

PROCEEDING OF
THE 3RD PAYUNG NEGERI INTERNATIONAL HEALTH CONFERENCE

Integrated Innovation and Digital Technologies Enhance Sustainable Impact of Health Systems

OVERVIEW OF STUDENTS' KNOWLEDGE ABOUT
DIGITALIZATION IN VIRGINITY AT THE PAYUNG NEGERI
PEKANBARU HEALTH INSTITUTE

Tari Sadila^{1*}, Ezalina¹, Desti Puswati¹

¹Program Study of Ners, Nursing, Institut Kesehatan Payung Negeri Pekanbaru, Indonesia

*Corresponding author: tarisadila2002@gmail.com

Abstract

Introduction: Digitalization has become a global trend that affects various aspects of life, including in the world of education. In the era of the Industrial Revolution 4.0, the development of information and communication technology (ICT) has brought major changes in the way we interact, work, and learn. Research objectives This study aims to determine the description of knowledge about digitalization in freezing in freezing students at IKES Payung Negeri Pekanbaru. The research location at the Payung Negeri Pekanbaru Health Institute on February 10, 2025 with a sample of 136 respondents. Research method This type of research is a quantitative sample used in this study was determined using a proportional stratified random sampling technique with a questionnaire sheet research instrument. The results of the level of knowledge about digitalization in freezing more than half of the respondents have a high level of knowledge of 129 respondents (94.9%).

Keyword: Students: Digitalization, nursing

INTRODUCTION

Digitalization has become a global trend affecting various aspects of life, including education. In the era of the Industrial Revolution 4.0, developments in information and communication technology (ICT) have brought about major changes in the way we interact, work, and learn. In the context of higher education, particularly in the health sector, digitalization plays a crucial role in preparing the next generation to face the challenges of an increasingly technology-dependent world of work. Digitalization in health education, including medical education, opens up significant opportunities to improve the quality, efficiency of information management, and accessibility to broader educational resources (Triyono & Dewi, 2021).

According to Khoironi & Susilo (2019), digitalization is a key aspect in the development of Industry 4.0 in the health sector, which is expected to continue into the Industry 5.0 era initiated by the Japanese government, with other sectors worldwide also benefiting from technological advances. In Indonesia, technology and the internet have developed rapidly, with more than 150 million internet users spread across Indonesia, representing 56% of the total population (Kominfo, 2019).

In recent years, the global healthcare sector has undergone significant changes with advances in medical technology, electronic medical records, telemedicine, and digital-based health applications. Therefore, it is crucial for students to master digital competencies as part of the basic skills needed in the workforce (Fadhila & Afriani, 2020)." However, although technology in education has advanced rapidly, the understanding and acceptance of digitalization among nursing students remains a challenge that requires serious attention. Some students may find it difficult to adapt to existing technology, either due to limited knowledge of digital devices or a lack of adequate infrastructure. Furthermore, the gap in access to technology between students living in urban areas and those in remote areas remains a significant problem (Nursalam, 2014).

This phenomenon demonstrates that although digitalization can improve learning effectiveness, its implementation does not always run smoothly. Some students may have different understandings regarding the application of technology in learning, and others may be unfamiliar with digital-based learning methods. This has the potential to create a gap in the quality of education between students who are skilled in using technology and those who lack these skills (P. S. D. Antari, 2023). Furthermore, some students only view technology as a learning tool without realizing its impact on their future workplace, where technology will become an integral part of nursing practice, such as the use of electronic medical records or patient monitoring applications.

This indicates a gap in students' understanding of the importance of digital skills in nursing. IKES Payung Negeri Pekanbaru, as a higher education institution offering a nursing study program, strives to integrate technology into the learning process. This aligns with the demands of a preliminary survey conducted at IKES Payung Negeri Pekanbaru, which showed that most students were familiar with the basic concepts of digitalization, but few had direct experience utilizing technology in nursing. Interviews with 10 students revealed that four students stated they understood the importance of digitalization in healthcare, although they still faced limitations such as a lack of supporting facilities, technical training, and access to adequate digital devices. Although students had access to devices such as smartphones, laptops, or tablets, only 45% reported having used digital health applications or platforms for nursing simulations or practice. These findings indicate a gap between access to technology and its utilization in learning, which may be due to a lack of practical training or a lack of emphasis on digitalization in the nursing curriculum.

Referring to these conditions, researchers are interested in conducting research on the overview of knowledge about digitalization in nursing among nursing students at the Payung Negeri Health Institute (IKES) in Pekanbaru. This research will explore nursing students' understanding of the concept of digitalization and the level of utilization of digital technology in the nursing process.

RESEARCH METHODS

The research design used in this study is quantitative with a descriptive approach. Descriptive research is a research design that describes a situation or problem that actually occurs (Fadjarrajani et al., 2020). Researchers collect quantitative or measurable data that can then be examined to detect patterns in the description of students' knowledge of digitalization in nursing. This research was conducted at the Payung Negeri Pekanbaru Health Center. This research was conducted there because the chosen research location is an institution that focuses on the education of nursing personnel who will face the challenges of digitalization in the healthcare world. Therefore, students here are prepared to face the challenges of a medical world that is increasingly influenced by technology. This research began with the development of a proposal and continued until a research results seminar, which took place from September 2024 to February 2025. The research schedule can be seen in the table below.

RESEARCH RESULTS

The results of this study examine the overview of students' knowledge about digitalization in nursing at the Payung Negeri Pekanbaru Health Institute. Data collection was conducted at the Payung Negeri Pekanbaru Health Institute Campus from 2019 to 2025. This study used a questionnaire containing 10 questions to assess nursing students' knowledge. The results can be described as follows: Univariate Analysis

General Data

Respondent Characteristics by Age

Tabel 1. Frequency Distribution of Respondent Characteristics (N=136) by Age

No	Characteristic	Frequency (N)	Percentage (%)
1.	20 Years	51	37.5
2.	21 Years	55	40.4
3.	22 Years	30	22.1
	Total	136	100

Source: Primary data analysis 2025

The results show that of the 136 respondents, the majority were 21 years old (55 (40.4%), respondents.

Respondent Characteristics by Gender

Tabel 2. Frequency Distribution of Respondent Characteristics (N=136) by Gender

No	Characteristic	Frequency (N)	Percentage (%)
1.	Male	22	16.2
2.	Pamele	114	83.8
	Total	136	100

Source: Primary data analysis 2025

Results show that the majority of respondents were female, 114 (83.8%), while 22 (16.2%) were male.

Specific Data

Tabel 3. Frequency Distribution Based on Student Knowledge of Digitalization in Nursing at the Institute Payung Negeri Pekanbaru

No	Characteristic	Frequency (N)	Precentase (%)
1.	Low 10-14	58	42.6 %
2.	Hight 15-20	78	57.4 %
	Total	136	100

Source: Primary data analysis 2025

The results show that more than half of the respondents (78 respondents) had a high level of knowledge regarding digitalization in nursing. Meanwhile, 58 respondents (42.6%) had a low level of knowledge.

DISCUSSION

Emilia 2024 Research Results The results of the study showed that of the 244 respondents, the majority were women, amounting to 191 respondents (78.3), while the number of men was 53 respondents (21.7). The results of this study indicate that there are fewer men than women due to the minority number of male students at the research location of the Faculty of Nursing, University of Riau. These results are in accordance with national data from the Indonesian National Nurses Association (PPNI), namely that of the 359,339 registered nurses, 71% are female nurses and 77.56% are DIII and S1 Nursing graduates (Ministry of Health of the Republic of Indonesia, 2017). The minority number of male students at the research location of the Faculty of Nursing, University of Riau. These results are in accordance with national data from the Indonesian National Nurses Association (PPNI), namely that of the 359,339 registered nurses, 71% are female nurses and 77.56% are DIII and S1 Nursing graduates (Ministry of Health of the Republic of Indonesia, 2017).

Based on the results of the study, the level of knowledge about digitalization in nursing is shown to be more than half of the respondents with a low level of knowledge, as many as 78 respondents (57.4%). And respondents with a high level of knowledge as many as 58 (42.6%). The world of education is currently starting to integrate technology in various aspects, including learning. Educational policies are directed to utilize information and communication technology so as to be able to prepare human resources capable of facing global challenges. As a nursing student, you can utilize information technology as a means and infrastructure for intellectual development. Utilizing technology for learning is supported by an understanding of informatics for nursing students in their daily lives. Nursing informatics supports the management and processing of data, information, and knowledge to support nursing education and the provision of nursing care, this is a combination of computer science, communication science, and nursing science (emilla). Based on the results of the Sondang study, 2022 explains that the explanation of Digital Literacy in nursing students can improve students' knowledge and skills, especially in terms of technology. Students are exposed to and understand the development of information systems in the field of nursing and how to create innovations that can support the field of nursing. This activity has a positive impact on students, especially in the 4.0 era. According to the researcher's assumption, the level of digitalization knowledge in nursing students is very important, especially in the current digitalization era. Digitalization is very beneficial, especially for the nursing field, which supports information sources, data processing, especially helping to make it easier for nurses to make nursing care reports and communication in nursing.

This study aligns with previous research:

According to Ramadhany Nugroho et al., (2023) on "Utilization of Digital Technology in Public Health Services: A Policy Analysis Review," the results of this study indicate that the use of digital technology has a positive impact on increasing the accessibility, efficiency, and accuracy of health services. Government policies play an important role in encouraging and regulating the use of digital technology in health services. However, challenges in implementation cannot be ignored. The availability of adequate infrastructure and internet connections, concerns regarding patient data privacy and security, and a lack of technological understanding and skills are obstacles that need to be overcome.

According to Sipayung (2020) regarding "Efforts to Improve Student Knowledge Regarding Information Technology in Nursing," the results of this study indicate that providing education to nursing students is one strategy used to increase student knowledge and prepare them for the world of work. This strategy begins with identifying problems and identifying the latest innovations that can be used to address them. This activity has a positive impact on students, namely increasing their knowledge of information technology in the nursing field.

According to Jamaludin et al., (2023) regarding "The Level of Nurses' Knowledge in Using the Hospital Management Information System (SIMRS) Application at Kayen Pati Regional Hospital" shows that age and length of service are the characteristics of respondents that most influence the level of nurses' knowledge in using the SIMRS application.

CONCLUSION

Based on the results of the study, students' knowledge of digitalization in homicide among undergraduate nursing students at the Payung Negeri Pekanbaru Health Institute is summarized as follows: Characteristics of undergraduate nursing students at the Payung Negeri Pekanbaru Health Institute: Of the 136 respondents, the majority were 21 years old (55) (40.4%). Furthermore, the majority of respondents were female (114) (83.8%). Knowlidge

level: Among undergraduate nursing students at the Payung Negeri Pekanbaru Health Institute, the majority of respondents had a high level of knowledge (129 respondents (94.9%).

REFERENCES

1. Antari, M. W. (2023). *Challenges of digitalization in nursing education in Indonesia. Indonesian Journal of Nursing Education, 12(1), 15–20.*
2. Antari, P. S. D. (2023). *Student Knowledge Regarding the Implementation of Telenursing in Health Services at Hospitals. Bali Institute of Technology and Health.*
3. Asiri, H., & Househ, M. (2018). *The Impact of Telenursing on Nursing Practice and Education: A Systematic Literature Review. National Library of Medicine, 1(226), 105–108.*
4. <https://pubmed.ncbi.nlm.nih.gov/27350478>
5. Donsu, D. J. (2017). *Metodologi Penelitian Keperawatan.* Cetakan 1. Fadhila, R., & Afriani, T. (2020). *Penerapan Telenursing Dalam Pelayanan Kesehatan : Literature Review. Jurnal Keperawatan Abdurrab, 3(2), 77–84. doi: 10.36341/jka.v3i2.837*
6. Fadjarrajani, S. (2020). *Metodologi Penelitian Pendekatan Multidisipliner.* Gorontalo: Ideas Publishing. Gardner, & Cowan. (2020). *Technology for Health and Nursing Practice.* New York: Springer New York. Hidayat, A. A. (2018).
7. *Metode Penelitian Keperawatan dan Teknik Analisis Data.* Jakarta: Salemba Medika. Hulukati, W., & Djibran, M. R. (2018).
8. *Analisis Tugas Perkembangan Mahasiswa Fakultas Ilmu Pendidikan Universitas Negeri Gorontalo.*
9. *Jurnal Bikotetik, 2(1).* Jamaludin, Yusianto, W., & Irsyad, M. Y. (2023). *Tingkat Pengetahuan Perawat dalam Penggunaan Aplikasi Sistem Informasi Manajemen Rumah Sakit (SIMRS) di RSUD Kayen Pati. Jurnal Profesi Keperawatan, 10(2), 189–197.*
10. Khoironi, H., & Susilo, E. (2019). *Gambaran Kesiapan Perawat Ruang Rawat Inap Terhadap Implementasi Telenursing Dalam Upaya Meningkatkan Mutu Pelayanan Rumah Sakit. Indonesian Journal of Nursing Research, 2(2), 112–118. https://doi.org/10.35473/ijnr.v2i2.909*
11. Lestari. (2015). *Kumpulan Teori untuk Kajian Pustaka Penelitian Kesehatan.* Yogyakarta: Nuha Medika.
12. Cahyono, H. (2019). *The Role of Students in Society. Setiabudhi Community Service Journal (PKM), 1(1), 32–41.* Donsu, D. J. (2017). *Nursing Research Methodology. 1st Edition.*
13. Fadhila, R., & Afriani, T. (2020). *Implementation of Telenursing in Health Services: Literature Review. Abdurrab Nursing Journal, 3(2), 77–84. Doi: 10.36341/jka.v3i2.837*
14. Fadjarrajani, S. (2020). *Research Methodology: Multidisciplinary Approach.*
15. Notoatmodjo, S. (2014). *Education and Health Behavior. Rineka Cipta.*
16. Nursalam. (2014). *Nursing Research Methodology (3rd ed.). Jakarta: Salemba Medika.*
17. Tajuddin, M., Supatmiwati, D., Hidayat, S., & Andi. (2022). *Digitalization: Concept, Technology, & Its Application. Malang: Media Nusa Creative.*
18. Topaz, & Pruinelli. (2020). *Digital Health and Nursing: Implications for Practice and Education. Journal of Nursing Scholarship, 52(4), 457–465.*
19. Triyono, R., & Dewi, S. (2021). *Digital Transformation in Education: Implications for Nursing Students. Journal of Education and Technology, 15(1), 99–110.*