

Barriers and Strategies in the Implementation of Virtual Learning Modalities Amid COVID-19 among Students in Nursing Schools at Sulu Province, Philippines

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Abstract:

Background: The COVID-19 pandemic prompted a significant shift toward virtual learning modalities in nursing education. However, this transition has been marked by various challenges, including faculty and student unfamiliarity with online platforms and the need to adapt curricula rapidly. **Objectives:** This study aimed to comprehensively examine the barriers encountered by nursing schools in the Sulu Province while implementing virtual learning modalities during the COVID-19 pandemic. **Methods:** A quantitative, descriptive approach was employed to collect and analyze data from 95 nursing students across three higher education institutions in the Sulu Province. A questionnaire was used to assess sociodemographic factors, technology usage, and barriers experienced during virtual learning. Data were analyzed using frequency, percentage, mean, and standard deviation. **Results:** The results revealed that most participants were between 19 and 20 years old, with a higher percentage of females. The majority of students reported owning and using various online technologies, including online videos, social media platforms, mobile apps, and email. Key barriers to virtual learning included the absence of face-to-face interaction, poor internet connectivity, limited technical support, restricted access to clinical simulations, and distracting home environments. Language barriers, technical jargon in learning materials, limited access to required software, insufficient opportunities for collaboration, and privacy and security concerns were also identified as barriers. **Conclusion:** The findings underscore the importance of implementing key strategies to enhance virtual learning modalities in nursing education. These strategies can significantly improve the quality and effectiveness of virtual learning in nursing education, especially in challenging contexts like the Sulu Province.

Keywords: Barriers, Nursing Schools, Virtual Learning Modalities, Strategies.

Introduction

Virtual learning modalities have become essential in nursing education during the COVID-19 pandemic. However, the implementation of virtual learning modalities has faced several barriers. One of the barriers identified is the lack of experience and familiarity with virtual learning platforms among nursing faculty and students (Manakatt et al., 2021). This lack of familiarity can hinder the effective use of virtual learning tools and technologies. Additionally, the rapid transition to virtual learning has posed challenges in terms of adapting the curriculum and instructional methods to an online format (Al-Naabi & Al-Abri, 2021). Nursing schools have had to quickly develop and implement virtual learning strategies to ensure continuity of education.

Another barrier to the implementation of virtual learning modalities is the satisfaction of nursing students with the quality of courses and virtual learning experiences (Farsi et al., 2022; Pangandaman, 2018). Nursing students' satisfaction with the virtual learning experience during the pandemic is crucial for their engagement and motivation in the learning process. Therefore, it is important for nursing schools to assess and address the satisfaction of students with virtual learning to ensure effective implementation.

To overcome these barriers, nursing schools have adopted various strategies. Innovative approaches, such as hospital-based pediatric virtual learning, have been implemented to provide students with practical learning experiences (Pangandaman et al., 2020; Walsh et al., 2021). Virtual simulation has also been used to teach evidence-based practice in nursing curricula, allowing students to develop clinical skills in a virtual environment (Cant et al., 2022). These strategies aim to enhance the quality of virtual learning experiences and bridge the gap between theoretical knowledge and practical application.

Furthermore, nursing schools have focused on addressing the satisfaction of nursing students with virtual learning. This includes considering factors such as instructional design and educational satisfaction in virtual environment simulations (Park & Kim, 2022). Creating a sense of community and rapport among prelicensure nursing students in the virtual learning environment has also been emphasized (Cantey et al., 2021).

However, the challenges faced by nursing schools in the remote and underserved Sulu Province, a region in the southern part of the Philippines, were unique due to their distinct set of barriers and opportunities. In the context of nursing education, the challenges were even more pronounced. Nursing programs required a substantial amount of hands-on clinical training, which was difficult to replicate in a virtual environment. Consequently, nursing schools in the Sulu Province had to find innovative strategies to ensure that their students received essential clinical training while adhering to pandemic restrictions. This study aimed to provide a comprehensive examination of the barriers encountered by nursing schools in the Sulu Province in the implementation of virtual learning modalities during the COVID-19 pandemic.

Methodology

The research design applied in this study was purely quantitative particularly descriptive type of approach to narratively describe and discuss the variables involved. It has been conducted in selected higher education institution or university in the province of Sulu, Bangsamoro Autonomous Region in Muslim Mindanao (BARMM) which included Sulu State College, Notre Dame of Jolo College, and Mindanao State University – Sulu. Respondents were the nursing students enrolled (n=95) in the aforementioned schools who have experienced virtual learning modalities and willingly participated. A stratified random sampling was applied in the selection of respondents in participating the study using four parts validated and reliability tested questionnaire. Ethics clearance was obtained from the research ethics committee of the College of Nursing, Mindanao State University – Sulu (REC-CON-MSUS). The data gathered were then analyzed and interpreted using frequency, percentage, mean and standard deviation. An SPSS software version 28 has facilitated smoothly the processing of the data.

Results

Based on the findings, the sociodemographic profile of the respondents shows that most of the participants are at the age of 19 to 20 (41%), with some are 21 to 22 years old (24%), few below 18 years of age (16%), then the few are 23 years old above (17%). Most of them are female (71%) than male (28%) who belongs to economic status of 20,001 pesos above (74%) and 10,000 to 20,000 pesos (22%).

In terms of the technology owned and used by the nursing students as respondents about implementation of virtual learning modalities as shown in table 1, all of them are using and accessing online videos and sounds (100%), online presentation through FB Messenger and Zoom (100%), mobile phone apps

such as google classroom (100%), and SMS texting as well (100%). Majority also expressed utilization and application of email on the learning experience on virtual modalities in education. Few of them have engaged using other platforms such as discussion boards (12%), DVD's (18%), Blogs (31%), and Wikis (47%).

Table 1-Technology Owned and Used

Technology Owned and Used	Freq.	% Dist.
Email	85	89.47
Discussion Boards	12	12.63
DVD's	18	18.95
Online Videos and Sounds	95	100.0
Blogs	30	31.58
Wikis	45	47.37
Online Student Presentation (FB Messenger, Zoom)	95	100.0
Mobile Phone apps (Google Classroom)	95	100.0
SMS texting	95	100.0
Total:	95	100.0

Moreover, in Table 2 about the context of barriers in the implementation of virtual learning modalities shows that nursing students face a range of challenges in virtual learning, with the absence of face-to-face interaction, poor internet connection, insufficient technical support, limited access to clinical simulations, and distracting home environments being some of the most significant barriers. Somehow, it has been identified as well that language barriers and technical jargon in virtual learning materials, limited access to required software programs, limited opportunities for collaboration and social interaction, limited faculty support and guidance in using virtual learning platforms, and insufficient privacy and security measures are barriers in the implementation of virtual learning modalities.

Table 2. Barriers in Virtual Learning Modalities

Barriers in Virtual Learning Modalities	Mean	SD	Interpretation
1. Poor internet connectivity is a major barrier for nursing students in accessing virtual learning platforms.	2.45	.203	Strongly Agree
2. Lack of access to computers or mobile devices is a significant barrier for nursing students in participating in virtual learning activities.	2.24	.306	Agree
3. Insufficient technical support and assistance hinders nursing students from using virtual learning platforms effectively.	2.38	.354	Strongly Agree
4. Limited availability of virtual learning resources and materials makes it difficult for nursing students to engage in independent learning.	2.19	.792	Agree
5. The absence of face-to-face interaction and personal feedback affects nursing students' motivation and engagement in virtual learning.	2.85	.335	Strongly Agree
6. Language barriers and the use of technical jargon in virtual learning materials can be challenging for nursing students with limited language proficiency.	1.80	.538	Agree
7. Inadequate digital literacy skills among nursing students can be a significant barrier to effective use of virtual learning platforms.	2.08	.531	Agree

8. Limited opportunities for collaboration and social interaction can make virtual learning less engaging for nursing students.	2.04	.433	Agree
9. Distracting home environments can hinder nursing students from focusing on virtual learning activities.	2.75	.442	Strongly Agree
10. Time management can be challenging for nursing students who have other commitments or responsibilities.	2.65	.523	Strongly Agree
11. Limited access to virtual clinical simulations can hinder nursing students' development of clinical skills.	2.85	.252	Strongly Agree
12. Lack of access to required software programs can prevent nursing students from completing virtual learning assignments and assessments.	2.12	.543	Agree
13. Technological glitches and system errors can interrupt nursing students' learning progress and cause frustration.	2.56	.629	Strongly Agree
14. Limited faculty support and guidance in using virtual learning platforms can hinder nursing students' engagement and success in virtual learning.	1.99	.865	Agree
15. Insufficient privacy and security measures can be a significant concern for nursing students in virtual learning environments.	1.93	.852	Agree

Note: 0.00-0.75 = Strongly Disagree; 1.51-2.25 = Agree
0.76-1.50 = Disagree; 2.26-3.00 = Strongly Agree

Table 3. Strategies in Virtual Learning Modalities

Strategies in Virtual Learning Modalities	Mean	SD	Interpretation
1. Providing reliable and high-speed internet access to nursing students is a critical strategy for successful implementation of virtual learning modalities.	2.65	.603	Strongly Agree
2. Ensuring access to necessary hardware and software, including computers, tablets, and virtual simulation tools, is essential for nursing students to engage in virtual learning.	2.61	.706	Strongly Agree
3. Providing training and technical support for nursing students can help improve their digital literacy and overall success in virtual learning.	2.58	.688	Strongly Agree
4. Offering a variety of virtual learning resources and materials can help cater to the diverse learning styles of nursing students.	2.84	.792	Strongly Agree
5. Incorporating virtual clinical simulations and interactive case studies can enhance nursing students' development of clinical skills in virtual learning environments.	2.68	.883	Strongly Agree
6. Facilitating frequent communication and feedback between faculty and nursing students can help maintain motivation and engagement in virtual learning.	2.80	.795	Strongly Agree
7. Offering opportunities for nursing students to collaborate with peers and engage in group projects can enhance their social interaction and overall success in virtual learning.	2.38	.784	Strongly Agree

8. Providing clear and concise instructions and course materials can help nursing students navigate virtual learning platforms more efficiently.	2.44	.933	Strongly Agree
9. Encouraging nursing students to establish a designated learning environment at home can help reduce distractions and improve focus on virtual learning activities.	2.54	.767	Strongly Agree
10. Offering flexible schedules and self-paced learning options can accommodate nursing students' other commitments and responsibilities outside of virtual learning.	2.85	.363	Strongly Agree
11. Incorporating frequent breaks and physical activity into virtual learning schedules can help nursing students maintain focus and reduce fatigue.	2.54	.654	Strongly Agree
12. Providing multiple modes of assessment, including formative and summative assessments, can help nursing students track their progress and receive timely feedback.	2.75	.274	Strongly Agree
13. Offering virtual office hours and individualized support can help nursing students address specific questions or concerns related to virtual learning.	2.65	.768	Strongly Agree
14. Providing language support and translating technical jargon into simpler terms can help nursing students with limited language proficiency better understand virtual learning materials.	2.85	.537	Strongly Agree
15. Ensuring privacy and security measures, such as secure logins and data encryption, can help nursing students feel more comfortable and confident in virtual learning environments.	2.93	.215	Strongly Agree

Note: 0.00-0.75 = Strongly Disagree;

0.76-1.50 = Disagree;

1.51-2.25 = Agree

2.26-3.00 = Strongly Agree

The results in Table 3 suggests that the strategies listed are considered crucial for the successful implementation of virtual learning modalities in nursing education. Some key strategies include providing reliable internet access, ensuring access to necessary hardware and software, offering various learning resources to cater to diverse learning styles, and facilitating communication and feedback between faculty and students. These strategies aim to enhance the overall learning experience, digital literacy, clinical skill development, motivation, and engagement of nursing students in virtual learning environments. It highlights the strong support for these strategies and underscores their potential to enhance the quality and effectiveness of virtual learning in nursing education

Discussion

The mainstream of young females in nursing education with a varied income as the characteristics of the respondents of this study is an important consideration for various aspects of nursing education and practice. Research has shown that age and gender demographics of nursing students can impact their satisfaction with learning and self-confidence (Dubs, 2023). Younger students may have different learning needs and preferences compared to older students, and understanding these differences can inform the development of effective teaching strategies and curriculum design (Winnington et al., 2023). Moreso, students from lower-income backgrounds may face challenges in accessing reliable internet connections and necessary devices for virtual learning (Pangandaman, 2023). Nursing students at Sulu demonstrate a high degree of tech-savviness, with virtually universal access to online videos, presentations through platforms like FB Messenger and Zoom, mobile apps, and SMS texting (Harerimana et al., 2022). This indicates that nursing students are well-versed in using standard virtual learning tools. However, the study also reveals that a notable portion of

students are exploring alternative avenues like discussion boards, DVD resources, blogs, and wikis, indicating a diverse learning approach among students (Harerimana et al., 2022).

Despite the adaptability of nursing students to virtual learning, the study also sheds light on the challenges they face in this mode of education. The absence of face-to-face interaction is a significant hurdle, particularly given the practical nature of nursing education (Harerimana et al., 2022). Poor internet connectivity and limited technical support further compound the difficulties, emphasizing the need for robust infrastructure and assistance (Harerimana et al., 2022; Krel et al., 2022). Limited access to clinical simulations is also a poignant issue, as hands-on training is crucial in nursing education (Harerimana et al., 2022; Innab et al., 2022; Park & Seo, 2022). Additionally, distracting home environments can affect students' concentration and focus (Cant et al., 2022; Harerimana et al., 2022). Language barriers, technical jargon in virtual learning materials, limited software access, minimal opportunities for collaboration, and a lack of faculty support are other challenges identified in the study. Privacy and security issues also pose concerns (Harerimana et al., 2022; Krel et al., 2022; Manakatt et al., 2021).

However, the study also identifies strategies that could enhance the effectiveness of virtual learning in nursing education. Providing reliable internet access and necessary hardware and software are foundational steps (Tássia Teles Santana de et al., 2023; Velarde-García et al., 2023; Yeo & Jang, 2022). Offering diverse learning resources tailored to different learning styles acknowledges the individuality of students' educational experiences (Palomino et al., 2023; Velarde-García et al., 2023). Facilitating communication and feedback between faculty and students is pivotal, as it fosters engagement, motivation, and digital literacy (Dubs, 2023; Palomino et al., 2023). These strategies aim to support the development of clinical skills and promote overall student success in the virtual learning environment (Harerimana et al., 2022).

Furthermore, it is imperative for academic institutions to formulate pedagogical approaches and curricular frameworks and should diligently furnish students with uninterrupted access to dependable internet connectivity, essential hardware and software, and a wide array of educational materials to accommodate diversified learning styles. In order to effectively surmount the challenges posed by the virtual learning paradigm, institutions must allocate resources towards establishing resilient technological infrastructure and providing unwavering technical support. Moreover, the creation of innovative and immersive clinical simulation experiences is a requisite. Ultimately, cultivating an inclusive and nurturing academic milieu that encourages open lines of communication and constructive feedback between both faculty and students is paramount. These measures collectively empower nursing schools to enable every student to thrive within the virtual learning domain while equipping them with the competencies and knowledge essential for their future roles as adept nurses.

Conclusion

Nursing students in Sulu Province, Philippines, are predominantly young females with varied income backgrounds. This demographic information is important for informing effective teaching strategies, curriculum design, and addressing the challenges faced by students from lower-income backgrounds. Despite their tech-savviness, nursing students encounter multifaceted challenges in virtual learning, including the absence of face-to-face interaction, poor internet connectivity, limited technical support, and access to clinical simulations. Strategies to enhance virtual learning include providing reliable internet access, necessary hardware and software, diverse learning resources, and communication and feedback between faculty and students. These strategies can help students succeed in the virtual learning environment and develop the skills and knowledge they need to become competent nurses.

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Competing Interests

The authors assert no conflicts of interest in any form.

Ethical Considerations

The study adhered to ethical guidelines, safeguarding participant rights and well-being, and obtained approval from MSU College of Health Sciences.

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