

Knowledge and Use of Nursing Informatics among Nurses in a University Teaching Hospital in Lagos, Nigeria

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ABSTRACT

Background: Nursing Informatics integrates nursing science, computer science and information science to facilitate the integration of data, information, knowledge and wisdom to support patients, nurses and other healthcare providers in their decision-making during health care delivery.

Objectives: To assess the level of knowledge and use of nursing informatics amongst nurses in Lagos University Teaching Hospital (LUTH), Idi-Araba, Lagos.

Materials and Methods: Cross-sectional descriptive research design was adopted for this study. Multi stage sampling technique was adopted to achieve the sample size of 162. Self-administered questionnaire was used to elicit information from the respondents and analysis was done using (SPSS) version 22.

Result: The mean age of the respondent is 35±0.48. The overall knowledge of nursing Informatics among respondents was high 121.5(75%) had good knowledge of nursing informatics and the overall use of nursing informatics was good 157(99.4%). There was no statistically significant relationship between knowledge and the use of nursing informatics among the respondents $p > 0.05$.

Conclusion: The study concluded that the respondents had a good knowledge of nursing informatics and good use of nursing informatics. Therefore, the management should continue to provide avenues for more training in order to be able to sustain the knowledge and use of informatics among the respondents.

Keywords: Knowledge, Use, Nursing Informatics, Nurses

INTRODUCTION

Technology in health care is increasingly becoming an integral part of the Health care delivery system and is declared by strategists as a means whereby sustained improvement in health-care outcomes may be attained. Nurses role in client care delivery have a pivotal role in this technology deployment, maintenance and evolution, although nurses are involved in technology in health-care the specific roles are diverse and nursing informatics system has become one's of those key roles. [1]

Nursing informatics is a field of nursing that incorporates nursing, computer, and information sciences to maintain and develop medical data and systems to support the practice of nursing, and to improve patient care outcomes. Technologies that have evolved due to health care/nursing informatics include: Computerized provider order entry (CPOE), Electronic medical records (EMRs), Test results, Progress notes, Nursing notes, Medication records. Nursing informatics: America Nurses Association. [1] Nurses are engaged with information systems and different digital tools used for their clinical practice as a

foundation for evidence-based care decision-support, and electronic health record.^[2]

A study conducted by (Rania et al, 2014)^[3] assessed the level of Nurses' Knowledge, Attitude and Practices of Nursing Informatics System in Outpatient Clinics of Children's Cancer Hospital in Cairo, the researcher found that the respondents had good attitude and they concluded that there was a huge differences between the knowledge of Nurses and use of nursing informatics. A cross-sectional descriptive study by (Brown, 2017)^[4] also found in their study that respondents had the average knowledge on the nursing informatics. Their study also concluded that there was a very distinct association between the level of knowledge of Nursing Informatics and its use among the respondents.

Nursing professionals have recognized the importance of research evidence-based practice while nurses' computer skill varies. The ability to locate relevant information in electronic database and the internet is crucial to modern nursing practice.^[5] Though nursing informatics have been fully integrated into the healthcare system of several developed countries but in developing countries like Nigeria it is an emerging specialty and the level of Information Technology literacy among health professional is far below average.^[6] This is due to lack of knowledge, lack of skills, lack of technical knowhow about the skills of nurses working in hospitals in using databases and the internet for information retrieval and acquisition of treatment modalities for better patient care.^[5]

The use of nursing Informatics and its knowledge is considerably not desirable among healthcare workers despite several studies that have been carried out to improve their knowledge.^[7] It has been observed that a larger population of the nursing community has poor knowledge and use of nursing Informatics in patient care in general. Hence the need for the researcher to assess the level of knowledge and use of

nursing Informatics in the process of care for the patients/clients among LUTH nurses, Lagos, Nigeria.

MATERIALS & METHODS

The study adopted a cross-sectional descriptive research design. Multi stage sampling technique was adopted to achieve the sample size of 162. The first stage there are five blocks in LUTH, block A, C, D and E as shown in the table below, Block B was not included because is under renovation at the time of study. Four wards were randomly selected out of five (5) blocks. The second stage involved proportionate sampling to know the number of nurses which were recruited in each block based on the number of nurses in each block using the formula.

Block population X Sample size

Total Population

The third stage entailed using the same proportionate sampling technique to select respondents from each ward across each of the block using the formula

Ward population X Total Block Sample size

Block Population

Sample size was calculated using Kennan's formula: $n = \frac{NX(N-1)E^2}{X^2 + N(N-1)E^2}$

Where; n = desired sample size

N = Total population (268)

E = absolute precision or error= 0.05

X = Level of confidence (0.90)

Therefore,...

$$n = \frac{268 \times 0.90}{(268-1) 0.05^2 + 0.90}$$

$$n = 153.8755$$

$$n = 154$$

A 5% margin was added which give a sample size of 162. This gives room for attritions as a result of incorrectly or partially completed questionnaires. Self-administered questionnaire was used to elicit information from the respondents and analysis was done using (SPSS) version 22. Descriptive and inferential statistics was used for the presentation of the data. Hypothesis was tested and analyzed using

chi-square cross tabulation at a level of significance of $p < 0.05$.

Ethical Considerations: Ethical approval was obtained from Ethical Committee of Lagos University Teaching Hospital with the ethical approval number

(ADM/DCST/HREC/APP/3743. Informed consent was obtained from the respondents by the researcher after detailed explanation of the procedure of the research and confidential of their information was reassured.

Table showing the sample size population selected for the study

Block	Ward	Total number of Nurses per ward	Total number of Nurses per block	Number of Nurses selected per ward using the formula specified above	Total number of nurses selected per block
A	A2	17	55	11	33
	A3	19		11	
	A4	19		11	
C	C1	20	66	12	40
	C2	16		10	
	C3	14		8	
	C4	16		10	
D	D1	17	46	11	28
	D2	14		8	
	D3	15		9	
E	E1	14	101	8	61
	E2	20		12	
	E3	19		11	
	E4	15		9	
	E5	16		10	
	E6	17		11	
Total	-	268	268	162	162

RESULTS

Table 1: Socio-demography of respondents

Variable	Frequency (n=162)	Percentage (%)
Ages (in years)		
20 – 29	71	43.8
30 – 39	36	22.5
40 – 49	26	16.2
50 – 59	29	17.5
Mean age = 35 ± 0.48		
Religion		
Christianity	131	80.9
Islam	31	19.1
Gender		
Female	135	83.3
Male	27	16.7
Marital		
Divorced	2	1.2
Married	109	67.3
Single	51	31.5
Ethnicity		
Delta	3	1.9
Hausa	5	3.1
Igbo	51	31.5
Yoruba	103	63.5
Current Rank		
ACNO	15	9.3
ADNS	7	4.3
CNO	13	8.0
DDNS	10	6.2
DNS	1	0.6
Intern	62	38.3
NO I	16	9.9
NO II	19	11.7
PNO	2	1.2
SNO	17	10.5
Educational status		
BSc.	85	52.5
MSc.	18	11.1
Post Basic Nursing	29	17.9
RN	30	18.5

Majority 71 (43.8%) of the respondents were between the ages of 20–29. The mean age is 35±0.48. The majority 131 (80.9%) of the respondents were Christians. Most of the respondents 135 (83.3%) were female. Majority 103 (63.5%)

of the respondents were from the Yoruba tribe. Most of the respondents 62 (38.3%) were interns, 15 (9.3%) were of the ranks of ACNO as at the time the study was conducted. Other information is shown in Table 1.

Table 2: Knowledge of Nursing Informatics amongst Nurses

Parameters	Yes	No	I don't know
Nursing Informatics is the integration of Nursing science, computer science and Information science	139(85.8%)	18(11.1)	5(3.1%)
Nursing Informatics play a vital role in the implementation of clinical applications including clinical and nursing documentation	155(95.7%)	5(3.1%)	2(1.2%)
Nursing Informatics process data to bring about new knowledge	148(91.4%)	6(3.7%)	5(1.9%)
Knowledge of computer is not really needed in the implementation of Nursing Informatics	61(37.7%)	93(57.4%)	8(4.9%)
Access to information helps to improve the ability to make decisions promptly.	157(96.9%)	2(1.2%)	3(1.9%)
Nursing informatics is able to involve parents and families in the care planning process	149(92.0%)	8(4.9%)	5(3.1%)
Nursing informatics helps in the consistency in which data are recorded	149(92.0%)	4(2.5%)	9(5.6%)
Nursing informatics helps to create timelines in which patient related data can be available	137(84.6%)	18(11.1%)	7(4.3%)
Nursing informatics creates the ability to implement research findings into nursing practices	140(86.4%)	21(13.0%)	1(0.6%)
Do you think the understanding of the concept of nursing informatics would make nurses perform better on the job	134(82.7%)	19(11.7%)	9(5.5%)
Nursing informatics involve the use of technology only.	42(25.9%)	106(65.4%)	14(8.6%)
The knowledge of computer only is enough for the implementation of nursing informatics.	48(29.6%)	107(66.0%)	7(4.3%)
Nursing informatics can only be implemented in places with state of art facilities.	101(52.4%)	54(33.3%)	7(4.3%)
Nursing informatics is a very technical specialty that requires a lot of knowledge.	127(78.4%)	29(17.9%)	6(3.7%)
The knowledge of nursing informatics among staff nurses should be made a requirement for promotion.	119(73.4%)	34(21.0%)	9(5.6%)

Table 2 shows the knowledge of the respondent about nursing informatics. Majority 139 (85.8%) of the respondent agreed that nursing informatics is the integration of nursing science, information science and computer science. 155 (95.7%) of the nurses in the study also agreed that nursing informatics play a vital role in the implementation of clinical applications including clinical and nursing

documentation. Majority of the respondents 106 (65.4%) disagreed that nursing informatics involves the use of technology only, most of the respondents 127 (78.4%) also agreed that nursing informatics as a specialty required a lot of technical knowledge, also 119 (73.4%) agreed that the knowledge of nursing should be made a requirement for promotion.

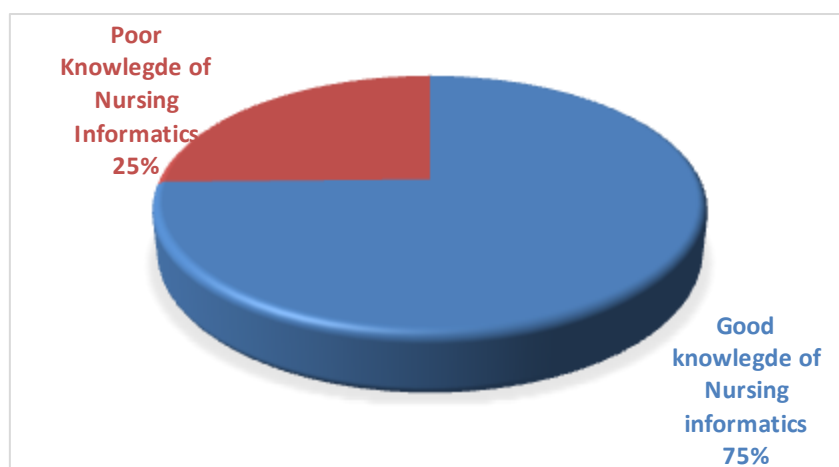


Figure 1: Overall knowledge of nursing informatics

Figure 1 shows overall knowledge of respondents of health informatics 122(75%).

Table 3: Use of nursing informatics

	Yes	No	I don't know
Nursing informatics will enhance the maintenance of high standard of nursing care.	153(94.4%)	6(3.7%)	3(1.9%)
Nursing informatics would improve overall nursing care that it is now.	149(92.0%)	7(4.3%)	6(3.7%)
Nursing informatics will ensure validity and accuracy of documentation on the ward.	156(96.3%)	3(1.8%)	2(1.2%)
Nursing informatics will increase the ability to implement research findings into practices.	152(93.8%)	6(3.7%)	4(2.5%)
Nursing informatics would reduce patient stay in the hospital.	119(73.4%)	31(19.1%)	11(6.8%)
The nursing informatics system will help to improve the ability to give care.	158(97.5%)	1(0.6%)	3(1.9%)

Table 3 shows that the response of the respondent toward the use of nursing informatics. Almost all the respondent agreed that nursing informatics will enhance the maintenance of high standard of nursing care. Majority 152(93.8%) of the respondent

agreed that nursing informatics will increase the ability to implement research findings into practices, also, also about one third of the respondents 119(73.4%) agreed that nursing informatics would reduce patient stay in the hospital.

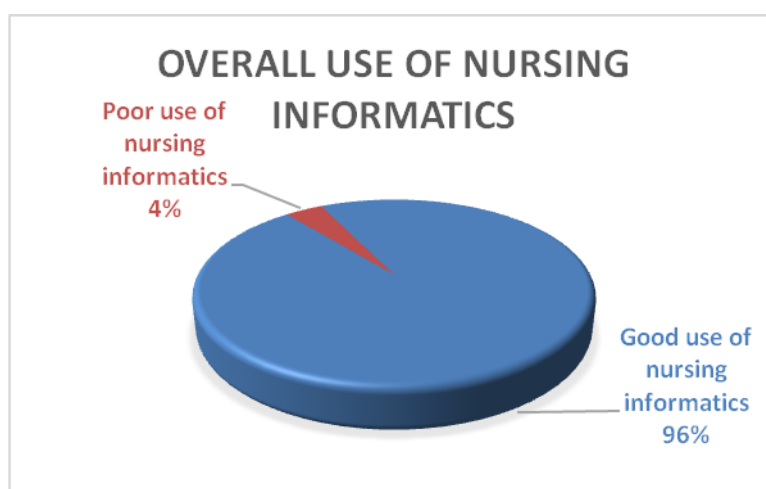


Figure 2: Overall use of nursing informatics

Figure 2 shows overall use of health informatics among the respondents 155.5(96%).

Table 4: Relationship between knowledge and use of nursing informatics

	Good Knowledge of nursing Informatics	Poor Knowledge of Nursing Informatics	Df	X ²	P-value
Good use of nursing Informatics	116	5	1	1.748 ^a	0.186
Poor use of nursing Informatics	41	0			

Table 4 shows that there was no statistically significant relationship between the knowledge and use of nursing informatics, P-value = 0.186.

DISCUSSION

The findings of this study show that majority of the respondents were between the age range of 20-29 with the mean age of 35±0.48. Majority of the respondents were female, this may be due to the fact that more females seek admission for nursing degree program than the males, thus have higher chance of being admitted. This finding is in agreement with a study conducted in Lagos

on knowledge and practice of hand hygiene among undergraduates' nurses in Lagos, Nigeria by (Ademuyiwa et al, 2019) [8] where female respondents are more than the male respondents.

The findings of this study also show that majority of the respondents had good knowledge of nursing informatics, this finding is in conformity to the study conducted by (Akpabio and Ella, 2015) [9] on Nurses in Calabar Nigeria, where a majority of the respondents had a good knowledge of health informatics. More than ninety percent of the respondent agreed that nursing informatics play a vital role in the

implementation of clinical applications including clinical and nursing documentation. Most of the respondents affirmed that Nursing Informatics is a very technical specialty that requires a lot of knowledge. Three quarter of the respondents agreed that the understanding of the concept of Nursing Informatics would make nurses perform better on the job. The findings of this study also showed that the respondents had good overall knowledge of nursing informatics. This finding is in conformity with a study carried out by (Rosy, 2018) [10] among staff nurses in KVM Super Specialty Hospital, Chertala, where more than half of the participants had an average knowledge of nursing informatics.

The findings of this study showed that almost all respondents had a good use of Nursing Informatics, with most respondents opining that Nursing Informatics will enhance the maintenance of high standard of nursing care, majority of the respondents also agreed that Nursing Informatics would improve overall nursing care that it is now. Almost all respondents agreed that nursing informatics will increase the ability to implement research findings into patient and that Nursing informatics would reduce patient stay in the hospital. This is consistent with findings by (Adedeji et al, 2018) [2] in the study on the factors influencing use of EHR among nurses in a teaching hospital. Their findings shows that effective use of health Informatics by healthcare professionals has great potentials of optimizing the process of healthcare service delivery and also findings by (Rania et al, 2014) on the level of Nurses' Knowledge, Attitude and Practices of Nursing Informatics System in Outpatient Clinics of Children's Cancer Hospital in Cairo, their findings shows that the entire respondent (100%) believed that nursing informatics will provide access to information that would improve patient care.

The result of the chi-square test showed that there was no statistically significant relationship between the

respondents' knowledge and the use of nursing informatics, which indicates that their knowledge does not affect the respondents' use of nursing informatics.

CONCLUSION

The study concluded that the respondents had a moderately good knowledge of nursing informatics, and also a very good use of nursing informatics, hence the management should provide avenue for training and continuous education for the nurses for consistent and effective outcome.

Conflict of Interest: No conflict of interest.

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