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PERCEIVED UTILIZATION OF ELECTRONIC DEVICES FOR NURSING INFORMATICS PRACTICE AMONG NURSES IN FEDERAL MEDICAL CENTRES IN SOUTHERN NIGERIA

OGINI A. N. EZENDUKA P. O. & NDIE E. C.

ABSTRACT

The use of nursing informatics is new in Nigeria. This study assessed Nurses' perceived utilization of electronic devices for nursing informatics practices in Federal Medical Centres (FMCs) in Southern Nigeria. The study employed a cross sectional descriptive survey design. The total population of the study is 2189 nurses in FMCs in Southern Nigeria enlisted. Multistage sampling technique was used to select 326 respondents from the total population. The instrument used for data collection which is titled "Utilization of electronic devices for Nursing Informatics practice Questionnaire (UENIQ)" was a pre-tested. Data was analysed using mean while Chi-Square (χ^2) was used to test the hypotheses at $P > 0.05$ level of significant. The findings of the study revealed that the perceived utilization of electronic devices for nursing informatics practices in Federal Medical Centres (FMCs) in Southern Nigeria was very low with the mean score of 1.6. The hypothesis tested indicated that there was significant relationship between perceived utilization and three socio-demographic variables such as Age ($\chi^2 = 17.002$, $P = 0.00193$), Educational qualification ($\chi^2 = 14.584$, $P = 0.00068$), and gender ($\chi^2 = 8.6213$, $P = 0.00332$). In conclusion nurses in FMC southern Nigeria do not utilize electronic devices as a tool in everyday practice. It was recommended that government should equip all the hospitals for nursing informatics practice. Nurses should be trained to have competency required for nursing informatics practice.

Keywords: Nurses' perception; utilization; nursing informatics; Federal Medical Centre.

INTRODUCTION

The evolution of knowing has been exponential in the past forty years due to the new ways of learning that have been discovered. Nursing in particular has benefitted from these new concepts and continues to find newer and better methods to improve patient care (Olajubu et. al, 2014). Nurses bring to their practice a personal history that develops the way their nursing care is performed. Nursing theory, standards of practice, legal and ethical obligations must be understood and utilized to enhance the quality of nursing care. Greer (2012) is of the view that though nursing practice is built upon specific set standards of care, the way that nursing care is provided is ever changing, primarily through the development and integration of technology. A critical area of nursing competencies is that of Nursing Informatics, which can be defined as possessing the appropriate knowledge, behaviour, and skills required for nurses to collect, store, retrieve, and process information. Perceived utilization, in this context, refers to how often nursing informatics is put into use or services by nurses in health care delivery (Maillet et. al, 2015). It is the transformation of a set of input into goods or services. It involves creation of value in things. However, researchers in the field of health have come up with many suggestions to facilitate nursing informatics services, namely provision of adequate Information and Communication Technology (ICT) equipment, awareness creation and training among others (Greer, 2012)

Use of computer applications has the potential to improve information management, access to

health services, improve quality of care and cost containment. Conventionally, IT applications in health care have developed to perform the duties of professionals. Alwan, Awoke, and Tilahun (2015) were of the view that developing countries are also incorporating information communication technology into the health system including the implementation of electronic medical records in major hospitals and the use of mobile health in rural community-based health interventions. They maintained that the literature on the level of knowledge and utilization of information communication technology by health professionals in those settings is scarce for proper implementation planning. This phenomenon has remained a source of concern to the researcher and information available from the literature to the researcher revealed that acceptance and utilization of nursing informatics have not been given adequate attention. According to Daniel and Oyetunde (2013) only 10% of Federal Medical Centres in Nigeria have nursing informatics services.

They further observed that regrettably, only 4% of Federal Medical Centers in Nigeria that have nursing informatics services utilize it. [Gagnon, Desmartis, Labrecque, Car, Pagliari, Pluye, Frémont, Gagnon](#) et al (2014) were of the view that barriers to technology acceptance and use in health care may also be related to time spent, if use of the application is felt to be time consuming this may be a significant barrier. Asiri, AlDosari and Saddik (2014) suggested for ease of utilization in health care should be easy to use, easy to access and beneficial to users and organizations. [Gagnon, Desmartis, Labrecque, Car, Pagliari, Pluye, Frémont, Gagnon](#) et al (2014) were of the view that barriers to technology acceptance and use in health care may also be related to time spent, if use of the application is felt to be time consuming this may be a significant barrier. Staff in hospitals may see IT use as a waste of time. Adeleke, Salami, Achinbee, Anamah, Zakari and Wasagi (2015) supported this assertion that the applications should be as easy as possible to use, but if there are technical problems with the application and

the reality of system limitations become clear to users, they refuse to use it. Information Technology is felt to be useful when it streamlines nursing processes, makes procedures more accurate and reduces the risk of human error. On the other hand, nurses may experience that the use of technical equipment increases stress and decreases autonomy (Kamoru and Oluwatosin 2016). However, if the functionality and usability of the application are felt to be good, IT will increase staff members' job satisfaction by decreasing the workload and making personal development possible. A new application has proven better to use when it has entailed immediate benefits for users.

Objectives of the study

1. To determine the level of perceived utilization of electronic devices for nursing informatics practices in selected FMCs in Southern Nigeria.
2. To find out the relationship between perceived utilization of electronic devices for nursing informatics practices and socio-demographic variables such as Age, Educational qualification and gender.

METHODOLOGY

The design of the study was across sectional descriptive survey. The research was carried out at Federal Medical Centres (FMCs) in southern Nigeria. Target Population of this study are Nurses from Federal Medical Centers in Nigeria. The FMC selected were FMC Abeokuta from South West with 700 nurses, FMC Asaba from South south with 689 nurses and FMC Owerri with 800 nurses. Therefore, $700 + 689 + 800 = 2189$. The sample size was then statistically calculated using "Taro Yamen" formula at 6.5% of total population the result is as follows: Abeokuta =111, Asaba=89 and Owerri 126.

The sampling techniques used for this study is multi stage sampling technique. In Stage one:

Simple random sampling technique was used to select one FMC each from the three geo-political zone of the southern Nigeria. The FMC selected were FMC Abeokuta from South West with 700 nurses, FMC Asaba from South south with 689 nurses and FMC Owerri with 800 nurses. At Second stage, 6.5% of total population was calculated thus Abeokuta = 111, Asaba = 89 and Owerri 126 = 326. Third Stage: proportionate stratified sampling technique was used to select the 326 respondents as stated above.

The instrument used for data collection was a self constructed Utilization of Electronic devices for Nursing Informatics practice Questionnaire (UENIQ) adapted and modified from Ezenduka et. al (2019). The instrument was validated by the researchers and three other experts- one specialist in measurement and evaluation, one bio statistics expert and a specialist on nursing informatics from Nnamdi Azikiwe University Awka. The instrument was tested using split-half method. The instrument was administered to 66 nurses in FMC Gombe in a pilot study. FMC Gombe is in Northern Nigeria. The generated scores was subjected to Cronbach Alpha analysis.

A reliability index of 0.858 was obtained. The research instrument was therefore judged reliable. The researchers sought ethical clearance from the Health Research and Ethics Committees of selected FMCs. The committee approved and certified the researchers to conduct the study in the selected health facilities. The researchers sought for administrative permission from the Heads of the Nursing Units of the hospitals involved in the study. Informed consent was obtained from each respondent. Respondents were assured of confidentiality. With the help of these six research assistants, the copies of questionnaire were distributed to the respondents in the various units per shift, during ward meetings. Distribution and collection of copies of the questionnaire in each hospital took four weeks and a high return rate was noted. The mean and standard deviation were used for analysis. The hypothesis was tested using inferential statistics (chi square). Level of significance was set at $P < 0.05$. The analysis was done using Statistical Package for Social Sciences (SPSS), version 20.0.

RESULTS

Only 320 questionnaires were retrieved out of 326 and used for the analysis.

Research question 1

What is the level of perceived utilization of electronic devices for nursing informatics practices in selected FMCs in Southern Nigeria?

Results in Table 1, items 1 to 10 with mean ratings between 1.09 to 1.89, indicated respondents' low perceived extent of utilization of electronic devices for nursing informatics practices in selected FMCs in Southern Nigeria. This study indicated that the perceived level of utilization is very low (mean = 1.6)

Table 1: Perceived Utilization of nursing informatics among nurses working in selected FMCs in Southern Nigeria=N=320

Decision Rule: low extent (mean < 2.5); high extent. (Mean > 2.5)

S/N	To what extent can you use computer to:	Mean	SD	Decision
1	access needed information effectively and efficiently	1.34	0.03	Low Extent
2	manage patient history	1.81	0.02	Low Extent
3	manage Medication Orders as appropriate for Nursing scope of practice	1.79	0.01	Low Extent
4	search and retrieving patient demographics data	1.68	0.09	Low Extent
5	manage Patient-Specific Care and Treatment Plans	1.79	0.03	Low Extent
6	identify and maintain a Patient health Record	1.87	0.08	Low Extent
7	evaluate information and its sources critically and incorporates it into care plan	1.89	0.06	Low Extent
8	manage Medication Lists	1.09	0.07	Low Extent
9	interact with Guidelines and Protocols for Planning Nursing Care	1.16	0.04	Low Extent
10	manage Consents forms and Authorizations	1.29	0.05	Low Extent

Hypothesis 1

There is no significant relationship between socio-demographic variables (Age, Gender, Educational qualification and years of working experience) and perceived utilization of electronic devices for nursing informatics practice in selected FMCs in Southern Nigeria.

There was significant relationship between perceived utilization and three socio-demographic variables such as Age ($\chi^2 =$

$17.002, P = 0.00193$), Educational qualification ($\chi^2 = 14.584, P = 0.00068$), and gender ($\chi^2 = 8.6213, P = 0.00332$). The statement would imply that utilization of nursing informatics was significantly but independently influenced by nurses' age, gender and educational level. Nevertheless, there was no significant relationship between perceived utilization and variable such as years of working experience ($P > 0.05$).

Table 3: Association socio-demographic variables and perceived utilization of electronic devices for nursing informatics practice in selected FMCs in S/ Nigeria.

Category	Details	Utilization		df	Chi square	P-level	Remarks
		High F	Low f				
Socio-demographic variables							
Age (in years)	20-29	10	71	4	17.0027	0.0019	Sig.
	30-39	16	140				
	40-49	9	23				
	50-59	8	29				
	60-69	6	8				
Gender	Male	7	18	1	8.6213	0.0033	Sig.
	Female	27	268				
Educational Qualification	OND	27	180	2	14.584	.00068	Sign.
	BNSC	24	65				
	MSC	24	15				
working experience (in years)	0-9	24	64	3	1.9225	0.5886	Not Sig.
	10-19	27	91				
	20-29	23	55				
	30-39	7	29				

Decision rule: $P < 0.05$ is significant; $P > 0.05$ is not significant

DISCUSSION

This study determines Nurses' perceived utilization of electronic devices for nursing informatics practices in Federal Medical Centres (FMCs) in Southern Nigeria.

Findings of this study revealed that the level of perceived utilization of nursing informatics, among nurses working in FMCs in Southern Nigeria is very low. This finding was supported by the findings of Akpabio and Ella, (2015) that the computer literacy levels of majority of the nurses were inadequate. This explained why they were unable to utilize electronic devices for nursing informatics practice. This study is similar to Alwan, Awoke and Tilahun (2015) also found that Computer knowledge and utilization habits of health professionals, especially those who work in primary health centres, were found to be low. The writers

opined that it is a worrisome situation, where computer utilization is the order of the day. 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 but nurses' utilization level is low. This is not in agreement with Asiri et al., (2014) and Ifinedo (2015) who reported in their studies that nurses showed high level of utilization of ICT. The writers pinned that deference may be due to work environment. In Nigeria, most hospitals are just introducing ICT and ICT is user friendly. Secondly only the foundation courses of nursing informatics are thought in Nursing training institutions in Nigeria.

The result of the study showed that there was a significant relationship between utilization and

three socio-demographic variables such as Age, ($\chi^2 = 17.002$, $P = 0.0193$) Gender ($\chi^2 = 8.6213$, $P = 0.00332$) and educational qualification ($\chi^2 = 14.584$, $P = 0.00068$). This result was supported by the study done by Finedo (2015, b) who found Nurses with higher educational levels have more positive views of implemented healthcare based is at work. The writer posited that utilization of nursing informatics was significantly influenced by nurses' age, gender and educational level. Education leads to acquisition of knowledge and skills which may contribute to utilization of new innovative (nursing informatics). Furthermore, female tends to show more positive attitude towards computer than male colleagues and this contributes to more utilization of nursing informatics by female than male.

Conclusion and Recommendations

It is concluded that Nurses working in FMCs in Southern Nigeria had low perceived extent of use of electronic devices for nursing informatics utilization. There was significant relationship between perceived the utilization of electronic devices for nursing informatics practice and three socio-demographic variables such as Age, Gender and Educational qualification but no significant relationship exists between utilization of electronic devices for nursing informatics and variable such as years of working experience.

It is recommended that nurses should be trained to be competent on the utilization of nursing informatics. Also, Nursing school curriculum planners should encourage the inclusion of nursing informatics as a general studies course in nursing training and for licensure programme for practicing nurses in the country. Hospital should provide computers to enable nurse have on the job training for nursing informatics.

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