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Knowledge and Attitude of Nurses towards ICT Use in Healthcare Delivery in Federal Teaching Hospital Abakaliki (FETHA)

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Abstract
The descriptive survey was carried out in order to determine the knowledge and attitude of nurses towards ICT use in healthcare delivery in Federal Teaching Hospital Abakaliki (FETHA), Ebonyi State. Three specific objectives with three research questions and two null –hypotheses were postulated to guide the study. The population of the study consisted of 1070 registered nurses in FETHA. A sample size of 107 respondents was purposively selected and used for the study. Data was generated through a researcher-designed questionnaire. Frequency and percentage were used to analyze research question one while means score and standards deviations were used to describe research question two and three. The Analysis of Variance (ANOVA) was used in testing null hypotheses one while Chi-square test was used in testing hypotheses two at .05 level of significance. The result of the study showed that: Nurses at FETHA had an average level of knowledge of ICT use in health care delivery as their grand mean percentage is (44.1%); the nurses had negative attitude towards ICT use in health care delivery as their grand mean is (2.32), the result further revealed that nurses had negative attitude towards ICT attributes as their grand mean score is (2.28). The independent variables (gender and age) considered, had no significant influence (P>0.05), on the attitude of nurses towards ICT use in health care delivery. The study supports the need for the adoption of ICT in every hospital and the ministry of health (Federal and State) must as a matter of urgency play an active role by coming up with awareness programme, like seminars and workshop on the ICT use among health care professionals including nurses, for a better health care delivery. Hence, any effort by government and other relevant bodies to organize seminar, workshop on the knowledge and awareness of ICT including training and retraining of health care providers including nurses on the usability of these technologies would be worthwhile.
Keywords: Knowledge, Attitude, Nurses, ICT, Healthcare delivery

Introduction

Information Communication Technology (ICT) has radically changed the way many people work and think. Over the years, technology has touched a new height and now it is not confined to developed countries. In developing countries healthcare providers can no longer ignore the application of information technology to healthcare delivery, because it is a key to e-health (Gour and Srivastava, 2010).

Electronic health "e-Health" refers to the use of information and communication technology (ICT) in support of health and health-related fields, including health care services; health surveillance; health literature; and health education, knowledge, and research (United Nation Foundation 2014; Coleman, 2014; WHO 2016, & International Telecommunication Union 2016). They further observed that e-Health is a means of ensuring that correct health information is provided in a timely and secure manner via electronic means for the purpose of improving the quality and efficiency of health care delivery and prevention programs. They further maintained that e-Health introduces a range of services such as electronic health records to ensure continuity of patient care across time, mobile health (m-Health) services, telehealth, health research, consumer health informatics to support individuals in health decision making, and e-Learning by health workers. Eke and Tamas (2013) noted that the

terms e-Health and tele-health are at times incorrectly interchanged with telemedicine. According to them the terms "medicine" and "health care", telemedicine often refers only to the provision of clinical services while the term telehealth can refer to clinical and non-clinical services such as medical education, administration, and research. m-Health includes the use of mobile devices in collecting aggregate and patient level health data, providing healthcare information to practitioners, researchers, and patients, real-time monitoring of patient vitals, and direct provision of care (via mobile telemedicine) (Elek and Tamas, 2013).

From the above definitions, e-Health can be deduced to mean the use of information communication technology (ICT) to increase efficiency in health care, improving quality of care, increasing commitment to evidence-based medicine, empowering of patients and consumers, and developing of new relationships between patients and health providers. Weiner, (2012) has noted that the digital revolution will have a profound impact on how physicians and health care delivery organizations interact with patients and the community at-large. Over the coming decades, face-to-face patient/health providers contacts will become less common and exchanges between consumers and providers will increasingly be mediated by electronic devices (Weiner, 2012). E-Health improves health surveillance, health system management, health decision making, standardized sharing of health information; and promotes equity in healthcare delivery (Eysenbach, 2001; Perera 2012). E-Health has potentials to improve access to healthcare and could effectively reduce professional isolation and improve healthcare worker retention in resource constraint environments (Richards, King, Reid, Selvaraj, McNicol, Brebner, et al. 2005).

Adeleke, Salami, Achinbee, Anamah, Zakari, and Wasagi, (2015) observed that Information and communication technology (ICT) has transformed the way people collaborate, identify potential collaborators or friends, communicate with each other, and identify information that is relevant to their practice. ICT has been identified as one measure to ensure these emerging trends in the Nation's healthcare systems. Opportunities for online health education, expanding the scope of healthcare delivery, health compliance, follow-up and appointments are additional benefits of e-Health (Wickramasinghe and Schaffer 2010). Although e-Health has the potential to improve the efficiency and effectiveness of healthcare management and delivery, it has been reported that acceptance of e-Health among healthcare providers including nurses was limited despite its critical roles in healthcare delivery (Dünnebeil, Sunyaev, Blohm, Leimeister, Krcmar 2012; Qureshi 2014).

Promoting acceptance of e-Health use requires an understanding of the relationships between e-health attributes as articulated by Rogers in the Diffusion of Innovation Theory which Rogers (1995) proposes that individual's response to new ideas influences the rate of diffusion of that idea through a social grouping. The characteristics of an innovation determine its rate of adoption through five steps: a) being aware of the innovation and being able to gain some abstract idea of how it functions (knowledge); b) forming favourable or unfavourable attitudes toward the innovation (persuasion); c) engaging in activities that lead to a choice to adopt or reject the innovation (decision); d) deliberate action to put the innovation into use (implementation); and e) evaluating the results of the decision made toward the innovation (Rogers 1995). The process of adopting an innovation is complex (Roger, 1995; Spil TAM, and Schuring 2006), and it involves a critical evaluation of five characteristics of the innovation, which include: relative advantage, compatibility, complexity, trialability and observability.

In deciding to adopt e-Health in professional practice, individual healthcare providers might consider the following questions: a) Can e-Health improve healthcare delivery? b) Does e-Health technology fit well with the needs and current practices of healthcare providers (compatibility)? c) Is e-Health technology easy to use and understand (complexity)? d) Can e-health technology be tested or tried by healthcare professionals before making commitment to use it (trialability)? e) Can individual healthcare providers see the benefits of using e-health technology in health care delivery at the workplace (observability)?. If an evaluation of the attributes of e-health leads to its approval, healthcare professionals might use the innovation to improve the quality of healthcare service delivery (Dunnebeil, Sunyaey, Blohm, Leomeister and Krcmar 2012; Englebardt 2002). The present study will be anchored on Rogers assertion, to elicit information on knowledge and attitude of nurses regarding ICT use in health care delivery in FETHA. The present study will also consider the attitude of nurses towards ICT attribute.

It is expected that the use of e-health can take shape only if healthcare providers including nurses have the knowledge and positive attitudes towards the use of ICT tools (Wickramasinghe, Schaffer 2010; Jadoon, Zahid, Mansoorulhaq, Ullah, Jadoon, Raza A, et al. 2011; Woodward, Fyfe, Handuleh, Patel, Godman, Leather, et al. 2014). There are many surveys which have assessed the knowledge and attitude regarding e-Health among health care providers (George JT. Etal., 2007; Glinkowski W. et al., 2013; Weiner JP. et al., 2013; Ernstmann N. et al., 2009). Some of this Studies in developing countries have highlighted the following drawbacks: lack of knowledge about ICT; unreliable ICT equipment; high cost of ICT; low level of skills of potential users; technology compatibility; and limited access to ICT as challenges hindering ICT use (Ruxwana, Herselman, and Conradie, 2010; Coleman, 2014).

Surprisingly, to the best knowledge of the present researcher, no studies have been conducted to access the knowledge and attitude of nurses' towards ICT use in health care delivery. More so, no studies have been

conducted in Ebonyi State and Nigeria in general, on the knowledge and attitude of nurses towards ICT use in healthcare delivery. In Federal Teaching Hospital Abakaliki (FETHA), where the present study was conducted the situation is not different hence the thrust of the present study is on the knowledge and attitude of nurses towards ICT use in healthcare delivery in federal teaching hospital Abakaliki (FETHA), Ebonyi State.

FETHA is located in the heart of Abakaliki, the capital of Ebonyi State. It is the federal and the biggest hospital in Ebonyi State. It is about 608 beds hospital with a retinue of over 2000 staff comprising over 200 consultants in various specialties. Hence, Ebonyi State is a new State with its own health system at the developmental stage, it is not unlikely that the variables reviewed above may be influencing the knowledge and attitude of nurses towards e-Health use in health care delivery in FETHA, Ebonyi State. Ascertaining these is the thrust of the present study.

Purpose of the Study

The main purpose of this study is to assess the knowledge and attitude of nurses towards ICT use in healthcare delivery in Federal Teaching Hospital Abakaliki (FETHA), Specifically, the study attempted to ascertain the:

1. Knowledge of nurses regarding ICT use in health care delivery
2. Attitude of nurses towards ICT in health care delivery in FETHA
3. Attitude of nurses towards e-Health attribute

Research Questions

1. what is the Knowledge of nurses regarding ICT use in health care delivery
2. What is the attitude of nurses towards ICT in health care delivery?
3. What is the attitude of nurses toward ICT attribute?

Hypothesis

1. There is no statistically significant difference in the attitude of nurses towards ICT in health care delivery with regard to their age
2. There is no statistically significant difference in the attitude of nurses towards ICT with regard to their gender

Methods

The study adopted a descriptive survey research design. According to Nworgu (2006), it is a study which aims at collecting data and describing in a systematic manner the characteristics futures or facts about a given population. The rational for using this design is informed by the fact that it would enable the researcher to identify and describe the characteristics of the population hence it is considered appropriate for the study.

The study was carried out in Federal Teaching Hospital, Abakaliki (FETHA). FETHA are located in the heart of Abakaliki, the capital of Ebonyi State. It is the federal and the biggest hospital in Ebonyi State. It is about 608 beds hospital with a retinue of over 2000 staff comprising over 200 consultants in various specialties, (Anoke, 2015). It is also a training institution for nursing students among others. Generally, the hospital renders primary as well as specialist services to those in need within and outside Ebonyi State. Being the largest tertiary and federal hospital in the state, it receives clients directly and referrals from general hospitals and nooks and crannies of the 13 local government areas of Ebonyi state and beyond.

The population of the study consisted of one thousand seventy (1070) registered nurses in FETHA. The population for the study was obtained from the personnel registers, FETHA (Personnel Registers, March 2017). The sample for the study consisted 107 representing 10% of the entire population used for the study. This is in line with Uzoagulu (2011) of 10% criterion for a population of 1000-5000. The total population was stratified into departments of nursing in FETHA. The researcher employed purposive sampling technique in selecting 107 registered nurses in FETHA.

A four-point Scale type questionnaire developed by a researcher based on extensive literature reviewed was used for data collection. The questionnaire was tagged: Knowledge and Attitude of nurses towards ICT questionnaire (KANICTQ). The questionnaire was made up of sections one and two. Section one contains two items design to elicit responses on the socio-demographic characteristics (age and gender) of the respondents, section two contain 38 items to elicit responses on the knowledge and attitude of nurses towards ICT use with rating scale of Yes/No in research question one and Strongly Agree (SA), Agree (A), Disagree (D), and Strongly Disagree (SD) in research question two and three, with a numerical value of 4, 3, 2 and 1 respectively. Respondent were asked to tick (√) against the response option(s) that best describe their knowledge and attitude of ICT use in health care delivery. The face and content validity of the KANICTQ was established through the verdict of three

experts from the Department of Human Kinetics and Health Education, Ebonyi State University Abakaliki. The experts were given drafted copies of the questionnaire accompanied with specific purpose, research questions and hypotheses. The expert's constructive criticisms, assessment of language, grammar and coverage of items were utilized to modify the instrument for data collection.

In order to establish the degree of stability and internal consistency with which the instrument measures the purpose of this study, twenty copies of questionnaire were administered to (20) nurses from another hospital "National Fistula Center (NAFIC)", Abakaliki who are not included in the study but who have the same characteristics with the study population. The questionnaire was collected back on the spot and assigned "even" and "odd" numbers. The responses were compared for degree of internal consistency, using Cronbach Alpha formula. Crombach in (1951) sought for a procedure that could be applied in estimating internal consistency of tests that are not dichotomously scored. According to Anaekwe (2007) cronbach alpha is a modified form of Kudder- Richardson formula, which is used in determining the reliability coefficient of a test when the test items are non-dichotomous hence was used for the present study. The overall reliability coefficient of the instrument was 0.72. The instrument was considered reliable for use in this study. This is in agreement with Ogbazi and Okpala (1994) who opined that if the correlation coefficient obtains of an instrument is up to 0.60 and above, the instrument should be considered good enough to be used for the study.

The ethical approval letter from Research and Ethics Committee (REC) of the hospital enabled the researcher to gain access to the Department of Nursing and to the respondents. The KANICTQ was administered by the researcher to all eligible respondents in FETHA on a unit basis.

The completed copies of the KANICTQ were collected and crosschecked for completeness of information and responses. All statistical analysis was done using the Statistical Package for Social Science (SPSS) version 21 batch system. Frequency and percentage were used to analyze research question one. In determining the level of knowledge of nurses regarding ICT use in health care delivery, Ashur's (1997) modified version by Okafor (1997) criteria for determining knowledge was used. By this criteria, scores below 20 per cent was considered very low level of knowledge (VLK), 20-39 per cent was considered low level of knowledge (LK), 40-59 per cent was considered average level of knowledge (AK), 60-80 per cent was considered high level of knowledge (HK), while a score above 80 per cent was considered very high level of knowledge (VHK). Mean scores and standard deviation were used to answer the research questions two and three. The decision rule is that mean scores of 2.50 and above will be regarded positive while mean score less than 2.50 would be regarded negative.

The postulated null hypotheses of no statistically significant difference on the knowledge and attitude of nurses towards ICT use in health care delivery were tested at .05 level of significance at the appropriate degree of freedom using ANOVA for research hypotheses one and chi-square (x^2) for Hypothesis two.

Results

Research Question one: What is the level of Knowledge of nurses regarding ICT use in health care delivery? Data answering this question are contained in Table 1.

Table 1: Mean Rating of the Level of the Knowledge of nurses regarding ICT use (N=107)

S/N	ICT KNOWLEDGE ITEMS	True		False	
		FREQ	(%)	FREQ	(%)
1	ICT is the use of electronic health in health care delivery	60	56.1	47	43.9
2	ICT is a means of solving clinical data management challenges in health care delivery	44	41.1	63	58.9
3	ICT is the use of all science and technology product in health care	42	39.3	65	60.7
4	ICT is used to describe everything related to computers and medicine	40	37.4	67	62.6
5	ICT strengthens the health systems	54	50.5	53	49.5
6	ICT is an important support to health care delivery	50	46.7	57	53.3
7	ICT improves communication among different health professionals	38	35.5	69	64.5
8	ICT uses electronic health records to ensure continuity of patient care	25	23.4	82	76.6
9	ICT uses consumer health information to support individual health decision making	49	45.8	58	54.2
10	ICT provides opportunity for online health education	70	65.4	37	34.6
	Grand Mean Percentage %		**44.1%**		**55.9%**

Key: VLK- below 20 per cent was considered very low level of knowledge (VLK), 20-39 per cent was considered low level of knowledge (LK), 40-59 per cent was considered average level of knowledge (AK), 60-80 per cent was considered high level of knowledge (HK), while a score above 80 per cent was considered very high level of knowledge (VHK).

Data in Table 1 revealed a grand mean percentage of (44.1%) which generally indicated average level of knowledge of ICT use in health care delivery among nurses in FETHA. Specifically, available data in the table indicated that the mean response values of the majority of the items (2, 3, 4, 5, 6, 9) on the level of knowledge of nurses regarding ICT use were within 40-59 per cent which was considered average level of knowledge (AK) of nurses. The table further indicated that item (1 and 10) shows a high level of knowledge because it falls between (60-80 per cent) indicating high level of knowledge (HK), whereas item 7 and 8 which fall between 20-39 per cent indicated low level of knowledge.

Research Question 2: What is the attitude of nurses towards ICT use in health care delivery? Data answering this question are contained in Table 2.

Table 2: Mean Rating of Attitude of Nurses towards ICT Use in Health Care Delivery (N=107).

S/N	Attitudes of nurses towards ICT use	Mean $\bar{x}$	SD	Dec.
11	I would not like to use ICT in health care delivery	2.59	1.02	Positive
12	I feel e-health does not give quality of health care services	2.78	0.97	Positive
13	I feel e-health tools are unreliable in medical work	2.77	1.10	Positive
14	I feel using e-health in health care delivery is a waste of time	2.64	1.15	Positive
15	I feel it is unprofessional to use ICT in health care delivery	2.86	0.99	Positive
16	I enjoy using e-health in health care delivery	1.69	1.07	Negative
17	I like using some specific e-health applications in health care delivery	2.14	0.94	Negative
18	I feel confident in using information from the internet to make health decisions	1.46	0.77	Negative
19	E-health improves the quality of medical work I do	1.81	1.03	Negative
20	E-health provides better communication between patients and health care professional	2.43	1.12	Negative
	Grand Mean and Std	**2.32**	**1.02**	**Negative**

Data in Table 2 above shows a grand mean score of 2.32 and standard deviation 1.02 which is less than the cut-off point of 2.50 indicating that the nurses had negative attitude towards ICT use in health care delivery. The table also indicates specifically, that attitudes of nurses towards ICT use for the following items 16, 17, 18 19, 20, "I enjoy using e-health in health care delivery ($\bar{x}$= 1.69), "I like using some specific e-health applications in health care delivery ($\bar{x}$=2.14), "I feel confident in using information from the internet to make health decisions ($\bar{x}$= 1.46), "E-health improves the quality of medical work I do ($\bar{x}$= 1.81), "E-health provides better communication between patients and health care professional ($\bar{x}$= 2.43) respectively, were negative, hence it had a mean score less than 2.50. This implying that nurses had negative attitude regarding ICT use in health care delivery in FETHA. Furthermore, the table indicates that item (11, 12, 13, 14, and 15) respectively, had a mean score above the cut-off point of 2.50 and above indicating the nurses had a positive attitude regarding ICT use in health care delivery.

Research Question 3: What is the attitude of nurses toward ICT attribute? Data answering this question are contained in Table 3.

Table 3: Mean Rating of Attitude of Nurses towards ICT Attribute (N=107)

S/N	Attitudes of Nurses Towards E-Health Attribute	Mean $\bar{x}$	SD	Decision
	Compatibility			
21	Using ICT is compatible with all aspects of my work	1.68	0.58	Negative
22	Using ICT is completely compatible with my current situation	1.70	0.59	Negative
23	I think ICT I used fits well with the way I like to work	1.75	0.93	Negative
24	Using ICT fits well into my work style	2.08	1.06	Negative
	Complexity			
25	I believe that using ICT is cumbersome	3.32	0.81	Positive
26	Using ICT require a lot of mental effort	2.90	1.08	Positive
27	Using ICT is often frustrating	3.02	0.93	Positive

28	I believe that it is easy to make ICT do what I want it to do	2.25	1.08	Negative
29	Learning to operate ICT is easier for me	2.59	1.08	Positive
	Trialability			
30	I've had a great deal of opportunity to try ICT applications	2.23	1.05	Negative
31	I know where I can go to satisfactorily try out ICT	2.64	1.13	Positive
32	I always try out ICT applications before using it	1.95	0.96	Negative
33	I use ICT on a trial basis enough to see what it could do	1.52	0.72	Negative
34	I do not have to take very much effort to try out ICT	3.28	0.70	Positive
	Observability			
35	I have seen what other hospital staff do with ICTs	1.74	0.62	Negative
36	In the hospital, I see ICT being used for many tasks	1.93	0.82	Negative
37	ICT is very visible in the hospital where I work	2.22	1.10	Negative
38	It is easy to observe people using ICT in the hospital	2.22	1.11	Negative
	Grand Mean and Std	**2.28**	**0.20**	**Negative**

Mean scores and standard deviation were used to answer the research questions two and three. The decision rule is that a mean score of 2.50 and above will be regarded positive while mean score less than 2.50 would be regarded negative.

Data in Table 3 above shows a grand mean score of 2.28 and standard deviation 0.20 which is below the cut-off of point of 2.50, hence indicating negative attitude towards ICT attributes among nurses in FETHA. By implication, the mean score for the items in compatibility is as follows: 21, 22, 23 and 24, "Using ICT is compatible with all aspects of my work ($\bar{x}$=1.68), "Using ICT is completely compatible with my current situation ($\bar{x}$=1.70), "I think ICT I used fits well with the way I like to work ($\bar{x}$=1.75), "Using ICT fits well into my work style ($\bar{x}$=2.08) respectively, were below the cut-off point of 2.50 which implies that nurses had a negative attitude towards ICT attribute. The table further indicated that items for complexity, "I believe that using ICT is cumbersome ($\bar{x}$=3.32), "Using ICT require a lot of mental effort ($\bar{x}$=2.90), "Using ICT is often frustrating ($\bar{x}$=3.02), "Learning to operate ICT is easier for me ($\bar{x}$=2.59) were above the cut-off point of 2.50, indicating that the nurses had a positive attitude on the complexity of ICT attribute. However, item 28 "I believe that it is easy to make ICT do what I want it to do ($\bar{x}$=2.25), is below the cut-off point which means nurses had a negative attitude towards ICT attribute. The table also show trialability "I've had a great deal of opportunity to try ICT applications, ($\bar{x}$=2.23), " I always try out ICT applications before using it,($\bar{x}$=1.95), "I use ICT on a trial basis enough to see what it could do, ($\bar{x}$=1.52), which is below the cut-off point 2.50 indicating that nurses had a negative attitude towards ICT attribute by trialability, on the other hand, nurses had positive attitude on the ICT trialability with a mean score of ($\bar{x}$=2.64), for "I know where I can go to satisfactorily try out ICT, and ($\bar{x}$=3.28) "I do not have to take very much effort to try out ICT, which is above the cut-off point of 2.50. Also, for the Observability, "I have seen what other hospital staff do with ICT, ($\bar{x}$=1.74), "In the hospital, I see ICT being used for many tasks ($\bar{x}$=1.93), "ICT is very visible in the hospital where I work, ($\bar{x}$=2.22), "It is easy to observe people using ICT in the hospital, ($\bar{x}$= 2.22), were below the cut-off of point 2.50, indicating that nurses had a negative attitude regarding ICT attribute with regards to observability.

Research Hypothesis 1: There is no significant different in the attitude of nurses toward ICT with regard to their age

Table 4: One-Way Analysis of Variance (ANOVA) Testing the hypothesis of attitude of nurses towards ICT use in health care delivery is not based on age (N=107).

Age	Sum of Squares	Degree of Freedom	Mean Square	F	P-value	Dec
Between Groups	540.732	3	180.244	.218	.884	Accepted
Within Groups	85133.343	103	826.537			
Total	85674.075	106				

Table 4 above shows that the probability value of 0.844 which is above the alpha value of 0.05 (P>0.05). Hence, there is no significant in the attitude of nurse with regard to their age. The stated null hypothesis was accepted.

Research Hypothesis Two: There is no significance different in the attitude of nurses on the ICT use based on gender

Table 5: Chi-Square: Goodness of fit Test Statistics Table Summary Testing the Attitudes of Nurses toward ICT Use is no Dependent on their Gender

Gender	Observed (N)	Expected (N)	Degree of freedom	P-Value	Decision
Male	48	53.5	1	0.288	Accepted
Female	59	53.5			

Table 5 above shows that the probability value 0.288 (P>0.05) is greater than the alpha value of 0.05, hence, the null hypothesis was retained, that the attitude of nurses with regard to ICT use is not dependent on gender.

Discussion of Findings

The result from Table 1 above revealed a grand mean percentage of (44.1%) which generally indicated average level of knowledge of ICT use in health care delivery among nurses in FETHA. This finding is however, surprising and not expected, given the high burden of disease and the low number of skilled personnel; e-Health is believed to improve health care by strengthening the health system, supporting delivery of care, and improving communication among different health care organizations and professionals. Though the findings are in consonance with (Ruxwana, Herselman, and Conradie, 2010; Coleman, 2014) who conducted related studies in the developing countries and highlighted the following drawbacks: lack of knowledge about ICT; unreliable ICT equipment; high cost of ICT; low level of skills of potential users; technology compatibility; and limited access to ICT as challenges hindering ICT use in health care delivery. However, the findings contradict the view expressed by Adeleke, Salami, Achinbee, Anamah, Zakari, & Wasagi, (2015); Alwan, Awoke, & Tilahun, (2015) who reported high knowledge of health care professionals including nurses with regard to ICT use in health care delivery.

Data in Table 2 above shows a grand mean score of 2.32 and standard deviation 1.02 which is below the cut-off point of 2.50 indicating that the nurses had negative attitude towards ICT use in health care delivery. This finding was not expected and thus a surprise. This is because the nurses who are expected to use ICT in health care delivery are developing negative attitude toward ICT use. However, the present study is in consonance with the studies by Ward, Steven, and Briddon (2008) who reported negative attitude of nurses towards ICT use in health care delivery. Whether this is due to differences in the respondent groups, targeted specialty, ICT experience or general attitude is difficult to say. It would therefore be of interest to further investigate the reasons for attitude related implementation issues in healthcare. Conversely, the study agrees with Dünnebeil, Sunyaev, Blohm, Leimeister, Krcmar (2012) and Qureshi (2014) who reported that acceptance of e-health among healthcare providers including nurses was limited despite its critical roles in healthcare delivery. However, the study disagrees with those of Anna, Kaji, Maria, Harshida and Bengt (2012) who reported that ICT in healthcare today are positive, or even surprisingly positive, in the light of on-going discussions in various public media, where for instance negative comments on EPR etc. are fairly common. That what is also interesting is that the opinions on the future of ICT are even more positive. Therefore, resistance from healthcare professionals to ICT in healthcare according to his findings should not be an issue for the implementation of ICT in healthcare.

The result from table 3 above show a grand mean score of 2.28 and standard deviation 0.20 which is below the cut-off point of 2.50, hence indicating negative attitude towards ICT attributes among nurses in FETHA. This finding was not expected and thus a surprise, hence it contradicts the view expressed by Greenhalgh, Robert, Bate, Macfarlane, and Kyriakidou (2008); Olok, Yagos and Ovuga, (2015) who reported that Majority of healthcare professionals including nurses generally had positive attitude towards ICT attributes.

Since trialability was the most important predictor of ICT use, the outcomes of skills development might be enhanced if hospital administrations in Federal Teaching Hospital provide opportunities for their healthcare personnel including nurses to learn from their peers at the workplace. Though the attributes of compatibility, complexity and observability did not predict ICT use in the present study which agrees with Olok, Yagos and Ovuga, (2015) that indicated ICT attribute as not a predictor of ICT use. However, both studies contradicted those reported in their study that ICT attribute is a predictor of ICT result (Nilseng, et al. 2014; Bennani, Oumlil, & Grenier 2014). It is possible that perceived ICT attributes may be a good predictor of ICT use in healthcare settings in FETHA; though it is possible that the small sample size in the present study might not have provided sufficient data to enable the researcher obtain accurate sets of results. However, it is also possible that factors other than those in the innovation theory contributed to the self-reported use of ICT among respondents. These factors might have been level of ICT skills, access to ICT, availability of ICT, and time available for healthcare professionals to access and use ICT tools in the workplace.

Result in Table 4 above show that the probability value of 0.844 which is above the alpha value of 0.05 (P>0.05) implies that, there is no significant in the attitude of nurse with regard to their age. Which means that the attitude of nurse with regard to ICT use in health care delivery is not dependent on age. This finding was considered interesting but not astonishing hence evidence abound in the literature (Chan, De Lusignan, & Brew, 2004; Loomis, Ries, Saywell, & Thakker, 2002); that age is not a predictor of health care professionals with regard to the attitude of ICT use.

Result in Table 5 indicated that the probability value 0.288 (P>0.05) is greater than the alpha value of 0.05 which means that, the attitude of nurses with regard to ICT use is not dependent on gender, the findings is in consonance with a study by Lai, Leung, Wong, & Johnston, (2004); Moffat, Moffat, & Cano, (2001) and Araujo, M. T., Paiva, T., Jesuino, J. C. & Magalhaes, M. (2000) who reported in their various studies that there is no significance different with the attitude of nurses regarding their gender.

Conclusions

Knowledge and Attitude of nurses regarding ICT use in health care delivery in FETHA were found to be negative. Hence providing awareness, trainings and continuous follow-up are necessary measures to increase the likelihood of the knowledge and positive attitude towards ICT use in health care delivery in FETHA.

Recommendations

1. It is very important that the government at all level, hospital and other healthcare facilities organize specific and intensive ICT training and retraining of their employees and make necessary infrastructures available for the implementations.
2. There is a need for advocacy on the need to embrace ICT among all healthcare professionals at FETHA and in Nigeria healthcare system as a whole.

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