

Use of Health Information Communication Technology for Patient Care among Nurses in University of Ilorin Teaching Hospital, Ilorin

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Abstract

Health Information Communication and Technology (HICT) contribute to health education, knowledge sharing, health monitoring, statistics gathering and delivery of care in health institutions of Nigeria. This study determined knowledge and use of Health Information Communication Technology among Nurse in University of Ilorin Teaching Hospital, Kwara State. A descriptive research design was used and a proportionate sampling technique was used to select 150 nurses from various units of the hospital. Semi-structured questionnaires was the instrument used to obtain information from nurses. Analysis was done using descriptive statistics of frequency and percentages for research questions and inferential statistics of chi-square used to test hypothesis. The results showed that majority of nurses were females with RN/RM qualifications. The results also revealed that the respondents had knowledge of file management and channels of HICT but have inadequate provision of ICT facilities. Limited time, increased workload and poor electricity supply were the major challenges militating against the utilization of HICT for patient's care. This study concluded that there is no significant relationship between the educational qualification, knowledge of nurses and utilization of health information communication and technology for patient care in UITH.

Keywords: Health Information Communication and Technology use, Nurses, University of Ilorin Teaching Hospital, Kwara State

1. Introduction

Health Information Communication Technology (HICT) is an exchange of health information through electronic outlets, designed to improve the quality of health care, prevent errors, increases the efficiency of administration, reduces cost and decreases the amount of paperwork and maintains the utmost privacy of patients through information transmitted in a secure database. (The U.S. Department of Health and Human Services defined, 2016). The use of HICT provides health professionals ability to analyse data and sum big data into effectively manage health programs in a given population. This further reduces the incidence of chronic health conditions and it is an opportunity to share health data among academic researchers to develop new therapies and drugs. The HICT gives patient rights to obtain and use their own health data and also being involved in their own care with clinicians and care givers. In a similar vein, the World Information Technology Forum (WITFOR) held in Gaborone Botswana in 2005 recommended prioritizing ICT to improve the provision of health services in developing countries. The potential professional and personal value to be gained from using ICT and the internet are recognized by many health workers especially among nurses.

Nurses' knowledge about health information technology is therefore pertinent to effective and timely implementation of patient care. A study on knowledge and utilization of ICT among health care

professionals and students in Ile-Ife, Nigeria, the study showed that only 26% of the respondents possess a computer and only a small per cent of them demonstrated good knowledge of computer use and IT, hence the suboptimal utilization pattern of ITC among students in Ile-Ife (Ibrahim, Fatiu & Adewale, 2004). This implies that inadequate knowledge about computer application soft and hard wares could affect its use in patient care in health institutions. A similar study conducted at the National Hospital Abuja Nigeria on utilization of Information Communication Technology (ICT) among health workers, opined in the contrary that ICT are widely adopted by all participants and they opined that ICT will improve quality of medical care but some expressed great concerns over medical confidentiality that may be compromised as ICT becomes widely adopted in the country's health care systems (Ibrahim, Hakeem, Razzaq, (2015).

On factors affecting the use of health information communication technology among nurses, in Ebonyi state, Nigeria, Fergus, Onu, and Agbo, (2013), observed that electric power supply, government attitude, cost of ICT equipment, poor internet connectivity, resistance to new technology, lack of maintenance culture, educational status, resource shortage, poor ICT awareness, poor computer access, workload, absence of body responsible to ICT operations constituted a serious challenge to ICT use among nurses in Ebonyi State health institutions. Also in a related study in Kwazulu, South Africa province, identified self-efficacy, adoption of computers to improve nursing care, confidence in using computers, usefulness, interact ability and knowledge ability were major factors influencing perceptions and attitudes of nurses towards the use of ICT at the work place (Stephen & Mutula, 2015). With increasing patients' awareness and use of ICT, make them expect prompt response which also brings about challenges on the part of the nurse in establishing rapport with patients familiar with using technologies.

During our clinical teaching and supervision of students in University of Ilorin Teaching hospital (UITH), health information communication gadgets were not seen in various nurses' station for use by the nurses. The hospital management still depend solely on paper and file to keep patient records which in most cases are either misplaced or destroyed. The use of ICT in UITH are limited to only the payment desks and administrative offices, not much was seen in terms of availability and uses in the nurses stations and at various units and wards of the hospital, hence nurses were found rarely accessing HICT for the purpose of patient care. Based on the observed lapses in terms of provision for HICT in UITH, this study was designed to examine whether nurse have the knowledge about HICTs for its utilization or not and to determine challenges faced by nurses in the use of health information communication technology in University of Ilorin Teaching Hospital.

Hypotheses

H₀₁ there is no significant relationship between educational qualification of nurses and knowledge about health information communication and technology in UITH

H₀₂ there is no significant relationship between nurses' knowledge and utilization of health information communication and technology for patient care in UITH.

2. Methodology

This study was a descriptive research design aimed at examining knowledge, utilization and challenges of using information communication technologies for patient care among nurses in University of Ilorin Teaching Hospital (UITH), Nigeria. The target population for this study was 606 nurses in various wards and units of Teaching Hospital, Nigeria. However, 150 nurses were proportionately sampled from the Accident and emergency unit, Behavioral science unit, Emergency pediatrics, Female medical ward, Intensive care unit, Male surgical ward, NICU, Operating theatre, Trauma center and Renal Centre as study population. A self-structured questionnaire was used as instrument for data collection from the nurses. Section A sought information on knowledge of nurses about health information communication technology, section B was on level of health information technology use among nurses

and section C was on challenges faced by nurse in the use of health information technology for patient care in University of Ilorin Teaching Hospital.

The face and content validity of the instrument was ensured based on variables contained on the research objectives, while the reliability of the instrument was determined by pre-test on a pilot study conducted on 20 respondents in Sobi specialist hospital. A letter of introduction for the conduct of this study was presented to the UITH Ethical Committee and approval was obtained before the commencement of the study. Data was analyzed using Statistical Package for Social Sciences (SPSS), version 20 and results were presented on percentage tables while, chi Square was used to test research hypothesis.

Table 1: Demographic Information of Respondents

Socio-demographic profile	Response	Frequency	Percentage (%)	Cumulative percentage
Gender	Female	128	85.3	85.3
	Male	22	14.7	100
	Total	150	100.0	
Educational qualification	RN	48	32.0	32.0
	RNM	68	45.3	77.3
	BNSC	28	18.7	96.0
	Others	6	4.0	100.0
	Total	150	100.0	

Table 1 shows majority of nurses (128 (85.3%)) were females while, on the educational qualification of nurses, most them were registered nurses and midwives 68 (45.3) as compared with other qualifications especially Bachelor of Nursing Science (BN.Sc).

Table 2: Knowledge about computer application as channels of Health Information communication and technology among nurses in UITH.

Variables	Response	Frequency	Percentage (%)
Do you know the following computer applications?	Yes		
	No		
Computer file management (save, delete, copy, paste)	Yes	130	86.7%
	No	20	13.3%
computer system setup and installing of software	Yes	64	42.7%
	No	86	57.3%
Database management (Microsoft access)	Yes	68	45.3%
	No	82	54.7%
Have you used computer for health care purpose (tele-nursing)?	Yes	58	38.7%
	No	92	61.3%

Table 3 above showed that majority of nurses in UITH claimed that HICT applications are neither available nor been used in their ward/units, hence they do not have much knowledge about HICT used for patient care. However, about two-third (66.7% & 68.0%) admitted that HICT are only used for patient registration and patient ward registration on admission and discharge respectively.

Table 3: Knowledge of Nurses about types of health information technologies used for patient care in UITH.

Variables	Response	Frequency	Percentage (%)
Are these information communication technologies in use in your ward/unit?			
Automated medication administration.	Yes	28	18.7%
	No	122	81.3%
Point of care clinical documentation	Yes	72	48.0%
	No	78	52.0%
Patient registration	Yes	100	66.7%
	No	50	33.3%
Ward management (registration on admission, discharge)	Yes	102	68.0%
	No	48	32.0%
Bedside medication verification	Yes	50	33.3%
	No	100	66.7%
Electronic health record	Yes	68	45.3%
	No	82	54.7%
Tele-nursing/medicine	Yes	36	24.0%
	No	114	76.0%

Table 4: Use of health information technology for patient care

Variables	Response	Frequency	Percentage (%)
Do you use the following HICT in your hospital?			
Electronic medical records	Yes		
	No		
	Not sure	56	37.3%
Automated medication administration	Yes	28	18.7%
	No	98	65.3%
	Not sure	24	16.0%
point of care clinical documentation	Yes	64	42.7%
	No	80	53.3%
	Not sure	6	4.0%
Patients registration	Yes	96	64.0%
	No	44	29.3%
	Not sure	10	6.7%
Tele-nursing/medicine	Yes	40	26.7%
	No	78	52.0%
	Not sure	32	21.3%
ward management (registration - admission, discharges)	Yes	104	69.3%
	No	40	26.7%
	Not sure	6	4.0%

Table 4 above revealed that majority of nurses did not use electronic medical record, point of care clinical documentation, except more than half (64.7%) of them used ICT for patient's registration and 69.3% used it for ward management that enables record keeping on the wards.

Table 5: Challenges of Health Information Communication Technology use in UITH

Variables	Response	Frequency	Percentage (%)
Poor organization support	Strongly agreed	132	88.0%
	Strongly disagree	8	5.3%
	Disagree	4	2.7%
	Undecided	6	4.0%
Lack of time	Strongly agreed	122	81.3%
	Strongly disagree	12	8.0%
	Disagree	16	10.7%
	Undecided	0	0.0%
Inadequate provision of ICT facilities	Strongly agreed	128	85.3%
	Strongly disagree	10	6.7%
	Disagree	10	6.7%
	Undecided	2	1.3%
Resistance to new technologies	Strongly agreed	88	58.7%
	Strongly disagree	30	20.0%
	Disagree	30	20.0%
	Undecided	2	1.3%
Workload	Strongly agreed	124	82.7%
	Strongly disagree	16	10.7%
	Disagree	8	5.3%
	Undecided	2	1.3%

Table above showed that majority of nurses strongly agreed that poor organizational support, lack of time, inadequate provision of ICT facilities and resistance of nurses to new technology use are the challenges of HICT use in UITH.

Hypothesis 1

H₀₁: there is no significant relationship between educational qualification of nurses and knowledge about health information communication and technology

Table 6: Chi-square test showing relationship between educational qualification and knowledge about health information communication and technology

Educational qualification	Knowledge about health Information Communication and Technology			Pearson Chi-square X^2 P-value Df	Remark
	Good knowledge	Poor knowledge	Total		
RN	44	4	48	$X^2 = 3.248$ p-value = 0.356 Df = 3	No Significant relationship
RNM	58	10	68		
BNSC	24	4	28		
Others	4	2	6		
Total	130	20	150		

Table above shows a p value (0.356) > 0.05, accepted the null hypothesis, this implies that there is no significant relationship between the educational qualification of nurses and their knowledge about health information communication and technology UITH, Nigeria.

Hypothesis 2

H₀₂ there is no significant relationship between nurses' knowledge and use of health information communication and technology for nursing care of patient in UITH.

Table 7: Chi-square test showing relationship between nurses' knowledge and their use of health information communication and technology for patient care

Knowledge about health Information Communication and Technology	Utilization of health Information Communication and Technology			Pearson Chi-square X^2 P-value Df	Remark
	High utilization	Low utilization	Total		
Good Knowledge	52	78	130	$X^2 = 4.029$	No Significant relationship
Poor Knowledge	4	16	20	p-value = 0.134	
Total	56	78	150	Df = 2	

Table above a p value (0.134) > 0.05, the null hypothesis is rejected, this implies that there is no significant relationship between nurses' knowledge and utilization of health information communication and technology for patient care in University of Ilorin Teaching Hospital.

4. Discussion

The findings from this study revealed that majority of nurses who were females reflected that nursing is a female dominated profession. Almost half of the nurses in UITH were registered nurse and midwives who were at Nursing Officer's rank. This study observed that more than two-third of nurse knew about computer file management (save, delete, copy, paste), and possessed computer Tablet and laptops. It can be deduced that majority of nurses had good knowledge about health information communication and technology. This finding is in agreement with Evangel and Raja (2004) study conducted to assess computer knowledge; attitude and skills among nurses working in selected hospital, India, revealed that majority (75%) of nurses had good computer knowledge.

On the Knowledge of nurses about channels of Health Information communication and technology, this study revealed that majority of nurses claimed to have knowledge about mobile internet facilities as a channel of health information communication and technology and they are familiar with the use of internet to up-date their knowledge on various nursing procedures and care for patients with various disease conditions. In this finding, it can be deduced that nurses are averagely knowledgeable about channels of health information communication and technology but the facilities are not available for use at various nursing stations of the hospital. This finding is contrary to the finding of study conducted by Ibrahim, Fatiu and Adewale, (2004) in Ile-Ife, Nigeria which observed that the respondents have poor knowledge about computer operation; hence there was suboptimal utilization of ICT in the Hospital. Even though few number of nurses in UITH knew about computer set up and installation of software, some still claimed that HICT are not available for use and that put many at disadvantage to know more about database management (Microsoft access) use of computer for health care purpose especially tele-nursing in UITH. For example only few of them knew about computerized physician order entry, Automated medication administration, however, little above half (60.0%) of nurses in UITH also did not know about video feeds. patient registration, consultation records and patient bedside medication verification. Furthermore, this study revealed that many nurses in UITH were familiar with ward management especially in computer-based patient registration, admission and discharge documentation. Unfortunately some nurses did not know about online payment, electronic health record as only while, 24.0% of them knew about tele-nursing process of patient care probably due to lack of HICT facilities which translated

into poor knowledge and underutilization of ICT for patient care at work places.

The use of health information communication and technology for patient care by nurses in UITH, in this study revealed that majority of nurses could neither use electronic medical record, nor use computerized physician order entry as against few of them who have had their hands on automated medication administration and point of care clinical documentation. Conversely more than half of nurses in UITH did use patient's registration and consultation record in rare occasions respectively. In this study, it was observed that the nurses demonstrated low level utilization of health information communication and technology for patient care in UITH. This finding corroborates with Ebrahim, Gashaw, Solomon and Eshetu (2013) and Ibrahim, Fatiu and Adewale, (2004) in Ile-Ife respectively.

In this study, nurses expressed their opinions on quite a number of challenges militating against the use of health information communication technology for patient care in UITH, principal among them was poor organization support, inadequate provision of HICT facilities, lack of time and lack of training on the use of technologies are challenges facing the use of HICT in UITH. This study further observed that poor knowledge and non-utilization of HICT in the hospital could be linked to limited ICT and poor organizational supports for training of nurses in the area of HICT in the hospital. The study agreed with a research carried out on factors affecting the utilization of ICT among nurses in Enugun State, Nigeria and Kwazulu provinces, S. Africa by Attama, and Okafor, (2012) and Stephen & Mutula, (2015) respectively.

5. Conclusion and Implication of this study to Nursing Practice.

This study concluded that there is no significant relationship between the knowledge and educational qualification for utilization of health information communication and technology in the care of patient at the UITH. The non-availability of HICT facilities in the UITH particularly for patient nursing care and lack of adequate facilities, could not afford nurses opportunity to know how to use of HICT facilities in the hospital. Majority of nurses' activities which revolved round the information communication and technology especially on patient health care assessment, communicating patients' information to other health care givers, staffing, budgeting, research and medication update and patient management have been crippled resulting to nurses work overload and poor patient care outcome. Advances in information technology have created ample opportunities for nurses to be aware of current information in decision making. Provision of computers applications relevant for data processing, documentation and more specialized software that assist in data transformation to useful information that are key to effective nursing management in UITH if provided, will reduce nurses run the risk of making medication errors, improve nurses utilization of research findings for evidence based care.

In view of this study conclusion and implication to nursing practice, the following recommendations are made. The UITH management should provide opportunities for Continuing education on the management of IC for patient care to help nurses engage in information communication technology use as related to their practice and to make adequate provisions for HICT facilities and make access to HICT use easy in the hospital. Hospital management and Governments at all levels should establish nursing informatics units that will enhance access to information communication technologies and resources for nursing care purposes. Nursing and Midwifery Council of Nigeria; a governing body of nursing charged with regulation of nursing education and practice should as a matter of policy make ICT a requirement for hospitals for training and practice for patient benefit. Council should also develop a national information agenda for nursing education and practice that are geared towards improving nurses' use of HICT in their areas of practice.

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