

Perceptions of Nurses Regarding Information and Communication Technology at a Rural Hospital in Lesotho

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Abstract

Background Accessing health facilities in rural Lesotho is a challenge due to the mountainous topography with a poor road network. As result Telemedicine has potential to improve access to health care in rural Lesotho.

Aim To describe the perceptions of nurses regarding information communication technology, in health care at a rural hospital in Lesotho.

Methods A quantitative descriptive research design was used. A total of 45 nurses working at a rural hospital was conveniently sampled from a population of 80. Data on demographics, knowledge and perceptions regarding CT was collected using a validated self-administered questionnaire. Microsoft Excel was used to analyze the data through descriptive statistics.

Results The majority of the participants were female 76% (n=34); of the age group 30 to 40 years 49% (n=22) and with nurse experience of 0-5 years 60% (n=27). Of the 45 participants, 82% (n=37) used smart phones; while 71% (n=32) used their phones for communication. The majority of the participants reported having used Microsoft Office (60%, n=27), not having ICT skills 69% (n=31), using internet on their phones 57% (n=26), willing to use ICT to communicate health information (100%, n=45), store patient information using ICT 96% (n=43) and willing to assist patients using ICT 98% (n=44).

Conclusion There are positive perceptions amongst nurses towards ICT at the rural hospital. This may reflect a level of perceived self-efficacy related to ICT in health creating a platform for possible implementation of telemedicine in the delivery of health information in rural hospitals in Lesotho.

Keywords: Sustainability, telemedicine, telecommunication, rural Africa, eHealth, perceptions.

Introduction

According to United States Department of Health and Human Services, telemedicine is defined as the use of electronic information and telecommunications technologies to support long-distance clinical healthcare, patient and professional health-related education, public health, and health administration (Watzlaf, Dealmeida, Zhou, & Hartman, 2015). Telemedicine connects patients with physicians or other healthcare providers outside of the traditional office visit through the use of electronic communications to improve a patient's clinical health status. These electronic communications include videoconferencing, store-and-forward imaging, streaming media, and terrestrial and wireless communications. (Ladino, et al., 2016, p. 650).

In Africa, the proliferation of mobile computing devices has driven a revolutionary change in both the computing and healthcare. Such information and communication technologies have been adopted and adapted for purposes of improving health care expertise with the world (Khan, 2006) in (Isabalija, Mbarika, & Kituyi, 2011). The application and use of such technologies has had direct impact in the quality of care of patients in high disease burdened societies and in societies in remote settlements.

Electronic Management Record systems (EMR) are integrated health systems that consists of clinical record Management System and Doctors inference Management systems and Medical Record System. Continued emphasis is placed on quality medical record keeping. Quality record keeping influences national fiscal spending and appropriation of healthcare to communities. Attaining quality medical recording requires the integration of functional medical record software that allow and support healthcare. On one hand, proprietary medical record software packages continue to become introduced,

and are known to be of stellar quality but may not necessarily be aligned to financially sensitive healthcare providers in low and middle income countries. On the other hand, there are a number of free medical record keeping package currently available such as Google Health, Microsoft Healthvault, Revolutionhealth Health Records, and WebMD Personal Health Record (Kalogiropoulos, Baran, & Nimunkar, 2009).

Paper-based record keeping is not aligned to the requirements of 21st health delivery system globally. Throughout time paper-based systems are proving to be more and more inefficient and continuously failing to meet the care provider's needs. With paper-based medical record keeping, communication between care providers is extremely difficult, especially in developing countries. In the United States, a paper-filed medical record may be scanned and sent to another care provider or sometimes faxed to wherever it needs to go. In the developing world, if a paper-filed medical record needed to be seen by a different care provider or someone at a different location, that paper file would have to be hand-delivered to this new location. (Kalogiropoulos, Baran, & Nimunkar, 2009)

EMRs would practically eradicate the manual labour of transferring papers or even scanning or faxing papers if that technology were available. As a result, this would save time and manpower and would decrease the time doctors and care providers take to communicate and easily manage patients information. This saved time could then be well spent for patient care, which would decrease waiting times for patients. The application of electronic medical record keeping would thus upsurge the overall quality of health care.

The Kingdom of Lesotho is a mountainous country found in Southern Africa, it has a high altitude, a ragged terrain and a horrible/undeveloped road network. It has a high burden of diseases like a high infant mortality rate, high number of people leaving with HIV/AIDS and high Tuberculosis (TB) rate.

The Ministry of Health in Lesotho through its partnership with Lesotho Millennium Development Agency (LMDA), pioneered Information and Communication (ICT) based systems that included Electronic Medical Record (EMR), Voice over IP (VOIP phones), and computers with internet and computing devices in health centers in all 10 districts. These will help support/improve communication between health care workers and patient record keeping within all levels of healthcare. Paray Mission Hospital is an example of the health centers that were supported with the above mentioned equipment. Paray Mission Hospitals (PMH) provides both primary care and high care. Paray Mission Hospital is located in the highlands of Lesotho with the mountainous topography and poor road network.

Problem of the study

The EMR system has been introduced to improve patient data capturing and communication among healthcare workers. Three years after the introduction of the EMR system in Lesotho, evidence reveals non-utilization of such a system in healthcare predominantly by all healthcare workers. At Paray Hospital, paper documentation of patient data dominates electronic information storage, with the nurses who are majority of healthcare workers in the forefront of technology-less access and retrieval of healthcare information. In as much as workshops and training have been done on the same professional nurses, the utilization and uptake of the EMR system is still non-existent. This study sought to describe the perceptions of nurses regarding ICT. Knowledge of these perceptions will allow for stakeholders to design appropriate strategies to improve utilization of the EMR systems, to further improve healthcare in Lesotho.

Aim of the study

The aim of the study is to describe the perceptions of nurses regarding information communication technology, at a rural hospital in Lesotho.

Objectives of the study

The objectives of the study were to

1. Determine the distribution of demographic characteristics among nurses at a rural hospital in Lesotho.
2. To determine the knowledge of nurses related ICT at a rural hospital in Lesotho.
3. Determine the readiness of nurses on ICT in health at a rural hospital.

Possible solutions to the problem

Nurses are a larger number of health care workers, and are the ones who interact with EMR system quite often than not. Therefore, there should be training on the health care workers. There should be a formal training on the health care workers and data clerks and there also should be a change management at the institution if it is to be taken by the hospital. IT should be included in the curriculum in nursing schools.

The best solution to the problem

The best solutions to the problem is to conduct trainings for nurses as they are a large number of health care workers as they interact with the systems more than any other workers. The inclusion of ICT skills in the curriculum for nursing schools will be the other solution.

Limitations

The limitations are that the study was a mini dissertation, the study involved only one hospital in Thaba-tseka. Time was a limited to do the study.

Achievements

The researcher managed to collect data and analyze data, secure ethical clearance at the hospital

Methodology

The following will describe the sampling and data collection procedure followed for this study.

Research design

In this study the author used a quantitative descriptive design. This design resonated with the overall purpose of this study which was to describe the perceptions of nurses regarding information communication technology, at a rural hospital in Lesotho

Description of the site

Population

Population is all possible respondents in a research project (Struwig & Stead, 2013). A number of 50 professional nurses working at PMH who registered with the Lesotho Nursing Council (LNC) was used in this study. Nurses are predominantly the main healthcare providers in Lesotho, and their knowledge and utilization of ERP systems are fundamental to healthcare of the country.

Sample size

Raosoft sample size calculator was used to calculate a sample size of 45 nurses from a population of 50 nurses at 95% confidence interval and 0.05% margin of error.

Sampling

Sampling is the process of selecting a portion of a population to represent the entire population (Polit et al, 2008). Convenience sampling was used because it saves time and by choosing conveniently available participants and a sample of 45 nurses was used.

Data collection

The researcher collected data by physically distributing structured questionnaires to conveniently sampled nurses between the 23rd and 24th July 2017. Informed consent was sought and those who consented filled and returned the questionnaires.

Data collection instrument

A self-administered questionnaire was used to collect data from those nurses who consented to the study. The questionnaire consisted of three sections, demographics, the knowledge of nurses on ICT and the perceptions of nurses on ICT in health. The questionnaire was generated on literature and was validated by a colleague with expertise in research.

Ethical considerations

The study had no direct benefits for the participants, however they gained continuous professional development points for their participation. The study results are envisaged that they will benefit the health care profession later. Permission was requested and granted from Paray Mission Hospital management to carry out the study. Informed consent was then sought from individual participants. The questionnaire was peer reviewed by the Research Committee of Paray School of Nursing to check for accuracy and content validity. Consent forms were put separate from the questionnaires and was ensured that participants were anonymous.

Description of the statistical methods

Microsoft office excel was used to analyze data Descriptive analysis to summarize the demographic characteristics of nurses, knowledge of nurses on ICT and perceptions of nurses on ICT in health. Data was then entered, coded and cleaned. Data interpretation was based on modal responses and presented as frequency tables and charts.

Results

A response rate of 90 percent was achieved in the study.

Demographic characteristics of nurses

A total of 45 nurses were included in the analysis, figures 1 to 5 presents the demographic characteristics of nurses. The majority of the participants were females 76% (n=34), the age of nurses 49% (n=22) ranged from 30 to 40 years, Majority of nurses 56% (n=25) had a certificate in nursing assistance followed by 44% (n=20) had a diploma in midwifery. Concerning work experience of nurses at Paray Mission Hospital, 60% (n=27) and 31% (n=14) had worked for 0 to 5 and 6 to 11 years, respectively. Majority of nurses 13% (n=6) worked in pediatric ward followed by 9% (n=4) of nurses who worked in male ward.

Knowledge of nurses on ICT

Table 1 presents the knowledge of nurses on ICT. Majority of nurses 82% (n=37) own smart phones. Regarding the internet usage of nurses, 31% (n=14) reported that they always use internet on their phones followed by 27% (n=12) of nurses who often use internet on their phones. Concerning the usage of internet to get information on health, 36% (n=16) reported that they sometimes use internet to get information on health using their phones.

Perceptions of nurses on ICT

Table 2 presents the perceptions of nurses on ICT in health. Majority of nurses 69% (n=31) reported that they do not have any ICT skills. Regarding the usage of ICT as a source of health related information, all nurses reported that they would like to use ICT as a source of health related information. 91% (n=41), would like to communicate health messages with patients using ICT. Majority of nurses, 98% (n=44) would like to use ICT to communicate or attend patients.

Discussion

In the study, Majority of participants are female, according to Suresh (2011:18), in to a study on impact of information and Communication technologies on women empowerment in India, he found that women in general have good concentration power owing to their nature of work, and hence are easily trained to acquire any new skills. Therefore, should there be training on ICT for nurses at the hospital, it would not be a problem for nurses to learn. The study shows that 49% and 47% of the participants were in age groups 30 to 40 and 19 to 29 respectively. According to (Smith, 2014, p. 2), who did a study in older adults and technology use, found that older adults face several unique barriers and challenges when it comes to adopting new technologies. Therefore, it will be easy for nurses at the hospital to adopt to technology. 60% of the participants' work experience ranged from 0 to 5. Since the majority of participants are female and at a young age, it will be easy for them to acquire IT skills and adopt to changes regardless of work experience. This shows that most nurses are a young age and have

not served the hospital for a long time. The study shows that 13% and 11% of the participants were nurses working in pediatrics and maternity wards respectively. This shows that more nurses are a need to the two wards. 40% of the participants had never used any application of Microsoft office. This shows that they write reports on paper, and could therefore be difficult to present their findings.

In general, 69% of nurses did not have sufficient computer skills. This result corroborate with (Mugomeri, Chatanga, Maibvise, & Masitha, 2016, p. 532) whose study was Assessment of Computer Literacy of Nurses in Lesotho, stated that the implementation of the Hospital Management Information System (HMIS) and the general effectiveness of nurses in Lesotho face challenges due to inadequate computer skills of the nurses. As a result it will be difficult to implement EMR at the hospital as nurses do not have enough ICT skills. Without ICT skills, it will be difficult to implement Electronic Medical Record (EMR), since EMR requires a lot of interaction, therefore, without adequate computer skills, it will be difficult to the nurses without ICT skills to navigate the system. It will take them a longer time to register a patient into the system, resulting into long queues of patients. Since EMR is part of telemedicine, its implementation will be compromised by the lack ICT skills by nurse who are the key personnel to use it. Majority of participants indicated they would like to use ICT as source of health information, this indicates that nurses at Paray Mission Hospital appreciate the usefulness of ICT in telemedicine.

Conclusions

Nurses at Paray Mission Hospital lack ICT skills as evidenced by a high percentage self report. However they have a positive perception towards utilization of ICT. This might suggest a need for capacitation of nurses at paray mission Hospital on ICT. The capacitation may help support sustainability of telemedicine innovation at Paray Mission Hospital.

Figures and tables

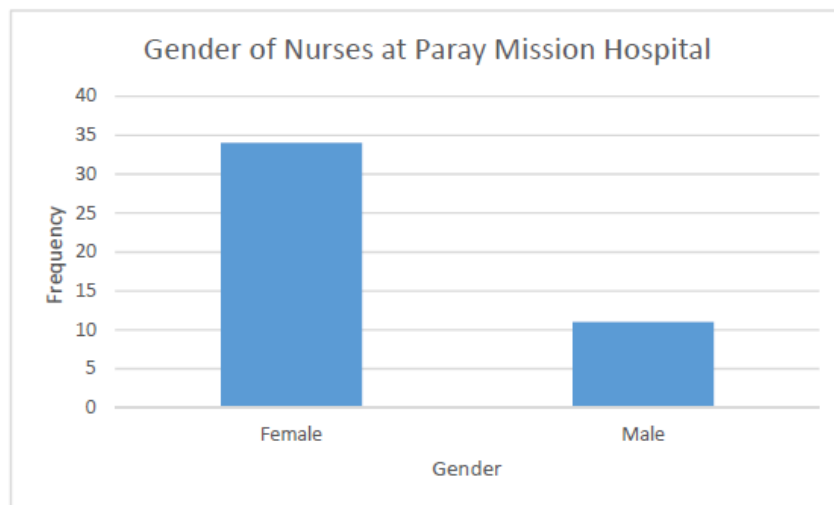


Figure 1. Gender of participants

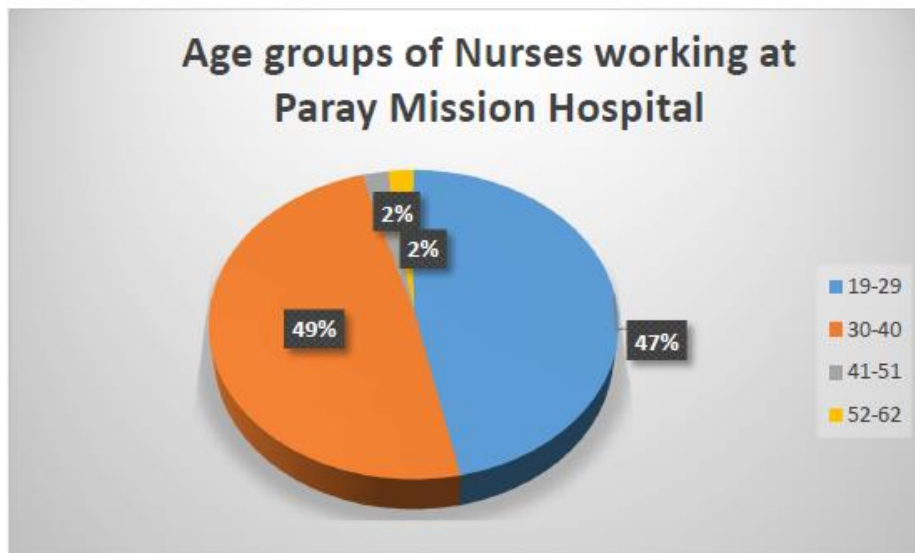


Figure 2 Age group of nurses at paray mission hospital

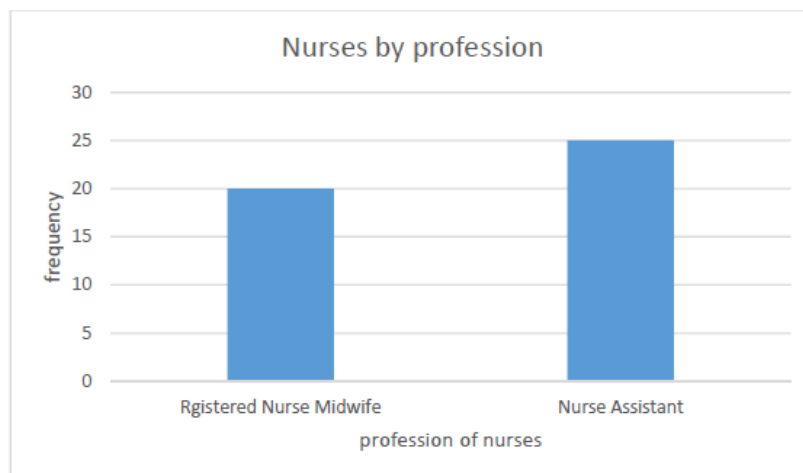


Figure 3. Profession of nurses at paray mission hospital

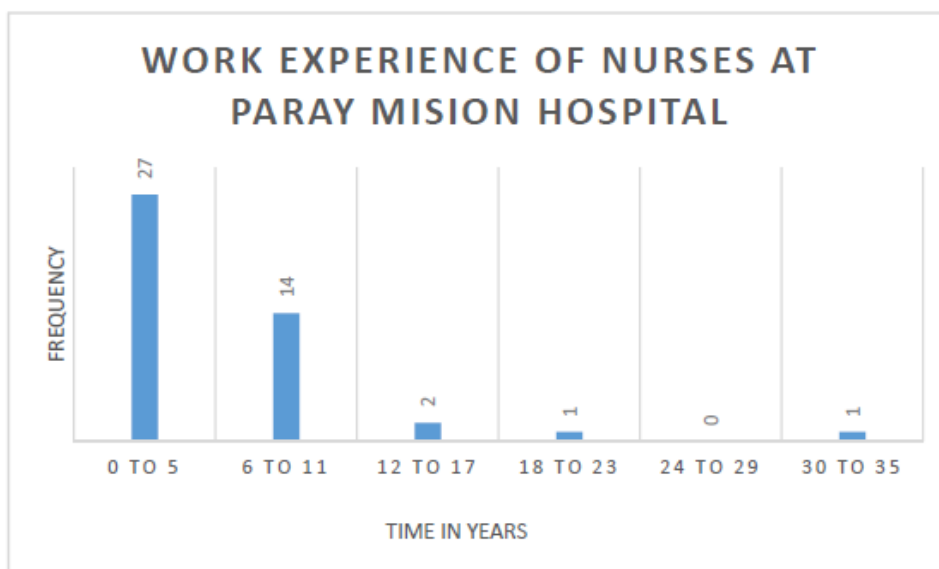


Figure 4. Work experience of participants

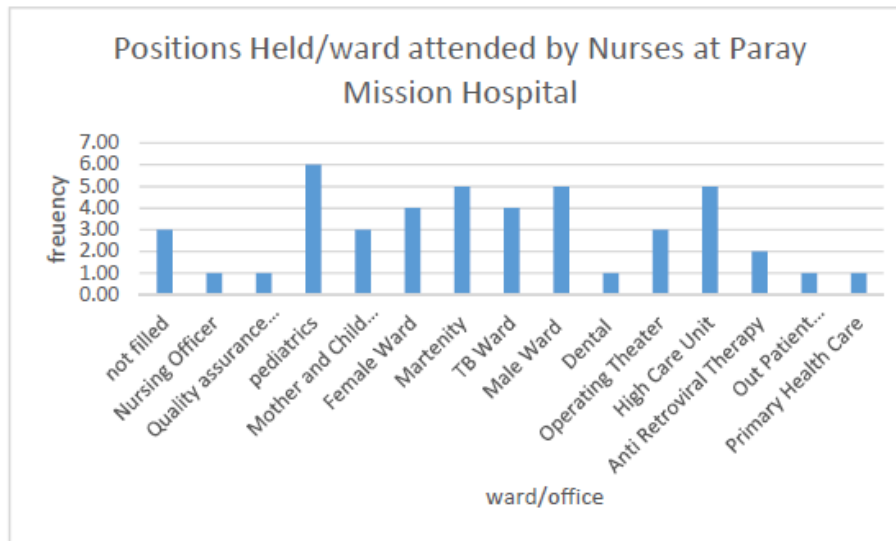


Figure 5. Position held/wards attended by participants

Table 1. Nurse's knowledge on ICT

VARIABLES	FREQUENCY(n)	PERCENTAGE (%)
Type of phone own/use		
Smart phone	37	82
Tablet	4	9
Calls & SMS only	4	9
Do not own	0	0
Ability to use internet		
Always	14	31
often	12	27
Sometimes	10	22
Rarely	5	11
Never	4	9
Use internet to get information on health		
Always	7	16
often	12	27
Sometimes	16	36
Rarely	4	9
Never	6	13
Make use of windows applications(Microsoft office)		
Always	5	11
often	3	7
Sometimes	9	20
Rarely	10	22
Never	18	40

Table 2. Perceptions of Nurses on ICT in health

VARIABLES	FREQUENCY(n)	PERCENTAGE (%)
ICT skills		
Yes	14	31
No	31	69
Use ICT as a source of health related information		
Yes	45	100

No	0	0
Communicate health messages with patients using ICT		
Yes	41	91
No	4	9
Use ICT to store/keep information related to patients		
	44	98
	1	2
Use ICT to communicate/attend patients		
Yes	43	96
No	2	4

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