



Performance Evaluation of the Effect of Integrating E-Health into Healthcare in South-Western University Teaching Hospitals of Nigeria

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ABSTRACT

It is universally believed and popularly pronounced that health is wealth and this has instigated many hospitals to always put their best into healthcare. Hence, e-health sprang up worldwide and Nigerian hospitals immediately embraced and incorporated it into healthcare system in order to alleviate in providing adequate and reliable healthcare and medical services to the public through modern days technology such as internet. This research work embarked on the evaluation of the effect of this e-health in south-western region of the Nigerian university teaching hospitals. In achieving this, questionnaire method was employed to gather information from some randomly selected healthcare professionals and regular patients from various departments and units in Nigerian university teaching hospitals. Mean and standard deviation statistical research analytical tool was used to analyze the data collected. It was observed that the inclusion of e-health has greatly improved the efficiency, credibility, quality and safety of human life. However, certain areas like high degree of illiteracy, lack of confidentiality, poor maintainability and cultural issues should be well addressed for better output.

Keywords: Healthcare, e-health, medical-services, confidentiality and cultural-issues

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1. INTRODUCTION

Information and Communication Technology (ICT) is discovered to be a novel digital tool in all aspects of life such that there is no area of human life that has not been positively affected and transformed. As a result of its resourcefulness, e-health sprang-up as a new phenomena in healthcare and many medical establishments have greatly embraced it for better medical services. Therefore, because of this ICT product (e-health), many lives have been rescued from untimely death since the evolution of e-health and its usage has brought changes to health informatics and healthcare generally (Eysenbach, 2001). This is because the internet through which health service is being rendered is becoming a more popular way of delivering and obtaining important health information and this has triggered most of Nigerian Teaching hospitals turning towards the internet and developing their own website (Hinchliffle and Mummery, 2008; Patsioura et al, 2009). Hence, e-health has experienced a period of significant growth and maturity in recent years most especially in European countries (Zsuzsanna, 2016).

The rapid use of computing has made effective healthcare essential. Increased attention to usability is also driven by competitive pressures for greater productivity are the need to reduce frustration. As computing affects more aspects of our lives, the need of usable systems and websites become even more important (Shakirat, et al, 2013). This e-health includes the application of ICTs across the whole range of function that affect the health sector. In another vein, e-health systems include tools for health authorities and professionals from national to international, from the doctor to the hospital manager, nurses, data processing specialists, social security administrators and of course the patients as well as personalized health systems for individuals and community.



According to Wikipedia (2017), e-health is the transfer of health resources and health care by electronic means which encompasses three main areas: The delivery of health information, for health professionals and health consumers, through the Internet and telecommunications. It was noticeably stressed further that e-health encompasses a range of services or systems that are at the edge of medical/healthcare and information technology which include; electronic health records, computerized physician order entry, e-prescribing, clinical decision support, telemedicine, consumer health informatics, health knowledge management, virtual healthcare teams, m-health, medical research using grids and software solutions for appointment scheduling, patient data management, work schedule management and other administrative tasks surrounding health refer to as healthcare information systems (Wikipedia, 2015). Nigeria as one of the developing countries is competing with others both scientifically and technologically in which healthcare is one of the areas. However, a lot of challenges have been observed most especially in terms of social amenities which serve as catalyst for health service. Health services are concerned with promoting, restoring and maintaining a healthy society. That is, they involve in illness prevention, health promotion, the detection and treatment of illness and injury, the rehabilitation and palliative care of individuals who experience illness and injury (Peter, 2016). Meanwhile, it is only the healthy society that can engage in daily activity for national development. This has motivated the federal government to start refurbishing some of her teaching hospitals with the incorporation of e-health technology since many lives have been wasted due to old system of medical services. Meanwhile, most of the existing health services are inaccessible to the vulnerable group especially to the poorer ones among us and people residing in rural areas.

1.1 Statement of the Problem

There are many writers on e-health in general but findings showed that scanty study exists on the effect of using electronic health in medical services. Apart from Andrew and Titor (2010) that examine the use of internet-based services treatment for internalizing mental disorder, Idowu, Condord and Bastin (2008) that study the health informatics deployment in Nigeria, Kehinde, Nyongese and Ademola (2010) that examine ICT and information security perspectives in e-health system and Ayoade and Adeleke (2014) recognized e-health as part of the product of ICT's role in transforming society and Nigeria economy, few works exist in literature on the effect of e-health services in southwestern Nigerian teaching hospital. As a result, this study expands the research on e-health as modern ICT device and its usage in health services. It equally fills the existing gap in research on information technology as well as electronic medicine. In other words, this research work is carried out to improve on the series of services rendered by our University teaching hospitals to rescue many lives from long term disease and untimely death. Also, to discover those areas that needs further attention for full implementation of this modern medical service. The result will enable us to invest more on e-health for better healthcare and for medical practitioners to carry out more study on how they can be improved in delivering best services to their patients.

2. RELATED WORKS

Although it was discovered that many researchers concentrated on e-health and what it encompasses, however, they have noted the variable usage in the term (e-health) of the internet in healthcare as a result of the involvement of computer system (Wikipedia, 2015). This e-health gave birth to cyber-medicine, the successor of telemedicine (wherein doctors would consult and treat patients remotely via telephone or fax) which is the use of internet to deliver medical services such as medical consultations and drug prescriptions. The world health organization defines e-health as the cost-effective and secure use of information and communication technologies in support of health and health-related fields including health-care services, health surveillance, health literature and health education, knowledge and research (WHO, 2005). Eysenbach (2001) expresses e-health as emerging field in the intersection of medical informatics, public health and business, referring to health services and information delivered or enhanced through the internet and related technologies while Oh et al (2005) explained e-health as set of technological themes in today's health that are highly relevant in health application and links on mobile phone referred to as m-health. Remlex (2007) worked on the incorporation of ICT in treating chronic diseases. Agbele, Nyongese and Adesina (2010) embedded ICT and information security perspectives in e-health system and NAHIT (2008) emphasized on the importance of health information technology in healthcare or service among humanity.

Hinchliffe and Mummery (2008) discussed about the application of usability testing techniques to improve a health promotion website and Della Mea and Vincenzo (2001) researched on how e-health has brought gradual death to telemedicine since e-health is concerned with medical services on internet and Bennett, Reynolds, Christenson and Griffiths (2010) studied e-hub as an online self-help mental health services in the community.

3. RESEARCH METHODOLOGY

3.1 Research Design

This study made use of survey research type as a descriptive research system. Questionnaire method which comprised of twenty (20) items designed by the researcher was administered to elicit response from different departments or units among the medical personnel as well as the admitted patients in the selected university teaching hospitals in south-western region. The respondents were given four options of responses which are strongly agree (SA), agree (A), strongly disagree (SD) and disagree (D). The reliability of the instrument used was determined through test and retest by using Pearson's product moment correlation. The co-efficient obtained was 0.83 which was considered higher enough to be used by the researcher. The data collected were analyzed using mean and standard deviation ratings based on the 4 point rating scales of SA= 4 points; A= 3 points; SD= 2 points and D= 1 point. The acceptance level of the mean scores of 2.50 and above was regarded as agree while the mean scores below 2.50 was regarded as disagree.

3.2 Participants

A sample of 200 people comprised of medical personnel and patients were interviewed with the aid of the designed questionnaire. All participants involved were drawn from various departments of Lagos University Teaching Hospital (LUTH); University College Hospital (UCH), Ibadan; LAUTECH Teaching Hospital (LAUTH), Ogbomoso; Unilorin Teaching Hospital (UNILOTH) and Obafemi Awolowo University Teaching Hospital (OAUTH) as the five university teaching hospitals selected. They include general medicine, consultants, chemical pathology, pharmacy, nurses and patients of different diseases.

3.3 Research Hypotheses

1. There is no significant effect of e-health on Nigerian University teaching hospitals as a parastatal in Southwestern region.
2. There is no significant effect of e-health on the medical personnel in University teaching hospitals in Southwestern region.
3. There is no significant effect of e-health on patients University teaching hospitals in Southwestern region.

4. PRESENTATION OF RESULTS

The results obtained were presented in Table I, II and III to display a true picture of the effect of integrating e-health into Nigerian university teaching hospitals in Southwestern region.

Table I: The mean scores and standard deviation (Std. Dev) on the effects of e-health in university teaching hospitals as a parastatal

S/NO	ITEMS	MEAN	STD. DEV	REMAEK
1	E-health is a key instrument for accelerating health service as well as economic and social progress of the nation	3.27	0.82	Agreed
2	e-health enables online communication about medical issues and diagnoses of complicated diseases among the university teaching hospitals	3.76	0.43	Agreed
3	e-health reduces the number of medical personnel to be engaged for service and the medical equipments THAT would be employed for treatment	3.45	0.65	Agreed
4	Cases of diseases like mental- health among unlearned patients are not difficult to handle through e-health	3.16	0.85	Agreed
5	Patients collected data is hard to protect from unauthorized access, modification and safe storage	4.23	0.76	Agreed
6	Most of the e-health devices are too expensive to possess and hence our hospitals could not fully engage in e-health	3.27	0.45	Agreed
7	Lack of adequate and careful maintenance of e-health devices for health care services	3.63	0.85	Agreed



Table II: The mean scores and standard deviation (Std. Dev) on the effect of e-health on medical personnel in University teaching hospitals.

S/NO	ITEMS	MEAN	STD. DEV	REMAEK
8	E-health increases the efficiency of the medical personnel through better data management of diseases and knowledge transfer	3.17	0.66	Agreed
9	Through e-health, communicable disease such as endemics and epidemics can easily be controlled	3.36	0.73	Agreed
10	e-health improves medical services by preventing, diagnosing and treating illness and diseases of any kind	3.85	0.45	Agreed
11	e-health safeguards health workers from risk of travelling in a long distance in critical condition	3.65	0.63	Agreed
12	e-health allows easy linkage of other medical practitioners who are geographically separated to jointly handle critical cases	3.23	0.58	Agreed
13	It permeates any medical personnel to render service in more than one hospital with less stress	3.16	0.61	Agreed
14	Electronic health record provides adequate information that can be used to treat different patients at a time	3.45	0.79	Agreed

Table III: The mean scores and standard deviation (Std. Dev) on the effect of e-health on patients in University teaching hospitals.

S/NO	ITEMS	MEAN	STD. DEV	REMAEK
15	E-health reduces the cost and stress of healthcare and services that patients enjoy	3.34	0.62	Agreed
16	e-health encourages confidentiality, hence patients supply details data and information about themselves to the doctors	2.46	0.23	Disagreed
17	e-health allows patients to have access to the medical personnel of their own choice conveniently	3.85	0.35	Agreed
18	Cultural issues and trend do not affect the e-health adoption, hence to get patient data and information is not a problem	2.30	0.25	Disagreed
19	e-health equipments are always available to treat series of patients diseases for best service rendering by the doctors	2.26	0.22	Disagreed
20	Well trained medical personnel on the use of e-health devices are available to rescue patients from all form of diseases that claim lives	2.15	0.33	Disagreed

5. DISCUSSION OF FINDINGS

The results of the study in Table I and II had revealed that all the items are positively having effect on the performance of e-health in Nigerian university teaching hospitals, southwestern region. This implied that e-health is transforming medical services rendered by the hospitals as well as their medical personnel when compared with the conventional system of rendering health services before the incorporation of ICT devices in its full-fledge in our society at large. However, in Table III, it has been discovered that patients have not being benefited maximally in e-health due to lack of confidentiality despite the fact that the term (e-health) record provides adequate data and information that can be used to treat different patient at a time, hence patients fail to give detailed data and information to medical personnel. In addition, findings showed that most of the equipment needed for this newly discovery medical service technology are too expensive to acquire coupled with poor maintainability system. Also, cultural issues and trend hinder some people from unreservedly discussing what they are passing through to the medical personnel. Lastly, most of our medical people do not have enough training about the use of most of these e-health devices, hence, many patients lives are at stake.



6. CONCLUSION

E-health, being recognized as the order of the day in healthcare is still facing several challenges regardless of its importance in rendering suitable medical service. This paper carried out research work on the effect of integrating e-health into healthcare in Nigerian university teaching hospitals and it was discovered that if the needed devices are made available, this country will have a refined healthcare. Hence, many lives would be preserved from both communicable and non-communicable diseases that have wasted lives untimely through its total integration.

7. RECOMMENDATIONS

Based on the findings in this paper, to improve in the performance of e-health as it has been embraced by our Nigerian university teaching hospitals, patients' data and information should be kept confidentially from unauthorized user and that the accessibility to their information should be strictly restricted to only medical personnel in service at that particular time. Also, all relevant e-health devices should be made available by the government with good maintainability and security. There should be series of workshops, seminars and conferences for our medical personnel to be well knowledgeable about the usage of e-health devices. Lastly, cultural issues and high degree of illiteracy should be urgently addressed for those patients that could not discover series of benefits from e-health so that they would be given adequate orientation. In other words, the entire society should always be sensitized on the importance, relevance and usefulness of e-health in healthcare system.

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