

INFORMATION AND COMMUNICATION TECHNOLOGY  
UTILIZATION IN PSYCHIATRIC NURSING: A CASE STUDY  
OF ARO, ABEOKUTA

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**Abstract:** Information and communication technology (ICT) is often used as an extended synonym for information technology. It is a more specific term that stresses the role of unified communication and the integrated of communication. It comprises of computing technology, the internet and other accessories which enable users to access, store, transmit and manipulate information.

The objectives of this study are to determine the level of knowledge in the use of ICT among nurses. To determine the perception of nurses about ICT, to access the extent of ICT utilization among nurses to identify the factor militating against ICT use among nurses.

This study therefore aims to bridge the gap by identifying various factors affecting utilization and perception of nurses towards ICT use, thus serving as a guide to interventions necessary to facilitate ICT use among nurses thus improving standard of practice.

The study was conducted using a convenience sampling techniques and questionnaires as instrument on 90 nurses who are on the institution's payroll.

The findings revealed that only 86.6% (78) out of 90 respondents possess ICT skill and 62(68.9%) of all the respondents have heard of the term "information and communication technology before" and not all the respondents has the correct perception towards ICT. Also, ICT is not in use at all in patient management in N.P.H, Aro Abeokuta.

The study showed that all nurses in N.P.H., Aro no matter the rank or gender have an averagely positive perception of ICT adoption and use in healthcare services. Several barriers however, which ranges from limited knowledge on computer skills, fear of change, lack of user training in ICT usage, managerial problems (which include poor administrative policy on ICT) to the application related challenges (Which include complexity of the equipment) were identified.

Hence it was recommended that nurse manger need to collaborate with other stake holders in health care institution to draft a workable policy towards the adoption and use of ICT for health care.

**Keywords:** Utilization Information and Communication Neuropsychiatric Hospital.

## 1. INTRODUCTION

Information and communication Technology (ICT) is often used as an extended synonym for information technology. It is a more specific term that stresses the role of unified communications and the integration of communications. It comprises of computing technology, the internet and other accessories which enable users to access, store transmit and manipulate information. Cruickshank (2009) established that people's attitude towards computer and computerization becomes more favourable as their experience of computers and computer technologies increases.

Technology has increased rapidly over the past four decades and has become an integral part of healthcare (Gibbs, 2007). The world bank in 2007 defined ICT as the set of activities that facilitate the capturing, storage, processing, transmission and display of information by electronic means. Fregus et al (2013) define ICT is a tool for technology electronically.

There are many factors that determine the implementation and utilization of ICT such as expert's knowledge users' attitude etc. ICT is a fusion of telecommunication and computing technologies with the aim of processing and disseminating information.

The environment in healthcare encompassed more than just a physical location. There is an increase in the use of ICT such as mobile computers, wireless solution and automated exchanges between health providers and patients. Adapting to these new environments requires a paradigm shift on communication and delivery of care, which requires knowledge of the evolution of new technologies. Nurses are at the centre of this advancement as the professionals with the greatest amount of direct patient care. Health environments now incorporated virtual office visit, online appointments scheduling and payment mobile laboratories and electronic medication prescription. Nurses are also essential in helping patients set up their own personal health records (PHRs) or explaining to patients how to use a patient portal. The challenge for these technologies with healthcare is ensuring that the automated solutions completely interact with one another, as well as with the healthcare professionals using Health Information Management System (HIMS) (David, 2009)

Although, the knowledge of Information Technology projects management exists, its utilization has not been very significant (Toivanen et al 2007). There are numerous studies on the acceptance and use IT in healthcare. Many organizations in the process of implementing IT for Nursing practice have experienced resistance from the staff (Palm et al, 2006; cited in the works of Marital Koivunem, 2009).

The inherent potential of the various components of Information communication technology (ICT) to prevent health medical complications cannot be over emphasized. According to Gibbs (2009), preventing medical errors, improving care and patient safety are among the most important advantages of adopting information communication technology (ICT) in healthcare. More than ever, healthcare is being driven by need to access and use ICT, regardless of where services are delivered. David (2009) stated that modern information communication technology innovations increasingly influence standards of care by allowing patients and providers to be better informed. This enables more efficient diagnosis and treatment of illness and improves the relief of suffering. Patients are also uniquely empowered because they can access health information directly without depending on physician, clinics and hospital to select what they read and hear about health and healthcare (David, 2009)

Too often, the indirect patient care activities lead to nurses frustrating and dissatisfaction with profession and healthcare environment. ICT is radically needed to manage the tasks and activities that disrupt, interrupt and remove the nurse from providing direct patient care. The increasing amount of times nurses spend on indirect patient care activities must come at the cost of sacrificing some level of patient care. A short but comprehensive

list includes change of list or new patient admission, reporting, verification of medication orders, incident report, dietary ordering, charging planning etc.

Health care staff has a major role in selecting the most reasonable health information sources for patients and ensuring that the information sources used are reliable (Kim et al 2007). Internet was used by 79% of the population of a particular country at the beginning of 2007 and 59% of users reported seeking health-related information (Finland Statistics 2007). Users' acceptance has been viewed as the pivotal factor in explaining the success of new IT applications (Marital, 2009). Lack of acceptance is a significant barrier to the success of new IT applications. To ensure that nurses have capacities to use new working methods with IT and to guide patients on how to use computers or to evaluate the quality of the health information available, nurses' acceptance of IT should be ensured (Repique, 2011). This will be achieved by means of on-the-job training including IT education, developing the content of work and management systems and by offering opportunities to learn at work (Andrew, 2008). Acceptance of IT has been considered from the perspectives of attitudes, that is motivation to use IT, satisfaction with IT and experience of the benefits of IT.

### **STATEMENT OF THE PROBLEM**

The researcher observed that a favorable healthcare policy on implementation of ICT is lacking in Nigeria hospitals and care givers in the country are yet to commence its noticeable implementation. Though, all professionals in health care are affected, the demanding nature of nursing, coupled with the fact that nurses stay more with patients and use of IT and guiding patients to relevant sources of health information requires that nursing staff have skills to use computers positive attitude to new technologies and that nurses accept the utilization of new technology in daily practice (Marita 2009). I share the greatest responsibility thus the need for ICT.

Some earlier studies have shown that the existing knowledge about nurses' IT use and acceptance particularly in psychiatric nursing is very poor (Marita 2009). The groups with the lowest reported computer use were also nurses in the operating room and in psychiatric nursing.

Various researches have analyzed many barriers to this slow compliance and utilization among nurses, their individual motivation to use warrant further detaining because according to Kelvin (2007) when it comes to evolving technology the need to focus on people's acceptance cannot be over-estimated

Hence a need to explore and assess the utilization of ICT among nurses including factors affecting its (ICT) use, thus the study for embarking on the study.

### **OBJECTIVE OF THE STUDY**

The objectives for this research include:

- To determine the level of knowledge in the use of ICT among nurses.
- To determine the perception of nurses about ICT in NPH Aro, Abeokuta.
- To assess the extent of ICT utilization among nurses in NPH, Aro, Abeokuta.
- To identify the factor militating against ICT use among nurses in NPH, Aro.

### **SIGNIFICANCE OF THE STUDY**

The study therefore aims to bridge the gap by identifying various factors affecting utilization and perception of nurses toward ICT use, thus serving as a guide to intervention necessary to facilitate ICT use among nurses.

It will also improve the standard of practice and enhance with maximum utilization of technologies available in-patient management, thus enhancing a remarkable growth in the status of nursing profession, moving the profession to a technological advanced one.

### **RESEARCH QUESTIONS**

- Does nurse in NPH, Aro possess adequate knowledge on ICT?

- What are the perceptions of nurses on ICT?
- To what extent has ICT been utilized among nurses?
- What are the factors militating against ICT use among nurses?

### SCOPE OF THE STUDY

This study on utilization of ICT among nurses in patient management will cover nurses, from all units in Neuropsychiatric hospital Aro, Abeokuta. The hospital has a total population of three hundred and thirty (330) nurses.

### LIMITATIONS OF THE STUDY

This research study will not be extended to other Neuropsychiatric hospital aside Aro due to financial constraints and time factor.

### OPERATION DEFINITION OF TERMS

- **UTILIZATION:** the act of nurse use of ICT in patients care.
- **NURSE:** mental health nurses working in NPH, Aro.
- **ICT (INFORMATION AND COMMUNICATION TECHNOLOGIES):** any communication device or application that involves use of system such as computer telecoms etc in capturing, storing, retrieving, processing and sending health related information
- **PATIENT:** mentally challenged individual seeking help in NPH, Aro.
- **PATIENT CARE:** it is the service/help rendered to people seeking healthcare in an institution.

## 2. RESEARCH METHODOLOGY

### RESEARCH DESIGN

The descriptive cross-sectional design was adopted for this study. It captured a cross-section of nurses of various units and cadres in NPH, Aro at the same time.

### RESEARCH SETTING

The study was conducted among nurses in NPH, Aro situated in Abeokuta, Ogun State, Nigeria. The hospital started at its annex in Lantoro in 1944 as an administrative prison/Assylum established by the colonial government for the mentally ill soldiers repatriated home from Burma after World War II. The need for a modern Psychiatric hospital later rose hence, the Neuropsychiatric Hospital Aro was established in 1954, under the pioneering leadership of the Doyen of Psychiatry in Nigeria and indeed Africa, an academician and administrator, Late Prof Thomas Adeoye Lambo OFR, Former deputy director general of World Health Organisation.

The Hospital provides in-patient, out-patient and specialized services in the areas of drug abuse treatment, psychiatric rehabilitation, forensic services, emergency psychiatric services and Primary Health Care facilities of patients. It offers Psychiatric training for medical student as well as post basic training for Nurses and provides a clinical environment for training of psychiatric social workers, clinical psychologist, occupational therapist and post graduate nurses. The hospital is involved in research and collaborate with other institutions in the area of community mental health, substance abuse, forensic psychiatry and epidemiology.

### TARGET POPULATION

The sample size will be obtained using Monkey's formula, given as:

$$\frac{Z^2 \times P(1-P)}{E^2}$$

$$1 + \frac{Z^2 \times P(1-P)}{E^2 N}$$

Where N= Population (330 nurses)

E = Margin error (0.05)

Z = Confidence interval (1.96)

P = Percentage value (in decimal 0.5)

When the values were inputted, an approximate figure of 90 nurses was gotten as the sample size for this study.

### **INSTRUMENT FOR DATA COLLECTION**

Data was collected using a self-explanatory, carefully-structured questionnaire which will be developed on a four Likert scale based on factors that will be identified while reviewing literature.

The questionnaire was divided into 4 sections:

Section A: contain questions to derive socio-demographic data of the respondents.

Section B: assess the knowledge of NPH, Aro nurses about ICT.

Section C: enquiry on perception of nurses concerning ICT application.

Section D: To what extent has ICT been utilized among nurses in NPH, Aro.

Section E: What are the factors militating against ICT use among nurses.

### **VALIDITY AND RELIABILITY**

The ability of an instrument to measure what it is expected to measure is termed validity. The validity of the instrument was ensured by the research supervisor. Reliability of the instrument was ensured i.e. it was able to elicit appropriate information that is meant for.

### **3. METHOD OF DATA ANALYSIS**

Analysis of data was done using the Statistical Package for Social Sciences (SPSS), under the guidance of a statistician and this involved use of frequency tables and percentage and data presentation was done using frequency tables and percentage.

### **ETHICAL CONSIDERATION**

Ethical approval was taken from the research ethic committee of NPH, Aro, Abeokuta, Ogun state. Consent for participating in the study was also obtained from respondents and strict confidentiality of all information supplied was ensured.

### **4. DATA ANALYSIS**

#### **Presentation of Data**

This chapter presents the result of the different phases of data obtained. Ninety (90) respondents were captured for the study.

**Table 4.1: Respondents' Socio-Demographic Data**

| Variables      |             | Frequency N = 90 | Percentage (%) |
|----------------|-------------|------------------|----------------|
| Age (years)    | 20-29       | 39               | 43.3           |
|                | 30-39       | 35               | 38.9           |
|                | 40-49       | 10               | 11.1           |
|                | 50 & above  | 6                | 6.7            |
|                | No response | 0                | 0              |
| Sex            | Male        | 28               | 31.1           |
|                | Female      | 62               | 68.9           |
|                | No Response | 0                | 0              |
| Marital Status | Married     | 51               | 56.7           |
|                | Single      | 30               | 33.3           |
|                | Divorced    | 0                | 0              |
|                | No Response | 9                | 10             |

|                                   |             |    |      |
|-----------------------------------|-------------|----|------|
| Highest educational qualification | RN/RPN      | 37 | 41.1 |
|                                   | BNSC        | 41 | 45.6 |
|                                   | Others      | 8  | 8.9  |
|                                   | No Response | 4  | 4.4  |
| Rank                              | No II       | 30 | 33.3 |
|                                   | No I        | 20 | 22.2 |
|                                   | SNO         | 16 | 17.8 |
|                                   | PNO         | 13 | 14.4 |
|                                   | ACNO        | 6  | 6.7  |
|                                   | CNO         | 5  | 5.6  |
|                                   | No Response | 0  | 0    |

**Source: (Field trip 2017)**

The table above shows the age distribution of the respondents captured of the study: hence, the minimum age was 21 years and the minimum 54years. The mean age 36 years. The table also revealed that the sex ratio. This accounts for 68.9% of female and the remaining 31.1% male. 51% of the respondents were married, 30% of them single, while 10% of the respondents failed to declare their marital status. 37 out of the 100 respondents are doubly qualified (RN/RPN), 41 are BSC holders, other degree holders are 8 while the other respondents did not declare their qualification. Designation of the respondents revealed that 33.3%, 22.2% and 17.8% were Nursing Officer II, Nursing Officer I and Senior Nursing Officer respectively. 13.4% were principal Nursing Officers, 6.7 % an Assistant Chief Nursing Officer, with 5.6% being Chief Nursing Officers.

**Table 4.2: Level of Knowledge and skill in ICT use. N=90**

| Variables                                                                     |                                             | Frequency N=100 | Percent (%) |
|-------------------------------------------------------------------------------|---------------------------------------------|-----------------|-------------|
| Have you heard of the term “Information and communication technology before?” | Yes                                         | 62              | 68.9        |
|                                                                               | No                                          | 27              | 30          |
|                                                                               | No response                                 | 1               | 1           |
| How much of ICT sill do you possess.                                          | Average                                     | 58              | 64.4        |
|                                                                               | Nil                                         | 12              | 13.3        |
|                                                                               | Expert                                      | 20              | 22.2        |
| How the sills were acquired.                                                  | Self help                                   | 38              | 42.2        |
|                                                                               | Through a computer training school          | 27              | 30          |
|                                                                               | During General Nursing education            | 22              | 24.4        |
|                                                                               | Through computer training organized by FMCA | 3               | 3.3         |

**Source: (Field trip 2017)**

The table above is an illustration of the number of nurses in Neuropsychiatric hospital Aro Abeokuta that are computer literate. Only 86.6% (78) Out of 90 respondents indicated they possess ICT skill. 27(23%) Out of the 78 computer- literate respondents however. Claimed to have acquired the skill through a computer school. The other 38 (42.2%) had learnt it through self-help, 22 (24.4%) during General Nursing Education and 3 (3.3%) through computer seminars organized by N.P.H, Aro. The analysis also shows that close to 70% (68.9%) of all the respondents have heard of the term information and communication technology before”



**Table 4.3: Perceptions on use and utilization of ICT in patient management. n =90**

|    | Items                                                                                                             | Agree      | Disagree   | No response |
|----|-------------------------------------------------------------------------------------------------------------------|------------|------------|-------------|
| 1  | ICT is important to nursing practice                                                                              | 84 (93.3%) | 5 (5.5%)   | 1 (1%)      |
| 2  | ICT will promote nurse patient relationship                                                                       | 76 (84.6%) | 4 (4.4%)   | 10(%)       |
| 3  | ICT based systems will prevent loss of information                                                                | 74 (82.2%) | 14(15.6%)  | 2(2.2%)     |
| 4  | ICT use enables greater accessibility to healthcare services                                                      | 88 (97.8%) | 1 (1.1%)   | 1(1.1%)     |
| 5  | ICT applications will reduce healthcare expenditures                                                              | 70 (77.8%) | 12 (13.3%) | 8 (8.9%)    |
| 6  | ICT applications will facilitate communication among healthcare team members                                      | 79 (87.8%) | 10(11.1%)  | 1 (1.1%)    |
| 7  | ICT use will make clients more knowledgeable                                                                      | 82(91.1%)  | 8 (8.9%)   | 0 (0%)      |
| 8  | Electronic Record of patient data is more secure and confidential than paper-based records                        | 80 (88.9%) | 9(10%)     | (1.1%)      |
| 9  | ICT use will facilitate nursing research                                                                          | 62 (68.9%) | 28 (31.1%) | 0(0%)       |
| 10 | ICTs are potential threat to patients' rights                                                                     | 18 (20%)   | 62 (68.9%) | 10 (11.1%)  |
| 11 | Using Information Communication Technology means substituting patients' care to operate care to operating machine | 21 (23.3%) | 69 (76.7%) | 0 (0%)      |
| 12 | Time management will not be easy with electronic charting                                                         | 60 (66.7%) | 30 (33.3%) | 0 (0%)      |
| 13 | ICT application s will conflict with my nursing skills                                                            | 30 (33.3%) | 60 (66.7%) | 0 (0%)      |
| 14 | Generally, ICT applications are not Convenient for nursing practice                                               | 62 (68.9%) | 28 (31.1%) | 0 (0%)      |
| 15 | ICT is necessary for doctors alone                                                                                | 7(7.8%)    | 83 (92.2%) | 0 (0%)      |
| 16 | ICT services, if adopted could lead to nurses' retrenchment                                                       | 62 (68.9%) | 27 (30%)   |             |
| 17 | Adoption of ICT will render nurses needless                                                                       | 67(74.4%)  | 23 (25.6%) | 0 (0%)      |
| 18 | Use of information technology should not be allowed to diffuse into nursing practice                              | 16(17.8%)  | 74(82.2%)  | 0 (0%)      |
| 19 | Maintaining client's privacy is not possible with Electronic Patients Record                                      | 24 (26.7%) | 66 (73.3%) | 0 (0%)      |
| 20 | ICT use is important only for "younger nurses"                                                                    | 23(25.6%)  | 67(74.4%)  | 0 (0%)      |

**Source: (Field Trip 2017)**

The computed sum of individual case perception revealed that not all the respondents has the correct perception. Although

93.3% of the respondents agreed that ICT important to nursing practice, 5.5% disagree to this and 1.1% did not respond.

However, 68.9% agreed that ICT use will result in nurses' retrenchment while 30% disagree and 1.1% gave no response. Also 74.4% agreed that ICT use will render nurses useless, 25.6% disagree to this.

**Table 4.4: Extent of ICT been utilized in patient's care**

|    |                                                   | Yes   | No        | No response |
|----|---------------------------------------------------|-------|-----------|-------------|
| 1. | ICT is used storing patient's data in your unit   | 0(0%) | 89(98.8%) | 1(1.1%)     |
| 2  | Patients' appointment are booked using ICT in Aro | 0(0%) | 89 (98.8) | 1(1.1%)     |

**Source: (Field trip 2017)**

The table above indicated that extent to which ICT is been utilized in patient's care in the hospital is very poor 98.8% of the respondent indicated that ICT is not been used in patient's care in their respective units within N.P.H, Aro, Abeokuta.

**Table 4.5: Factors militating against ICT use among nurses (Barriers)**

|    | Perceived Barriers                                                                     | Agree      | Disagree    | No response |
|----|----------------------------------------------------------------------------------------|------------|-------------|-------------|
| 1. | Use of ICT facilities wastes time                                                      | 10 (11.1%) | 79 (87.9%)  | 1(1.1%)     |
| 2  | Incompatibility with nursing procedures                                                | 22 (24.4%) | 68 (5.6%)   | 0 (0%)      |
| 3  | ICT applications may „rival“ nurses' relevance                                         | 12 (13.3%) | 78 (86.7%)  | 0(0%)       |
| 4  | Most ICT application are not user-friendly                                             | 9(10%)     | 81 (90%)    | 0(0%)       |
| 5  | Lack of motivation                                                                     | 8(8.9%)    | 82 (91.1%)  | 0(0%)       |
| 6  | Limited knowledge of computer skill                                                    | 65 (72%)   | (22.2%)     | 5 (5.5%)    |
| 7  | Lack of interest in ICT applications                                                   | 59 (65.6%) | 25 (27.8%)  | 6 (6.7%)    |
| 8  | Cost of procuring ICT equipment                                                        | 65 (72%)   | 20 (22.2%)  | 5 (5.5%)    |
| 9  | Limited access to ICT equipment                                                        | 64 (71%)   | 24 (26.7%)  | 2 (2.2%)    |
| 10 | Complexity of the equipment                                                            | 51 (56.7%) | 39 (43.3%)  | 0 (0%)      |
| 11 | Lack of user training in ICT usage                                                     | 62 (68.9%) | 25 (27.8%)  | 3 (3.3%)    |
| 12 | Erratic power supply                                                                   | 80 (88.9%) | 10 (11.1%)  | 0 (0%)      |
| 13 | Poor organizational policy on ICT uses for nurses                                      | 63 (70%)   | 19 8(21.1%) | 8 (8.9%)    |
| 14 | Lack of practical oriented training on information technology during nursing education | 69 (76.7)  | 15 (16.7%)  | 6(6.7%)     |
| 15 | Fear of adapting to change                                                             | 63 (70%)   | 26 (28.9%)  | 1(1.1%)     |

**Source: (Field trip 2017)**

The respondents perceived the following as barriers to ICT adoption and use: Lack of interest in ICT applications (65.6%); Limited access to ICT equipment (72%); Cost of procuring ICT equipment (72%); Limited access to ICT equipment (71%), Complexity of the equipment (56.7%); Lack of user training in ICT usage (68.9%); Erratic power supply (88.9%); Poor organizational policy on ICT use for nurses (70%); Lack of practical-oriented training on information technology during nursing education (76.7%); Fear of adapting to change (70%). While more than half of the population do not see lack of motivation as a barrier, majority of them disagreed that ICT use wastes time (87.9%); is compatible with nursing procedures (75.6%); may „rival“ nurses' relevance (86.7%), and that ICT applications are not user-friendly (90%).

**4.2 ANSWERING OF RESEARCH QUESTIONS**

- RESEARCXH QUESTION ONE Do nurses in NPH, Aro possess adequate knowledge on ICT?**

The research findings in Table 4.2 have revealed that only 86.6% (78) out of 90 respondents indicated they possess ICT skill.

The analysis also shows that close to 70% (68.9%) of all the respondents have heard of the term “information and communication technology before”

- RESEARCH QUESTION TWO: What is the perception of nurses on ICT?**

According to Table 4.3, not all the respondents have the correct perception towards ICT.

Although 93.3% of the respondents agreed that ICT important to nursing practice, 5.5% disagreed to this and 1.1% did not respond. However, 689% agreed that ICT use will result in nurses' retrenchment while 30%



disagreed and 1.1% gave no response. Also 74.4% agreed that ICT use will render nurses, 25.6% disagreed to this.

• **RESEARCH QUESTION THREE: To what extent has ICT been utilized among nurses?**

The findings from this study shows that (Table 4.3) ICT is not in use at all in patient management in N.P.H, Aro, Abeokuta.

• **RESEARCH QUESTION FOUR: What are the factors militating against ICT use among nurses?**

According to Table 4.4, from findings derived from the study, various factors was said to be militating against use of ICT among nurses ranging from Lack of interest in ICT applications, Limited knowledge of computer skills, Cost of procuring ICT equipment; Limited access to ICT equipment, Complexity of the equipment, Lack of user training in ICT usage, Erratic power supply, Poor organizational policy on ICT use for nurses, Lack of practical-oriented training on information technology during nursing education, Fear of adapting to change.

## 5. DISCUSSION OF FINDINGS

The main purpose of this study was assessing the level of utilization of ICT in patient management among nurses in Neuropsychiatric hospital, Aro Abeokuta.

The study was conducted with the expectation that the outcomes can be used by nurse administrators, the government, policy maker and management of healthcare institutions to facilitate high standards care rendered, especially by the nurses.

The return rate of materials and the level of interest shown by the nurses to this study were overwhelming. Despite the nurse's busy schedule, the return rate was 100%, far above the return rate of 64% and 65% respectively in similar studies conducted by Shittu et al (2006), and Barbosa et al. (2005), both of whose respondents comprise nurses and other health workers in a Lagos teaching hospital. Moreover, the educational qualifications of the nurses recruited for the study were mainly RN/RPN (41.1%), and BNSc (456%).

On how skilled nurses are in NPH Aro are in computer, from the result obtained, 78 (86.6%) of the total 90 respondents claimed to be „computer literate“. Moreover, only five of these 86.6% could use more than 4 applications which included Microsoft word, Microsoft Excel, Internet Explorer and games. The remaining 74 of 7 respondents could not operate more than two. Not only is this finding consistent with the findings of Wilbright et al., 2006, who rated computer skills among nurses as being poor; it also stresses the opinion of 65% of the respondents who identified limited skills in the use of computers as a barrier to ICT adoption and use. This also supports the findings of Marita (2009), whose study on psychiatric nurses showed that „nurses“ basic computer skills were not on a very high level. The best-known functions were word processing and information and communication. Presentation by computer application, use of databases and spreadsheets were not very familiar for the nurse”.

Observation of the means by which the 78 computer literate respondents acquired their skills speaks volume: 38 of them claimed to have learnt how to operate the computer through self-help; 27 through a computer school, 22 during their General Nursing Education and only 3 learnt it through a training organized by the institution. The situation calls for further studies on the level of seriousness the management of schools (and colleges) of nurses, and student nurses give to the computer education incorporated into nursing education by the Nursing and Midwifery Council of Nigeria.

Besides that, the level of computer skills NPH Aro has supposedly impacted on her staff nurses are considerable low, especially if the relationship between and individual's ability to use the computer system and his acceptance of ICT is explored.

Concerning the knowledge that N.P.H. Aro nurses, have about ICT applications, consequent upon the less-than average computer skills demonstrated by the nurses, assessment of the level of knowledge that the nurses have to

them. Similar to findings of Shittu et al. (2006), majority of respondents expressed a lot of anxiety and ignorance, especially being conscious with the subject matter for the first time. Thus, apart from five of the applications, which include Electronic Nursing Care Planner, Emergency Department Information Systems, Electronic Patients Record, Video Conferencing and Telenursing, that were fairly recognized, more than half the total number of respondents are in complete obscurity of what the other applications are, not to talk of their uses

*An enquiry was also made on the perceptions of nurses concerning ICT applications in N.P.H. Abeokuta.* Contrary to the findings of that Marita (2009) that nurses had not been entirely convinced of the benefits of the system were overall system, the findings from this survey indicated that nurses have an average perception of ICT and are quite positive about the structure and usability of the technology in achieving quality of care. Thus, majority of the nurses expressed the belief that ICTs have the ability to enhance every aspect of nursing services.

For instance, majority supported the fact that ICTs promote nurse patient relationship, reduce healthcare expenditures, enables greater accessibility to healthcare services, will make clients more knowledgeable; while the fact they are a potential threat to patients' right was strongly debunked.

In the same vein, majority of the respondents expressed their perception of ICTs being able to facilitate nursing research, prevent loss of information and enhance communication among healthcare team members. Most of them however discredited the notions that the systems will conflict with nurses' skill and relevance, or render nurses, that it was necessary for physicians alone, or that the technology should be resisted from diffusing into nursing practice. The perception that adoption of ICT could lead to nurses' retrenchment was supported by almost 70 percent of the population.

*The perceived barriers to ICT use by nurses in N.P.H, Aro, Abeokuta were also examined.* Findings from this study show that despite the fact that all the nurses recruited for the study had an average perception of the use of ICT in clinical services, they perceived the following barriers as being responsible for the non-utilization of such facilities by nurses in the health institution: Lack of interest in ICT applications; Limited knowledge of computer skills; Cost of procuring ICT equipment; Limited access to ICT equipment; Complexity of the equipment; Lack of training in ICT usage; Erratic power supply; Poor organizational policy on ICT use for nurses; Lack of practical-oriented training on information technology during nursing education; Fear of adapting to change. These barriers are similar to those identified by Stella & Herselman, (2008). These findings partly support the work of Eley et al (2009), who identified work demands, access to computers and lack of support as the principal barriers faced by nurses to their adoption of the technology in workplace. Majority of the residents however disagreed that ICT applications are incompatible with nursing procedure, are not user-friendly, or that they could be „rivals, to nurses' relevance. Contrary to the work of Kossman et al, 2008-time wastage was not identified as a barrier facing ICT use among N.P.H. Aro nurses.

## 6. SUMMARY

This study, using a convenience sampling technique, and questionnaires as instrument did a survey to investigate the perceptions of nursing in N.P.H, Aro, Abeokuta on the adoption and use of ICT for clinical services. The survey was carried out on 90 nurses who are on the institution's payroll. Recommendations were also given as appropriate.

## 7. CONCLUSION

The study showed that all nurses in N.P.H, Aro no matter the rank or gender have an averagely positive perception of ICT adoption and use in health services. Several barriers however, which ranges from personal challenges (such as limited knowledge on computer skills, fear of change, lack of user training in ICT usage, lack of interest in ICT), managerial problems (which include poor administrative policy on ICT, lack of

ractical-oriented training on information technology during nursing education, cost of procuring ICT equipment) to the application-related challenges (which include complexity of the equipment were identified.

## 8. RECOMMENDATIONS

It is important to ensure that nurses have capacities to operate in the current trend of ICT diffusion, and to guide patients on how to use computers, or to evaluate the quality of the health information available, nurses' acceptance of IT should be explored and ensured (Ammenwerth et al. 2009; McClelland et al., 2008; Repique 2009). This will be achieved by means of on-the job training including IT education, developing the content of work and management systems, and by offering opportunities to learn work.

- The Nursing Council should review the philosophy that brought computer studies into the curriculum of general Nursing Education and re-invigorate it in all schools and colleges of nursing
- Nurse Managers need to collaborate with other stakeholders in healthcare institutions to draft a workable policy towards the adoption and use of ICT for healthcare: sincere efforts must be made on the provision of the relevant ICT facilities that the institution can afford to maintain at every stage of its development.
- Health institutions should periodically organize seminars and training that are designed to making her nursing workforce ICT functional. Such seminars should be made as holistic and practical as much as possible.
- The extent to which nurses are computer proficient should be part of the basis for promotion, as much as such, special recognition and task should be given to those with ICT relevant ICT skills.

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