

Attitude of Nurses Towards The Use of Information Technology at Federal University of Health Sciences Teaching Hospital, Azare, Bauchi State, Nigeria

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ABSTRACT

This study examines the attitudes of nurses towards the utilization of information technology (IT) in the Federal University of Health Sciences Teaching Hospital, Azare, Bauchi State. The research involved a survey of 74 nurses, focusing on their demographics, attitudes towards IT, factors influencing their attitudes, and willingness to adopt new technologies. The findings indicate that nurses generally have positive attitudes towards IT, believing it improves patient care, efficiency, and communication. Factors such as access to IT, training, and perceived cost influenced their attitudes. While gender was found to influence attitudes, ward assignment, and working experience did not significantly impact nurses' views on IT. The study recommends integrating IT training into nursing curriculum, providing ongoing support and resources for nurses, and monitoring the implementation of IT to ensure its effectiveness in improving healthcare delivery. Consequently, further research is needed to explore the long-term impact of IT on patient outcomes and to investigate the role of organizational culture and leadership in shaping nurses' attitudes towards IT.

Keywords: *Attitude, Nurses, Information, Technology*

INTRODUCTION

Nurses in everyday work encounter the application of new gadgets, instruments, and other modern technologies used for patient care. The implementation of modern

technology in nursing practices increases nurses' efficiency, also changing the way they care for patients. The use of Modern technology is one of the major components of basic competency areas in nursing practice. Previous studies have shown it has the potential to improve the health of patients and the performance of nurses, yielding improved quality, cost savings, and greater engagement by patients in their own health care (Leite et al. 2018).

With the advocacy for evidence-based practice in the clinical area, the application of information technology in nursing becomes imperative because of its widespread use in individual and family care settings. Knowledge and application of information communication technology among nurses have been effective and efficient communication and documentation of nursing roles using nursing standardized terminologies of NNN (NANDA, NIC, NOC), which has been identified to provide adequate information about patients in the hospital Electronic Health Records (Lumberg and Butcher, 2018)

The health information revolutionized the healthcare industry by presenting numerous opportunities for improving and transforming healthcare. One of the key benefits of Health information technology is the reduction of human errors in medical practices. By digitizing health records and implementing electronic prescribing systems, healthcare providers can minimize medication errors and improve patient safety (Bates et al. 2014).

Health information technology has been shown to improve clinical outcomes by providing healthcare professionals with real-time access to patient data, enabling more accurate diagnoses and treatment decisions (Black et al. 2011). This technology also facilitates care coordination by allowing different healthcare providers to share patient information seamlessly, resulting in better continuity of care and improved patient outcomes (Adler-Milstein et al. 2018).

Nurses' attitudes towards ICT can vary significantly depending on various factors such as age, experience, education and organizational support. Younger nurses tend to have more positive attitudes towards ICT compared to older nurses. This difference can be attributed to the digital native status of younger nurses who are more comfortable with technology and its integration into their daily workflow. (Thomas et al. 2019)

The level of education and training plays a crucial role in shaping nurses' attitudes towards ICT. Nurses with higher levels of education and specialized training in informatics are more likely to embrace technology and recognize its benefits in improving patient outcomes. Nurses who received formal education on ICT demonstrated higher levels of confidence and competence in utilizing technology in their practice.

The successful implementation of computer systems in nursing practice is likely to be directly related to users' attitudes toward computerization. Thus, the attitudes nurses have toward the use of computers are very important and the use of computers in healthcare requires that objective and comparative information on how nurses view the use of computers and the factors affecting these attitudes is available (Strudwick, 2018). If attitudes of nurses are adequately assessed. Then implementation strategies can be developed to support nurses who are less willing to accept computerization (Ifinedo, 2016).

Numerous studies have examined the importance of nurses' attitudes toward computers in a nursing unit. Study designs ranged from one-time descriptive studies examining demographic variables influencing computer acceptance, to studies comparing users with nonusers, and measurement of attitudes before and after computerization (Leit and Brown et al., 2018)

Information and communication technologies (ICTs) embody all digital technologies that support the electronic capture, storage, processing, and exchange of information in order to promote health, prevent illness, treat disease, manage chronic illness, and so on In the health sector, ICTs refer to a set of projects or services that allow for remote care (telehealth), interdisciplinary clinical support, as well as knowledge transfer (Rouleau, Gagnon, & Côté, 2019).

The rapid advances in computer information technology have important implications for both nursing students and educators worldwide. These implications include, but are not limited to, teaching and learning technology, and the technology that nursing graduates will be expected to work on a daily basis (McGonigle et al., 2017).

The health sector is faced with constant changes as new approaches to tackling illnesses are unveiled through research. Information, communication and technology have greatly transformed healthcare practice. Nursing is continually exposed to a variety of changes. Variables, including age, educational level, years worked in nursing, computer knowledge and experience, have been found to influence the attitudes of nurses towards computerization and Information Technologies (Wager, Lee & Kim, 2017). A positive attitude could see a rapid adoption with accompanying realization of the benefits of computerization, a less positive attitude or rejection is likely to retard attempts to modernize service delivery (Wager, Lee and Kim, 2017).

A study in Lagos State shows that nurses generally have a positive attitude towards ICT, recognising its potential to improve patient care and streamline workflow. Although the study also highlighted some challenges faced by nurses in adopting ICT, such as inadequate training, lack of access to technology and resistance to change. (Olatokun and Adeniran 2017).

A study in Enugu found that some nurses lack adequate training in ICT skills, leading to resistance towards adopting new technologies. Additionally, issues such as inadequate infrastructure, limited access to ICT resources and concerns about data security can also impact nurses' willingness to use ICT in their practice. (Ojeaga et al. 2020). Hence, the aim of this study is to examine the attitudes of nurses towards the utilization of information technology (IT) in the Federal University of Health Sciences Teaching Hospital, Azare, Bauchi State.

METHOD

Design: Descriptive cross-sectional design was used.

Study Setting: The research was carried out in the Federal University of Health Science Teaching Hospital, Azare, Bauchi State. The institution is a tertiary health care institution situated within the Azare metropolis. The hospital shares its boundaries with Alkali primary school from north, central market from the south, old airport to the west, and demonstration school to the east. The hospital has 516 nurses and midwives, with units and wards as follow: (male and female) surgical wards (male and female) medical wards, maternity ward, amenity ward, gynaecology ward and pediatrics ward. Its departments are the Medical, Pharmacy, Nursing, Laboratory, Radiology, Physiotherapy, Dental, Health Information and Nutrition. The National Health Insurance Scheme has 8 units: ENT, Eye Clinic, Theatre, E.P.U., SCBU, Dialysis, ICU, A/E, and a total of 500 bed capacity. The hospital serves as a training ground for nurses and midwives. Medical Laboratory Assistant and other Health related courses from various health institutions in Bauchi State.

Target Population: The target population for this study were all the nurses working in Federal University of Health Science Teaching Hospital, Azare (516 nurses and midwives).

Inclusion Criteria: Nurses and Midwives with minimum of 6 Months working experience.

Exclusion Criteria: Nurses who were on leave during the study were excluded from the research.

Sample size determination: Taro Yamen formula was used to determine a Sample size of 75 participants.

Instrument for Data Collection

A self-administered, structured questionnaire with closed-ended questions was used after obtaining consent from the respondent.

Validity of the Instrument: The face and content validity of the questionnaire was carried out by two experts in the Department of Nursing Science, Federal University of Health Sciences, Azare. They examined the items in line with the objectives set for the study. They also assessed the language used in developing the instrument, made necessary modifications and their input and suggestions were affected prior to the administration of the instrument to the participants.

Reliability of the Instrument: In order to establish the reliability of the instrument, 10% of questionnaires were administered to the Nurses of Federal Medical Centre Misau, Bauchi State, using test-retest method within 2 days interval. The instrument was re-administered to the same group of participants after 2 days. The two sets of scores were correlated using Pearson Product Moment Correlation statistics and the coefficient of reliability of 0.75 was obtained which showed a high value. This made the instrument reliable for data collection.

Method of Data Collection: The data was collected by the researcher through face-to-face method of data administration of the questionnaire and information was obtained from the Nurses and midwives of the Federal University of Health Sciences Teaching Hospital, Azare, Bauchi State. The researcher went to the Hospital, met with the participants and distributed the questionnaires to them after informing them about the study after obtaining their consent to participate. A trained research assistant helped in the process of data collection and participants were allowed a period of 30minutes to 1hour to fill the questionnaires before same were retrieved from them. The process of data collection lasted for two days to enable the researcher cover all the participating subjects.

Data Analysis: the obtained data was analyzed using mean, frequency and percentage presented in tables and frequency.

Ethical consideration: Approval letter to conduct the research was given by the ethical committee of the Federal University of Health Sciences Teaching Hospital, Azare, Bauchi State.

RESULTS

Table 1 shows that the majority of the respondents (62.2%) were between the age group of 21-30 years. Female respondents within this age group are higher in number than their male counterparts (81.1%). The socio-demographic characteristics of the participants revealed that the single respondents were the majority (59.5%).

Table 1: Socio-demographic data of Respondents

Item	Options	Frequency	Percentage
Gender	Male	14	18.9
	Female	60	81.1
	Total	74	100.0
Age range	21 – 30	46	62.2
	31 – 40	18	24.3
	41 – 50	6	8.1
	51 – 60	4	5.4
	Total	74	100.0
Religion	Christianity	11	14.7
	Islam	63	85.3
	Traditional	0	0.0
	Total	74	100.0
Marital Status	Single	44	59.5
	Married	25	33.8
	Divorced	3	4.1
	Others	2	2.7
	Total	74	100.0
Ethnicity	Hausa	50	67.6
	Yoruba	13	17.6
	Fulani	7	9.4
	Others	4	5.4
	Total	74	100.0

Ward	Surgical ward	24	32.4
	Obsterics and Gynaecology	11	14.9
	Accident and emergency	14	18.9
	Pediatrics	5	6.8
	Theatre	4	5.4
	Medical ward	16	21.6
	Total	74	100.0
Years in Service	Less than 2 years	34	46.0
	3 - 10 years	26	35.1
	11 - 20 years	5	6.8
	21 - 30 years	9	12.2
	Total	74	100.0

Table 2: Responses on the attitude of Nurses towards the Use of Information Technology in The Delivery of Care at Federal University of Health Sciences Teaching Hospital, Azare.

S/N	Items	YES F (%)	NO F (%)
1	Do you use information technology in your daily nursing practice?	62 (83.8%)	12 (16.2%)
2	Do you believe that information technology can improve patient care?	68 (91.9%)	6 (7.2%)
3	Do you find that information technology increases your efficiency in the delivery of care	71 (95.9%)	3 (4.1%)
4	Do you feel comfortable using information technology in the delivery of care?	64 (86.5%)	10 (13.5%)
5.	Do you believe that information technology can reduce errors in healthcare	64 (86.5%)	10 (13.5%)
6.	Do you believe that information technology can improve communication between healthcare professionals?	65 (87.8%)	9 (12.2%)
7	Do you think that information technology is difficult to use in the delivery of care	35 (47.3%)	39 (52.7%)
	Total		

Table 2 shows the frequencies and percentages on the current attitude of nurses towards the use of information technology in the delivery of care to patients at FUHSTHA; 62 (83.8%) made use of information technology to take care of patients, while 12 (16.2%) of the respondents did not use information technology to care for patients. 68 (91.9%)

believed that information technology can improve patient care, 71 (95.9%) of the respondent said information technology increases their efficiency in the delivery of care, 64 (86.5%) feel comfortable when using information technology in the delivery of care and 10(13.5%) respondent were not comfortable when using information technology 64 (86.5%) believed that information technology can reduce errors in healthcare, 65 (87.8%) believed that information technology can improve communication between healthcare professionals while 9 (12.2%) respondent said information technology cannot improve communication between health care professionals, 35 (47.3%) respondent think that information technology is difficult to use in the delivery of care, while 39(52.7%) respondent said information technology was not difficult to use in the delivery of care.

Table 3: Factors that influence nurses' attitudes towards the use of information technology in the delivery of care at Federal University of Health Sciences Teaching Hospital, Azare

S/N	Items	SA	A	D	SD	MEAN
1	Do you have access to information technology in your daily nursing practice?	40	17	7	10	3.1
2	Have you received training on how to use information technology in the delivery of care?	14	40	11	9	2.7
3	Are you comfortable with the security and privacy of information technology in healthcare?	14	30	20	12	2.6
4	Do you believe that information technology is too expensive for your organization to implement?	29	20	20	5	2.9
5.	Do you believe that information technology will replace the need for face-to-face interactions with patients?	20	12	32	10	2.5
6	Do you think that information technology can make your job more stressful?	7	10	40	17	2.0
Grand Mean						2.6

Table 3 shows the frequencies and percentages of the factors that influence nurses' attitudes toward the use of information technology in the delivery of care at the Federal University of Health Sciences Teaching Hospital, Azare. 57 (77.0%) of the respondents said that they had access to information technology in their daily nursing practice, while 17 (23%) respondent have access to information technology .54 (73.0%) received training on how to use information technology in the delivery of care, 42 (56.8%) they

are comfortable with the security and privacy of information technology in healthcare, 49 (66.2%) believe that information technology is too expensive for your organization to implement, 42 (56.8%) believed that information technology will not replace the need for face-to-face interactions with patients and 57 (77.0%) do not think that information technology can make your job more stressful. In contracts, 20(23%) of the respondent, 32 (43.2%) of the respondent, 25(33.8%) of the respondent 42 (56.8%) of the respondent and 57(77%) of the respondent respectively did not receive training on how to use information technology on how to care for patients not comfortable with security and privacy of information technology, believed that information technology is not expensive. Information technology will not replace face-to-face interaction with patients and will not make jobs more stressful.

Table 4: Responses on the willingness to adopt New Technologies in The Delivery of Care by nurses and midwives at FUHSTHA.

S/N	Items	SA	A	SD	D	MEAN
1	Nurses who have positive attitudes towards information technology will be more willing to adopt new technologies in the delivery of care	12	40	8	4	2.5
2	Nurses who are comfortable with information technology will be more likely to use it in their daily practice	40	28	4	2	3.4
3	Nurses who have access to information technology in their organization will be more willing to adopt new technologies	11	60	2	1	3
4	Nurses who have received training on information technology will be more willing to adopt new technologies	14	50	4	6	2.9
5.	Nurses who are satisfied with their current level of technology use will be less likely to adopt new technologies	40	24	7	3	3.3
6	Nurses who perceive information technology as too complex will be less willing to adopt new technologies	35	30	5	4	3.2
7	Nurses who feel supported by their organization to use information technology will be more likely to adopt new technologies	10	25	29	10	2.4
8	Nurses who believe that information technology will save time and improve efficiency will be more willing to adopt new technologies	30	40	1	2	3.2
	Grand Mean					2.9

Table 4 above shows that a moderate number of participants were willing to adopt new technology in their workplace (Grand Mean 2.9). Nurses who are comfortable with

information technology are more likely to use it in their daily practice; this group had the highest mean (3.4). Nurses who believe that information technology will save time and improve efficiency were also more willing to adopt new technologies, with a mean of 3.3. However, the lowest mean (2.2) was among participants who did not agree that nurses who feel supported by their organization are more likely to adopt new technologies.

DISCUSSION

Table 1 examined the attitudes of nurses towards the utilization of information technology on health service delivery in the Federal University of Health Sciences Teaching Hospital, Azare. The sociodemographic characteristics of the participants revealed that the majority of the respondents were female (81.1%). The largest age group was between 21 and 30 years old (62.2%). Most respondents identified as Muslim, while a smaller proportion were Christian. The majority were single (59.5%), and the largest ethnic group was Hausa (67.6%). In terms of work area, most respondents worked in the surgical ward. The distribution of work experience varied, with a significant proportion having less than 2 years of experience. It is in line with the study conducted by Arinze-Onyia et al. (2018) – University of Nigeria Teaching Hospital, Enugu: Surveyed 290 nurses (mostly female); 98%, also, the majority of respondents were single (59.5%). The study shows that nurses have a positive attitude towards the use of information technology in care delivery. The majority of respondents agreed that using information technology is beneficial in their daily nursing practice, believing it can improve patient care, increase efficiency, reduce errors, and enhance communication among healthcare professionals. Additionally, a significant percentage of nurses expressed comfort in using information technology in care delivery. However, nearly half of the respondents did not consider information technology to be difficult to use in this context.

The study revealed that the factors influencing nurses' attitudes towards the use of information technology in care delivery were access to IT, training, and perceived cost influence their attitudes. While gender was found to influence attitudes, ward assignment and working experience did not significantly impact nurses' views on IT. Most nurses did not believe that information technology would replace the need for face-to-face interactions with patients or make their jobs more stressful. It is in line with the study that highlighted some challenges faced by nurses in adopting ICT, such as inadequate training, lack of access to technology and resistance to change. (Olatokun and Adeniran 2017).

The finding explores nurses' willingness to adopt new technologies in care delivery at Federal University of Health Sciences Teaching Hospital, Azare. The majority of respondents agreed that nurses with positive attitudes towards information technology are more likely to adopt new technologies. They also believed that comfort with information technology, access to it, and training received on its use influence nurses' willingness to adopt new technologies positively. However, there was a perception that nurses satisfied with their current technology use might be less likely to adopt new technologies. Additionally, nurses who find information technology too complex or do not feel supported by their organization to use it may be less willing to adopt new technologies. The belief that information technology can save time and improve efficiency was strongly associated with willingness to adopt new technologies among nurses. It is in line with the study of Ifinedo (2016) that implementation strategies can be developed to support nurses who are less willing to accept computerization. Additionally, issues such as inadequate infrastructure, limited access to ICT resources and concerns about data security can also impact nurses' willingness to use ICT in their practice. (Ojeaga et al. 2020).

CONCLUSION AND RECOMMENDATIONS

It is concluded, based on the available descriptive data, that nurses have a positive attitude towards the use of information technology in care delivery in the Federal University of Health Sciences Teaching Hospital, Azare, and are willing to adopt new technologies positively. Therefore, we recommend integrated practical training on information technology into nursing curricula, focusing on its application in patient care and communication, and collaborating with healthcare institutions to develop hands-on workshops and simulations that expose nursing students to real-world IT systems used in healthcare settings. The study further recommends that nurses with a positive attitude towards information technology are likely to adopt new technologies.

Limitation: the study is limited to fewer number of the nurses therefore, the interpretation of the results should be done with cautions

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