

Acceptance of Electronic Health Administration Systems among Medical Practitioners in the Private Practice in Harare Central Business District and the Avenues area, Zimbabwe

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Abstract— The main objective of this study was to explore the perceptions of medical practitioners towards electronic health administration systems. The study was conducted in the context of the Technology Acceptance Model (TAM). Designed in a quantitative paradigm, the study was descriptive in nature. A sample of 70 drawn from a population of 146 medical practitioners participated in the study. The findings of the study are that most of the medical practitioners think that adoption of electronic administration systems will have significant benefits, especially the benefit of increased access to information by beneficiaries of the information. However, with respect to the adoption factors the general medical practitioners depicted a negative perception on the availability of these adoption factors which support the use of e-health. While significant developments have been made in the area of information technology infrastructure development by the Government, the study revealed medical practitioners are not very confident that the existing infrastructure will be able to support e-health. The issue of lack of a clear regulatory framework and trust in e-health systems data security also featured negatively. There is a strong perception that there are no clear regulatory policies on e-Health in the country. From the study it has been discovered that medical practitioners do not have trust in the existing data security systems. Perceived benefits and perceived ease of adoption affect acceptance of a new technology according to the Technology Acceptance Model. The low level of adoption of e-Health systems in the particular area under study may be as a result of an environment that presents poor adoption motivation. The study recommends that further future studies be conducted by replicating the study in other health sector environments in the country. This study only considered the perceptions of medical practitioners. The perceptions of healthcare customers and clients could be equally important. This could possible become another fertile ground for further future studies.

Index Terms— adoption, benefits, Technology Acceptance Model, e-health, electronic health administration systems

I. INTRODUCTION

The use of Information Communication Technology has transformed the way business is conducted across all sectors, and the health sector has not been immune to this

transformation. The World Health Organization (WHO) member states in 2005 adopted electronic- health (e-Health) as a tool to strengthen health systems. The WHO defined e-Health as the cost-effective and secure use of information communication technology in support of health and health related fields [1]. Despite well documented reports on the benefits of electronic health its adoption has remained low among developing countries [2]. In Zimbabwe the use of e-health is still low, similar to other developing countries.

Healthcare organizations across the world see e-health as a strategic tool for providing quality healthcare and overcoming challenges in the health sector. Healthcare organizations in developed countries are making substantial investments in e-health systems in order to achieve competitive advantages [3]. Kwakan [4] highlights the following benefits of e-health

- E-health can enable practitioners to offer services beyond their physical reach. Using Decision Support Systems (DSS) and networks remotely located less experienced practitioners will be able to make better informed decisions.
- E-health makes information available to healthcare consumers and therefore makes healthcare consumers active participants in the health care delivery process.
- E-health changes focus from individual based systems to the knowledge about health of populations.

With the background of a shortage of health professionals and the priority that the Zimbabwean health system places on the collection of health data e-health adoption may strengthen the health system.

In the Zimbabwean economy the services sector which the health industry is part of has contributed 54.3% of the Gross Domestic Product in 2013 [5]. This means that the services industry has become an important sector in light of the struggling manufacturing, mining and agricultural industries. In order to increase economic growth players in the services sector must explore ways to operate in a more efficient and cost effective manner. The WHO reported that many countries spent a significant part of their GDP on health but 20%-40% of this was wasted due to inefficiencies. The use of Information Communication Technology (ICT) has been demonstrated to increase efficiency while reducing costs [6]. The majority of health services in Zimbabwe are provided by the public sector complemented by the private sector which includes doctors in the private practice. Zimbabwe Medical Association (ZIMA), a non-statutory body representing the

Manuscript received May 03, 2016

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interests of all medical doctors' groups has a membership of about 800 doctors which is an estimate of the number of doctors in private practice which is a significant proportion of the total number of doctors in Zimbabwe [7].

The current Zimbabwean economic blue prints the Zimbabwe Agenda for Sustainable Socio Economic Transformation (ZIMASSET) identifies the expansion and acceleration of utilization of information communication technology to improve service delivery and promote economic growth as one of its key strategies [8]. Zimbabwe has made significant developments in the information communication technology sector which was at one point a stand-alone ministry in the government. According to the International Telecommunication Union (ITU) rankings Zimbabwe was one of the top movers in the ICT Development Index (IDI) as shown in the table below.

A. Statement of the Problem

The private healthcare sector plays a key role in complementing the public health sector which is facing a myriad of economic challenges that Zimbabwe is facing. The services sector which the healthcare industry is part of play an important role in the economy contributing significantly to the Gross Domestic Product. System inefficiencies lead to wastages that result in higher costs of services. The use of ICT in other service industries has enhanced the quality of service and e-health is expected to bring the same benefits. E-health has been shown to have many benefits that can strengthen the Zimbabwean health system but the use of ICT has not been widespread among the medical practitioners in Zimbabwe. This study explored perceptions of medical practitioners in Harare Central Business District (CBD) and Avenues Area (in Harare) towards e-health. Perceptions on benefits and adoption factors of a new technology can lead to acceptance or rejection of that technology.

B. Purpose of the Study

The purpose of this study was to explore the perceptions of medical practitioners towards e-health. That is, electronic health administration systems-the benefits and adoption.

C. Research Questions

The research questions for the study were as follows:

1. What are the perceptions of medical practitioners in Harare CBD and Avenues area on electronic health systems adoption in terms of the following adoption factors?

- Information Technology Infrastructure
- Regulations
- Skills
- Security

2. What are the perceptions of medical practitioners in Harare CBD and Avenues Area on electronic health systems adoption in terms of the following adoption benefits outcomes?

- Financial Benefits
- Quality of Service
- Customer Satisfaction
- Access to Information

D. Hypotheses

Ho: Perceptions of medical practitioners in Harare CBD and Avenues area is that system adoption factors of electronic health systems make adoption difficult.

Ho: The medical practitioners' perceptions in Harare CBD and Avenues area are that there are no benefits resulting from adoption of electronic health systems

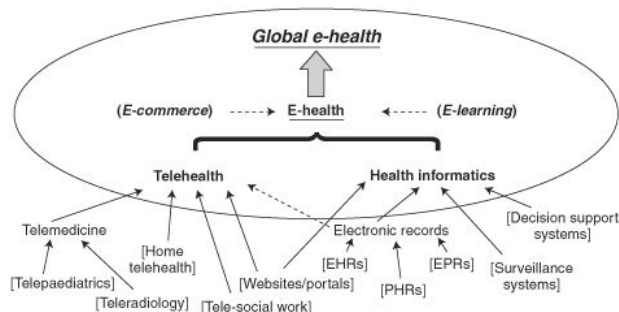
II. LITERATURE REVIEW

The services sector across the world has been impacted by developments which have occurred in information communication technology. Information communication technologies have been deemed to have the potential to transform business and government in Africa while driving entrepreneurship, innovation and economic growth [6]. E-health application is an emerging information technology in health industry which has the potential to improve access to healthcare, quality and effectiveness of service delivery in Africa [3]. The health sector is one of the most important sectors in a country's economy. A country with a poor health system and policies is bound to experience poor economic growth as productivity of citizens might be affected when they fall sick or die [9]. Literature reveals that electronic health systems are the future of healthcare service provision in developed, developing and poor states [10].

The World Health Organization defines e-health as cost effective and secure use of information communication technology in support of health and health related fields [1]. E-health (see, figure 1) comes in various forms which include the following:

- Electronic Medical Records (EMR) which enable the storage and communication of patient data between different health professionals
- Telemedicine (treatment at a distance using ICT). Telemedicine has been applied in dermatology, radiology, cardiology and other areas.
- Consumer health informatics; the use of electronic resources on medical topics by healthy individuals or patients.
- Health knowledge management: For example, medical journals, best practice guidelines.

Figure 1: Components of e-health



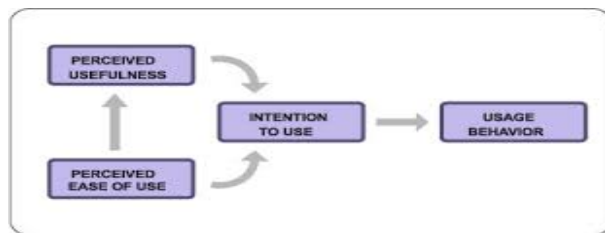
Source: (Wootton, Patil, & Scott, 2009)

There is general consensus that the high cost of doing business in Zimbabwe is one of the factors that lead to

un-competitiveness of Zimbabwean products, this was also highlighted in the 2015 Reserve Bank Monetary Policy [11]. Reduced competitiveness in the health sector has resulted in growing phenomenon of medical tourism, where Zimbabwean patients are seeking medical services outside the country because of price considerations. The healthcare industry in developed countries invests heavily in electronic medical records to lower cost and improve quality of care with United States of America estimated to have spent \$1.2 billion to facilitate adoption of electronic medical records [9]. The adoption of information communication technology in healthcare has been low in developing countries despite the well documented benefits [2].

Ami-Narh and Williams [3] highlighted that little attention had been given to the e- health acceptance decision in Africa. The Technology Acceptance Model which is one the models of technology acceptance posit that the individual's attitude towards the use of a technology is determined by two factors: perception of usefulness and ease of use of that technology. The Technology Acceptance Model (see, figure 2) was developed by Fred Davies [13]. This model has been widely examined, validated, replicated and has been robust in predicting user acceptance [12].

Figure 2: Technology Acceptance Model



Source: (Davies, 1989)

The Technology Acceptance Model(TAM) defines perceived usefulness as the degree to which a person believes using a particular system will enhance their job performance and defined ease of use as the degree to which a person believes using a particular system would be free of effort [13].

Using the TAM, the intention by medical practitioners to use e-health systems is influenced by the perceptions that they develop regarding its usefulness and ease of use. The literature review will cover the variables in the conceptual framework which affect acceptance of e-health systems based on the perceptions developed. The research questions will also be explored in the literature review.

E. Electronic Health System Adoption Factors- Perceived ease of Use.

Perceived ease of use measures the degree to which person believes that the use of a system will be free of effort. Using the Technology Acceptance Model users of technology will accept new technology if they perceive that the use of a particular system will be without much effort.

Information Technology Infrastructure: E-health is the use of Information Communication Technologies in the health sector for clinical, educational and administration

purposes both at a local site and at a distance. The use of ICT could range from simple electronic storage, retrieval and transmission of healthcare information to more advanced applications such as tele-healthcare [14]. Justice further states that one of the measures of readiness to adopt an ICT project is structural readiness which he defines as the extent to which there exists efficient structures to support the successful implementation of e-healthcare (including accessible and available ICT and power supply, technical structures).

Regulations: The healthcare services are regulated by the Ministry of Health and Child Care and statutory bodies established by Acts of Parliament. The Health Professions Authority is the umbrella body regulating healthcare practice in Zimbabwe with seven other health professions councils under its supervision [15]. The Medical and Dental Practitioners Council of Zimbabwe (MDPCZ) is the council responsible for regulating the practice of medical doctors and dentists. Currently the MDPCZ does not have a clear policy on electronic medical records. The Ministry of Health and Child Care has developed a Draft National e-Health Strategy that which will set tone to the other regulatory bodies. In the draft strategy it is highlighted that electronic health records can reduce resource wastages. Regulatory guidelines are important to promote standardization of e-health systems. The inability of e-health systems to share information because of lack of standardization has been identified as one of the barriers to the adoption of e-health [16]. These scholars go on to further state that without the existence of proper governance it is difficult to coordinate e-healthcare initiatives and align them with national priorities.

Skills: Electronic health systems are highly technological systems and as such include complex hardware and software. A certain level of computer skills is required by both users and developers of these systems [17]. In its e-Health Strategy the Ministry of Health and Child Care notes that there is a shortage of IT manpower as those graduates that qualify leave the country [18]. The Strategy Report further states that those graduates who stay focus on support services with very few going into solution development. Practitioners are not well trained in IT as there is a lack of e-health training post graduate training in Zimbabwe. Competent human resources are very important for the success of health interventions. Kwakan [4] points out that many health systems are in danger of not meeting their Millennium Development Goals because they lack qualified professionals. Researchers based on their studies have identified that physicians have insufficient technical skills and knowledge to deal with electronic medical records [17]. According to Mugo and Nzuki [9] availability of ICT skills among healthcare practitioners is likely going to lead to acceptance and actual use of e-health systems. In developed countries new courses like medical informatics and health informatics have been offered to improve clinicians' ICT skills. It has also been found that the use of electronic records introduces a new type of medical errors: typing error [19]. Typing speed is also an important factor, a study by Shachak et al revealed that after the introduction of electronic medical records system 92 % of doctors felt that EMR disturbed their communication with patients as they focused on typing. Lack of technical training and support refers to the training of technical people who develop and provide technical support

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to electronic health services. This factor is important to the perceived ease of use of e-health systems. Boonstra and Broekhuis highlighted physician complaints on poor service by vendors of e-health on issues such as poor follow up on technical issues and general lack of training and support on common problems associated with e-health systems were a barrier to the adoption of e-health systems.

Security: The WHO definition of e-health states that e-health is the cost effective and secure use of information communication technology in support of health and health related fields. This definition puts emphasis on the need for security in electronic health systems. Information security is the protection of information and information systems from unauthorized access, use, disclosure, disruption, modification or destruction [20].

Patient data confidentiality is an ethical principle in medical practice. With the use of e-health systems patient data will be in electronic form which is potentially easy to access and disseminate hence the issue of data security is of paramount importance when considering the adoption of e-health.

One of the biggest challenges to the uptake of e-health solutions is the security of the system with regard to privacy and data protection [21]. The unauthorized disclosure of a patient's medical condition may lead to damages on the patient and on the medical practitioner. The use of ICT tools in the storage, processing and transfer of data poses security risk to the health records. The risk of unauthorized access is real and there is a direct relationship between the interconnectedness of the health system and risk of unauthorized access.

Regulation and legislation often lag behind technological developments therefore privacy and security issues are often addressed in a reactive rather than proactive mode. The WHO country profile Zimbabwe's readiness to adopt e-health show that Zimbabwe does not have policy on electronic health security [22].

F. Electronic Health Systems Adoption Benefits- Perceived Usefulness.

Perceived usefulness is the degree to which a person believes that a particular system enhances their job performance. One of the common barriers to the adoption of e-health in is lack of clear benefits from its use [23]. If there is lack of clarity on the benefits, then negative perceptions are most likely to develop among the practitioners which may result in low acceptance levels.

Financial Benefits: In setting up an electronic health administration system there are financial costs which are involved. Applying the Technology Acceptance Model, health practitioners will accept e-health systems when they perceive that financial benefits of using a system outweigh the financial costs associated. There are two categories of costs associated with the implementation of electronic health management system: system costs and induced costs [23]. System costs involve the following costs:

- Cost of software and hardware

- Training
- Implementation
- On-going maintenance and support

Induced costs are costs related to the temporary loss of productivity. Costs can also be classified into recurring costs and non-recurring costs cost of hardware being an example of a non-recurring cost and software licenses being an example of a recurring cost [24]. To evaluate the cost effectiveness of a new investment various tools can be used which include return on investment, present values and sensitivity analysis. Return on Investment (ROI) measures the performance of capital investment in generating profits [25]. Capital is invested in Information Technology components such as hardware and software while the Returns or benefits are not easy to identify and measure in financial terms. Relating e-health adoption to ROI allows benefits of e-health to be quantified in some form [26]. Leonard [27] has argued that one of the reasons for the lack of adoption of e-health is the challenge in measuring Return on Investment (ROI).

Present Values Approach: One way of estimating the viability of a capital investment project is through the use of net present values [25]. All monetary values are converted onto a comparable base by presenting them in present values, using discounted cash flow technique. The base year for an e-health project is the year of planning and development [24]. **Sensitivity Analysis:** A business's break-even point is sensitive to a number of variables: fixed operating costs, selling price per unit and variable operating cost per unit [25]. In implementing e-health systems these variable costs are impacted resulting in change in breakeven point.

Cost Benefits of E-Health: There is well documented cost benefits related to the implementation of e-health on national health systems, in United States of America it is estimated that the use of e-health with cut costs by \$1.2billion per year [28]. Because of the cost benefits of e-health developed countries are investing huge amounts of money in e-health and on the contrary developing countries are still dependent on the traditional healthcare set up.

Quality of Service: Merriam-Webster dictionary define quality as how good or how bad something is [29]. There are no internationally agreed definitions of healthcare quality, however most frameworks incorporate the following dimensions of care:

- Effectiveness of treatment
- Appropriateness of means of delivery
- Acceptability
- Efficiency
- Equity

[22]. In the developed world there have been 2 major studies on the benefits of e-health done by the US Agency for Healthcare Research and Quality (AHRQ) and The European eHealth Impact Study. The AHRQ studies came out with the following findings:

- Supported the role of IT in improving the quality of pediatric care
- Studies demonstrated improved health provider performance when clinical information management and decision support tools were made available
- Insufficient data on cost effectiveness as it was not possible to generalize the benefits

- Researchers concluded that Health Information Technology has potential to enable dramatic transformation in the delivery of healthcare making it safer, effective and more efficient [23].

Customer Satisfaction: Business operations become sustainable and profitable when they have customers who are satisfied with their products or services. Creating positive customer experience is a complex process that begins with insights into customer wants and needs [30]. Patient satisfaction with health services is closely influenced by the relationship between their needs, preferences and expectations [31]. Studies on patient satisfaction in healthcare have had a dual focus. While some researchers have focused on patient satisfaction with quality and type of healthcare services received others focus on peoples satisfaction with health systems generally [32]. These authors go on to further state that satisfied patients are more likely to complete treatment regimens and be compliant to treatment regimens hence the issue of patient satisfaction is important to service providers in the healthcare sector. Meeting customer expectations is important for businesses to remain relevant. The consumer increased use of media to learn, connect and interact with others on demand is changing their expectations in all areas of their lives –including healthcare [33]. The authors further state that as customer expectations change new businesses emerge to meet their every wish, even potential wish. Other service industries such as the banking sector have adopted the use of ICTs ahead of the health sector. The use of paper records in banking is now unheard of but is still commonplace in the health industry. A survey by the PricewaterhouseCoopers Health Research Institute [30] found that consumer expectations in health track closely with other industries. From these arguments it becomes important to understand the perceptions of medical practitioners on the usefulness of e-health systems in improving customer satisfaction.

Access to Information: The access to information in the health field can be classified into the following categories: practitioner's access to clinical information on their patient, access to current information the field of medicine and also the patients' access to their medical information. The decisions that medical practitioners make are based on the availability of information. There is evidence to show that a well-integrated e-health system has the potential to improve the efficiency of many facets in healthcare through helping clinicians to readily access comprehensive information on their patients aiding monitoring of their conditions and treatments being issued [22]. In their paper titled Determinants of Electronic Healthcare in Developing Countries, Mugo and Nzuki [9] highlight that most medical records in Africa are paper based, they go on to highlight the weakness of paper based records which include illegibility, ambiguity, incomplete data, poor data availability and fragmentation. These limitations in access to information are what the electronic health administration system seeks to address. The problem of illegibility of medical records which are handwritten has been widespread with paper based medical records. The records that the practitioners make are used by other health professionals who make decisions based on the information they get from the medical records.

The use of electronic health administration system will also give access to useful clinical information on patients which is not usually stored in paper based records like patient allergy list and potential drug- drug interactions that may occur on a particular patient [34]. This function of electronic health records will eliminate prescription errors and enhance patient safety. In a study done on a group of hospitals in America it was noticed that the number of medication errors decreased when an electronic health record system was adopted and that the number of medications errors detected increased after the adoption of the electronic system [35].

Closely related to electronic medical records are Personal Health Records (PHR) that have emerged as a way to give patients access to their medical information while empowering them to make health related decisions [9]. As highlighted in the PriceWaterhouseCoopers report on health the expectations of customers in health closely track other sectors [30]. Customers are being offered more access to their information in other sectors such as banking and develop similar expectations from the health field. Informed patients and careers having direct information to data, information and knowledge about their conditions and treatment enables them to make effective decisions about their and lifestyles [24].

III. METHODOLOGY

This research study is exploratory in nature. The perceptions of medical practitioners on the adoption outcome benefits and adoption factors of e-Health systems were sought in this study. Based on the widely tested Technology Acceptance Model developed by Davies the level of acceptance of a new technology is based on the user's perceptions on the ease of use and the usefulness of that technology. The literature review highlighted various adoption factors and adoption benefits which affect acceptance of e-health systems. The developed research instrument gathered medical practitioners' perceptions on these factors and benefits. In this research a quantitative design was used to describe the perceptions of medical practitioners on e-health systems adoption outcome benefits and adoption factors. The population of the study was 146 medical practitioners comprising 64 general practitioners and 82 specialists' doctors in the Central Business District and Avenues area of Harare. This population gives a good representation of the various groups of medical practitioners with comparable numbers of general practitioners and specialists. The Harare Central Business and Avenues area was selected for this study as it contains doctors from various specialties. If adoption of electronic health systems will increase in Zimbabwe most likely the area under study will play a leading role. To make the study more manageable a total of 70 questionnaires were distributed to 32 general practitioners and 38 specialists. The research questionnaire was distributed over the email system. The medical practitioners were stratified into general practitioners and specialists. Using a register that was acquired from the Health Professions Authority participants to the study were randomly selected. Emails containing the web based (Google Forms) questionnaire were sent to the selected medical practitioners.

Of the questionnaires that were sent out 34 responses were obtained giving a response rate of 48.5%. Although a high response rate is desirable response rate among medical

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practitioners is usually low because of their demanding work schedules, furthermore medical practitioners are frequently approached in surveys hence they are reluctant to participate [36]. Response rate among specialist practitioners was 45.5 % while among general practitioners the response rate was 55.2%. Web based questionnaires were selected as they were easy to administer however there is risk of poor response rates with the use of online questionnaires. In a literature review done by Nulty the concluded that the response rate for online questionnaire were generally low [37]. He further went on to say that response rate can be increased by sending reminders and giving adequate reassurance to participants that confidentiality will be observed.

IV. ANALYSIS AND RESULTS

The research findings were analyzed in this section according to the research questions for the study and the hypothesis.

Research Question 1:

What are the perceptions of medical practitioners in Harare CBD and Avenues area on electronic health systems adoption in terms of the following adoption factors?

- Information Technology Infrastructure
- Regulations
- Skills
- Security

Table I: One-Sample Statistics on E-health Adoption Factors

	N	Mean	Std. Deviation	Std. Error Mean
Information Technology Infrastructure	34	3.4412	.78591	.13478
Regulations	34	2.3529	.94972	.16287
E-health Skills	33	3.5682	.62896	.10949
Security	34	3.0294	.67354	.11551
Average	33	3.0973	0.8982	.07560

Table II: One-Sample Test Perceived ease of use of E-health

	Test Value = 3.5			
	T	df	Sig. (1 tailed)	Mean Difference
Information Technology Infrastructure	-.436	33	.333	-0.58081

Regulatory Framework	-5.207	3	.000	-.86765
E-Health Skills	.623	2	.269	.06818
Security		3		
Combined	-4.074	3	.000	-.47059
		3	.008	-.40270
	-2.576	2		

From tables I and II above it can be seen that the average score of the availability of factors that make enable the adoption of e-health is 3.0973 with a standard deviation of 0.8982. The combined values for the factors of adoption of e-health have a t value of -2.576 and p value of 0.008. These values are interpreted to mean that there is significant evidence that the perceptions of medical practitioners in Harare CBD and Avenues Area are that adoption factors considered in this study make adoption of e-health difficult. The first null hypothesis: Perceptions of medical practitioners in Harare CBD and Avenues area is that system adoption factors of Electronic health systems make adoption difficult is accepted based on the significance (p) values, t values and means. The alternative hypothesis: Perceptions of medical practitioners in Harare CBD and Avenues are is that system adoption factors of e-health make adoption easy is rejected.

Research Question 2:

What are the perceptions of medical practitioners in Harare CBD and Avenues on electronic health systems adoption in terms of the following adoption benefits outcomes?

- Financial Benefits
- Quality of Service
- Customer Satisfaction
- Access to Information

Table III: One Sample Statistics on Perceived Benefits of E-health

	N	Mean	Std. Deviation	Std. Error Mean
Financial benefits	3	3.970	.77793	.13341
	4	6		
Quality of service	3	3.697	.73090	.12723
	3	0		
Customer satisfaction	3	3.628	.68214	.11875
	3	8		
Access to information	3	4.080	.63481	.11051
	3	8		
Average	3	3.820	.59616	.10378
	3	2		

Table IV: One-Sample Test on Benefits of E-health

	Test Value = 3.5			Mean Difference
	t	Df	Sig. (1-tailed)	
Financial benefits	3.52 7	33	.000	.47059
Quality of service	1.54 8	32	.065	.19697
Customer satisfaction	1.08 5	32	.143	.12879
Information Access	5.25 6	32	.000	.58081
Combined	3.08 5	32	.002	.32020

From the tables III and IV above the mean score for e-health benefits is 3.8202 with a standard deviation of 0.59616. The mean score of e-health benefits and combined p value of 0.02 show that there is significant evidence that the perceptions of medical practitioners are that there are benefits in the adoption of e-health in terms of the considered benefits. The second null hypothesis Ho: The medical practitioners' perceptions in Harare CBD and Avenues area are that there are no benefits resulting from adoption of electronic health systems is rejected based on the Student t-test. The alternative hypothesis that H1: The medical practitioners' perceptions in Harare CBD and Avenues area are that there are benefits resulting from the adoption of electronic health systems is accepted based on the statistical results.

V. DISCUSSION

The study found that regarding perceptions on adoption factors of e-health medical practitioners found e-health systems, generally make adoption of e-health systems difficult. With respect to information technology infrastructure, most of the medical practitioners were not sure if there is adequate information technology infrastructure to support the adoption of e-health within the health sector in Zimbabwe. Information technology infrastructure scored a mean of 3.4412 and standard deviation of .78591. With regards to regulations, the medical practitioners' perceptions were that the existing regulations on e-health make the adoption of e-health difficult, with a mean of 2.3529 and standard deviation of .94972. Perception on availability of skills was generally high and positive. Medical practitioners were of the opinion that there are adequate skills to support the use of e-health systems, scoring a mean of 3.5682 and standard deviation of 0.62896. However, perceptions of medical practitioners of e-health depicted a lack of confidence in e-health security systems with a mean score of 3.0294 and standard deviation of 0.67354. Poor security systems would not support the adoption of e-health systems in

the health sector in Zimbabwe. The WHO definition of e-health emphasizes that it is the secure use of information communication technologies in health and health related fields [1]. The medical practitioners' perception is that e-health systems have the potential to foster following benefits: financial benefits scored a mean of 3.9706 and standard deviation of .77793 which shows that practitioners perceive e-health systems to have significant financial benefits. With respect to quality of service, the medical practitioners' perceptions were that e-health systems adoption would result in improvements in quality of service with a mean score of 3.6970 and standard deviation of 0.73090. Customer satisfaction is another benefit that was perceived to accrue from adoption of e-health. The construct scored a mean of 3.6288 and standard deviation of 0.68214 which indicates that the medical practitioners think that if e-health systems are adopted customer satisfaction would increase significantly. Increased access to information, scored the highest in terms of the medical practitioners' perceptions, with a mean score of 4.0808 and a standard deviation of .63481. This is explained by the fact that e-health is an information based system.

CONCLUSION

The perceptions on systems adoption factors are that these factors do not generally support the ease of use of e-health systems. The study showed that most medical practitioners in Harare CBD and Avenues area perceive that the adoption of e-health systems will result in significant benefits. The study revealed that the access to information benefit was perceived to be the most significant among the benefits. This knowledge of medical practitioners' perceptions on e-health adoption can lead to appropriate measures can be taken to improve adoption levels.

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