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SCHOOL OF COMPUTING AND INFORMATICS

MASTERS OF SCIENCE IN INFORMATION TECHNOLOGY MANAGEMENT

THE FACTORS AFFECTING ADOPTION OF ONLINE DOCTOR SERVICES IN KENYA. A CASE STUDY OF THE NAIROBI HOSPITAL

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DECLARATION

I, Michael .M Theuri, is a result of my work and has not in any form been presented in any other university.

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Student signature date

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This thesis has been submitted for examination with my approval as the University of Nairobi Supervisor.

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Signature date

Dr Robert Oboko.

DEDICATION

I dedicate this study to my parents Mr. Patrick Theuri and Mrs. Jane Theuri for teaching me the value of hard work and honesty, my siblings Sylvia Theuri and David Theuri for the encouragement and love during this period and my grandfather Peter Migwi for his emphasis on the importance of achieving the highest level of education.

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ABSTRACT

This research was concern with the factors affecting online doctor services adoption. The study is aimed to examine the critical factors affecting adoption of online doctor services in the context of Kenya. Aspects such as trust, cost, marketing and security were examined as factors and the effect they have on the adoption of the online doctor services. A conceptual framework was formulated from Delone and McLean IS success model. A positivist approach is adopted with scientific evidence and quantitative data used to determine the adoption levels. A survey was conducted with questionnaires handed to one of two walk in patients at The Nairobi Hospital with a 97% rate of return with an estimated sample size of 109. The results show a strong positive influence by the factors on user satisfaction and usage intention which in turn influence the adoption of online doctor services in Kenya. The independent variables could explain an 87 percent (R^2 = .869) variance in online doctor service adoption according to the findings. The study recommends further factors be examined and a wider patient base explored as not all demographics were represented fully. The findings of this study would help the doctors who want to enhance their practice to cover an online platform, the public who want to understand better the concept of online doctors and to fellow researchers who want to gain knowledge on this field.

Keywords.

Online doctor services, Delone and McLean IS success model, Positivist, variables.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

CHAPTER ONE: INTRODUCTION

1.1 Background

The Internet has become the single most powerful tool of communication ever seen to date with an astonishing 3.77 billion users in 2017, equaling 50% penetration of the total global population. ("Digital in 2017," 2017). This has been enhanced by the availability of mobile devices that can easily and affordably access the internet(Saha, Jamtgaard, & Villasenor, 2001), and the dawn of the digital age that has brought about social media, blogs, entertainment, educative thirst and other driving factors that demand the constant internet connection(Zhang, Cheung, & Lee, 2012).

Closer home according to the latest sector statistics from the Communications Authority of Kenya (CAK) Kenya now has over 90% mobile device penetration (Asongu, 2018). In the period October to December 2016, the mobile service sub-sector registered a positive growth to post 38.9 million active mobile subscriptions up from 38.5 million subscriptions recorded during the previous quarter. This represents a slight growth of 1.0 percent during the quarter and an increase of 1.2 million subscriptions. Perhaps even more impressive is that the CAK recorded in their report that an estimated 39.6 million users accessed the internet with mobile data subscriptions accounting for 26.5 million subscriptions in the country. This was mostly attributed to the cost effective prices of smart phones in the country (Nyambura Ndung'u & Waema, 2011) as well as to internet/data bundles offered by various internet service providers. ("Statistics," n.d.).

E commerce has grown exponentially as a result of this (Wanyoike, Mukulu, & Waititu, 2012), E markets have penetrated the internet from online stores, social media markets to shared WhatsApp groups, taking advantage of the vast interconnected network of people learning consumer behavior before marketing a product via pop up ads (Teng, Laroche, & Zhu, 2007). Services previously designated to distinct locations have been have been made readily available over the web to ready customers. (McKnight, Choudhury, & Kacmar, 2002a) .

Innovations like Mpesa aided by a simplistic and user friendly interface was readily adopted by the innovators and early adopters in the Kenyan market (Jack & Suri, 2010),

this played a huge part in it adoption as with time the service evolved from only money transfer to being used by many institutions for bill settlements and buying of goods (Mas & Radcliffe, 2010). Top down support also played a huge part as Safaricom invested in a lot of infrastructure to advance the service (Quadir, 2010). The challenges in adoption were fought off by a rigorous marketing campaign and also influenced by the number of early majority that took on Mpesa (Mulwa & Ndati, 2013).

The penetration of information and communications technologies (ICT) has also been in healthcare and has led to the transformation of the field coming to be seen as a significant opportunity for growth, although instead of being clinically driven , billing and payment issues have been the driving factors of these developments (Bates, 2002).

Healthcare Information Technology applications could help improve information management (Wager, Lee, & Glaser, 2017), access to health care services, continuity of services, improved quality and safety of care, and costs containment (Health, 1999). Modern patients want their physicians and nurses to use technology based tools during diagnosis (Car & Sheikh, 2004). With the increasing trend of digitalization in every sector of activity, ICT tools are expected to penetrate healthcare as a professional practice.

1.2 Statement of the Problem

Kenya has embraced taking up the digital age very positively making significant strides in its advances (Vision, n.d.). From mobile money, to the Kenyan Government launching an E-citizen portal, efficiency has been one of the main driving forces as well as availability, all feeding into Kenya's revolution of having our services hosted on online platforms enabling high availability and satisfying round the clock demand (Peake, 2013).

The health sector in Kenya has experienced its significant problems every few years (Oyaya & Rifkin, 2003), and recently there has been the introduction of online doctor services, that bid to introduce instant healthcare for patients for fractions of the price offered by traditional hospitals (Bosslet, Torke, Hickman, Terry, & Helft, 2011). Online doctors supplement the traditional patient and doctor interactions (face to face) by offering chat services as some of the options and then offering diagnosis for a fee. An undertaking that is founded on exposure, interaction and with time developed trust.

These services although seeming very practical and promising have turned out to be very difficult to implement in Kenya. Similar solutions have worked well in other countries but Kenya's culture, contextual settings and conditions vary. The services have been available in the country with some like daktari online being launched in 2013 but have yet to have had the desired impact with the public not taking up the services.

1.3 Objectives of the Study

This study is to setup to investigate the online doctor service objectively, comparing it to other successfully undertaken projects that bare a similarity in Kenya or in other countries and borrow aspects of these projects to challenge and breach the challenges we have faced in our set up.

This research also aims to determine the obstacles and benefits of adopting online doctor services and will also attempt to probe and understand the factors that play a part in the adoption of the service, consequently contributing to both theoretical and practical literature.

This research attempts to answer the questions:

1. What factors influence the adoption of online doctors in Kenya?
2. What are the main challenges toward online doctor adoption?

1.4 Significance of the Study

It is hoped this paper will be useful to the doctors who want to enhance their practice to cover an online platform, the public who want to understand better the concept of online doctors and to fellow researchers who want to gain knowledge on this field.

CHAPTER TWO: LITERATURE REVIEW

2.1 The Internet

The Internet brought about a revolution to the telecommunications world from computers to telephones like nothing before it and nothing after it has been able to (Ng, Mertins, & Martin, 2015). The need for communication over distance led to the invention of various communication devices leading up to the computer and this further influence the birth of the internet. The Internet now has a world-wide audience and is an easily affordable mechanism for passing on information and a medium for collaboration and interaction between various users regardless of their location on the globe (Kellerman, 2016). The internet, has turned out to be one of the few technological juggernauts that has seen sustained investment, research and development from governments, industries and academia all partnering in ensuring that there is constant development and evolution in new ways to deploy this technology (Schwerdel, Reuther, Zinner, Müller, & Tran-Gia, 2014).

2.1.1 The Internet in Kenya

Over the recent past, Kenya has been investing on development trends that build on transforming herself into a knowledge-based economy that relies on the use of information technologies to enhance service delivery (Cunningham, 2016).

Information communication technology has been taken up to be a driving force for development in most of the sectors as the government identified ICT as one of the key enablers that Kenya will use in its transformation into a knowledge and information based economy giving its citizens access to quality, affordable, reliable, and round the clock available services in the country (Lieberman, Posner, & Tsai, 2014). The government has thus adopted frameworks and guidelines to promote the use ICT technologies in the country with the National Broadband Strategy (NBS) and the National Optical Fiber Backbone Infrastructure (NOFBI) and the cyber security initiatives as part of the catalysts to help grow and develop the ICT sector in the country ("Research," n.d.).

The development of infrastructure has been followed with a growing number of technologies and services that offer fast and reliable internet connections and with consumers readily embracing them (Mureithi, 2017). There number of internet

subscriptions in the country has been on an upward trajectory with the Communications Authority of Kenya (CAK) reporting that within the period October to December 2016 there was a reported 26.6 million subscriptions this translating to an estimate of 39.6 million internet users in the country. Mobile data subscriptions took up a mammoth 26.5 million subscriptions, 99% of the total which the CAK attributes to the affordability of smartphones and data/internet bundles offered in the country by service providers.

Terrestrial wireless data, fiber optic and fixed cable modem subscriptions also increased with satellite subscriptions decreasing as it is far much more costly compared to the others.

The number of internet subscriptions and users is summarized in the table below.

Table 2.1: Internet Subscriptions and Internet Users

Internet/Data Subscriptions	*Dec-16*	*Sep-16*	*Quarterly Variation (%)*	*Dec-15*	*Sep-15*	*Quarterly Variation (%)*
Total Internet Subscriptions	**26,679,222**	**25,672,474**	**4.0**	**23,929,657**	**21,628,271**	**10.6**
Mobile Data Subscriptions	26,521,037	25,536,400	3.9	23,794,550	21,511,638	10.6
Fixed Wireless Data Subscriptions	29,724	15,835	87.7	19,507	13,221	47.5
Satellite Data Subscriptions	584	598	-2.3	489	720	-32.1
Fixed DSL Data Subscriptions	2,483	2,583	-3.9	3,732	2,500	49.3
Fixed Fibre Optic Data Subscriptions	39,255	33,269	18.0	111,354	100,192	11.1
Fixed Cable Modem Subscriptions	86,139	83,789	2.8	25	25	0.0
Estimated Internet Users[3]	**39,664,377**	**37,718,650**	**5.2**	**35,549,620**	**31,985,048**	**11.1**

Source: CA, Operators' Returns.

This penetration has enabled a lot of services to be hosted online with the example of many entrepreneurs expanding their trade to a larger audience (Kabuba, 2014).

2.2 E Services.

E services/online services offer customers scores of benefits which include and are not limited to personalized and amplified control and ease of use and user friendliness which are further cemented in by reduced transaction charges (Boyer, Hallowell, & Roth, 2002).

The internet has been instrumental in providing the platform on which the many cooperates have been able to successfully in cooperate their business plans into, enabling them to provide goods and services to larger institutions/businesses and individuals alike. The number and variety of online services increases every day, a trend likely to increase in the immediate future as businesses venture more into cost cutting and delivery of quality readily available services (De Prato, Feijoo, & Simon, 2014).

Examples of e services currently available around the world range from online shopping to food delivery with revolutionary applications such as Uber and Airbnb revolutionizing the markets in which they have been a part of. The e service model is based on individually delivering services to the consumer providing the option for customization.

2.2.1 E-Services in Kenya

Kenya has also been swiftly adopting e services into the economy with the most notable of this being the E-government initiative. E-Government is the incorporation of technology into formerly manual government processes making them more efficient and effective to benefit its citizens, employees and business partners (Pascual, 2014). The Kenyan government has worked on replacing the old traditional systems with electronic ones taking advantage of the fast growing internet and information technology base in the country.

The Government of Kenya has implemented ICT systems in its various state service offering departments and institutions, which include but are not limited to tax systems, the department of immigration as honorable mentions. These systems provide services to Kenyans round the clock through easily accessible government portals.

2.3 E-Services in Health

Healthcare service delivery is evolving everyday helped and boosted by the advances in telemedicine and backed by an exposed and well informed tech-savvy public (Hesse & Shneiderman, 2007). People are now more invested in their own health taking advantage of available gadgets, online processes, blogs, physician journals as examples and this is slowly redefining the legacy physician and patient relationship (Ball & Lillis, 2001).

E-Health or Telemedicine brings about utility to health, theoretically offering easy access to remote areas and availing health services thus helping significantly reduce the time and costs of patient transportation among other benefits (Eysenbach, 2001). The focus of this paper is on online doctors, a form of telemedicine that has been adopted the world over with a report showing that 72% (the number has since increased) of internet users have used the internet for health information and one in five of those people have looked for reviews that pertain to certain treatments or have reached out to specific doctors (Wallace, Paul, Sarkar, Trikalinos, & Dredze, 2014).

2.3.1 The Utilization of Telemedicine around the World.

The Pew Internet & American Life Project, reported that about 93 million Americans, have searched for a health-related topic online. This roughly translates to thirty five percent of U.S adults have used the internet to investigate what medical condition they or someone else might have (Fox & Duggan, 2016).

Most Americans have a primary care doctor but are hindered by booking of appointments and other factors for conditions that are serious enough to be seen on the same day e.g. a cut finger. Urgent care centers have filled that void with many patients visiting urgent care centers because they believe it is more convenient and takes less time than going to their regular doctor (Corwin, Parker, & Brown, 2016).

This is a demand now being addressed by online doctor portals like Nextmd healthcare which is an online doctor platform helping bridge the gap between patients and doctors. The online doctors are also rated and slated on RatemyMD an online forum which shows doctor statistics from various patients. Although there is little statistics on its reach similar systems like *netdoktor.dk* in Denmark have picked up very well with statistics showing that it has at least 2 million visitors and 1 million users each month according to the Danish Online Index.

Further analysis shows that 87% of Danes above the age of 18 seek healthcare information online and 67% of adults visit netdoktor.dk showing a preference for online health services a survey by the Nielsen Company. Netdoktor is supported by prominent and specialist doctors setting high standards for their content.

2.3.2 The Utilization of Telemedicine in Africa.

In Africa, although it is seen that the continent lags behind in information systems development, there have been major strides in multiple countries in regards to ICT and telecommunications development (Lufumpa & others, 2017).

There have been some efforts underway in multiple countries in respect to telemedicine, with internet being hailed by researchers as the revolutionary tool enabling global transfer of information for telemedicine.

Some of the known telemedicine projects in Africa include the Reseau en Africue Francophone pour la Telemedicine (RAFT), the fundamental of modern telemedicine for Africa (FOMTA) and the Pan-African e-network project. RAFT initiated by India for Africa is one of the biggest projects for distance education and telemedicine, it covers about 12 African countries and is able to provide other e-services as well (Duclos, 2016). FOMTA mainly focusses on research and development and also promoting regional networks between developing countries and their universities linking them to European countries (Bwalya, 2017).

In Mali the launch of a project known as "Keneya Blown" was launched in 2001 in Bamako. The project's objective was to use the internet as a connection between the national and regional health-care institutions implementing services that include a medical web portal and email all made possible through low bandwidth. This enabled an internet-based distance learning system, long distance collaborations and teleconsultations. So far the project has been successful in connecting some health institutions in different towns where the personnel has been trained on using the internet based tools (Goita, 2016).

In Sudan Ashrafcom has pushed telemedicine by availing easy access of medical services to Sudan nationals and medical officers through the use of telecommunications technology. The project was initiated to bring together diverse health groups and overcome physical barriers affecting the advancement of telemedicine, by improving service delivery in healthcare for the benefit of the countries citizens (Wamala & Augustine, 2013).

2.3.3 The Utilization of Telemedicine in Kenya.

Kenya has embraced the telemedicine practice as a way of improving her health infrastructure. From the use of smart cards in all health centers to online doctors, these are some of the methods so far implemented as notable telemedicine initiatives.

Unlike the very common card system that has been so far adopted by the whole country, online doctors which is the focus of this paper, has been met with various challenges in regards to its adoption. There have been online doctor projects implemented to explore the strong ICT base and with internet access. There are apps like "iSikcure" and "See me Appointments" available on the app store that grant patients access to practicing doctors. This should on paper be a very easy transition as the statistics on mobile phone and internet penetration are very favorable.

Systems like "daktari online" have been around since 2013 and yet the adoption and exposure levels remain very low as per the writing of this paper. There have been various challenges and with many other systems coming through we try and examine methods of successful adoption to ensure they stand a chance where others have failed in a bid to enhance quality service delivery in healthcare.

2.3.4 Benefits of Telemedicine (Online Doctors).

Online health advice demand is growing around the globe with more and more users turning to online professionals in the search for credible medical advice (Johnston, Kennedy, Murdoch, Taylor, & Cook, 2004). The benefits we get from online health are:

No Location Boundaries or Limitations.

Online doctor services enable patients to access reputable doctors and specialists that they would normally not have access to. Patients can access medical advice from remote locations where it was a challenge previously due to challenges that are presented when trying to access conventional treatment options (Newton, 2014).

Cost Effective

The appeal of low-cost health care is a major driving force as medical bills at present continue to be a hefty burden to patients (Gottlieb, 2000). Online doctor platforms

reduce travelling, consultation cost etc. and at the end will play a big role in reducing the overall cost of healthcare.

Better than Self-Diagnosis.

In the millennial age, access to the internet has increased. With this exposure more and more people have at one point tried to self-diagnose symptoms using search engines. Self-diagnosis in many cases is dangerous and counterproductive. It may give insight to a condition but expert advice cannot be substituted by hypotheticals (McMullan, 2006).

24/7 Health Support.

Most online health services run on an availability principle, offering access to customers round the clock with the added advantage of accessing the services from their homes.

Second Opinions.

Online consultations can offer patients the luxury of having a second opinion from qualified doctors who use different methods to tackle medical problems.

Confidentiality.

Online doctors offer patients with sensitive medical conditions an option of contacting doctors they have never met in a confidential and in some cases anonymous way, thus promoting confidentiality.

2.3.5 Challenges Facing Telemedicine (Online Doctors).

Despite its overwhelming benefits, there are significant challenges when trying to implement online doctors. Some of these challenges include:

Inadequate assessment

Online consultations are generally not accompanied by a physical examination, the doctor is then presented with a dehumanized situation, and thus even the simple verbal cues that are normally employed to better interpret the situation are negated (NITZKIN, ZHU, & MARIER, 1997). Doctors then rely on the patient's descriptive ability instead of their expertise, which may lead to a misdiagnosis (Hjelm, 2005).

Depersonalized experiences.

Patient doctor relationships are very important and are characterized by trust and intimacy and play a big role in the healing process (Friedenberg, 2003). Patients need to feel they can trust their doctors and this may lead to them revealing more details that may assist in diagnosis. Telemedicine deprives both parties involved of this experience (Hjelm, 2005).

Technical Reliability.

Reliability is a concern where depending on the service, clients and providers are unsure of the bargain when it comes to the front of technical support (Jadeja & Modi, 2012). For a system relying on internet connection, a dip or loss in signal would cut the session short or complicate your online session.

Aftercare

Online consultations are not made to be an ongoing process. Follow up is very important as a patient should know how long it should take them to feel better and what they should do if they do not. This is a service not handled by online consultation (Miller, 2001). Patients should in principle have documentation of all care, including tests and treatments, in a central place (Weed, 1968).

Prescription and dispensing drugs.

Prescribing drugs that do not fall in the category of lifestyle drugs is a process that usually requires physical exams and lab tests (Medicine & others, 2013). Online consultations fall short of this.

2.4 Research Framework and Hypothesis

This study attempts to analyze and examine the factors influencing the adoption of online doctor services in Kenya. Researchers have come up with a variety of models trying to explain IS success, the Technology Acceptance Model (TAM) (Venkatesh & Davis, 2000) is one of these models but recent researchers have found these models to be limited as acceptance is not success, adoption relies heavily on success as a precondition (Kishore & McLean, 1998). After going through various adoption models the Delone and McLean IS success model was used as the baseline for this paper (Delone & McLean, 2003). This model states that for an Information system's success there are factors, dimensions and interrelationships that must exist within the systems components (DeLone & McLean, 1992). The model that was initially conceived in 1992 was revised in 2003 to come up with a revised model as shown below.

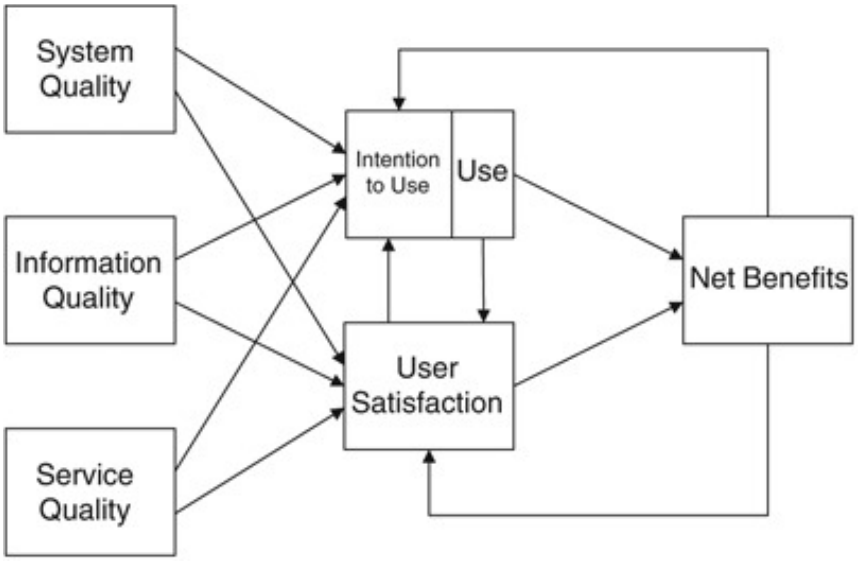


Figure 2.1: Research Framework

The model has six major dimensions of success:

1. System quality

These are suitable characteristics demanded of the system from its users. Which include and are not limited to; ease of use, reliability, short response time and responsiveness.

2. Information quality

These are the desirable outputs that the system outputs are expected to characterize. Some examples of these are relevance, reliability, usability and completeness.

3. Service quality

The support the system users get from the system. This may vary from IT support to user/customer support.

4. System use

The level an intended market utilizes the capabilities of a system. This is measured mainly on usage i.e. frequency and purpose of use among others.

5. User satisfaction

This is the user's satisfaction while using the system.

6. Net benefits

The proportion as to which the system can be judged to have intended on the life of the users contributing to measurable levels of success.

This study seeks to extend (Delone & McLean, 2003) work by adding on some factors that influence the adoption of online doctors. Thus we seek to:

Study trust and security in regards to system quality with regards to adoption of online doctors' adoption through usage intention and user satisfaction. According to (Smith & Manna, 2004) trust is a major factor in online doctor services and is a key influence in persuading patients to use the service. Trust has proven to be a very major key in any online transactions (Chen & Barnes, 2007). The patients need to be reassured that the system has the required level of quality to cater to their needs. This then feeds directly into user satisfaction and usage intention.

Patients also expect a secure platform promoting high level of confidentiality of their medical history between their health facility and themselves (McEwen, 2001). The same applies with online doctor services where it is expected that medical information will be safe however way it is distributed within the setup (Saigi-Rubió, Jiménez-Zarco, & Torrent-Sellens, 2016). Security also extends to the systems architecture with studies

showing that most online services that fail have had the challenge of convincing their target market that their online data is secure (Chang & Ramachandran, 2016). The fear of personal health records being acquired and accessed by the wrong people has led to those willing to try using the online doctor platform to be unwilling (Young, Willis, Cameron, & Geana, 2014). This has affected the online doctor services adoption of.

Security or a sense of it will have an outcome in the adoption of online doctor services as the patient should be satisfied with the level at which the system handles important patient data positively impacting usage intention and user satisfaction.

Therefore this study proposes;

H1: Trust as a factor in system quality has a positive relationship with usage intention.

H2: Trust a factor in system quality has a positive relationship with user satisfaction.

H3: Security a factor in system quality has a positive relationship with usage intention.

H4: Security a factor in system quality has a positive relationship with user satisfaction.

Study cost as a factor in regards to service quality when it comes to the adoption of online doctor services in Kenya through usage intention and user satisfaction. Online doctor services promise to deliver services at a lower price as the patient does not have to incur travel costs, time cost, administration cost and operating cost etc. as the services are on demand and they are not included in the overall service cost.(Mair, Haycox, May, & Williams, 2000) . Cost will influence usage intention as with the promises above this will be a major factor when pushing users to use the system. User satisfaction will also be affected by this as value for money is a characteristic that plays into quality (Caruana, Money, & Berthon, 2000), which then affects user satisfaction.

This study predicts that cost in regards to service quality influences online doctor services adoption just like in every other trade based practice (Venkatesh & Brown, 2001).

Therefore this study proposes;

H5: Cost as a factor in service quality has a positive relationship with usage intention.

H6: Cost as a factor in service quality has a positive relationship with user satisfaction.

Study marketing and exposure as a factor of information quality and its correlation with the adoption of online doctors through usage intention and user satisfaction. One of the easily noticeable challenges with adoption of online doctor services is that not many people are actually aware that the services exist. Awareness plays a major factor in adoption (Jennett et al., 2003). An extensive accurate marketing campaign showcasing the technologies strengths, usability, accuracy and how they can positively impact a patients experience would facilitate its adoption (Sathye, 1999). An accurate positive extensive campaign would positively influence usage intention and to some degree user satisfaction.

This study proposes:

H7: Marketing and exposure as a factor in information quality has a positive relationship with usage intention.

H8: Marketing and exposure as a factor in information quality has a positive relationship with user satisfaction.

Study Technology Literacy and its relationship with usage intention and user satisfaction in regards to adoption of online doctor services.

Technology Literacy covers the ability of a patient to use computers or mobile devices to access the online doctor services (Kaphle, Chaturvedi, Chaudhuri, Krishnan, & Lesh, 2015). Kenya has a high level of illiteracy although it is growing exponentially with the availability of cheap and affordable mobile devices and internet rates (Piper, Jepkemei, Kwayumba, & Kibukho, 2015). Technological literacy plays a big part in usage intention as a user who feels that they can comfortably use a system will try and users with limited technology literacy will be more satisfied if the system is easy to use and responsive to them.

This study proposes that:

H9: Technology Literacy has a positive relationship with usage intention.

H10: Technology Literacy has a positive relationship user satisfaction.

Study the usage intention and system use relationship with user satisfaction and adoption of online doctor services.

Various studies have established usage intention and system use to have a positive relationship with adoption and user satisfaction (Moon & Kim, 2001). A user has to use a system to determine their satisfaction level and subsequently system use has a positive relationship with adoption. These factors all link up to usage intention as it initiates the cause and effect relationship between system use, user satisfaction and adoption (Davis, Bagozzi, & Warshaw, 1992).

This study hence proposes that:

H11: Usage Intention has a positive relationship with user satisfaction.

H12: Usage Intention has a positive relationship with the adoption of online doctors

Study user satisfaction and its relationship with usage intention and adoption of online doctor services.

This is based on what the user expects when using a system for the first time and how the experience of using the system matches up to the expectation. Some of the measures of satisfaction include usefulness, effectiveness, availability and dependability (Al-Gahtani & King, 1999). Multiple studies have identified a positive relationship between user satisfaction and continual use of a system and its adoption (McKeen, Guimaraes, & Wetherbe, 1994) .

This study proposes that:

H13: User satisfaction has a positive relationship with usage intention.

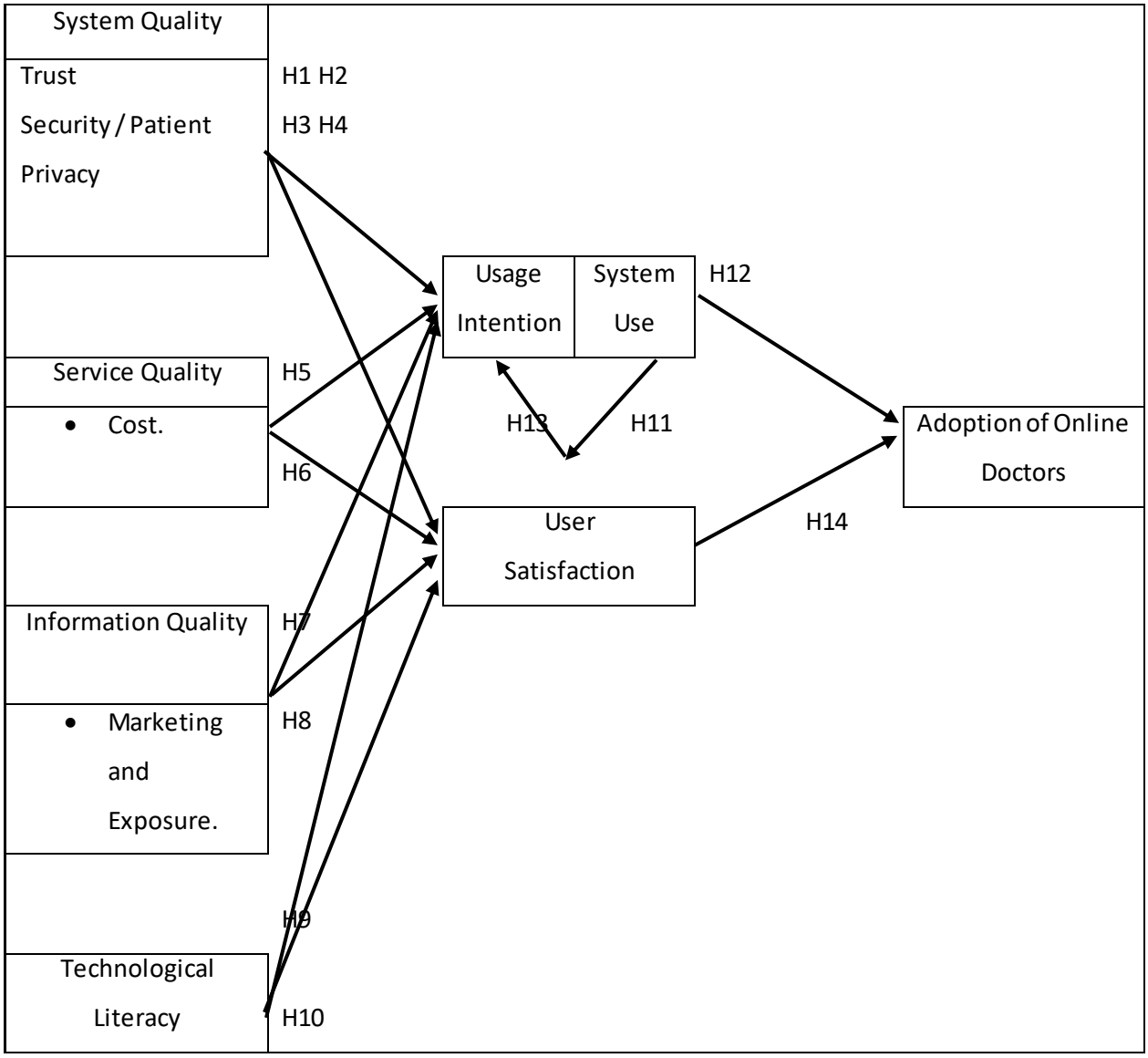
H14: User satisfaction has a positive relationship with the adoption of online doctors.

After understanding the main challenges facing the adoption of online doctor adoption and referencing the research questions we emerge with the main variables of our study,

Dependent Variables	**Independent Variables**
• Adoption of online doctor services.	• Cost. • Trust. • Marketing and Exposure. • Technology Literacy. • Security/Patient Privacy.

Table 2.2: Variables

The proposed research theoretical framework being:



Factors: trust, patient privacy, cost, marketing and exposure, technological literacy

Figure 2.2: Conceptual Framework

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This chapter gives a detailed outline of how the study will be conducted. It focuses on research design to be used, the study of the population and sample, the research instruments, data collection procedure, data analysis techniques, how reliability and validity will be achieved and finally how the conceptual variable will be operationalized.

3.2 Research Philosophy

This study explores the factors that affecting online doctor service adoption in the Kenyan context, with research questions seeking to put into light to what extent each of these factors influence the adoption decision making by the parties involved.

A Positivist research is adopted. Positivism is where factual knowledge gained through observation can be deemed as trustworthy. The researcher's role is limited to data collection and interpretation using an objective ontology. Knowledge is seen to stem from human experience.

This study intends to use scientific evidence and quantitative data to reveal the adoption level and the factors affecting it. A cross sectional study is employed with data being collected within a two days to compare different users experience with online doctor services.

3.3 Research Design

This is usually influenced by the research questions. This research will utilize an inductive approach in which the researcher identifies the general principles and characteristics that define a specific phenomenon that has been observed or experienced. The researcher thus develops an explanation as to why that phenomenon occurs. In this approach we thus develop theory by advancing from specific observations of a phenomenon to grounded theory on the issue or phenomenon being studied.

This study will adopt a survey using questionnaires used and afterwards the data collected and the data used to develop explanations for the hypothesis. This is with the addition of an emic epistemology as the researcher will be in the process (Harris, 1976) quantitative analysis will be carried out on the questionnaires to gather information as it will enable deeper analysis of the underlying factors.

3.4 Sampling

The main study population of this research will be collected from The Nairobi Hospital with field data being collected from patients selected randomly from those seeking medical services from the hospitals Accident and Emergency area. Systematic sampling technique will be used to sample the population, with one of two adult people who walk in to the Nairobi hospital picked to answer a questionnaire.

3.5 Sample Size.

The target population is the patients who walk in to the Nairobi Hospital in a day to access the services offered in the accident and emergency center. To determine a representative sample size (VanVoorhis & Morgan, 2007) formula of 104 + k will be employed with K being the number of predictors. In our case we have 9 predictors thus our sample size will be 113. This is a figure that can be achieved with one day of data collection with the hospital's medical records department recording 200 to 250 patients visiting the accident and emergency center in a day.

3.6 Data Collection

This study will use a questionnaire for patients as the primary data source. The researcher will hand questionnaires directly to the patients at the hospitals waiting area after patient registration, explaining the various parts of the questionnaire to the patients. Secondary data will be obtained from journals and online articles.

3.6.1 Questionnaires

(Milne, 1999) mentioned that questionnaires are very essential as they allow a measured outcome for and argument for and against a point of view. The questionnaire will contains a section A which will seek to get their demographics, while section B of the questionnaire will look into questions linked to the independent and dependent

variables i.e. cost, trust, and marketing and exposure, security/patient privacy, technology literacy, usage intention, user satisfaction and adoption.

3.6.2 Validity Reliability tests

The strengths of the data collection instruments is tested by using a reliability test, which tests test the extent to which the instrument is successful in getting the required data. A reliability test determines the degree to which an instrument can be relied upon to provide consistent data should the process be repeated.

To test validity a pilot test with practicing doctors and IT professionals was conducted to test the questionnaires ability to acquire the required data. For reliability a Cronbach alpha test will be carried out on the collected data.

3.6.3 Data Analysis

The quantitative data collected was in a five point Likert scale and analysis was performed on the close ended questionnaires.

Co-relation and regression will be employed on the variables testing the relationship between them with descriptive pie charts and graphs offering more descriptive analysis. All this will be linked back to answering the research questions.

CHAPTER FOUR: FINDINGS AND DISCUSSION

4.1 Introduction

These are the findings, interpretation and discussion on "The Critical Factors Affecting Adoption of Online Doctor Services in Kenya. A Case Study of the Nairobi Hospital" according to objectives and research questions.

4.2 Summary of the Responses

To test all the proposed variables on online doctor adoption, questionnaires were issued at the Nairobi hospital a cross sectional survey. All questionnaires were filled and returned a total number of 115.

4.2.1 General and Demographic Information

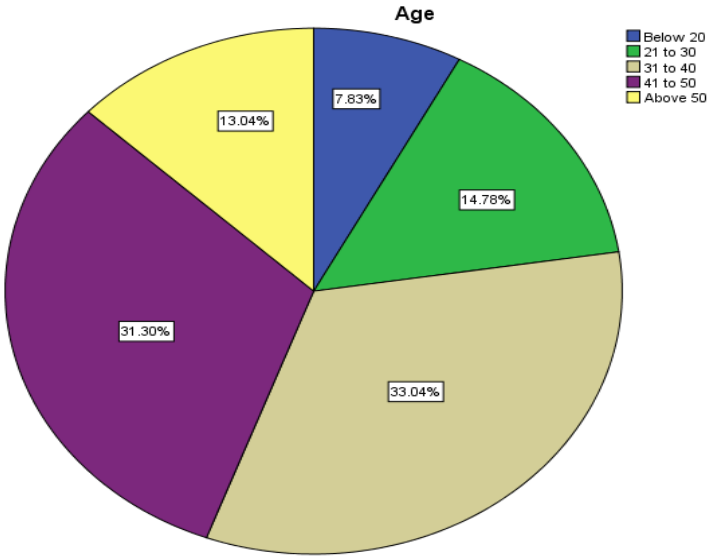
4.2.1.1 Respondents by Age

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Below 20	9	7.8	7.8	7.8
	21 to 30	17	14.8	14.8	22.6
	31 to 40	38	33.0	33.0	55.7
	41 to 50	36	31.3	31.3	87.0
	Above 50	15	13.0	13.0	100.0
	Total	115	100.0	100.0	

Table 4.1: Respondents by Age

As per the table above the majority of the participants who took part in the study were of the ages 31 and 40 years. The second largest was of the bracket 41 and 50 years.

The chart below represents the information in the table above further.



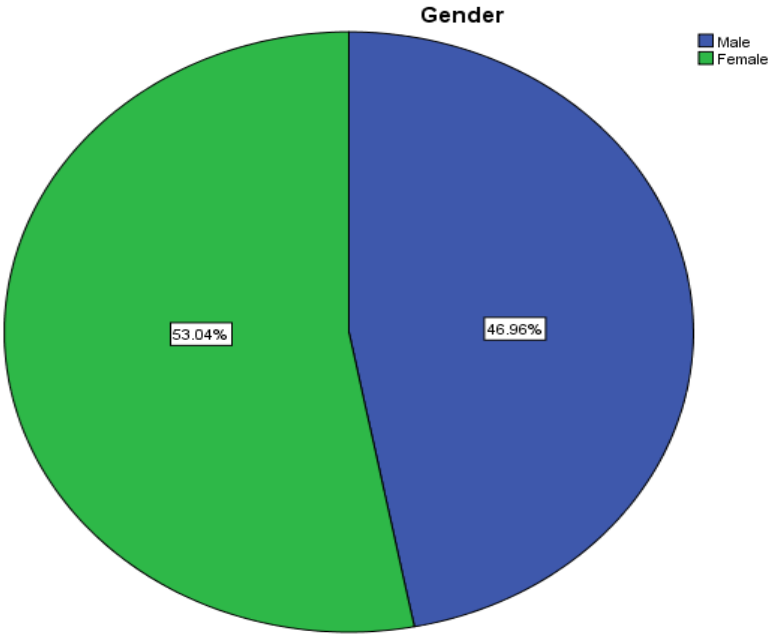
4.2.1.2 Respondents by Gender

Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	54	47.0	47.0	47.0
	Female	61	53.0	53.0	100.0
	Total	115	100.0	100.0	

Table 4.2: Gender

Most of the participants who participated were female ranking at 53.0% of the total respondents. Male respondents constituted 47% of the total. The chart below represents the information in the table above further.



4.3 Reliability Analysis

To confirm that the research instrument used was reliable, the researcher used Cronbach's Alpha which is employed in the event of multiple Likert questions in a survey/questionnaire (Gliem & Gliem, 2003). An acceptable level of the alpha is above 0.50 with anything lower that .50 regarded as unacceptable. A level of 0.98 was achieved hence the research instruments are considered reliable.

Reliability Statistics

Cronbach's Alpha	N of Items
.985	8

Table 4.3: Reliability Statistics

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Cost and Charges	29.9563	15.050	.964	.983
Usage Intention	29.7089	16.681	.976	.981
Trust	30.8806	15.135	.951	.984
Marketing and Exposure	30.0728	17.426	.932	.984
Security and Patient Privacy	29.8713	16.816	.991	.981
Technological Literacy	29.9024	15.619	.984	.980
User Satisfaction	29.6611	16.662	.973	.981
Adoption	29.5154	17.737	.874	.986

Table 4.4: Item-Total Statistics

4.4 Detailed Descriptive Statistics

4.4.1 Description of the variable: Cost and Charges

The study was interested in the effect costs and charges had on usage intention and user satisfaction. The respondents were to respond with the help of a Likert scale rating their responses. The responses are as the table below;

Descriptive Statistics

		N	Minimum	Maximum	Mean	Std. Deviation
Q1	Computers and mobile devices have become more affordable	115	3.00	5.00	4.5130	.66709
Q2	Internet connectivity charges are affordable	115	2.00	5.00	3.8609	.95410
Q3	Consultation charges at a hospital are a factor influencing the choice to visit a particular hospital.	115	2.00	5.00	4.4087	.78243
Q4	Time and cost savings would definitely influence my decision to use online doctor services provided the level of quality is retained.	115	4.00	5.00	4.5391	.50065
Q5	Value for money will be a strong selling factor when deciding use of online doctors.	115	2.00	5.00	4.1130	.93438
	Valid N (list wise)	115				

Table 4.5: Descriptive Statistics

The respondents mostly agreed that costs and charges were a factor in their usage intention and will be a factor in user satisfaction. The results are Q1 (mean: 4.5, S.D = .667), Q2 (mean: 3.8, S.D = .95), Q3 (mean: 4.4, S.D = .782), Q4 (mean: 4.5, S.D = .5), Q5 (mean: 4.1, S.D = .93).

4.4.2 Description of the variable: Trust

The study was interested in the effect trust had on usage intention and user satisfaction. The respondents were to respond with the help of a Likert scale rating their responses. The responses are as the table below;

Descriptive Statistics

		N	Minimum	Maximum	Mean	Std. Deviation
Q1	I trust online service platforms with my data.	115	1.00	5.00	2.8174	1.02240
Q2	I would trust an online doctor service platform's ability to protect my data.	115	1.00	4.00	2.4783	.94913
Q3	I generally trust online service platforms e.g. online banking and as a result I would trust online doctor services.	115	3.00	5.00	4.2957	.67504
Q4	I normally trust a doctor's diagnosis and I would trust an online diagnosis without the physical interaction.	115	1.00	5.00	3.4348	.80710
	Valid N (list wise)	115				

Table 4.6: Descriptive Statistics

The respondents mostly agreed that costs and charges were a factor in their usage intention and will be a factor in user satisfaction. The results are Q1 (mean: 2.8, S.D = 1.02) with many respondents not able to trust online platforms with their user data, Q2 (mean: 2.4, S.D = .95) with many respondents not sure that an online doctor platform

would be able to protect their patient data, Q3 (mean: 4.2, S.D = .675) with respondents able to trust online banking systems, Q4 (mean: 3.4, S.D = .8) with most respondents not sure they would trust a diagnosis without physical interaction.

4.4.3 Description of the variable: Marketing and Exposure

The study was interested in the effect marketing and exposure had on usage intention and user satisfaction. The respondents were to respond with the help of a Likert scale rating their responses. The responses are as the table below;

Descriptive Statistics

		N	Minimum	Maximum	Mean	Std. Deviation
Q1	I have heard of online doctor services before.	115	2.00	3.00	2.4870	.50202
Q2	I would like to see more advertisements of the services explaining more on how it works.	115	3.00	5.00	4.4783	.62615
Q3	More information on the service would affect my intention to seek the service.	115	4.00	5.00	4.5043	.50217
Q4	I think I would have already tried using the service had I known of it.	115	4.00	5.00	4.6087	.49018
Q5	An extensive awareness campaign of the system should be done.	115	4.00	5.00	4.6783	.46919
	Valid N (list wise)	115				

Table 4.7: Descriptive Statistics

The respondents mostly agreed that costs and charges were a factor in their usage intention and will be a factor in user satisfaction. Most respondents had not heard of the services and that an extensive sensitization exercise was required. The results are Q1 (mean: 2.48, S.D = .502), Q2 (mean: 4.47, S.D = .626), Q3 (mean: 4.5, S.D = .502), Q4 (mean: 4.6, S.D = .49), Q5 (mean: 4.6, S.D = .469).

4.4.4 Description of the variable: Security and Patient Privacy

The study was interested in the effect Security and Patient Privacy had on usage intention and user satisfaction. The respondents were to respond with the help of a Likert scale rating their responses. The responses are as the table below;

Descriptive Statistics

		N	Minimum	Maximum	Mean	Std. Deviation
Q1	Patient privacy is a major factor in healthcare delivery.	115	2.00	5.00	4.5565	.71563
Q2	I wouldn't visit a hospital if I knew my medical history wasn't safe.	115	4.00	5.00	4.6087	.49018
Q3	My privacy guarantee would be a major factor in using online doctor services.	115	4.00	5.00	4.5826	.49529
Q4	I would prefer that there be a publicized guideline on how the system would handle my patient information	115	3.00	5.00	4.3217	.75566
Q5	The security of the online doctor services is important to me	115	4.00	5.00	4.9217	.26976
Q6	An authorization requiring a username and password is required.	115	3.00	5.00	4.6261	.53739
Q7	A guarantee of the safety of my data is required and I would only use the system if I am convinced of the safety features.	115	1.00	5.00	2.8522	.86088
	Valid N (list wise)	115				

Table 4.8: Descriptive Statistics

The respondents mostly agreed that security and patient privacy are a factor in their usage intention and will be a factor in user satisfaction. Most respondents are very sensitive on their patient records and the security around this, although most respondent would still use the systems regardless a safety feature assurance. The results are Q1 (mean: 4.5, S.D = .71), Q2 (mean: 4.6, S.D = .49), Q3 (mean: 4.58, S.D = .495), Q4 (mean: 4.32, S.D = .755), Q5 (mean: 4.9, S.D = .26), Q6 (mean: 4.6, S.D = .537), Q7 (mean: 2.8, S.D = .86).

4.4.5 Description of the variable: Technological Literacy

The study was interested in the effect Technological Literacy had on usage intention and user satisfaction. The respondents were to respond with the help of a Likert scale rating their responses. The responses are as the table below;

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Q1 I am comfortable using online based services	115	1.00	5.00	4.4435	.85009
Q2 I access online/internet based services at least daily using a computer or smartphone.	115	1.00	5.00	3.4522	1.14128
Q3 I experience some difficulty interacting with unfamiliar online systems.	115	4.00	5.00	4.6783	.46919
Q4 I embrace new systems that make life easier.	115	4.00	5.00	4.7130	.45432
Valid N (list wise)	115				

Table 4.9: Descriptive Statistics

The respondents mostly agreed that technological literacy was a factor in their usage intention and will be a factor in user satisfaction. Most respondents are mostly comfortable using online systems and use them every day. The respondents also are mostly open to new systems that make life easier although complicated systems are also a notable challenge. The results are Q1 (mean: 4.4, S.D = .85), Q2 (mean: 3.4, S.D = 1.14), Q3 (mean: 4.67, S.D = .469), Q4 (mean: 4.7, S.D = .454).

4.4.6 Description of the variable: Usage Intention

The study was interested in the effect usage intention had on the adoption of online doctor services. The respondents were to respond with the help of a Likert scale rating their responses. The responses are as the table below;

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Q1 I would consider using online doctor services as an option when accessing healthcare.	115	3.00	5.00	4.6348	.51861
Q2 I would use online doctor services as accessing healthcare services online would enable me to stay within my schedule and still get medical care.	115	1.00	5.00	4.0957	.92693
Q3 Using an Online Doctors platform would enhance my need access healthcare as it is on demand.	115	4.00	5.00	4.6435	.48107
Q4 Using an Online Doctors platform would give me greater control over any health issues that may arise.	115	4.00	5.00	4.6870	.46576
Valid N (list wise)	115				

Table 4.10: Descriptive Statistics

The respondents mostly agreed that they would gladly use the system if the benefits were evident. The results are Q1 (mean: 4.63, S.D = .51), Q2 (mean: 4.09, S.D = .926), Q3 (mean: 4.64, S.D = .481), Q4 (mean: 4.687, S.D = .465).

4.4.7 Description of the variable: User Satisfaction

The study was interested in the effect user satisfaction had on the adoption of online doctor services. The respondents were to respond with the help of a Likert scale rating their responses;

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Q1 In general, using an effective online doctor's tool would give me a sense of satisfaction.	115	4.00	5.00	4.5739	.49667
Q2 Saving time and on demand quality healthcare would be enough to satisfy any demands that I would have with the system.	115	1.00	5.00	4.2174	.96229
Q3 I use other online services as the convenience offered by these services was a major advantage.	115	4.00	5.00	4.7304	.44568
Q4 Positive Experiences would play a part in my intention to use the system more.	115	3.00	5.00	4.7304	.51846
Valid N (list wise)	115				

Table 4.11: Descriptive Statistics

The respondents mostly agreed that user satisfaction would be dependent on some level of quality from the system. The results are Q1 (mean: 4.57, S.D = .496), Q2 (mean: 4.21, S.D = .962), Q3 (mean: 4.73, S.D = .445), Q4 (mean: 4.73, S.D = .518).

4.4.8 Description of the variable: Online Doctor Service Adoption

The study was interested in the continuous use of the system by users. The respondents were to respond with the help of a Likert scale rating their responses. The responses are as the table below;

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Q1 I would consistently use the different online doctor services made available if educated about them.	115	3.00	5.00	4.7043	.47709
Q2 I intend to use online doctor services as it would combine well with my schedule.	115	4.00	5.00	4.7130	.45432
Valid N (list wise)	115				

Table 4.12: Descriptive Statistics

The respondents mostly agreed that they would use the system regularly but there are factors playing into their decision. The results are Q1 (mean: 4.7, S.D = .477), Q2 (mean: 4.71, S.D = .45).

4.5 Normality Test

This study's population was less than 200 thus a Shapiro-Wilk test is employed. The results are as below.

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Cost and Charges	.207	115	.741	.852	115	.821
Usage Intention	.309	115	.567	.804	115	.763
Trust	.190	115	.725	.943	115	.903
Marketing and Exposure	.314	115	.637	.761	115	.781
Security and Patient Privacy	.250	115	.583	.853	115	.754
Technological Literacy	.318	115	.614	.819	115	.896
User Satisfaction	.272	115	.707	.782	115	.808
Adoption	.448	115	.685	.584	115	.794

a. Lilliefors Significance Correction

Table 4.13: Tests of Normality

The significance value was above 0.05 thus the data is considered normal.

4.6 Hypothesis Testing

4.6.1 Pearson Correlation

The researcher adopted Pearson Correlation to measure of the relationship between the variables in the study. This ranges from +1 to a – 1 where a positive value signifies a positive relationship and a negative value a negative relationship. Values ranging lower than 0.3 show a weak relationship, values ranging between 0.3 and 0.5 show a moderate relationship and values above 0.5 show a strong relationship.

H1: Trust as a factor in system quality has a significant positive relationship with usage intention.

H2: Trust a factor in system quality has a significant positive relationship with user satisfaction.

Correlations

		User Satisfaction	Usage Intention	Trust
User Satisfaction	Pearson Correlation	1	.955	.919
	Sig. (2-tailed)		.000	.000
	N	115	115	115
Usage Intention	Pearson Correlation	.955	1	.932
	Sig. (2-tailed)	.000		.000
	N	115	115	115
Trust	Pearson Correlation	.919	.932	1
	Sig. (2-tailed)	.000	.000	
	N	115	115	115

Table 4.13: Correlations

The relationship between trust and both Usage Intention and user satisfaction has a sig 2 tailed level of .000 showing that there is significance between them with a positive 91.9 % and 93.2 % relationship respectively.

H3: Security a factor in system quality has a significant positive relationship with usage intention.

H4: Security a factor in system quality has a significant positive relationship with user satisfaction.

Correlations

		Security and Patient Privacy	User Satisfaction	Usage Intention
Security and Patient Privacy	Pearson Correlation	1	.965	.977
	Sig. (2-tailed)		.000	.000
	N	115	115	115
User Satisfaction	Pearson Correlation	.965	1	.955
	Sig. (2-tailed)	.000		.000
	N	115	115	115
Usage Intention	Pearson Correlation	.977	.955	1
	Sig. (2-tailed)	.000	.000	
	N	115	115	115

Table 4.14: Correlations

Security and patient Privacy recorded a .000 sig 2 tailed with a 96.5% positive relationship with user satisfaction and an 87.7 % relationship with usage intention.

H5: Cost as a factor in service quality has a significant positive relationship with usage intention.

H6: Cost as a factor in service quality has a significant positive relationship with user satisfaction.

Correlations

		User Satisfaction	Usage Intention	Cost and Charges
User Satisfaction	Pearson Correlation	1	.955	.959
	Sig. (2-tailed)		.000	.000
	N	115	115	115
Usage Intention	Pearson Correlation	.955	1	.948
	Sig. (2-tailed)	.000		.000
	N	115	115	115
Cost and Charges	Pearson Correlation	.959	.948	1
	Sig. (2-tailed)	.000	.000	
	N	115	115	115

Table 4.15: Correlations

The relationship between cost and charges and both Usage Intention and user satisfaction has a sig 2 tailed level of .000 showing that there is significance between them with a positive 94.8 % and 95.9 % relationship respectively.

H7: Marketing and exposure as a factor in information quality has a significant positive relationship with usage intention.

H8: Marketing and exposure as a factor in information quality has a significant positive relationship with user satisfaction.

Correlations

		Marketing and Exposure	User Satisfaction	Usage Intention
Marketing and Exposure	Pearson Correlation	1	.811	.913
	Sig. (2-tailed)		.000	.000
	N	115	115	115
User Satisfaction	Pearson Correlation	.811	1	.955
	Sig. (2-tailed)	.000		.000
	N	115	115	115
Usage Intention	Pearson Correlation	.913	.955	1
	Sig. (2-tailed)	.000	.000	
	N	115	115	115

Table 4.16: Correlations

The relationship between marketing and Exposure and both Usage Intention and user satisfaction has a sig 2 tailed level of .000 showing that there is significance between them with a positive 81.1 % relationship with user satisfaction and a 91.3 % relationship with usage intention.

H9: Technology Literacy has a significant positive relationship with usage intention.

H10: Technology Literacy has a significant positive relationship user satisfaction.

Correlations

		Technological Literacy	User Satisfaction	Usage Intention
Technological Literacy	Pearson Correlation	1	.870	.868
	Sig. (2-tailed)		.000	.000
	N	115	115	115
User Satisfaction	Pearson Correlation	.870	1	.955
	Sig. (2-tailed)	.000		.000
	N	115	115	115
Usage Intention	Pearson Correlation	.868	.955	1
	Sig. (2-tailed)	.000	.000	
	N	115	115	115

Table 4.17: Correlations

The relationship between Technological literacy and both Usage Intention and user satisfaction has a sig 2 tailed level of .000 showing that there is significance between them with a positive 87.0 % relationship with user satisfaction and an 86.8 % relationship with usage intention.

H11: Usage Intention has a significant positive relationship with user satisfaction.

H12: Usage Intention has a significant positive relationship with the adoption of online doctors

Correlations

		Usage Intention	User Satisfaction	Adoption
Usage Intention	Pearson Correlation	1	.955	.896
	Sig. (2-tailed)		.000	.000
	N	115	115	115
User Satisfaction	Pearson Correlation	.955	1	.894
	Sig. (2-tailed)	.000		.000
	N	115	115	115
Adoption	Pearson Correlation	.896	.894	1
	Sig. (2-tailed)	.000	.000	
	N	115	115	115

Table 4.18: Correlations

The relationship between Usage Intention and both Adoption and user satisfaction has a sig 2 tailed level of .000 showing that there is significance between them with a positive 89.6 % relationship with adoption and an 95.5 % relationship with User Satisfaction.

H13: User satisfaction has a significant positive relationship with usage intention.

H14: User satisfaction has a significant positive relationship with the adoption of online doctors.

Correlations

		User Satisfaction	Usage Intention	Adoption
User Satisfaction	Pearson Correlation	1	.955	.894
	Sig. (2-tailed)		.000	.000
	N	115	115	115
Usage Intention	Pearson Correlation	.955	1	.896
	Sig. (2-tailed)	.000		.000
	N	115	115	115
Adoption	Pearson Correlation	.894	.896	1
	Sig. (2-tailed)	.000	.000	
	N	115	115	115

Table 4.19: Correlations

The relationship between User Satisfaction and both Adoption and Usage Intention has a sig 2 tailed level of .000 showing that there is significance between them with a positive 89.4 % relationship with adoption and an 95.5 % relationship with Usage Intention.

4.7 Regression Analysis

Regression analysis was employed to test the effect technology literacy, trust, cost and charges, marketing and exposure, security and patient privacy had on the adoption of online doctor services. The results of the analysis are as below:

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	User Satisfaction, Marketing and Exposure, Trust, Usage Intention, Cost and Charges, Technological Literacy, Security and Patient Privacy	.	Enter

a. Dependent Variable: Adoption

b. All requested variables entered.

Table 4.20: Regression Analysis

4.7.1 Model Analysis.

R squared or adjusted R squared values can be employed to explain the relationship between the variables. 50% and above is considered acceptable.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.936[a]	.877	.869	.16783

a. Predictors: (Constant), User Satisfaction, Marketing and Exposure, Trust, Usage Intention, Cost and Charges, Technological Literacy, Security and Patient Privacy

Table 4.21: Regression Analysis

According to value of the adjusted R Square in the table above the independent variables can explain 87% of the adoption of online doctor services. Further research should be conducted to explain the remaining 13%.

4.7.2 ANOVA Interpretation.

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	21.477	7	3.068	108.928	.000[b]
	Residual	3.014	107	.028		
	Total	24.491	114			

a. Dependent Variable: Adoption

b. Predictors: (Constant), User Satisfaction, Marketing and Exposure, Trust, Usage Intention, Cost and Charges, Technological Literacy, Security and Patient Privacy

Table 4.22: ANOVA[a]

With a significance value of .000 which is less than 0.05 the independent variables can be used to correctly predict online doctor service adoption. A significance value lower than 0.05 means the null hypothesis can be rejected.

4.7.3 Regression Coefficients.

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	.968	.351		2.754	.007
	Cost and Charges	-.368	.089	-.608	-4.111	.000
	Usage Intention	.580	.139	.688	4.188	.000
	Trust	-.145	.086	-.239	-1.692	.094
	Marketing and Exposure	.027	.111	.027	.239	.812
	Security and Patient Privacy	-.431	.296	-.489	-1.455	.048
	Technological Literacy	.661	.171	.968	3.857	.000
	User Satisfaction	.457	.137	.546	3.330	.001

a. Dependent Variable: Adoption

Table 4.23: ANOVA[a]

To determine the relationship between adoption of online doctor services and the other independent variables a coefficient of regression analysis was conducted. As per the table above Cost and charges indicated a significant value of 0.00 which is < 0.05 thus is significant. Usage intention recorded a significant value of 0.00 which is < 0.05 thus is significant. Trust recorded a Significant value of 0.094 which is above 0.05 thus is not significant. Marketing and exposure recorded a significant value of 0.812 which is above 0.05 thus is not significant. Security and Patient Privacy has a significant value of 0.048 which is lower than 0.05 thus is significant. Technological Literacy indicated

a significant value of 0.00 which is < 0.05 thus is significant. User Satisfaction indicated a significant value of 0.01 which is < 0.05 thus is significant.

The regression model used was:

Adoption of Online Doctor services = **.968 -.368 X1 + .580 X2 - .145 X3 + .027 X4 - .431 X5 + .661 X6 +.457 X7**

Where X1 = Cost and charges

X2 = Usage Intention

X3 = Trust

X4 = Marketing and Exposure

X5 = Security and Patient Privacy

X6 = Technological Literacy

X7 = User Satisfaction.

4.8 Discussion of Findings

As per our first objective which was to find out the critical factors that influence the adoption of online doctors in Kenya. The study was able to establish that security and patient privacy, cost and charges, technological Literacy, trust, marketing and exposure all had significant effects on usage intention and user satisfaction. This relationship then translated to the adoption of online doctor services. Most respondents agreed with the factors raised and further research should be conducted to examine the variables further.

Objective number two was to establish the main challenges toward online doctor adoption and with the respondents we were able to establish that factors like technological literacy, in the use of ICT tools was a challenge to some respondents. The respondents also responded that most of them had not heard of the services but were interested in what the services had to offer. Another challenge that was evident was trust and security with regards to patient information as most users were not sure of the safety offered, while some would only elect to use the system with a guarantee of safety.

CHAPTER FIVE: SUMMARY CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

These the findings of this research, the conclusion, recommendations and the identified gaps in the research for future studies.

5.2 Research Achievements

The objectives of this study were met from the outcomes. This is illustrated as follows

1. What factors influence the adoption of online doctors in Kenya?

The research proposed that cost and charges, trust, marketing and exposure, security and patient privacy, technological literacy have positive relationships with usage intention and user satisfaction which in turn positively influence adoption of online doctors.

Trust had a significant positive relationship with both usage intention and user satisfaction. (McKnight, Choudhury, & Kacmar, 2002b) were able to establish that initial customer trust had a very big impact when regarding to web based services. Winning a customer's trust enables a e business to gain a competitive advantage (Warrington, Abgrab, & Caldwell, 2000).

Marketing and exposure of a product or service to consumers also has a positive relationship with usage intention and user satisfaction. (Risselada, Verhoef, & Bijmolt, 2014) were able to identify marketing and social influence as a driving factor in the adoption of high technology products. This study was able to identify marketing and exposure as a positive influence to user intention and user satisfaction which then influences the adoption of online doctors. Most users agreed that they would have considered using online doctor platforms if they would have heard of them. (Frambach & Schillewaert, 2002) identified marketing as a stimulator to new technological products and services. However (O'callaghan, Kaufmann, & Konsynski, 1992) were able to identify that not all marketing has the desired positive effect and specified techniques are required.

Costs and Charges indicated a positive effect on usage intention and user satisfaction. Many studies have identified cost as a big factor in user satisfaction and user intention

in Kenya. (Lule, Omwansa, & Waema, 2012) identified cost as a factor in m banking adoption in Kenya and (Datta, 2011) identified that cost was a huge factor in e commerce adoption in developing countries. (Bashshur, Reardon, & Shannon, 2000) identify costs and charges as factors although the quality associated with the services might be more of a drawing factor.

Technological literacy positively effects usage intention and satisfaction with most users agreeing that entry level skills might be required to use an online platform (Shneiderman, 2000). (Chau & Hu, 2002) identified user knowledge gaps as a factor in the overall adoption of online telemedicine services. (Lovrich Jr & Pierce, 1984) although was able to identify that ease of use could negate the effects of knowledge gap in adoption.

Security and Patient Privacy are also a critical factors in the adoption of online doctors. It showed a positive relationship with usage intention and user satisfaction. (Hall & McGraw, 2014) identified that for a telehealth system to grow, security issues must be found and addressed. (Naditz, 2008) also identified cybersecurity as a major factor in the telemedicine field.

1. What are the main challenges toward online doctor adoption?

From the analysis of the critical factors we were able to identify the challenges facing current adoption of online doctor services in Kenya. From the analysis of trust, it was evident that most users had yet to trust an online system to handle their health issues.

The analysis of security and patient privacy revealed that the users were not well informed on how the system was equipped to ensure security. This played a huge factor as no user would be comfortable having private information in an unsecure platform.

Marketing and exposure revealed that most users had not been made aware of existing platforms and a thorough marketing strategy was required to sensitize potential users on the benefits of using an online doctor system and the robustness possessed by the system.

Another major challenge that was evident was changing the mind-set of the users as most patient are more inclined to the traditional patient visit approach.

5.3 Research Limitations

This study had quite a few limitations. The study was limited to one hospital, The Nairobi Hospital and the data was collected over one day. This make it difficult to compare data collected in different hospital that would have identified more variables to the study.

For future research data should be sampled from multiple locations to enable a comparison within a larger demographic of people.

5.4 Research Conclusions

The use of online based doctor services in Kenya is on the early adopter's stage with the technology savvy users starting to use the services. The positives offered by the systems cannot be ignored as the advantages outweigh the disadvantages.

Most of the existing online doctor services already have various doctors on board and a working formula has been established. The challenge is mostly from the patient side as most patients indicated that they had not heard of existing services. The other challenges facing the systems are fuelled by human emotions with most people not able to trust the systems with their private information and others concern about the cost implications of such systems. Knowledge gap is also an existing challenge with many users not competent with so called "complex" systems.

Carefully mitigated strategies can be used to circumvent these challenges with methods like precise marketing campaigns outlining the strengths and advantages of the systems being a powerful tool. Social media marketing can also be employed to influence an early majority within the youth.

Most people showed curiosity towards the technology and with the adoption of platforms like m-banking and m-pesa just to mention a few, online doctors would work well in the context of Kenya.

5.5 Recommendations for further Research

Using one hospital limits the scope and it is suggested that further studies cover a variety of hospitals in the different counties in Kenya to account for the different

conditions available around the country thus widening the demographic setting. Further the independent variables used in this research could not fully predict the dependent variable and as a result more studies should be undertaken to identify further variables affecting online doctor services adoption in Kenya.

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Appendix 1: Questionnaire

ONLINE DOCTOR SEVICES QUESTIONNAIRE					
1. Demographics					
Age: Below 20 20 to 30 ☐ 30 to 40 ☐ 40 to 50 ☐ Above 50 ☐ Gender: Male: ☐ Female: ☐					
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
2. Cost and Charges					
Computers and mobile devices have become more affordable					
Internet connectivity charges are affordable					
Consultation charges at a hospital are a factor influencing the choice to visit a particular hospital.					
Time and cost savings would definitely influence my decision to use online doctor services provided the level of quality is retained.					
Value for money will be a strong selling factor when deciding use of online doctors.					

3. Trust					
I trust online service platforms with my data.					
I would trust an online doctor service platform's ability to protect my data.					
I generally trust online service platforms e.g. online banking and as a result I would trust online doctor services.					
I normally trust a doctor's diagnosis and I would trust an online diagnosis without the physical interaction.					
4. Marketing and Exposure					
I have heard of online doctor services before.					
I would like to see more advertisements of the services explaining more on how it works.					
More information on the service would affect my intention to seek the service.					
I think I would have already tried using the service had I known of it.					

An extensive awareness campaign of the system should be done.					
5. Security and Patient Privacy					
Patient privacy is a major factor in healthcare delivery.					
I wouldn't visit a hospital if I knew my medical history wasn't safe.					
My privacy guarantee would be a major factor in using online doctor services.					
I would prefer that there be a publicized guideline on how the system would handle my patient information					
The security of the online doctor services is important to me					
An authorization requiring a username and password is required.					
A guarantee of the safety of my data is required and I would only use the system if I am convinced of the safety features.					
6. Technological literacy.					
I am comfortable using online based services					

I access online/internet based services at least daily using a computer or smartphone.					
I experience some difficulty interacting with unfamiliar online systems.					
I embrace new systems that make life easier.					
7. Usage intention and System use					
I would consider using online doctor services as an option when accessing healthcare.					
I would use online doctor services as accessing healthcare services online would enable me to stay within my schedule and still get medical care.					
Using an Online Doctors platform would enhance my need access healthcare as it is on demand.					
Using an Online Doctors platform would give me greater control over any health issues that may arise.					
8. User Satisfaction.					

In general, using an effective online doctor's tool would give me a sense of satisfaction.					
Saving time and on demand quality healthcare would be enough to satisfy any demands that I would have with the system.					
I use other online services as the convenience offered by these services was a major advantage.					
Positive Experiences would play a part in my intention to use the system more.					
9. Online Doctor Service Adoption					
I would consistently use the different online doctor services made available if educated about them.					
I intend to use online doctor services as it would combine well with my schedule.					
Thank you for your time					