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A Comparative Study on the Knowledge and Attitude of Nurses About Nursing Information Systems

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Abstract

Aim: This study evaluated the knowledge and attitudes of nurses towards Nursing Information Systems (NIS) at a private hospital in Dagupan City.

Methodology: This study used descriptive-comparative design, employing total enumeration in a hospital in Dagupan City with 49 respondents. Statistical tests used were frequency, percentage, mean, standard deviation, t-test, and one-way ANOVA.

Results: Nurses at a private hospital in Dagupan City ranked their proficiency with gadgets, computer terminology, and Microsoft Word as 'Very Good', showing assurance in their technological skills. They acknowledge the significance of Nursing Information Systems (NIS) in enhancing nursing care, streamlining documentation, and safeguarding patient data privacy. Demographic variables as age, sex, education, rank, and experience did not have a significant effect on nurses' understanding of NIS. However, female nurses displayed a more favorable attitude towards NIS compared to male nurses. Nurses generally believe that Nursing Information Systems (NIS) improve healthcare delivery and advocate for formal education and technical skills to effectively utilize NIS.

Conclusion: The researchers concluded that nurses at a private hospital in Dagupan City have a high level of trust in their computer and NIS-related skills, recognizing the major advantages of NIS in nursing care and documentation. Demographic factors such as age, education, and years of experience had no significant impact on knowledge and attitudes towards NIS. However, there is a noticeable difference between male and female nurses, with females displaying more positive attitudes. The significant impact of gender on technology acceptability and the generally positive attitude of nurses regarding NIS in the LMC.

Keywords: Attitudes towards Healthcare Technology, Gender Differences in Technology Acceptance, Nursing Information Systems (NIS), Nurses Technology Proficiency, NIS Impact on Nursing Care

INTRODUCTION

Technology integration into nursing practice is now an important part of modern healthcare that helps improve patient care and operating efficiency.

Nursing Information Systems (NIS) are a big step forward in this integration because they offer a set of features that make administrative tasks easier, make it easier to manage patient information, and improve the quality and safety of care for patients (Ferdousi et al., 2020; Cai et al., 2019; Rouleau et al., 2017). NIS, which are complex computer systems, are very important to nursing because they help nurses give better care by managing patient information, work, and communication more efficiently (Nguyen et al., 2017; Ismailzadh & Mahmoudifar, 2015; Nunes & Nunes, 2014). NIS is important for more than just making things easier for administrators; it is a key part of providing accurate, quick, and patient-centered care by lowering the chance of mistakes that could have very bad results (Bhati et al., 2023; Kwame & Petrucka, 2021). Moreover, NIS is the field that combines nursing science with information and computer science. NIS plays a big role in supporting this field so that it can improve many areas of nursing practice, such as documentation, decision-making, and professional growth (Darvish et al., 2014).



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Worldwide, there is a growing trend towards the adoption of nursing information systems (NIS), which is a result of the expanding use of digital technology in the healthcare industry. These systems have a vital role in improving patient care, maximizing workflow efficiency, and safeguarding confidential patient information (Bibi et al., 2024). The shift towards NIS is marked by an increasing focus on user-friendly designs that facilitate evidence-based treatment, along with the incorporation of modern technologies such as artificial intelligence for decision support systems (Koochani et al., 2024; Yangöz et al., 2024). In the Philippines, the implementation of NIS is primarily motivated by the necessity to enhance healthcare provision in a geographically divided environment and to facilitate communication among healthcare practitioners. Despite encountering obstacles such as uneven technology access and the necessity for more extensive training, the shift towards digitalized nursing care in the Philippines mirrors the worldwide trend of adopting digital solutions to improve the standard of nursing practice (Ramos et al., 2024).

This study is anchored to two theories namely the Technology Acceptance Model (TAM) and Roger's Diffusion of Innovation. TAM posits that users' decision to adopt a new technology is influenced by two key perceptual factors: perceived usefulness (PU) and perceived ease of use (PEOU). TAM can be utilized to comprehend the aspects that impact nurses' attitudes towards Nursing Information Systems (NIS) (Lee and Change, 2024). An analysis of these two parameters might be used to examine the gender disparity in attitudes about NIS. This analysis could help in designing interventions that specifically target male nurses, with the aim of improving their acceptability and utilization rates. The theory of Rogers' Diffusion of Innovations. This theory elucidates the mechanisms, reasons, and pace at which novel ideas and technologies disseminate throughout different societies. Rogers' model delineates the sequential phases that an individual or organization undergoes in the process of embracing novel technology: awareness, conviction, determination, execution, and validation (Dearing, 2009). This could facilitate comprehension of the phases of acceptance among the nursing staff and enable the customization of educational programs accordingly.

Despite the obvious benefits of NIS, uptake and optimal use are difficult. Nurses, who are the primary users of these systems, frequently face challenges such as insufficient training, resistance to switching from manual to electronic systems, and the stress associated with adjusting to new technology (Borges do Nascimento et al., 2023; Cheraghi et al., 2023; Talwar et al., 2023). These challenges highlight the importance of a thorough understanding of nurses' informatics competency, which includes the knowledge, abilities, and attitudes required for the efficient use of information technology in nursing.

Research in the Philippines shows that nurses have variable levels of adoption and utilization of NIS (Pajarillo et al., 2021; Faustorilla, 2020; Lupiáñez-Villanueva et al., 2011), highlighting the challenges of integrating technology into healthcare. This diversity highlights the essential need for study to better understand the factors that influence nurses' attitudes and knowledge about NIS. Such insights are critical for establishing focused interventions to strengthen nurses' informatics competencies, ensuring NIS implementation success and, ultimately, improving patient care quality.

Objectives

This comparative study evaluated the knowledge and attitudes of nurses towards NIS at a private hospital in Dagupan City. This research aimed to improve nurses' knowledge and confidence in Nursing Information Systems (NIS) to enhance patient care standards and the field of healthcare informatics.

Specifically, it answered the following questions:

1. What is the profile of the respondents?
2. What is the level of knowledge of the respondents regarding NIS?
3. What is the attitude of the respondents towards NIS?
4. Is there a significant difference between the respondents' knowledge and attitude about NIS across their profile?

This study is guided by the hypothesis: There is no significant difference between the respondents knowledge and attitude about NIS across their profile.



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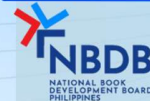
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METHODOLOGY

Research Design

This study employed a comparative research design to explore variances in knowledge and attitudes about Nursing Information Systems (NIS) among nurses (Lau & Holbrook, 2017). It identifies factors that influence these variances, such as age, gender, level of education, job title, and years of experience.

Setting

The study took place at a private hospital in Dagupan City and has a capacity for 150 beds.

Participants and Sampling Scheme

The respondents of the study consist of 49 Registered Nurses in a private hospital in Dagupan City. The assessment was conducted with 49 Nurses respondents: (8) Operating Room Nurses, (3) NICU Nurses, (8) ICU Nurses, (12) Station 1 Nurses, (6) OB Nurses, (8) Emergency Nurses, (1) Chief Nurse, (1) Assistant Chief Nurse and (2) Dialysis Nurses, for the total of 49 Nurses. The researcher asked for the assistance from the Chief Nurse and from the Medical Director of the Hospital to determine the total number of registered. Further, this study employed total enumeration to prevent selection.

Instrumentation

In this study, the researcher used an online survey for the target respondents through google form. The questionnaire was adapted to the study of Sinha and Joy (2022), entitled Nurses' knowledge of and attitude to nursing information systems. The questionnaire is a set of orderly arranged questions carefully. It is composed of three (3) parts: Part I, is focused on the respondent's demographic data, such as age, sex, highest educational attainment, job title/position, and years of nursing experience. Part II are sets of questions to determine the level of nurse's knowledge about information technology and information systems. It is based on a 5-point Likert scale from 'excellent' to 'below average'. Part III are question is about the attitudes of nurses toward using a nursing information system. It is based on a 3-point Likert scale from 'agree' to 'disagree' on a scale from 3 to 1.

The questionnaire underwent a reliability test due to the absence of literature confirming its prior use in the Philippines. The researchers conducted a one-time pilot test to assess the questionnaire's reliability using an online survey in a Google Form at a separate hospital. Pilot testing conducted once helps assess the reliability of the research approach and provides insight into the prospective results of the proposed study (In, 2017). Pilot studies are typically conducted on persons who closely resemble the target respondents to prevent bias. The pilot study was conducted in a different private hospital, utilizing the Nursing Information System (NIS) with 25 participants. The Cronbach's alpha value of 0.78 suggests a satisfactory level of reliability (Taber, 2018).

Ethical Consideration

The University of Luzon College of Nursing Research Ethics Committee approved the study under Approval Number NR-SL-003-23. The researchers obtained authorization from the hospital director and the head nurse to carry out the study. The researchers obtain informed consent from all individuals. The consent form detailed the study's goals, possible advantages depending on the study's results, and the approximate time needed to fill out the questionnaire, which is viewed as the main drawback of the study. This study did not involve any incentives or pressure. Additionally, participants can choose to withdraw from the study at any time. The survey was performed in February 2024.

Recruitment and Data Collection

During the initial inspection, the chief nurse mentioned the number of respondents, and the researchers tried to ask the nurses who were on duty at that time if they were willing to participate. After five days, the researchers returned to formally start the data collection.

The researcher personally went to the hospital to distribute the questionnaires. For those who were not available at that time, the link was entrusted to the nurse managers.



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Handling and Treatment of Data

The data was organized and structured using Microsoft Excel. Advanced statistical analysis was conducted using SPSS version 25.

The descriptive statistics utilized included frequency, percentage, mean, and standard deviation. Knowledge level is interpreted using the following scores: 1.00-1.80: below average; 1.81-2.60: average; 2.61-3.40: good; 3.41-4.20: very good; 4.21-5.00: excellent. Regarding attitude: 1.00-1.66: negative; 1.67-2.32: neutral; 2.33-3.00: positive. The analysis employed in this study was an independent sample t-test for inferential statistics.

RESULTS AND DISCUSSION

Table 1. Demographic Data of the Respondents N=49

Variables	Frequency	Percentage	
Age	aged 21-25 years	8	16.30
	aged 26-30 years	4	8.20
	31-35 years	24	49.00
	aged 36 years and above	13	26.50
Sex	Female	39	79.60
	Male	10	20.40
Highest Educational Attainment	Bachelor's Degree	44	89.90
	Master's Degree	5	10.20
Job Title/Position	Nurse on ward	37	75.50
	Department Head	10	20.40
	Assistant Head Nurse	1	2.00
	Head Nurse	1	2.00
Years of Nursing Experience	First Patient - 6 months	2	4.10
	6 months - 1 year	9	18.40
	2 years	6	12.20
	3 years	8	16.30
	5 years and above	24	49.00

Regarding Table 1. The data indicates that 49% of nurses fall between the 31-35 age range, while just 8.2% are aged 26-30. Female nurses make up a substantial majority, accounting for 79.6% of the total. 89.9% of nurses possess a Bachelor's Degree. Approximately 75.5% of nurses are employed in ward positions. 49% of nurses have 5 or more years of experience, while only 4.1% are in their first 6 months of nursing.

The data about demographics suggests a workforce that is predominantly female and in their early thirties, with a strong base of experience in nursing, as indicated by the high percentage of nurses with 5 or more years in the field. Most have a Bachelor's degree and work as nurses on the ward, with a few in leadership positions.

Table 2. Perceive Level of Knowledge about NIS N=49

Items	Mean	±SD	Interpretation
Computers: laptop, desktop, tablet?	4.02	0.67	Very Good
Computer vocabulary?	3.73	0.81	Very Good
MS Word	3.82	0.85	Very Good
MS Excel?	3.61	0.93	Very Good
Computer information system for patient data (HIS, EMR, HMIS, etc.)?	3.57	0.87	Very Good
Operating system (Microsoft Windows, macOS, Linux, etc.)?	3.57	0.94	Very Good
Handling the problems with hardware/software?	3.26	0.88	Good
Using computers for presentations?	3.61	0.86	Very Good



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Use of apps and browsing?	3.92	0.79	Very Good
Mean Perceived Knowledge	3.67	0.75	Very Good

Legend: 1.00-1.80: below average; 1.81-2.60: average; 2.61-3.40: good; 3.41-4.20: very good; 4.21-5.00: excellent.

Table 2 indicates that the average score for gadgets was 4.02, with a standard deviation of 0.67. Participants rate their expertise as 'Very Good'. The mean score for computer vocabulary is 3.73 with a standard deviation of 0.81, categorized as 'Very Good'. Participants assessed their skill in Microsoft Word as 'Very Good', with an average score of 3.82 and a standard deviation of 0.85. The mean score of 3.61 and standard deviation of 0.93 suggest that individuals exhibit a little lower level of confidence in Excel. The mean is 3.57 and the standard deviation is 0.87 for patient data in the computer information system. The average score for addressing hardware or software issues is 3.26, with a standard deviation of 0.88. The participants exhibit a high level of confidence in their computer presenting skills, as indicated by a mean score of 3.61 and a standard deviation of 0.86. The mean score is 3.92 with a standard deviation of 0.79, categorized as 'Very Good'. The average perceived knowledge level is 3.67 with a standard deviation of 0.75, signifying a 'Very Good' level of comprehension.

The participants are confident in their computer-related knowledge and skills, particularly in general computer use, app usage, browsing, and MS Word (Kuek A., & Hakkennes, 2020). Utilizing computer systems in healthcare presents problems and duties, necessitating individuals to possess proficiency in IT and understanding of the systems they utilize (Alotaibi & Federico, 2017). Inadequate computer skills can lead to failure in meeting professional and legal obligations, perhaps resulting in compromised patient care and legal actions against individuals. Nurses must be proficient and self-assured in computer-related duties to thrive in the modern healthcare setting characterized by advanced technology. It is crucial for assuring effective patient care, adhering to professional norms, and fostering personal and professional growth in the nursing industry (Zaman et al., 2021).

However, nurses feel less confident in fixing hardware and software difficulties compared to other areas (Ahmadian et al., 2017). The ability to troubleshoot technical issues is critical in maintaining the flow of patient care and ensuring that electronic health records, patient monitoring systems, and other healthcare technologies function optimally (Vos et al., 2020). When nurses can quickly resolve these issues, it minimizes disruptions in patient care and ensures that vital health information is accessible when needed. Moreover, as nurses are often the first to encounter such difficulties in a clinical setting, their ability to address these problems can enhance overall healthcare efficiency and safety (Flaubert et al., 2021).

Table 3. Perceive Attitude of the Nurses towards NIS N=49

Item	Mean	±SD	Interpretation
To enhance nursing care, a nursing information system (NIS) is necessary.	2.95	0.29	Positive
Patients and employees have benefited from enhanced communication among healthcare providers made possible by the NIS.	2.76	0.43	Positive
Retrieving patient care information (such as medical records and pathology results) is made easier by the NIS.	2.82	0.39	Positive
Compared to a paper-based record, the NIS makes patient care documentation easier and more practical, which has enhanced patient care documentation.	2.82	0.39	Positive
Nursing care gets less personal when a NIS is used in healthcare.	2.63	0.57	Positive
Using an NIS in patient care	2.80	0.23	Positive
Patient data privacy is protected by the NIS.	2.86	0.41	Positive
Duplicate entry and paperwork are decreased by the NIS.	2.82	0.39	Positive



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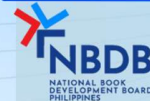
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The NIS helps in statistical analysis and reporting the patient's data in different formats.	2.84	0.43	Positive
The total cost of healthcare is decreased by the NIS.	2.84	0.37	Positive
Workload has been lessened by the NIS.	2.85	0.41	Positive
The NIS requires more formal education to use the application of information technology in nursing.	2.73	0.44	Positive
Technical skills are necessary for the NIS and are fundamental to lifelong learning.	2.88	0.33	Positive
SD Using an NIS in medical documentation	2.83	0.29	Positive
Total Perceived Attitude	2.81	0.24	Positive

Legend: attitude: 1.00-1.66: negative; 1.67-2.32: neutral; 2.33-3.00: positive

Table 3 shows that respondents largely agree that a Nursing Information System (NIS) is important to improve nursing care, with a mean of 2.95 and a low standard deviation of 0.29. The average score of 2.76 with a standard deviation of 0.43 suggests a favorable opinion that both patients and staff experience advantages from enhanced communication through the NIS, albeit with slightly higher variability in responses compared to the first question. With a mean of 2.82 and a standard deviation of 0.39, respondents have a positive perception of the NIS in terms of facilitating the retrieval of patient care information. The mean of 2.82 and a standard deviation of 0.39 suggest that NIS is perceived as facilitating documentation more effectively and practically than paper-based records. The average score of 2.63 with a higher standard deviation of 0.57 indicates that although the general assessment is good, there is more diversity in opinions regarding the impact of NIS use on personal nursing care. An average score of 2.80 with a low standard deviation of 0.23 suggests a high level of agreement among respondents regarding the use of NIS in patient care, with minimal variation in their opinions.

In Table 3, the average score is 2.86 with a standard deviation of 0.41, suggesting a favorable opinion that NIS safeguards patient data privacy, albeit with significant response variability. Respondents feel that NIS reduces duplicate entries and paperwork, with a mean of 2.82 and a standard deviation of 0.39. A mean of 2.84 and a standard deviation of 0.43 indicate that NIS is beneficial for statistical analysis and allows for various reporting formats of patient data. The NIS is believed to lower healthcare costs, with a mean of 2.84 and a standard deviation of 0.37, indicating agreement among respondents on this advantage. An average score of 2.85 with a standard deviation of 0.41 indicates a favorable outlook on the National Information System (NIS) and its ability to lessen the burden on healthcare providers. The average score of 2.73 with a standard deviation of 0.44 indicates a moderately positive view in the necessity of more formal education for efficient utilization of the NIS. Technical abilities are seen vital for managing a NIS and are considered crucial for lifelong learning in nursing because to the mean of 2.88 and low standard deviation of 0.33, indicating a high favorable agreement. The average score of 2.83 with a standard deviation of 0.29 suggests a favorable perception and high consensus on the benefits of NIS in medical documentation.

The nurses exhibited a favorable disposition towards utilizing a Nursing Information System in patient care (Kahouei et al., 2014). They saw that the system improved treatment, communication, access to information, and documenting processes. Nurses who have a favorable outlook on healthcare information technology are more inclined to acknowledge and make use of NIS for the betterment of patient results (Sinha & Joy, 2022). This can result in enhanced recordkeeping, improved patient care management, and increased communication efficiency among healthcare providers. Positive attitudes are associated with higher levels of computer experience, leading to enhanced satisfaction with NIS and increased sustainability of its usage (Rababah et al., 2021).

The data indicates that nurses had a positive perception of the deployment of a NIS in medical documentation, particularly in aspects such as data privacy, efficiency, cost, and education within healthcare delivery (Ramoo et al., 2023). With the increasing prevalence of electronic health records, there are significant concerns about patient privacy. Ensuring that an NIS has robust privacy protections is crucial to maintaining trust between patients and healthcare providers. Privacy-preserving methods of data sharing and analytics are essential to prevent unauthorized access and use of patient data (Price & Cohen, 2019).



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The implementation of NIS can increase the efficiency of documentation, which in turn can enhance the workflow of nursing staff (Moghaddasi et al., 2017). While the initial cost of implementing an NIS can be high, the long-term savings associated with improved efficiency, reduced errors, and better resource management can justify the investment. Evaluating the completeness of documentation before and after the implementation of an NIS can guide improvements in patient care decisions and potentially reduce costs (Shafiee et al., 2022).

There is a consistent good perception, particularly in technical abilities and formal education for IT application in nursing. Nurses with strong technical skills can use various information systems and technologies more efficiently, improving the quality of patient care (Altmiller & Pepe, 2022). Nurses who are competent in IT can utilize electronic health records to access and document patient information more effectively, which can lead to better patient outcomes. Technical abilities and formal IT education contribute to the professional development of nurses. As healthcare technology evolves, continuing education and adaptation are necessary for nurses to stay current with new systems and protocols (Booth et al., 2021). Healthcare is a rapidly changing field, and nurses with a good perception of their own technical abilities are more likely to adapt to new technologies and changes within the healthcare system (Mansour, S., & Nogues).

Table 4. The Difference between Knowledge and Attitude of Nurses across their Profile N=49

Variables		Mean	Test Value	df	p-value
Knowledge					
Age	aged 21-25 years	3.85	(F) 0.43	SSb= 3	0.73
	aged 26-30 years	3.53		SSw=45	
	31-35 years	3.60		SSt= 48	
	aged 36 years and above	3.78			
Sex	Male	3.64	(t) -0.87	47	0.39
	Female	3.84			
Highest Educational Attainment	Bachelor's Degree	3.65	(t) -0.81	47	0.42
	Master's Degree	3.91			
Job Title/Position	Nurse on ward	3.68	(F) 0.12	SSb= 3	0.95
	Department Head	3.63		SSw=45	
	Assistant Head Nurse	3.89		SSt= 48	
	Head Nurse	4.00			
Years of Nursing Experience	First Patient - 6 months	3.94	(F) 0.52	SSb= 4	0.72
	6 months - 1 year	3.94		SSw=44	
	2 years	3.65		SSt= 48	
	3 years	3.58			
	5 years and above	3.60			
Attitude					
Age	aged 21-25 years	2.66	(F) 1.66	SSb= 3	0.19
	aged 26-30 years	2.86		SSw=45	
	31-35 years	2.86		SSt= 48	
	aged 36 years and above	2.79			
Sex	Female	2.84	(t) -1.98	47	0.04
	Male	2.68			
Highest Educational Attainment	Bachelor's Degree	2.81	(t) -0.15	47	0.88
	Master's Degree	2.83			
Job Title/Position	Nurse on ward	2.80	(F) 0.25	SSb= 3	0.86
	Department Head	2.86		SSw=45	
	Assistant Head Nurse	2.72		SSt= 48	
	Head Nurse	2.92			
	First Patient - 6 months	2.79			



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Years of Nursing Experience	6 months - 1 year	2.72	(F) 0.53	SSb=4	0.72
	2 years	2.83		SSw=44	
	3 years	2.89		SSt= 48	
	5 years and above	2.82			

Table 4 evaluates the difference in nurses' knowledge concerning NIS and their attitude towards NIS based on their profile.

Regarding knowledge, an analysis of variance (ANOVA) indicated that there is no significant difference between the nurses' knowledge level on NIS and their age ($F(3,48) = 0.43, p = 0.73$). An independent sample t-test showed no significant difference in nurses' knowledge of NIS when categorized by sex ($t(47) = -1.98, p = 0.19$). An independent sample t-test showed no significant difference between nurses' awareness of NIS and their educational attainment ($t(47) = -0.15, p = 0.88$). The one-way ANOVA analysis indicated that there is no statistically significant difference between nurses' knowledge of NIS and their rank ($F(3,48) = 0.12, p = 0.95$). The one-way ANOVA yielded a $F(4,48)$ score of 0.52 with a p-value of 0.72, indicating a lack of significant difference between participants' knowledge of NIS and their years of experience.

Referring to attitude, one-way ANOVA means that $F(3,45) = 1.66, p = 0.19$, which means that there is no significant difference between the nurses' attitude towards NIS and their age. A t-test revealed that there is a significant difference between the nurses' attitude towards NIS and their sex ($t(47) = 1.98, p = 0.04$). The females slightly scored better than the males. However, a t-test revealed that there is no significant difference between the nurses' attitude towards NIS and their educational attainment ($t(47) = -0.15, p = 0.88$). Regarding position, a one-way ANOVA revealed that there is no significant difference between the nurses' attitude towards NIS and their position ($F(3,45) = 0.25, p = 0.86$). Finally, a one-way ANOVA revealed that there is no significant difference between the nurses' attitude towards NIS and their years of experience ($F(4,44) = 0.25, p = 0.86$).

The results in Table 4 demonstrate that nurses' knowledge of NIS is consistent and not significantly affected by demographic or professional factors (Galani, 2015). Since demographic and professional factors do not significantly influence nurses' knowledge of NIS, education and training programs on NIS can be uniformly designed and implemented across different groups of nurses (Shin et al., 2018). This suggests that a standard curriculum can effectively raise NIS knowledge and competency levels among nurses regardless of their age, sex, rank, or years of experience. The findings suggest that NIS designers can focus on creating systems that are universally usable and accessible to all nurses, regardless of their demographic or professional background. The emphasis can be on intuitive design and user-friendliness to accommodate users with varying levels of technical expertise (Ghorayeb et al., 2023).

Regarding attitude towards NIS, while age, educational attainment, position, and years of experience do not significantly influence nurses' attitudes toward NIS, there is a noted difference between male and female nurses, with females showing a more positive attitude (Salameh et al., 2019). This finding could be indicative of underlying factors such as differences in technology acceptance or usage patterns between male and female nurses, which could be explored further for targeted interventions to improve NIS utilization (Korte & Bohnet-Joschko, 2023).

The study's results may have important implications for nurses in the Philippines, given the country's current initiatives to incorporate technology and digital systems into healthcare, and the limited data about the research theme in the Philippines. Nurses' proficiency and comfort in utilizing common computer applications, internet browsing, and specialized software such as MS Word can establish a strong basis for their future education and integration of healthcare-specific technologies like Nursing Information Systems (NIS). Readiness and adaptability are essential in the Philippines due to the significant disparities in healthcare facilities regarding resources and technology accessibility. Nurses' proficient use of NIS can enhance patient care, simplify documentation procedures, and improve communication among healthcare workers, which is crucial in a diverse country with many healthcare facilities spread throughout islands.



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Furthermore, the difficulties nurses encounter while resolving hardware and software problems highlight the necessity for extensive IT assistance and training in the Philippine healthcare system. It is crucial for nurses to be skilled in using technology and able to handle technological problems to ensure continuous patient care in modern healthcare. This is crucial in the Philippines, as distant and rural areas may lack immediate access to IT professionals. Improving nurses' technical troubleshooting abilities could greatly enhance the resilience and effectiveness of healthcare services nationwide. Moreover, the overall favorable attitudes towards NIS among Filipino nurses, regardless of their demographic or professional backgrounds, indicate that nationwide efforts to introduce or enhance these systems may be widely embraced and welcomed, thereby enhancing the quality and effectiveness of healthcare services in the nation.

Limitations

The study is constrained to a sample of 49 nurses from a solitary in one medical center, perhaps lacking representation of all nurses in the region or in the Philippines. The results may not be applicable to other hospitals, particularly those with varying sizes, resources, or patient populations. Using a questionnaire, especially one that evaluates subjective factors like attitudes, might be influenced by bias. Respondents may offer answers that are socially acceptable or may lack complete awareness of their own knowledge and attitudes, resulting in mistakes.

Conclusion

The researchers concluded that nurses in a private hospital have a high level of trust in their computer and NIS-related skills, recognizing the major advantages of NIS in nursing care and documentation. Demographic factors such as age, education, and years of experience had no significant impact on knowledge and attitudes towards NIS. However, there is a noticeable difference between male and female nurses, with females displaying more positive attitudes. The significant impact of gender on technology acceptability and the generally positive attitude of nurses regarding NIS in LMC.

Recommendation

In line with the findings and conclusions of this study the following are recommended: (1) Create and execute extensive IT training initiatives specifically designed for nurses, with a particular emphasis on basic computer skills, application utilization, internet navigation, MS Word, and specialist healthcare technologies such as NIS. These programs should incorporate both fundamental and sophisticated modules to accommodate the diverse range of IT skills among nursing staff. (2) Conduct regular seminars and simulations specifically focused on resolving typical hardware and software problems that arise in healthcare environments. This will enable nurses to autonomously address small technical issues, hence minimizing disruptions in patient care caused by technology problems. (3) Given the observed disparity in technology acceptability between male and female nurses, it is crucial to formulate gender-sensitive approaches that promote the adoption of technology. Customized communication and training may be required to effectively address the distinct requirements and preferences of male and female nursing personnel. (4) Enhance the IT support infrastructure in healthcare facilities to provide nurses with prompt and efficient assistance for intricate IT problems that cannot be managed autonomously. This is particularly vital in isolated and rural regions where access to IT professionals may be limited.

Moreover, the following are recommended for future research: Subsequent research should involve a more extensive sample size gathered from various medical centers throughout Luzon and other locations in the Philippines. Encompassing public hospitals, rural clinics, and specialized healthcare facilities would offer a more thorough insight into nurses' knowledge and attitudes on NIS. Conduct a longitudinal study to examine the progression of nurses' knowledge and attitudes regarding NIS over time, particularly as they accumulate more experience with these systems and as technology progresses.

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Conflict of interest

None

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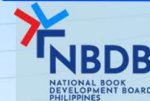
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