OVERVIEW OF DIGITAL COMPETENCY LEVELS AMONG NURSES IN THE INTENSIVE CARE UNIT OF ARIFIN ACHMAD REGIONAL GENERAL HOSPITAL, RIAU PROVINCE

Nanda Pratama[1], Wardah[2], Dendy Kharisna[3], Iyang Maisi Fitriani [4]
Bachelor of Nursing Program, Payung Negeri Health Institute, Pekanbaru
Email: rsananda0813@gmail.com

Abstract

In the current era of industrial development 4.0, which has brought many changes to various aspects of life, there have been major changes in the use of digital technology, one of which is in health services, especially nursing. The widespread use of high-tech digital technology in intensive care units requires nurses to be tech-savvy in order to improve the quality of nursing services. Therefore, nurses are now required to have good digital competence. This can influence nurses in using and utilizing existing digital technology in the nursing care process. The purpose of this study was to determine the level of digital competence among nurses in the intensive care unit of Arifin Achmad Regional General Hospital in Riau Province. This was a quantitative study with a descriptive design. The sample consisted of 75 people and was conducted from September to February 2025. The instrument used was *the Digital Competence Questionnaire (*DCQ). The results showed that more than half of the respondents were adults (82.7%), more than half were female (82.7%), more than half were nurses (57.3%), based on training experience, more than half of the respondents had never received digital training (73.3%), based on length of service, more than half were in the new category (50.7%), and the level of digital competence among nurses in the intensive care unit at Arifin Achmad Regional General Hospital was low in more than half of the cases (52%), and high in 48% of the cases. This study recommends discussing the factors that influence the low digital competency of nurses in the intensive care unit

Keywords: Digital competency, nurses, intensive care unit

INTRODUCTION

The ICU (Intensive Care Unit), PICU (Pediatric Intensive Care Unit), and CVCU (Cardiovascular Care Unit) are specialized rooms provided within hospitals that are supported by expert staff and special medical equipment (Wulan et al., 2019).

Nurses in intensive care units have very heavy duties and responsibilities. The treatment and care of patients in intensive care units are slightly different from those in regular inpatient rooms, because patients in intensive care units can be said to have a very high level of dependence on nurses. Therefore, everything that happens to patients can only be known through proper and regular monitoring and recording by nurses (Irawan et al., 2023).

In the era of Industry 4.0, technological transformation and digitalization have brought about major changes in various aspects of life. This has not only affected changes in digital tools but also the way we work, think, communicate, and our social and health conditions. These changes have also had a significant impact on the use of digital technology, particularly in health services such as nursing (Hernawati & Hariyati, 2023).

Nurses today must be able to keep pace with and adapt to a technology-based environment. Nurses must be literate in information technology and prioritize patient safety to improve the quality of patient care (Novita Simanjuntak et al., 2020).

However, in reality, not all nurses receive adequate training in the use of digital technology. Only 20% of nurses surveyed have received some training from their institutions related to the use of healthcare healthcare technology (Navarro-Martínez et al., 2023). Additionally, there are differences such as age, education level, and work experience. This can affect nurses in using and utilizing existing digital technology in the nursing care process (Arfarulana et al., 2023)

METHODS

This study is a quantitative study with a descriptive design. A descriptive approach is a study conducted to describe or illustrate a phenomenon. This approach is used to determine the level of digital competence among nurses in the intensive care unit at Arifin Achmad Regional General Hospital in Riau Province.

RESULTS

Table 1. Frequency Distribution of Respondents Based on Age and Length of Employment

Age	Category	Frequency	Percentage (%)
25-44	Adult	62	82.7
45	Pre- elderly	13	17.3
	Total	75	100
Length of Service	**Category**	**Frequency**	**Percentage (%)**
< 6 Years	New	38	50.7
6-10 Year	Medium	12	16.0
> 10 Year	Duration	25	33.3

Source: primary data

Table 2. Respondent Frequency Distribution Based on Gender, Education Level, Digital Training, and Room

Gender	**Frequency**	**Percentage (%)**
Male	13	17.3
Female	62	82.7
Total	75	100
Level of Education	**Frequency**	**Percentage**
D3	25	33.3
Bachelor's Degree	7	9.3
Nurse	43	57.3
Total	75	100
Digital Training	**Frequency**	**Percentage**
Ever	20	26.7
Never	55	73.3
Total	75	100
Room Name	**Frequency**	**Percentage**
ICU	32	42
Pediatric ICU	24	32.0
CVCU	19	25.3
Total	75	100

Source: primary data

Table 3. Frequency Distribution of Respondents Based on Digital Competency Aspects

Competenc y Aspect Competency	**Frequency**	**Percentage**
Knowledge		
High	18	24
Low	57	76
Total	**75**	**100.**
Skills		
High	30	40.0
Low	45	60.0
Total	**75**	**100**
Attitude		
High	34	45.3
Low	41	54.7%
Total	**75**	**100**

Source: primary data

Table 4. Frequency Distribution of Respondents Based on Digital Competency Level

Competency Level Competency	Frequency	Percentage
High	36	48
Low	39	52
Total	75	100

Source: primary data

Based on the explanation in the table above, it shows that of the 75 respondents, almost all of them were aged 25-44 years, totaling 62 people with a percentage of (82.7%). Meanwhile, based on length of employment, it shows that more than half of the respondents were in the new category, totaling 38 people with a percentage of (50.7%).

Based on the explanation in Table 4.2 above, based on gender, it shows that of the 75 respondents, almost all of them were women, totaling 62 people with a percentage of (82.7%). Based on the respondents' highest level of education, more than half of them were nurses, totaling 43 people with a percentage of 57.3%. Based on training experience, more than half of the respondents had never received digital training, totaling 55 people with a percentage of 73.3%. Based on the ward, almost half of the respondents were nurses in the ICU ward, totaling 32 people with a percentage of 42.7%.

Above shows that the digital competency level of nurses in the intensive care unit at Arifin Achmad Regional General Hospital shows that more than half of them are in the low category in terms of knowledge, with 57 respondents (76%), more than half are in the low category in terms of skills, with 45 respondents (60%), and more than half are in the low category in terms of attitude, with 41 respondents (54.7%)

Above shows that the digital competency level of nurses in the intensive care unit at Arifin Achmad Regional General Hospital is more than half categorized as low, with 39 respondents (52%).

DISCUSSION

a. Knowledge Aspect

Based on the research data obtained from 75 respondents consisting of ICU, PICU, and CVCU nurses, it was found that only 24% of nurses had a high level of digital knowledge, while more than half of the nurses had low knowledge, totaling 57 respondents (76%). This shows that most nurses still have limitations in understanding and operating digital technology in nursing practice.

Based on the researcher's assumption, nurses' digital knowledge is quite good, with the results showing that more than half of them are in the high category, totaling 53 respondents (70.7%). In this case, nurses' knowledge can be influenced by their level of education, training, and length of service, where nurses with higher levels of education will have a better understanding, as will those with more training and longer service. These two factors greatly influence nurses' knowledge; not all nurses have the same level of knowledge, which is gained through training and also depends on their work

experience. However, knowledge alone is not enough to make good use of digital technology. A positive attitude and adequate skills are needed to improve nurses' digital competence. This can be seen based on the research results, where the highest score was found in statement number two, which states, "I understand the current laws and regulations related to the protection and exchange of medical data (e.g., consent and confidentiality) in my workplace." More than half of the respondents answered "agree" with a total of 41 respondents (54.6%). Meanwhile, the lowest score was found in statement number one, which stated, "In general, I consider my knowledge of digital technology to be unsatisfactory." Nearly half of the respondents answered "disagree," with a total of 36 respondents (48%).

b. Skill

Based on the research data obtained from 75 respondents consisting of ICU, PICU, and CVCU nurses shows that the skills of nurses in using digital technology are low in more than half of the cases, with 45 respondents (60.0%). This study is in line with Hariyati et al. (2024), which shows that out of 100 nurses and 83 nursing managers, 83 have low digital literacy, with scores below 80%.

Based on the researchers' assumptions in this study, nurses' digital skills are greatly influenced by their length of service and the training they receive. Based on their length of service, half of the nurses in the intensive care unit are new to the category and are still adjusting. In addition, more than half of the intensive care nurses have not received training or information about technology in the intensive care unit, resulting in a lack of confidence that can affect their skills. The nurses' knowledge is already at a high level, but they lack confidence in using technology. It can be seen from the research results that the highest score was on statement number four, which stated, "I feel confident in using digital technology to find relevant information." Nearly half of the respondents answered "agree" with a total of 36 respondents (48%). Meanwhile, the lowest score was found in statement number seven, which stated, "I feel unsure about the security of health data management using digital technology." Nearly half of the respondents answered "disagree," with a total of 32 respondents (42.6%).

c. Attitude

Based on the research data obtained from 75 respondents consisting of ICU nurses, PICU nurses, and CVCU, it was found that more than half of the nurses' attitudes toward the use of digital technology were categorized as low, totaling 41 respondents (54.7%). Nurses' attitudes toward the use of technology greatly affect their work, where nurses who have a highly positive attitude toward technology acceptance believe that technology will make their work easier, whereas those who have a negative attitude toward technology acceptance believe that technology can actually complicate their work.

Based on the researcher's assumptions, nurses' attitudes toward the use of digital technology are influenced by their age, length of service, whether or not they have participated in digital training, and their knowledge and skills. Younger nurses tend to have a higher level of curiosity and willingness to try new things, enabling them to adapt more quickly than older nurses. Similarly, training and length of service can increase nurses' knowledge and skills, ultimately making them more confident in using existing digital technology, which in turn will increase their openness and positive attitude when faced with digital technology. As nurses' knowledge and skills increase, they become more convinced that digital technology provides many benefits that

facilitate their work and improve the quality and results of nursing services. This can be seen from the research results, where the highest score was found in statement number twenty-two, which states, "I believe that digital technology is relevant to my profession at in the future."

Almost half of the respondents answered "agree" with a total of 37 respondents (49.3%). Meanwhile, the lowest score was found in statement number twenty- one, which states, "I do not believe that digital technology is beneficial for my patients." Almost half of the respondents answered "strongly disagree" with a total of 33 respondents (44%).

Based on the three aspects above, the overall research data shows that the level of digital competence among nurses in the intensive care unit at Arifin Achmad Regional General Hospital is more than half in the low category, with 39 respondents (52%), and 36 respondents (48%) in the high category. Among these three aspects, attitude can be considered the key factor. Although knowledge and technical skills are very important, an open and positive attitude towards technology will influence how nurses develop and apply their knowledge and skills. A good attitude will motivate nurses to continue learning and adapting to technological developments, thereby ultimately improving the quality of patient care.

CONCLUSION

The results of this study show that the digital competency level of nurses in the Intensive Care Unit at Arifin Achmad Regional General Hospital, Riau Province, more than half of the 75 respondents were categorized as having low digital competency, totaling 39 respondents (52%).

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