



Utilisation of Ict By Healthcare Professionals and its Outcome in Specialist Hospitals in Ondo State, Nigeria

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Abstract:

The study examined Information Communication Technology (ICT) utilisation by healthcare professionals in Ondo State specialist hospitals in Nigeria. This study also investigated the effect of the use of ICT on outcome delivery of health workers in the state specialist hospitals. The purpose was to access how ICT can help improve the quality of work delivery between health workers and service receivers in teaching hospitals in the study area. The work is anchored on Unified Theory of Acceptance and Use of Technology (UTAUT). The study was conducted in Ondo State and the survey research design was used. The study made use of descriptive and inferential statistical analysis. The study population comprised of Doctors, Nurses/ Midwives, Community Health Extension Workers (CHEW), Health Information Managers (HIM), Medical Laboratory Professionals (MLP) and Pharmacy Professionals (PP) who are employees in the hospitals as respondents and a sample size of three hundred and eighteen (318) was selected out of which a total of 256 copies of questionnaire were retrieved. The results showed that the extent of utilisation of ICT by the employees of state specialist hospitals in the study area is high and the finding obtained from the regression analysis to test the study hypotheses showed that ICT utilization has a positive significant effect on employee performance in the state specialist hospitals in the study area. The study recommends that the hospital management should ensure a constant periodic scheduled trainings with clear roadmaps indicating the various competencies to be attained by the trainees upon completion of the training.

Keywords: ICT; ICT Utilisation; Electronic HealthCare (e-health) and Employee Performance

Introduction:

Over the past decade, the utilization of Information and Communications Technology (ICT) has played a crucial role in shaping innovative approaches for delivering efficient and secure healthcare services in Nigeria (Ajayi, Abasilim, and Adejumo, 2022). The integration of computer technologies has led to a rapid proliferation of ICT applications in healthcare, commonly referred to as eHealth (European Commission, 2012). When designed and implemented adeptly, ICT holds the potential to enhance accessibility for geographically isolated communities, provide valuable support for healthcare workers, facilitate data sharing, and serve as an effective electronic method for capturing, storing, interpreting, and managing data. In the realm of health, ICT encompasses any tool that enables the electronic communication, processing, or transmission of information with the aim of improving human health (Bukachi & Pakenham-Walsh, 2017). According to the World Health Organization (WHO) (2004), the health sector has traditionally relied on various

technologies, which serve as the foundation for services aimed at preventing, diagnosing, and treating illnesses and diseases. ICTs represent just one category within the broad spectrum of technologies that, with appropriate policies, organization, resources, and institutions, can emerge as potent tools in the hands of those dedicated to enhancing healthcare (Daly, 2013). In developing countries, preventable diseases and premature deaths still inflict a high toll. Inequity of access to basic health services affects distinct regions, communities, and social groups (Kuhn, Peacock, & Chin, 2014). Under-financing of the health sector in most developing countries has led to quantitative and qualitative deficiencies in service delivery and to growing gaps in facility and equipment upkeep (World Health Organisation, 2004). Inefficient allocation of scarce resources and lack of coordination among key stakeholders have made duplication of efforts, overlapping responsibilities and resource wastage a common and troublesome problem (Kuhn et al., 2013).

As such, this study addressed the following questions:

- i. What is the extent of utilisation of ICT by the employees of the state specialist hospitals in the Ondo State, Nigeria?
- ii. What is the effect of the use of ICT on performance of employees in state specialist hospitals in the study area?

The following objectives were set to answer the above questions:

- i. determine the extent of utilisation of ICT by the employees of the state specialist hospitals in the Ondo State, Nigeria;
- ii. examine the effect of the use of ICT on performance of employees in state specialist hospitals in the study area.

Research Hypothesis:

The study tested the under listed hypothesis:

H₀₁: Health workers in Ondo specialist hospitals do not use ICT in the discharge of their

Duties

H₀₂: ICT utilisation has no significant effect on employee performance in state specialist hospitals in Ondo State.

Literature Review:

Concept of Information and Communications Technology (ICT):

ICT includes electronic networks embodying complex hardware and software linked by a vast array of technical protocols (Mansel & Silverstone, 2016). ICT covers internet service providers, telecommunications equipment and services, information

technology equipment and services, media and broadcasting, libraries and documentation centers, commercial information providers, network – based information services and other related information and communication activities (Economic Commission for Africa [ECA], 2010). ICT encompasses technologies that can process different kinds of information (voice, video, audio, text and data) and facilitate different forms of communications among human and information systems. They are about capturing, storing, processing, sharing, displaying, protecting and managing information (Chowdhury, 2010). According to UNDP (2001) ICT is basically information-handling tools, which are varied sets of goods, applications and services that are used to produce, store, process, distribute and exchange information. ICT include radio, television and telephone and the new ICT of computers, satellite and wireless technology as well as the internet. These different tools combine to form our network world, a massive infrastructure of interconnected telephone services, standardized computing hardware, the internet, radio and television which reaches into every corner of the globe (UNDP, 2001).

ICT Adoption and Utilisation:

Jennex et al (2004) noted that the utilization of ICT can provide business firms with the opportunity to conduct business anywhere. Moreover, Ashrafi & Murtaza (2010) identified that utilizing ICT helps organisations to enter new markets, supply new products and services, increase their added value, change business processes, increase performance and productivity of the organization, employ new business channels and provide a rapid response to competitors' activities. Pavic 2007 argue that an organisation have the opportunity to achieve a competitive advantage from advances in ICT through innovation, marketing, efficiency gains, better quality and customer responsiveness.

Electronic Healthcare (E-Health):

The availability and quality of ICT services are growing rapidly across Africa, with mobile network coverage rising from 16% in the late 1990s to over 90% of its population in 2011 (Denise, 2013). Growth in this sector has led to increased investments, decreased costs and rapid growth in technology-enabled services. However, these gains in ICT infrastructure have not as yet benefitted the health Sector in a systematic way as many of the project remain pilots (Gerber *et al.*, 2010). E-health, when it is used with mobile phones and handheld computers, is called M-health. Both these versions of E-Health can contribute with information systems that can be of enormous value in providing health care. They can support health workers during their work in the clinics when there is no doctor around and also helps the workers to keep track of patients and accessing their patient history. In recent years this has helped technologies for information delivery within healthcare systems to be proliferated (Chan *et al.*, 2010). Information and communications technology (ICT) is adopted and applied in the healthcare using the following ways:

1) Electronic Health Records (EHR):

Initially known as computer patient records, the concept of electronic health records has revolutionized to what it is today from the 1960's (Hanson, 2006). EHR can be relied on to act as a backup in cases of emergencies and when patients change locations unlike the case of paper based records given the fact that they are easily accessible (Blair, 2007).

2) Health Information Systems (HIS):

Health Information Systems or Health Management Information Systems are, according to the literature, systems used to collect, analyze, retain, retrieve and evaluate health information. The WHO (2005) article on "Issues in health information" adds to this definition by stating that a health management information system incorporates all the data needed by policy makers, clinicians and health service users to improve and protect population health. The goal of a Health Management Information System is to check quality by comparing perceptions of services delivered with the expected standards and to provide timely and accurate information leading to better health care planning and improved diagnosis and more patients getting access to health services for an entire country (Tan & Raghupathi, 2002).

3) Telemedicine:

Telemedicine can be referred to as the provision of medical services from a distance (Wooton, Craig and Patterson, 2006). This includes diagnosis, treatment and prevention of diseases. The types of telemedicine can be categorized as real-time or pre-recorded telemedicine. Information is sent and received by the participants almost immediately in the case of real time telemedicine while in the case of pre-recorded telemedicine, information is captured and then transmitted later for subsequent reply (Anthony et al., 2005). Examples of pre-recorded telemedicine include tele-electrography, tele-obstetrics and tele-radiology (Mea, 2006). Examples of real time telemedicine include tele-consultation, tele-pathology and tele-dermatology (Wooton, Craig & Patterson, 2006).

4) Internet:

The role of the internet in healthcare cannot be ignored. The internet provides a platform where various stakeholders of e-health are able to achieve various goals. Key among the solutions that the Internet provides in healthcare includes the various types of business operations that are conducted by organizations and individuals online within the healthcare industry. These business models include business to business and consumer to consumer models, business to business and business to consumer models. The Internet has provided a platform for conducting a lot of research in healthcare. This has led to the use of online experiments, randomised trials and surveys. In addition, the numbers of publications on healthcare issues have increased tremendously (Curry, 2007). Medical learners can now share a lot of digital information from the various digital libraries on the Internet which have been reviewed by various researchers (Ruiz, Mintzer and Leipzig, 2006). Moreover, various professionals in

medical fields can now access various web pages in order to take continuous medical education hence improving current standards of healthcare by use of the availed technologies on the Internet (Dario et al., 2006).

Employee Performance:

Employees are considered an important asset for good and effective performance in any organisation (Armstrong, 2009). Armstrong further stated that improved performance is achieved through the employees in the organization. Until the 1980s, performance was usually interpreted as the output of a combination of ability and motivation, given appropriate resources and hence motivating people became a key component of most management work (Torrington, Laura & Taylor, 2018). In this respect, when the full potential of employees is unlocked, an organisation can achieve unlimited output, efficiency and effectiveness (Truong, 2012). It is important, however, to note that not all employees are equal in their working; as they have different modes of working. Some employees have the highest capability regardless of the incentive, while others may have an occasional jump-start. Nonetheless, if all employees are handled effectively, the results can be greater productivity and increased employee morale (Truong, 2012). Also, work environment plays an important role towards the employee performance. Work environment is argued to impact immensely on employee performance either towards negative or the positive outcomes (Chandrasekar, 2011). In the world, there are international organisations who debate the rights of employees. Also, several studies on the impact of ICT adoption and use on the firm productivity showed that the implementation of technologies has to be combined with some organizational changes for more efficiency (Milgrom & Roberts, 2010; Brynjolfsson & Hitt, 2000; Black & Lynch, 2001). These organizational changes such as compensation, information sharing, employee involvement in decision-making, and scheduling (Falk, 2005) which directly concern workers, affect their productivity and consequently the efficiency of the firm. Alipour (2019) studied "The effects of using automation systems on human resource productivity (Case study of Mazda Yadak Comapay)". The results suggested that there is a strong direct relationship between efficiency and effectiveness. Similarly, Taqi (2016) examined the impact of information technology on organizational effectiveness in The Organization of Libraries, Museums, and Documents Center of Astan Quds Razavi. The results indicated that the employment of IT systems has increased the effectiveness of the organization. Sahragard (2015) examined the effect of IT on the organizational productivity from the perspective of managers in the Kosar Financial Corporate. Of the components of productivity, pace of work, work procedures, and organization costs were selected to examine the impact of IT on these variables. The results indicated that according to managers in the organization under study, the use of IT is effective in the increased pace of work, improving work practices, reducing organization costs, and increasing the overall productivity of the organization. Aghaei (2015) examined the relationship between IT and productivity in the South Pars Gas Complex Company and concluded that the application of IT will

increase the productivity. Furthermore, Mazidabadi (2014) observed that the application of information technology has empowered the employees working in the Qom Social Security Department.

Theoretical Review:

1. Unified Theory of Acceptance and Use of Technology (UTAUT):

It was developed as a unified model through reviewing other models. It explains a user's intentions to use ICT and the subsequent user behavior. The model considers four constructs as direct determinants of user acceptance and usage behavior, namely performance expectancy, effort expectancy, social influence, and facilitating conditions. There are four key moderating variables: gender, age, experience, and voluntariness of use. UTAUT provides a tool for managers to assess the likelihood of success of technology introductions and to understand the drivers of acceptance in order to design interventions, which include, e.g., training or marketing. UTAUT focuses on users who may be less willing to adopt and use new systems (Korpelainen & Kira, 2010). The model is based on the organizational change, innovation, and technological diffusion literature. The purpose of the model is to offer a directing and organizing framework for ICT implementation research. The model comprises six stages, namely initiation, organizational adoption, adaption, acceptance and adoption, reutilization, and infusion. Thus, the model covers an implementation process from the scanning of organizational needs to a full and effective use of the technology in daily practice. The model also identifies five contextual factors which impact on processes and products in each implementation stage: the characteristics of the user community, the organization, the technology being adopted, the task, and organizational environment (Korpelainen & Kira, 2010). It was reviewed prior research and introduced a comprehensive taxonomy of factors contributing to the success of information systems. The literature on IS success and categorized success measures into six major categories: system quality, information quality, use, user satisfaction, individual impact, and organizational impact. These categories are interrelated and interdependent and provide a comprehensive view of IS success. The target of the model is to guide future research efforts (Korpelainen & Kira, 2010).

Methodology:

The study employed a survey research design and was conducted in four state specialist hospitals in Ondo State, specifically in Ilepa Ikare Akoko, Akure, Okitipupa, and Ondo. The study population comprised doctors, nurses/midwives, Community Health Extension Workers (CHEW), Health Information Managers (HIM), Medical Laboratory Professionals (MLP), and Pharmacy Professionals (PP) employed in these hospitals. A survey questionnaire, divided into three sections (A, B, and C), served as the research instrument. Section A gathered demographic information, while sections B and C contained structured questions aligned with the study's objectives. The questionnaire was

administered using simple random sampling, and responses were recorded on a five-point Likert scale, ranging from strongly disagree to strongly agree. The sample size of 318 was determined using a statistical formula for accuracy, and 256 completed questionnaires were retrieved, yielding an 80.5% response rate. These responses, filled out by the participants, were considered valid for analysis. The reliability test, assessed through Cronbach's alpha, demonstrated a value exceeding 0.7. Data analysis involved descriptive statistics (frequency, means, standard deviation, ranking) and inferential statistics, specifically Multiple Linear Regression. In summary, the research design, conducted in four state specialist hospitals in Ondo State, involved a diverse group of healthcare professionals. The survey questionnaire, with three sections, was administered to a sample of 318, resulting in a response rate of 80.5%. The data analysis utilized both descriptive and inferential statistics, ensuring a comprehensive examination of the study's objectives.

Results and Discussion:

Demographic Information of the Respondents:

This section discusses the distribution of the demographic characteristics of the respondents which are presented in Table 1. The demographic characteristics of the respondents are considered in five categories which includes the age of respondents, gender of respondents, respondents' category, respondents' length of service with the hospital and respondents educational qualification. As shown in Table 1, respondents' age group distribution shows that many of the respondents are still in their active age group. Specifically, age group 31 years and above have the highest percentage in the respondents' age distribution which is 48.0%. Age group 26 - 30 years comes next with a 29.0% of the age distribution, respondents of age group less than 20 – 25 years were the next with 18.8% representation, while respondents that are in age group of less than 20 years are the least represented in the total age distribution with 4.2% representation. The gender characteristics shows that the largest population of the respondents are male representing a total of 59.8% of the total respondents of the study. While a 40.2% of the respondents are female, this shows that males constitute the majority of the respondents in the study area.

Characteristics	Frequency	Percentage (%)
Age (years)		
Less than 20 years	11	4.2
20 - 25 years	48	18.8
26 - 30 years	74	29.0
31 years and above	123	48.0
Total	256	100.0
Gender		
Female	103	40.2
Male	153	59.8
Total	256	100.0
Respondents Category		
Community Health Extension Worker	8	3.1
Health Information Manager	16	6.3
Medical Laboratory Professional	26	10.2
Pharmacy Professional	43	16.7
Nurse/Midwife	105	41.0
Doctor	58	22.7
Total	256	100.0
Length of Service with the Hospital		
10 years and below	54	21.0
11 - 20 years	87	34.0
21 - 30 years	72	28.0
31 years and above	43	17.0
Total	256	100.0
What is your current Educational Qualification		
OND	8	3.1
RM/RN	105	41.0
HND/ B.Sc. / B.Tech	66	25.7
M.Sc. / M.Tech.	44	17.2
Ph.D.	33	13.0
Total	256	100.0

Source: Survey Report, 2023

The respondents category in Table 1 shows that majority of the respondents are nurses/ midwives representing the highest in the distribution with a 41.0% representation followed by respondents that are doctors with a 22.7% representation in the distribution. Next are respondents that are pharmacy professionals with a 16.7 representation in the distribution followed by medical laboratory professionals with a 10.2% representation followed by respondents that are health information managers with a 6.3% representation while respondents that are community health extension workers are the least represented in the distribution with a 3.1% representation. Respondents have acquired different years of service within the course of working as a medical employee in the specialist hospitals. Respondents with 11 - 20 years' experience represents the highest in the distribution having a 34.0% of the total distribution, coming in the second position are respondents with 21 – 30 years work experience with a 28.0% representation and respondents with 10 years and below work experience are next with

a 21.0% of the distribution, while respondents with 31 years and above work experience are the least represented in the distribution accounting for 17.0% of the distribution. The respondents have attained different level of education in their respective fields, respondents with RM/ RN academic qualification holders represents the highest in the distribution with a 41.0% of the distribution, this shows that majority of the respondents are academically grounded. While respondents who are HND/ B.Sc. / B.Tech holders are the next in line with a 25.7% of the total distribution, while respondents with M.Sc. / M.Tech academic qualification holders are in the next position with 17.2% of the total distribution. Followed by respondents with Ph.D. academic qualification with a 13.0% representation, while respondents that are OND holders with a total of 3.1% in the distribution are the least represented.

2. Extent of ICT utilisation (ICT Application):

The descriptive analysis of ICT application as an indicator of utilization of ICT in the study area as shown in Table 2 reveals a minimum and maximum value of 1 and 5 respectively for all items in the construct.

Table 2: Extent of ICT Utilisation: ICT Application (ICTU_ICTA)

	Item	N	Minimum	Maximum	Mean	Std. Deviation	Level
ICTU_ICTA1	There is use of ICT for visual medical surgery process	256	1	5	4.95	.684	High
ICTU_ICTA2	There is use of ICT for communication with patients	256	1	5	4.75	.750	High
ICTU_ICTA3	There is use of ICT in our daily and monthly activities in the work place	256	1	5	4.58	.622	High
ICTU_ICTA4	We utilize ICT in online bookings of medical appointments	256	1	5	4.42	1.038	High

Source: Survey Report, 2023

The result in Table 2 shows a mean value of 4.95 for ICTU_ICTA1, indicating a high agreement of the respondents to the item “There is use of ICT for visual medical surgery process”. The mean value for ICTU_ICTA2 is 4.75 which indicated a high agreement to the item “There is use of ICT for communication with patients”. The mean value for ICTU_ICTA3 is 4.58 which indicated a high agreement to the item “There is use of ICT in our daily and monthly activities in the work place”. The mean value for ICTU_ICTA4 is 4.42 which indicated a high agreement to the item “We utilize ICT in online bookings of medical appointments”. The standard deviation values for ICTU_ICTA4 is 1.038 indicating the diverse views of the respondents because the standard deviation value is

greater than 1.0. While the standard deviation values for ICTU_ICTA1, ICTU_ICTA2 and ICTU_ICTA3 are .684, .750 and .622 respectively, indicating the converged views of the respondents because the standard deviation values are less than 1.0.

3. Extent of ICT Utilisation (ICT Infrastructure):

The descriptive analysis of ICT infrastructure as an indicator of utilization of ICT in the study area as shown in Table 3 reveals a minimum and maximum value of 1 and 5 respectively for all items in the construct.

Table 3: Description of ICT Utilisation: ICT Infrastructure (ICTU_ICTI)

	Item	N	Minimum	Maximum	Mean	Std. Deviation	Level
<i>ICTU_ICTI1</i>	There is availability and accessibility of ICT facilities	256	1	5	4.21	1.031	High
<i>ICTU_ICTI2</i>	ICT system is used in this hospital, guaranteeing trust and reliability.	256	1	5	4.11	1.100	High
<i>ICTU_ICTI3</i>	ICT system is used by the hospital in protecting online privacy.	256	1	5	3.87	1.118	High
<i>ICTU_ICTI4</i>	ICT system is used by the hospital to facilitate promotion/advertising	256	1	5	3.61	1.144	Moderate

Source: Survey Report, 2023

The result in Table 3 shows a mean value of 4.21 for ICTU_ICTI1, indicating a high agreement of the respondents to the item “There is availability and accessibility of ICT facilities”. The mean value for ICTU_ICTI2 is 4.11 which indicated a high agreement to the item “ICT system is used in this hospital, guaranteeing trust and reliability”. The mean value for ICTU_ICTI3 is 3.87 which indicated a high agreement to the item “ICT system is used by the hospital in protecting online privacy”. The mean value for ICTU_ICTI4 is 3.61 which indicated a moderate agreement to the item “ICT system is used by the hospital to facilitate promotion/advertising”. The standard deviation values for

ICTU_ICTI1, ICTU_ICTI2, ICTU_ICTI3 and ICTU_ICTI4 are 1.031, 1.100, 1.118 and 1.144 respectively, indicating all the diverse views of the respondents because the standard deviation values for each respective items are greater than 1.0.

4. Description of ICT utilisation (ICT Policy):

The descriptive analysis of ICT policy as an indicator of utilization of ICT in the study area as shown in Table 4 reveals a minimum and maximum value of 1 and 5 respectively for all items in the construct.

Table 4: Description of ICT Utilisation: ICT Policy (ICTU_ICTP)

	Item	N	Minimum	Maximum	Mean	Std. Deviation	Level
ICTU_ICTP1	Management policy on use of ICT has received positive attitudes from medical employees	256	1	5	3.55	1.016	moderate
ICTU_ICTP2	The hospital management has ensured compliance with all its policies on ICT system utilization in the organisation	256	1	5	3.33	.961	moderate
ICTU_ICTP3	The ICT policies of the hospital is in consonant with the organizational goals and objectives	256	1	5	3.01	.986	moderate
ICTU_ICTP4	I hereby applaud the ICT policies of the hospital	256	1	5	2.93	.992	moderate

Source: Survey Report, 2023

The result in Table 4 shows a mean value of 3.55 for ICTU_ICTP1, indicating a moderate agreement of the respondents to the item “Management policy on use of ICT has received positive attitudes from medical employees”. The mean value for ICTU_ICTP2 is 3.33 which indicated a moderate agreement to the item “The hospital management has ensured compliance with all its policies on ICT system utilization in the organisation”. The mean value for ICTU_ICTP3 is 3.01 which indicated a moderate agreement to the item “The ICT policies of the hospital is in consonant with the organizational goals and objectives”. The mean value for ICTU_ICTP4 is 2.93 which indicated a moderate agreement to the item “I hereby applaud the ICT policies of the hospital”. The standard deviation values for SD_ENSUD1 is 1.016 indicating the diverse views of the respondents because the standard deviation value is greater than 1.0. While the standard deviation value for ICTU_ICTP2, ICTU_ICTP3 and ICTU_ICTP4 are .961, .986 and .992 respectively, indicating the converged views of the respondents because the standard deviation value is less than 1.0.

5. Extent of Utilisation of ICT:

This part presents the results of the extent of utilisation of ICT by

the employees of state specialist hospitals. The statistical description of the constructs was analyzed to determine the statistical minimum and maximum values of the constructs, the statistical value of mean, level of importance and standard deviation value for all the constructs. The importance is divided into three categories: low extent, moderate extent, and high extent, based on the following equation:

$$\text{Total range divided by three i.e. } \frac{5-1}{3} = 1.33$$

Low extent = 1 to 2.33

Moderate extent= 2.34 to 3.66

High extent= 3.67 to 5.0

Table 5: Means, Standard Deviation and Ranking of the Extent of Utilisation of ICT by employees of state specialist hospitals

		Minimum	Maximum	Mean	Std. Deviation	Level	Rank
ICTU_ICTA	ICT Application	1	5	4.68	0.773	High Extent	1 st
ICTU_ICTI	ICT Infrastructure	1	5	3.95	1.098	High Extent	2 nd
ICTU_ICTP	ICT Policy	1	5	3.21	0.989	Moderate Extent	3 rd

Level Rank: High Extent = 3.67 to 5.0, Moderate Extent = 2.34 to 3.66, Low Extent = 1 to 2.33

Source: Field Survey (2023)

Study Hypothesis 1

H₀₁: Health workers in Ondo specialist hospitals do not use ICT in the discharge of their Duties

The extent of utilisation of ICT by the employees of state specialist hospitals in the study area represents the study objective one of this study which was analysed through the descriptive analysis, that is, mean and standard deviation values, after which the items were ranked. As presented in Table 5, the result shows a minimum and maximum value of 1 and 5 respectively. The result showed a mean value of 4.68 for “ICT Application”, ICTU_ICTA. This indicates that the respondents strongly agreed to this ICT utilization process/practice. The mean value for “ICT Infrastructure”, ICTU_ICTI is 3.95, also indicating respondents strong agreement that this process/practice is used by the state specialist hospital employees, while that of “ICT Policy”, ICTU_ICTP is 3.21, indicating that the respondents moderately agreed that this ICT utilization process is also being used in their hospitals.

In summary, the result of the descriptive analysis of the study objective one as presented in Table 5 showed that the extent of utilisation of ICT by the employees of state specialist hospitals in the study area is high. As such the null hypothesis is rejected and the alternate accepted.

This outcome is backed by the recommendation from the study by Colombo and Delmastro (2004), who established that when new technologies such as hardware and software management (utilization, infrastructure and policies) are highly used in organizational production process, these sophisticated technologies will speedily accomplish routine as well as some complex tasks.

6. Effect of Utilisation of ICT on Employee Performance in State Specialist Hospitals:

This section presents the results of the regression analysis used to

examine the effect of use of ICT on employee performance in state specialist hospitals in the study area. Table 6 presents use of ICT on performance of state specialist hospitals in the study area.

Table 6: Results of Multiple Regression Analysis (ANOVA): Effect of Use of ICT on Performance of Employees.

Model	R	R ²	Adjusted R ²	Std. Error of the Estimate	F	Sig
1	.621	.385	.353	5.865	10.221	.000

a. Dependent Variable: Employee Performance
b. Predictor: (Constant), ICT Utilisation

Source: Survey Report, 2023

The strength (R) of prediction of employee performance, by ICT utilisation according to the Table 6 is 0.621. This value implies that the dependent variable; employee performance is strongly explained by ICT utilisation. The positive sign of the R value implies that the direction of the relationship between utilization of ICT and employee performance is positive i.e. the more the workers in the study area utilizes ICT the higher their performance increases. The R² shows the fitness of the model for multiple regressions and explains the variance of the independent variable on the dependent variable. Since R² value is 0.385, is an indication that 38.5% of the variation in employee performance is caused by the change in use of ICT, since (R²=0.385, F=10.221, Sig=0.000). While other factors not considered in this study might account for the influence of 61.5% on employee performance in the study area.

Table 7: Results of Multiple Regression Analysis (Coefficients): Regressing Effect of use of ICT on Performance of Employees.

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	35.412	3.324		20.134	.000
	ICT Utilisation	.418	.065	.327	4.283	.000

a. Dependent Variable: Employee Performance

Source: Survey Report, 2023

The coefficient table as presented in Table 7 shows the contribution made by independent variable; ICT utilization on employee performance in the study area. The figures from the table showed that ICT utilisation made significant contribution of (Beta=0.327, t=4.283, Sig=0.000, p<0.05).

Study Hypothesis 2:

H₀₂: ICT utilization has no significant effect on employee performance in the study area ($\alpha \leq 0.05$)

Table 6 shows that there is a significant effect of ICT utilisation on employee performance, Since (Beta=0.327, t=4.283, Sig=0.000, p<0.05). Therefore the study null hypothesis is rejected. Hence, ICT utilisation has a positive significant effect on employee performance in the study area. This outcome is in line with the outcome of the study by Alipour (2019), who investigated the effects of using automation systems on human resource productivity (Case study of Mazda Yadak Comapay). The study outcome showed that there is a strong direct relationship between the technology used and human resource productivity.

Conclusion:

This study focused on assessment of use of ICT on employee performance in state specialist hospitals in Ondo State, Nigeria. The first objective examined the extent of utilisation of ICT by the employees of the state specialist hospitals in the study area. From the results of the findings from objective one, the study hereby concludes that the extent of utilization of ICT by employees of the state specialist hospitals in the study area is high. Finally, the second objective examined the use of ICT on performance of employees in state specialist hospitals in the study area. Results obtained from the regression analysis to test the study hypotheses showed that ICT utilization has a positive significant effect on employee performance in the state specialist hospitals in the study area. Therefore the study recommends that the hospital management should ensure a constant periodic scheduled trainings with clear roadmaps indicating the various competencies to be

attained by the trainees upon completion of the training. The training opportunities should be equally extended to both male and female employees of the hospital. This will allow for the level of ICT literacy among employees to increase over time. The top management should also embrace technology in order to overcome any possible challenge that may face the implementation and deployment of ICT resources in the hospitals.

References:

1. Ajayi, M. O., Abasilim, A. N., & Adejumo, D. D. (2022). Employee Acceptance of E-Health and Its Implication for Performance in Specialist Hospitals in Ondo State, Nigeria. *European Journal of Business and Management Research*, 7(5).
2. Aghaei, D. (2015). On the Costs and Benefits of Delegation in Organizations. *Journal of Institutional and Theoretical Economics*, 157(4), 568-590.
3. Alipour, R. (2019). Why work when you can shirk? Worker productivity in an experimental setting. *Journal of Applied Business and Economics*, 11(2), 104-119.
4. Anthony, P., Wyatt, J. C., & Garvican, L. (2005). Evaluating computerised health information systems: hard lessons still to be learnt. *BMJ*, 326, 860-3.
5. Armstrong, M. (2009). *Human Resource Management Practice*. London: Kogan.
6. Ashrafi, R., & Murtarza, M. (2010). Use and Impact of ICT on SMEs in Oman, *Electronic Journal Information Systems Evaluation*, 11(3), pp. 125-138.
7. Black, S. E., & Lynch, L. M. (2001). How to compete: The impact of workplace practices and information technology on productivity. *The Review of Economics and Statistics*, 83(3), 434-445.
8. Blair, T. (2007). Mobile phones keep track of HIV treatments. *SciDev.Net*. <http://www.scidev.net/News/index.cfm?fuseaction=readNews&itemid=16215&language=1>
9. Brynjolfsson, E., & Hitt, L. M. (2000). Beyond computation:

- Information technology, organizational transformation and business performance. *The Journal of Economic Perspectives*, 14(4), 23-48.
10. Bukachi, F., & Pakenham-Walsh, N. (2017). Information technology for health in developing countries. *Chest*, 132, 1624-1630.
 11. Chan, C. V., & Kaufman, D. R. (2010). A technology selection framework for supporting delivery of patient-oriented health interventions in developing countries. *Journal of Biomedical Informatics*, 43(2), 300–306.
 12. Chandrasekar, K. (2011). Workplace Environment and its Impact on Organizational Performance in Public Sector Organizations, *International Journal Of Enterprise Computing and Business Systems*, 1(1).
 13. Chowdhury, N. (2010). Poverty Alleviation and Information Communications Technologies: Towards a Motif for the United Nations ICT Task Force. Retrieved from http://www.eb2000.org/short_note_19.htm on March 4, 2012.
 14. Daly, J. (2013). Information and Communications Technology Applied to the Millennium Development Goals. <http://topics.developmentgateway.org/ict/sdm/previewDocument.do~activeDocumentId=840982>
 15. Dario, P., Keogh, D., & Wood, T. (2006). Village Phone Replication Manual: Creating sustainable access to affordable telecommunications for the rural poor. New York, UN ICT Task Force (available at: <http://www.unicttaskforce.org/poll/documents.pl?id=1545>)
 16. Denis, P. (2013). The e-health agenda for developing countries. *World Hospitals and Health Services*, 41(4), 38-40.
 17. European Commission. (2012). What is eHealth? ICT for health, Europe's Information Society. http://ec.europa.eu/information_society/activities (accessed 25 August 2015).
 18. Economic Commission for Africa (ECA) (2010). An Overview of ICT Trends and Policy in Africa. *UNECA*, Addis Ababa. Retrieved from <http://www.Un.org/Depts/eca/adf/> on May 8, 2011.
 19. Falk, A. (2005). The hidden costs of control. *The American Economic Review*, 96(5), 1611–1630.
 20. Garber, G. M., Anon, C., & Bukachi, F. (2010). Utilization of ICTs for accessing Health Information by Medical Professionals in Kenya: A Case Study of Kenyatta National Hospital. *Journal of Health Informatics in Developing Countries*.
 21. Hanson, C. W. (2006). *Healthcare Informatics*. New York: McGraw Hill.
 22. Jennex, M. E., Amoroso, D., & Adalakun, O. (2004). E-commerce infrastructure success factors For small companies in developing economics. *Electronic Commerce Research*, 4, 263-286.
 23. Korpelainen, E., & Kira, M. (2010). Theories of ICT system Implementation and adoption. *International Journal of Technology*, 1(14), 32-53.
 24. Kuhn, K., Peacock, E., & Chin, W. W. (2014). Extending the technology acceptance model: the influence of perceived user resources. *ACM SIGMIS Database*, 32, 86-112.
 25. Mansell, R., & Silverstone, U. (2016). *Knowledge Societies: Information Technology for Sustainable Development*. New York: Oxford University Press.
 26. Mazidabadi, F. (2014). The effect of information technology on IT-facilitated coordination, IT facilitate autonomy, and decision-makings at the individual level. *Applied Economics*, 1-18.
 27. Mea, V. D. (2006). Pre-recorded telemedicine. In *Introduction to Telemedicine* (2nd ed., Wooton, R., Craig, J. & Patterson, V. Eds.). London: RSM Press.
 28. Milgrom, P., & Roberts, J. (2010). An economic approach to influence activities in organization. *American Journal of Sociology*, 94, 154–179.
 29. Ruiz, Z., Lupiana, D., Mtenzi, F., & Wu, B. (2006). Challenges to E-Healthcare Adoption in Developing Countries: A Case Study of Tanzania. *First International Conference on Networked Digital Technologies*, Ostrava.
 30. Sahragard, J. (2015). An assessment of trends in technology use, innovative work practices and employees' attitudes in Europe. *Applied Economics*, 74(6), 623-638.
 31. Tan, J., & Raghupathi, W. (2002). Strategic IT applications in health care. *Communications of the ACM*, 45(12).
 32. Torrington, D., Laura, H., & Taylor, S. (2018). *Human Resources Management (7th Edition)*. Pearson Education Limited: Great Britain.
 33. Truong, Cong N. (2012). The Impact of organizational factors on employees' performance in Vietnamese Companies. *University of Economics HO CHI MINH CITY*.
 34. Taqi, Z. (2016). Hierarchies and the organization of knowledge in production. *Journal of Political Economy*, 108(5), 874-904.
 35. UNDP. (2001). Essentials, September, 2001, No.5 UNDP Evaluation office. Retrieved May 5, 2008, from www.qipiproject.org/practices/essentials5-web.pdf
 36. WHO. (2004). *eHealth for Health-care Delivery: Strategy 2004-2007*. Geneva: WHO www.who.int/eht/en/EHT_strategy_2004-2007.pdf
 37. Wooton, R., Craig, J., & Patterson, V. (2006). *Introduction to Telemedicine*. London: The Royal Society and Medicine Press.