nurses on Performing Online Return Demonstrations in Terms of the Challenges Encountered

Variables	Indicators	Grand Mean	Interpretation
Challenges Encountered	Methodological challenges: • Lack of necessary equipment and insufficient knowledge on how to use it • Inadequate and unfavorable study environment • Household schedules that interfere with learning • Inaccessibility and unavailability of equipment, compounded by challenges in finding necessary resources • Time constraints affecting the ability to study effectively and	2.964	The respondents demonstrate a moderate level of agreement with the indicators, with a grand mean score categorized as "oftentimes."

Variables	Indicators	Grand Mean	Interpretation
	complete other assigned tasks • Challenges in managing the time-consuming processes of video recording, editing, and submission • Difficulty reaching out to and communicating with the instructor for clarifications		

Scaling: 4.00-3.26- Always 2.51-3.25- Oftentimes 1.76-2.50-Sometimes 1.00-1.75-Never

Table 3 presents the descriptive statistics on the challenges encountered by student nurses in performing online return demonstrations. The grand mean score of 2.964 falls within the "*oftentimes*" category, indicating a moderate level of agreement with the identified challenges. This score reflects that students frequently encounter a range of methodological issues.

A major challenge faced by students is the lack of necessary equipment and insufficient knowledge on how to use it effectively. This difficulty is exacerbated by an inadequate and unfavorable study environment, which further impedes their learning and practice. In response to the pandemic's restrictions, nursing schools have adapted their curricula to facilitate online education through simulations. Despite these adjustments, many students reported difficulties in obtaining the specific medical equipment required for effective practice during online demonstrations. For instance, essential tools such as urine catheters, medication syringes, intravenous tubes, and other diagnostic instruments were not readily available to all students. This scarcity meant that students often had to simulate procedures without the proper tools, which limited their ability to practice and master these skills accurately. Such limitations also diminished the authenticity of the learning experience and hindered students' preparedness for real-world clinical settings.

As a result, students have turned to low-cost simulators for their online return demonstrations. These affordable solutions, made from environmentally friendly and readily available materials such as household items and basic equipment, provide a practical alternative for students lacking traditional medical tools (Angelina et al., 2021; Van Der Wege & Keil, 2021). Research suggests that using readily available materials as low-cost simulators can improve the effectiveness of skills training, allowing nursing students who lack access to costly equipment to safely practice clinical procedures (Berdida et al., 2023). However, a limitation of the low-fidelity simulation method is its inability to evoke emotional responses in students, leading to perceptions of the simulations as unrealistic due to their low level of fidelity (Uzelli & Sari, 2018).

Additionally, technical issues such as poor internet connectivity and power outages have significant implications for learning outcomes in online return demonstrations. For instance, students in remote areas reported frequent disconnections during online sessions, which disrupted their ability to engage fully with the demonstrations. Such connectivity problems led to incomplete viewing of instructional videos and interruptions during live sessions, ultimately affecting their comprehension and ability to perform tasks effectively.

Essentially, poor internet connection can lead to interruptions in video feeds, delays in communication, and difficulties in accessing instructional materials, which can disrupt the learning process and hinder students' ability to fully engage with the content (Clarin & Baluyos, 2022). Similarly, power outages can interrupt online sessions, causing students to miss important instructional time and impacting their overall learning experience (Cahapay, 2021). These technical challenges can disproportionately affect students in areas with limited infrastructure or unstable power supplies, leading to an uneven learning experience. To address these concerns, implementing asynchronous learning options, where students can access recorded sessions and materials at their convenience, can help accommodate those affected by real-time technical issues (Kimura et al., 2023). Moreover, developing contingency plans, such as providing downloadable resources or offline activities, ensures that students can continue their learning despite connectivity issues or power outages.

Household schedules also interfere with students' learning, as personal responsibilities and time constraints disrupt their ability to engage fully with online demonstrations. Students with inadequate environmental setups, such as excessive noise, poor lighting, limited space, and challenging family situations, find it difficult to perform nursing procedures effectively. Many students reported difficulties due to high levels of ambient noise in their home environments. Excessive noise, whether from household members, nearby traffic, or other sources, created distractions that interfered with students' concentration during online classes (Aivaz & Teodorescu, 2022). This disruption not only affected their ability to focus on the instructional content but also impacted their ability to accurately perform and understand procedural tasks (Wang, 2022). These conditions can lead to miscommunication, particularly when student nurses ask questions or respond during recitations, potentially hindering their learning experience (Magnaye et al., 2023). One study revealed that students face significant distractions while taking online assessments, making it difficult to concentrate in a remote learning environment (Cahapay, 2021). These disturbances, whether from nature or neighbors, are compounded by various sensory stimuli such as sights, smells, and sounds present at home.

Consequently, time management issues are prevalent, with students noting that the time-consuming processes of video recording, editing, and submission affect their ability to study and complete other tasks effectively. This increased workload for students added to the already existing burden of learning during the pandemic. While Google Classroom, a widely regarded e-learning platform, is accessible for free by institutions or faculty members, the limited availability of hardware resources may explain why both students and teachers were unable to fully utilize these platforms (Asian Development Bank, 2023).

Finally, there is a noted difficulty in reaching out to and communicating with instructors, which complicates the clarification of doubts and feedback. Many students reported that the asynchronous nature of online communication often resulted in delays in receiving feedback from instructors. This lag may affect students' ability to promptly address mistakes, refine their techniques, and improve their understanding of the procedures being demonstrated.

In nursing return demonstrations, providing feedback is crucial for enhancing learning and self-awareness (Kourgiantakis et al., 2019). It helps students recognize their strengths and identify areas for improvement in their work or learning process. Feedback plays a vital role in preventing misconceptions and misunderstandings in the online learning environment, offering students the opportunity to refine their skills (Cavalcanti et al., 2021). Additionally, it strengthens the student-teacher relationship by fostering professional judgment and communication. Therefore, issues related to inadequate feedback mechanisms can have a detrimental effect on student learning.

Table 4. Relationship Between Sociodemographic Profiles and The Perceptions of the Respondents on Performing Online Return Demonstrations in Terms of Educational Impact and Challenges Encountered

Variables		Year Level	Internet Connectivity	Type of Gadget Used	Family Monthly Income
Educational Impact	Pearson's r	**-0.242***	0.055	0.053	0.044
	p-value	**0.019**	0.596	0.613	0.677
Challenges Encountered	Pearson's r	-0.122	0.067	0.058	0.094
	p-value	0.243	0.522	0.580	0.368

Scaling: 4.00-3.26- Always 2.51-3.25- Oftentimes 1.76-2.50-Sometimes 1.00-1.75-Never

The results presented in Table 4 examine the relationship between the respondents' sociodemographic profiles—such as year level, internet connectivity, type of gadget used, and family monthly income—and their perceptions of performing online return demonstrations in terms of both educational impact and challenges encountered. The analysis shows a statistically significant negative correlation between year level and educational impact, with a Pearson's r value of -0.242 and a p-value of 0.019, indicating that as the year level increases, the perceived educational impact of online return demonstrations slightly decreases. This suggests that higher-level students may perceive less educational benefit from online return demonstrations compared to lower-level students.

In essence, higher-level students, who are closer to completing their nursing education, may have higher expectations for the complexity and realism of training methods. They might find online return demonstrations less engaging or insufficient compared to hands-on, in-person clinical experiences they may have had earlier in their education. These students are likely more familiar with real-world clinical settings and might perceive online simulations as lacking the depth and immediacy needed for advanced learning, leading to a reduction in their perceived educational impact. Thus, as students progress in their education, they might become less engaged with online learning modalities if these methods do not evolve to meet their advanced learning needs. The static nature of some online platforms might fail to engage higher-level consumers effectively (Shahbaznezhad et al., 2021), leading to a perception that these tools are less beneficial compared to their earlier educational experiences.

This is supported by recent research, which underscores that while simulation-based pedagogy is valued as an effective teaching tool (Jarvill et al., 2018), it is crucial for curriculum designers and decision-makers to consider nursing students' views on the importance of hands-on clinical practice in their learning experience.

Consequently, the negative correlation highlights the need to tailor online return demonstrations to the specific needs of advanced students. Curricula should incorporate more sophisticated virtual simulations and interactive elements that align with the complex skills and knowledge required at higher levels. This approach can ensure that online learning remains relevant and effective for all year levels. Additionally, for senior students, integrating advanced online tools and resources, such as virtual reality simulations or real-time clinical scenarios, could enhance the perceived educational impact. Providing opportunities for interactive feedback and discussion may also improve engagement and learning outcomes.

The study acknowledges several limitations and potential biases that could affect the validity and generalizability of its findings. First, the limited sample size, while sufficient for initial insights, may not represent the broader population of nursing students, potentially limiting the generalizability of the results. The use of a cross-sectional survey design provides a snapshot of perceptions at a single point in time but does not capture changes over time or establish causal relationships. These limitations underscore the need for a cautious interpretation of the findings and highlight areas for future research to address these biases and enhance the robustness of the study outcomes.

4. Conclusion

The shift to online return demonstrations in nursing education has illuminated both the opportunities and constraints of this approach. While online simulations offer valuable practice opportunities, their effectiveness is not uniform across all student levels. Higher-level students, who are approaching the end of their training, often find online methods less effective compared to hands-on clinical experiences. This discrepancy may arise from the advanced clinical skills and nuanced understanding required at higher levels, which online simulations may not fully replicate. Specific limitations associated with online simulations include inadequate equipment, poor study environments, and technical issues such as unreliable internet connectivity and device limitations, all of which hinder achieving desired learning outcomes. For example, issues like excessive noise, poor lighting, and limited space in students' study environments have the likelihood of negatively impacting their engagement and learning effectiveness. Moreover, higher-level students might face unique challenges, such as the need for more complex procedural practice, which online methods alone may not adequately address.

To address these limitations, curriculum designers should consider integrating online simulations with traditional clinical placements. A hybrid approach could involve using online tools to complement in-person training, providing a more comprehensive learning experience that bridges theory and practice. For instance, online simulations could be used for preliminary training and concept reinforcement, while hands-on clinical placements could focus on applying these skills in real-world settings.

These findings underscore the need for curriculum adjustments to better support student learning across different levels. It is essential to incorporate flexible teaching methods and ensure that online simulations are supported by adequate resources and infrastructure. Recommendations include investing in better technological support, creating more structured guidelines for online simulations, and providing additional

training for both students and instructors on effective online teaching practices.

Future research should explore the effectiveness of specific online simulation models and their impact on various student levels. Additionally, studies could investigate the integration of emerging technologies into nursing education and their potential to enhance both online and hands-on learning experiences. Addressing these gaps will be crucial for developing a robust, adaptable nursing education curriculum that meets the diverse needs of students.

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