FACTORS AFFECTING HEALTH PROFESSIONALS' ADOPTION OF ELECTRONIC MEDICAL RECORDS AT PUBLIC HEALTH FACILITIES IN HARARI REGION IN ETHIOPIA: A MIXED APPROACH



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I the undersigned, declare that this thesis is entirely my original work and it has never been presented in this or any other University, and that all the resources and materials used for the thesis, have been properly cited.

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Abbreviations and Acronyms

EMR- Electronic Medical Record WHO- World Health Organization

UTAUT3 -Unified Theory of Acceptance and Use of Technology

PHR - Personal health record

CCR- Continuity of care record

HIT- Health Information Technology

HIS-health Information System

ICT- Information Communication Technology

TAM- technology acceptance model

HMIS- Health management information system

Abstract

Background

The Ethiopian Ministry of Health has realized the importance of electronic medical records (EMRs) and has been taking steps to introduce them across the country since 2013 to improve the quality of health care delivery in the country. In relation to this, Harari region state health facilities have managed to keep EMRs running, but no study has looked at the factors affecting the adoption of EMRs in the health facilities in the region using the comprehensive model in post-implementation phase. Since health professionals are users of the EMR, it is essential to comprehend factors affecting the adoption of the EMR.

Objectives:

To explore the factors that affect the adoption of Electronic Medical Records (EMRs) systems by the health professionals in Harari region public health facilities, in 2025.

Methods:

The cross-sectional study was employed to investigate the factors affecting the adoption of electronic medical records in public health facilities in the region. Health facilities that have implemented electronic medical records were included in the study. The data was collected using the self-administered questionnaire and key informant interviews that involve the EMR users as study participants for the quantitative approach and HMIS head and IT personnel from each health facilities and regional health bureau for the qualitative approach. The data was analyzed using SPSS and ATLAS.ti for the quantitative and qualitative respectively.

Results:

A total of 351 respondents participated in the study making response rate of 95.9%. More than half of the respondents were female 204 (58.12%). The mean age (+SD) of the respondents is 32.34±8.9.

The multivariate logistic regression revealed that being female (AOR=0.22, (95%,CI 0.054-0.90)). In contrast, higher personal innovativeness (AOR=20.783, [95% CI 2.54-170.49]), positive attitude (AOR=7.50,(95% CI 1.11-50.70), and higher experience (AOR=6.64, p<.005) are associated with increased intention to use.

From the qualitative study factors like technology anxiety, experience, lack of necessary infrastructure, manpower, adequate training and electricity were identified.

Conclusion:

EMR users showed strong intention to use the EMR system, the barriers like technology anxiety, lack of infrastructure, resource, manpower, continuous training, electricity outage have been identified as a challenge that hinder the adoption. Providing technical and material support in addition to consistent follow-up is crucial to further improve the adoption.

Keywords

Electronic medical records, Health Facility, Health professionals, Adoption, Intention, Harari, Ethiopia

1.Introduction

1.1Background

The World Health Organization (WHO) defines e-health as the economical use of information and communication technology (ICT) to support health and health-related fields [1]. An electronic medical record (EMR) is a digital system that manages a patient's paper medical chart and personal information [2]. EMR can significantly alleviate the main problems that health care systems face [3].

A health system is made up of all the institutions, groups, assets, and individuals whose main goal is to promote health. Service delivery, health workforce, health information systems, access to necessary medications, finance, and leadership/governance are its six fundamental components [4]. Information produced by health information systems is essential for organizing, tracking, and assessing public health initiatives. At every stage of the health system, decisions are constantly being made. Information is produced that affects choices about everything from patient treatment to the creation and application of policies, which in turn affects the health of the communities that the health system serves [5].

In 1972, the Regenstreif Institute in the United States created the first electronic medical record (EMR), which was considered as a significant achievement in medical practice [6]. As it ensures patient privacy and confidentiality, it can contain a variety of data, such as socio-demographic, insurance, prescription drugs, history of intake, allergies, lab test results, vaccinations, hospitalizations, and more. EMR is used to retrieve clinical data about specific patients and to produce organized and readable records [7]. Electronic medical records (EMRs), provide ways to improve health service quality, lower costs, increase productivity, and optimize efficiency - all of which are difficulties that health care systems throughout the world face [8].

EMR is anticipated to enhance information accessibility for continuity of care, facilitate clinical decision-making, and increase information accuracy from the standpoint of patient care. From an operational standpoint, EMR ought to produce vital health data that are necessary for the organization and administration of medical services. Careful patient documentation, standard registration templates and order sets, disease coding and billing, regulatory compliance, medication error prevention, smooth work flow, simplicity, multiple input interfaces (notes, voice transcription, drawings, etc.), integration of clinical images, consistent connectivity with clinical investigation platforms, input speed at the

point of entry, and - above all - data compilation for analysis and research, all with time efficiency and a UI that is easy to use and patient-friendly [8]. EMR systems are taking the lead among new IT system projects in emerging nations, to enhance communication and data management in health care institutions [7].

A health institution must implement an electronic medical recording system that satisfies the minimal data and functional requirements due to the emergence of new technologies and the increasing need for individual-level data [9]. The adoption rate is quite low, despite the huge expectations and activity surrounding EMR as a primary pressure to improve the standard, quality, continuity, safety, and effectiveness of health care globally. Worldwide, more than half of EMRs may not work or be used efficiently [10].
Many nations have committed to implementing EMRs nationwide during the past few decades to improve health care systems and better manage the demands of human health[10]. The Ethiopian Ministry of Health, like many other nations, has recognized the value of electronic medical records (EMRs) in improving the quality of health care delivery. The EMR was accepted by the Ethiopian Ministry of Health in 2013, and it was intended to be implemented in all hospitals [9].

1.2 Statement of the problem

The trend toward digitization in health is being accelerated by the growing amount of health- related data being created globally [11]. Big data has the ability to propel the next wave of health care advancement with the shift to electronic medical records [12].
Hospital record-keeping and paper-based processes have been shown to be more inefficient and to consistently fall short of the expectations of patients and health care practitioners. The widespread incompleteness and restricted accessibility of paper documents drew criticism [13,14]. These methods are usually tiresome, difficult to handle, and prone to mistakes. Because manual operations are time-consuming, they necessitate a large amount of storage space, provide challenges for information retrieval, and frequently cause delays. Serious medical mistakes may result from problems like unreadable handwriting, missing pages, or lost files in clinical practice. This situation raises health care expenses while also compromising the standard of care [15]. Attention should also be paid to the privacy and security issues surrounding paper-based documents. These difficulties highlight how

urgently a paradigm change from old systems to more effective and efficient digital platforms is required [15].

In addition to offering insights into health care costs, utilization, and outcomes, electronic medical records (EMRs) also improve the quality, timeliness, and accuracy of patient information at the point of care, support patient mobility, lower costs, improve information reliability, and give multiple health care providers access to patient data. EMR data analysis can reveal problem areas in the provision of health care services [16]. EMRs have a big impact on patient safety and treatment results. Alerts for possible drug interactions, allergies, or other issues that might affect the safety of medications can be sent by EMRs. EMRs can enhance patient safety by warning medical professionals about these problems and preventing adverse medication occurrences [17,18].

Despite the many benefits listed above, prior research shows that the overall adoption rate of EMR is very low [19]. EMRs are still not widely used, adopted, or implemented in developing economies. Only a small percentage of the EMR systems that have been implemented by several health care facilities worldwide to improve the process of gathering patient data have been effective [3].

Sines and Griffin 2020 investigated the fact that a number of previous clinical system deployments had failed because the physicians had not adopted them. Since doctors make up a sizable portion of the patient care user base, the success of the EMR's deployment is largely dependent on their intention to utilize it. Due to physicians' low acceptance of EMR, there is a significant risk to its successful deployment [19]. In particular, integrating EMRs into low-income nations' healthcare systems continues to be a significant problem [20].

Prior research revealed that doctors would not want to use a system that disrupts their work flow and changes the way they treat patients. Therefore, one of the most crucial aspects of confirming the optimal integration of EMR and, ultimately, figuring out the benefits for the health care system is identifying the barriers that doctors face when deciding whether or not to use it [19].

The adoption of electronic medical record can be influenced by a number of factors such as Clinicians and patients expressed concerns about inadequate training, a lack of technical and instructional assistance for users, poor system integration and interoperability, and the security and privacy of data and information.

The introduction and acceptance of the health record systems were found to be restricted by a lack of resources, including the expense for system updates and maintenance, lack of budget, time restrictions, restricted computer access and numbers, limited networks (internet), and a lack of user licenses. Concerns were also expressed over the legal responsibility of medical records stored in EMRs and PHRs. The successful implementation and use of EMRs may be inhibited by poor knowledge, a lack of administrative and governmental support, and other factors [21,22].

Few health care institutions have embraced electronic medical records (EMRs), despite the Ethiopian Ministry of Health's 2013 adoption of the EMR and its plans to expand its use to all hospitals. With the help of many NGOs, the Ethiopian Ministry of Health modified the Smart Care EMR system to be used nationwide in all hospitals and expanded its use to other hospitals and areas [9]. The EMR system is underutilized in Ethiopia, and it has sustainability issues. According to Tegegne (2023), the combined estimate of Ethiopian health care professionals' adoption of EMR systems was 51.85% [23].

Despite its urgent need, EMR adoption has been slower and more likely to fail in developing economies like Ethiopia. The use of EMR in Ethiopia was positively correlated with health care workers under 30 years old, those who had access to an EMR system, those who had received training related to EMRs, and those who had managerial support. Implementation difficulties and a lack of pre-implementation measures, such as EMR preparedness, awareness of EMR, attitude toward EMR, and pre-implementation training, are the primary causes of poor use [23]. Yehualashet (2021) came up with Nineteen obstacles to the adoption of EMRs: lack of EMR training, lack of computer literacy, lack of technical support, lack of EMR manual, negative attitude toward EMR, limited internet access, lack of management support, electric power outages, lack of perceived system quality, lack of perceived information quality, user resistance to change, system complexity, performance expectancy, effort expectancy, social influence, lack of IT qualification, and lack of confidence in computer typing ability[10].

The effectiveness of health information systems was shown to be impacted by a number of aspects, including information quality issues like completeness, data correctness, and readability; system quality attributes like usability, response speed, and simplicity of use; usage characteristics such as the number of entries, frequency, and duration of usage; user characteristics such as friendliness, attitude, and contentment; organizational impact

attributes include the effect on patient care, communication and collaboration, staff reduction, and time-saving; individual impact attributes include changes to work patterns, frequency of documentation, and time of day for documenting [24,25,26].

According to MOH report, Ethiopia has had difficulties implementing electronic medical records (EMRs). Setting up and keeping EMRs running is expensive, requires constant updates, and depends on health workers' willingness to use them. As a result, many health facilities in Ethiopia have stopped using EMRs, except a few, like Ayder Referral Hospital in Tigray, Bahir Dar Health Center in Amhara, Jugel Hospital, and some health centers in Harari. These facilities have managed to keep EMRs running, but no study has looked at the factors affecting the adoption of EMRs in Harari [9]. This study will ensure the continues and appropriate use of the EMR by addressing factors affecting the behavioral intention to use the EMR by informing the stakeholders about the use. To improve EMRs and ensure that health care professionals find them useful, it is essential to comprehend factors affecting the adoption of EMR. Research on the variables influencing the adoption of EMRs by health professionals in Harari will yield valuable insights to improve the sustainability and efficacy of EMR systems in Ethiopia [9].

The prior study conducted in southwest Ethiopia on the assessment of the factors affecting the adoption of the EMR has a limitation. The study focused on assessing behavioral intention during the pre-implementation phase, which may not fully represent actual acceptance and utilization after real implementation [27]. And the study used only quantitative approach. So, my study is aimed at addressing these gaps, to investigate acceptance and usage patterns during the post- implementation phase to gain a comprehensive understanding of the technology’s impact using both qualitative and quantitative approach to gain holistic understanding.

Therefore, this study is aimed at assessing the factors that affect the way that health professionals in Harari public health facilities adopt electronic medical records (EMR). The results will be useful, besides the EMR improvement, in getting a higher quality of health care services and more effective data management in the region. The information to be acquired can help stakeholders create focused initiatives that encourage the effective adoption and use of EMR systems in health care facilities.

1.3 Rationale for the study

The health care system is undergoing dynamic change. With the improvement of the information communication technology (ICT)and e-health technology, the access, adoption, acceptance and use of ICT have gained high importance. As, it is the health professionals who decide whether or not to use a new technology, studying about the factors that affect the use of specific technology has huge significance.

Studying the determinants of the adoption of EMR systems is important for successful implementation, particularly considering the significance of health care providers' adoption behavior. While studies have been conducted in Ethiopia and other developing countries on the adoption of digital health initiatives, the factors influencing the adoption of EMR systems among health care providers have not been assessed at post-implementation phase using the extended UTAUT3 model in Harari region [27].

1.3.1.scope of the study

Examining the factors affecting Health professional adoption of electronic medical records (EMRs) is the goal of this study.

1.4 Significance of the study

This study has great importance because it will clarify why certain health care professionals in the Harari Region are effectively utilizing electronic medical records (EMRs) while others are not. It can pave ways to enhance the usage of EMRs in different areas by determining the elements that affect EMR adoption.

Studying the factors affecting the adoption of electronic medical records (EMRs) among health professionals is crucial for several reasons. Firstly, it helps us to gain insight regarding the relationship between technology, organizational culture, and individual behaviors in health care settings. This insight paves way to the successful design and improve implementation of EMR systems that are both technically good and socially acceptable. Secondly, after identifying the barriers and facilitators to EMR adoption, researchers can figure out ways to overcome resistance and promote effective use of the EMR systems. Thirdly, the study will also may come up with new insights to enrich HIS knowledge base on HIS adoption patterns in developing economies. Finally, EMR

adoption study is also beneficial to the general study of technology acceptance and usage since it gains in-depth comprehension of how individuals and organizations adopt new technologies and how they use them for their convenience.

This study will have an impact on health care and investment decisions in Ethiopia. By identifying the factors that support the adoption of EMRs, the government and other stakeholders in the health care sector may make well-informed choices on the allocation of resources, technical assistance for health professionals, training programs and upcoming expenditures on health IT.In the end, this will result in better patient care, more effective health care systems, and better health outcomes for Ethiopians.

1.5 Research question

What are the factors affecting the adoption of EMRs among health professionals during post implementation in public health facilities in the Harari Region?

2. Literature Review

It is not a novel idea to store a patient's medical records online rather than on paper. As medical treatment grew increasingly complicated in the 1960s, physicians came to the realization that they might not always have access to a patient's whole medical history. The invention of electronically storing patient data was prompted by the availability of thorough medical information when required. The electronic medical record (EMR) was and continues to be a result to improved patient care [28]. The health care sector has quickly gone digital and automated. Large volumes of comprehensive patient and clinical process data are produced and stored by modern health care informatics [29].

Over the past 25 years, a significant portion of the work that has made use of enormous data-sets has depended on registration databases and hospital discharge records. The patient level granularity of therapeutically relevant, precise, and comprehensive data is lacking in hospital discharge databases, which were first developed for billing purposes and cannot adequately answer complicated research questions. Registry databases typically need a great deal of extracurricular data collecting and are mission limited. Using big data to enhance patient care is the way of the future for clinical research [30].

Multiple health care apps and different kinds of health care providers must be supported by an EMR system. Because of this, putting it into practice is a difficult undertaking that typically takes more time and effort than putting multiple other IT applications into place. A health care organization's clinical process frequently has to be significantly altered in order to implement an EMR system. Clinical work flow differs from specialty to specialty, even if an EMR can be tailored for a particular medical practice.

As a result, an EMR with a particular work flow for medical practice is typically difficult to modify. One factor is security and privacy: Because patients are worried about unauthorized access to their private information and health care practitioners are worried about EMR changes occurring without their awareness, an EMR deployment must carefully address privacy and security concerns. Another reason is difficulty using the EMR. According to Sinha (2013), some healthcare workers find using computers for data input to be more time-consuming and challenging than handwriting [30].

Patient-driven data has been accumulating for decades without a clear framework to make it relevant and usable since the first electronic medical record (EMR) appeared in the 1960s. Databases that preserved and arranged material into central repositories were

eventually established by institutions. Hospitals were able to integrate clinical care components (such nurse plans, drug administration records, and physician orders) with data from extensive auxiliary services, such as pharmacies, labs, and radiology studies [29].

Patient demographics, progress notes, issues, prescriptions, vital signs, previous medical history, vaccinations, laboratory data, radiology reports, scheduling, transcription, e-prescribing, evaluation and management (office visit level), coding, care alerts, chief complaints, evidence- based decision support, and health maintenance are just a few of the many features and data that are included in an electronic medical record (EMR) [28].

With the investment and acceptance of health information technologies (HITs) showing potential to boost patient safety, minimize medical mistakes, improve efficiency, and lower overall costs, the health care sector has seen remarkable technological innovation over the previous 50 years. Information technology (IT) vendors and health organizations continue to embrace health information standards at a frustratingly low rate, even though they are considered essential to the creation of interoperable solutions [31].

2.1 Performance Expectancy

According to Davis (1989), performance expectancy is "the extent to which an individual feels that utilizing a specific system would enhance their job performance." It is among the established criteria for adopting technology. Technology's impact on task performance time, effort and cost savings, and overall usefulness are key measures of its PU. Employees at a health care institution will have a positive attitude regarding adoption if they think the IS will save them time, effort, and money while also having a beneficial overall impact [32]. Study in Taiwan also found that perceived usefulness influences the intention to use tele-health technology [8]. According to the findings of the systematic review by Wutz, Maximilian et al. (2023),from the factors that affect acceptability, acceptance, and adoption among health care professionals, performance expectancy was one of them[33]. Iranian study showed that perceived usefulness is positively associated with the intention to use the EMR system [34]. According to the study conducted in Sri Lankan, it was found that there was a positive and substantial correlation between behavioral intention (BI) and performance expectation (PE)[35].

Additionally, the systematic review by Walle, Agmasie Damtew, et al. indicated that from the factors affecting the adoption of EMR, performance expectancy was found to be the facilitator of the adoption [36].

2.2 Effort Expectancy

Effort expectancy was assessed in a variety of approaches including how simple the technology is to use, learning and convenience in using it, and the simplicity of operating it.[8] According to the findings of the systematic review by Wutz, Maximilian et al. (2023), from the factors that affect acceptability, acceptance, and adoption among health care professionals effort expectancy was one of them.[33]

Study in Taiwan also found that perceived ease of use influences the intention to use tele-health technology [8].The complexity of the software for users was cited in Nigerian research as one of the reasons why EMRs were not implemented and used. One participant said the software modality was complicated and difficult to use [37].

Results from 224 users in an Iranian study showed that perceived ease of use is positively associated with the intention to use the EMR system [34]. The intricacy of the system may result in user mistakes and a greater workload for doctors. With intricate menus and procedures that can be difficult to use and copious documentation that can take a lot of time, many EMR systems have a high learning curve. For doctors who believe that administrative duties are eating up important time that should be spent on patient care, learning a complex system can result in burnout and a decline in work satisfaction [38].

A study that examined the usability and perceived hardship of using EMRs in Addis Ababa indicated that senior-level physicians expressed significantly higher irritation with EMR use than did more junior-level physicians. The inability of eight doctors to memorize software menus, button names, commands, and sophisticated job completion upset them [39]. According to the study conducted in Northern Ethiopia, the actual use of the EMR system is directly and significantly influence effort expectancy [40]. Additionally, the systematic review by Walle, Agmasie Damtew, et al. indicated that Effort expectancy was found to be the facilitators of the adoption of EMR [36].

2.3 Social influence

Bangladesh study found that social influence ($\beta = 0.19$, $P < 0.05$) had a significant influence on physicians' Behavioral Intention to adopt the EHR system[41]. According to the study conducted in Nigeria, social influence has found to have a significant effect on the intention to use of the electronic medical record [42].

In the study conducted in south Ethiopia, one of the validated constructs that has been discovered to be associated with the propensity to embrace ICT-based health information services is social influence[43].

The study conducted in southwest oromia also reveled that Healthcare providers' intentions to use personal health records was significantly influenced by social influence [44].

2.4 Facilitating condition

According to the findings of the systematic review by Wutz, Maximilian et al. (2023),from the factors that affect acceptability, acceptance, and adoption among health care professionals facilitating conditions was one of them [33]. conditions like instruction in the use of ICT facilities, absence of ICT technical professionals and insufficient technical assistance from software developers were found to be the factors affecting the adoption of the EMR [45]. According to Sobol et al., staff IT skills and knowledge have a significant impact on the deployment of medical computerized systems; in other words, if staff members knew more about standards, there would be fewer advocate barriers and less opposition to adoption[45]. Another crucial organizational tool that is thought to support successful adoption is training [31].

According to Chen et al, it is noteworthy that facilitating conditions have a strong, direct, and positive effect on usage intentions. Moreover, Li et al 2023 and Bramo SS 2022 have proved in their study that facilitating conditions are one of the most prominent determinants of use behavior and discovered that health care providers show their willingness to accept ICT-based health information services when all the necessary facilities, tools, equipment, and assistance are provided to support their use [43,46].

As per the findings of the Ugandan investigation, like factors lack of expert support and training were found to be barriers to the adoption and use of EMR in developing nations

[45]. According to the study conducted in Northern Ethiopia, the actual use of the EMR system is directly and significantly influenced by facilitating condition [40].
Additionally, the systematic review by Walle, Agmasie Damtew, et al. indicated that the facilitating conditions were the facilitators that were found [36].

2.5 Habit

According to the findings of the systematic review by Wutz, Maximilian et al. (2023),habit was found to be the factor that affect acceptability, acceptance, and adoption among health care [33].
According to the study conducted in Sri Lankan, it was found that there Habit (HB) was significantly associated with behavioral intention to adopt VLE technology at the $p<0.01$ level ($\beta=0.136$) [35]. Moreover,the systematic review by Walle, Agmasie Damtew, et al. indicated that habit was the facilitator that were found that affect the adoption of EMR [36].

2.6 Hedonic motivation

According to the findings of the systematic review by Wutz, Maximilian et al. (2023), one factor that affect acceptability, acceptance, and adoption among health care professionals was , hedonic motivation [33].
According to the study conducted in Sri Lankan and other studies, it was found that intention to use technology was significantly impacted by hedonic motivation ($\beta=0.207$) at $p < 0.001$. [35,46,47].
Additionally, the systematic review by Walle, Agmasie Damtew, et al. indicated that perceived enjoyment was the facilitators that were found [36].

2.7 Personal innovativeness

According to the study conducted in bangladish personal innovativeness in Information Technology ($\beta = 0.19$, $P < 0.05$) had a significant influence on physicians' Intention to adopt the EHR system [41].
From the study conducted in taiwan, it was found that the personal innovativeness has a significant effect on the adoption of the health information system[48].

2.8 Technology self efficacy

According to the study conducted in Northern Ethiopia, the actual use of the EMR system is directly and significantly influenced by self-efficacy [40].

2.9 Attitude

According to Dwivedi YK and Ugandan investigation , attitude was found to be playing a central role in acceptance and use of IS/IT innovations. Negative attitudes against health technology advances were shown to be a major problem for the adoption of the EMR [45,49]. Additionally, the systematic review by Walle, Agmasie Damtew, et al. indicated that attitude, were the facilitators that were found [36].

2.10 Technology anxiety

Technology anxiety hindered behavioral intention. according to Chen Y,et al, the study have stressed that technology anxiety significantly affects the older adults' behavioral intention in terms of adopting m-Health in the setting of developing countries [46].

Furthermore, the biggest obstacle to Ethiopia's long-term adoption of e-health systems was technological fear [50].As per the findings of the Ugandan investigation factor like technophobia was found to be barrier to the adoption and use of EMR in developing nations[45].

The adoption of HIS is significantly influenced by human resources, which are the most valuable asset in the health care industry. It is evident that health care professionals have an impact on the adoption of HIS. Their favorable opinions about the systems' usefulness and ease of use were found to be the primary motivators for adoption, whereas their opinions about the adopted systems' incompatibility with work procedures, their lack of experience with information technology, and their lack of time were found to be the primary obstacles. The acceptance of these technologies by health care professionals can often be a significant obstacle to IT adoption. It is advised that these technologies be introduced gradually and that ongoing training and contact with human resources be conducted [51].

According to the study conducted in Palestine Human factors, which include things like perceived ease of system learning and user confidence, one important component was

experience: those with 1– 5 years of experience gave human factors higher ratings than those with longer tenure. Organizational elements Resources, training, and managerial support are examples of organizational variables [52].

The degree of ease of use was shown to be a determining factor in the PLHC institutions' acceptance of ICT-based health information services expectancy of effort [43].
Behavioral intention (BI) refers to the behavioral readiness to accept, Use, or adopt a particular technology [32]. Behavioral intention to use EMR means the willingness or motivation of health care professionals to adopt and utilize EMR systems. It is widely recognized and accepted that behavioral intention is the key direct determinant of technology use [53]. This intention depends on several behavioral, psychological, and technological factors that could be explained by models like UTAUT3 [27]. Users' adoption and the utilization of IT by individuals collectively form the most valued factors contributing to successful acceptance and implementation of HIT [54].
In this study the UTAUT3 model will be used, UTAUT3 stands for Unified Theory of Acceptance and Use of Technology 3, a tool that can help in understanding why people decide to adopt new technology. It extends the earlier versions of this model-UTAUT and UTAUT2-by adding eight key factors that include personal innovativeness: a person's willingness to try new technology. This added factor is of particular use when researching complex systems such as EMRs, where health professionals might be quite unwilling to experiment with this new set of tools introduced to them. The model is designed for assessing the behavioral intention to use of technology but the survey tool is also applicable for assessing the adoption of the EMR during post-implementation phase.
UTAUT3 can explain more about why people adopt technology compared to earlier models. In fact, in one study, 84.5% of the reasons for health professionals' intentions to use EMRs, while UTAUT2 was only able to explain 66.9%. UTAUT3 also looks at factors that include social influence- maintenance pressure from others-and performance expectations or the belief that the technology will help in making the work easier. This version of the model also considers some problems in the issues of technology adoption, which concern characteristics like gender, therefore giving more detail.

For reliability, Cronbach's alpha was calculated, and all constructs were rated between 0.72 to 0.94, hence a high internal consistency [35]. Convergent and discriminant validity were other ways used in proving the validity of the constructs. The AVE values

of all the constructs are above 0.50, indicating the existence of convergent validity. All the composite reliability values have exceeded the threshold limit of 0.70. For discriminant validity, all the square roots of AVE are found to be greater than inter-construct correlations [27].

In general, the use of UTAUT3 would allow going deeper into what influences health professionals in their choices to adopt EMRs by covering a wide range of factors that may affect their decision- making [52].

In this study, a prevalence (P) of 31.7% (P = 0.317) was assumed for health professionals' behavioral intention to use EMR, as previous studies in a similar setting used 31.7% prevalence [39].

Conceptual framework

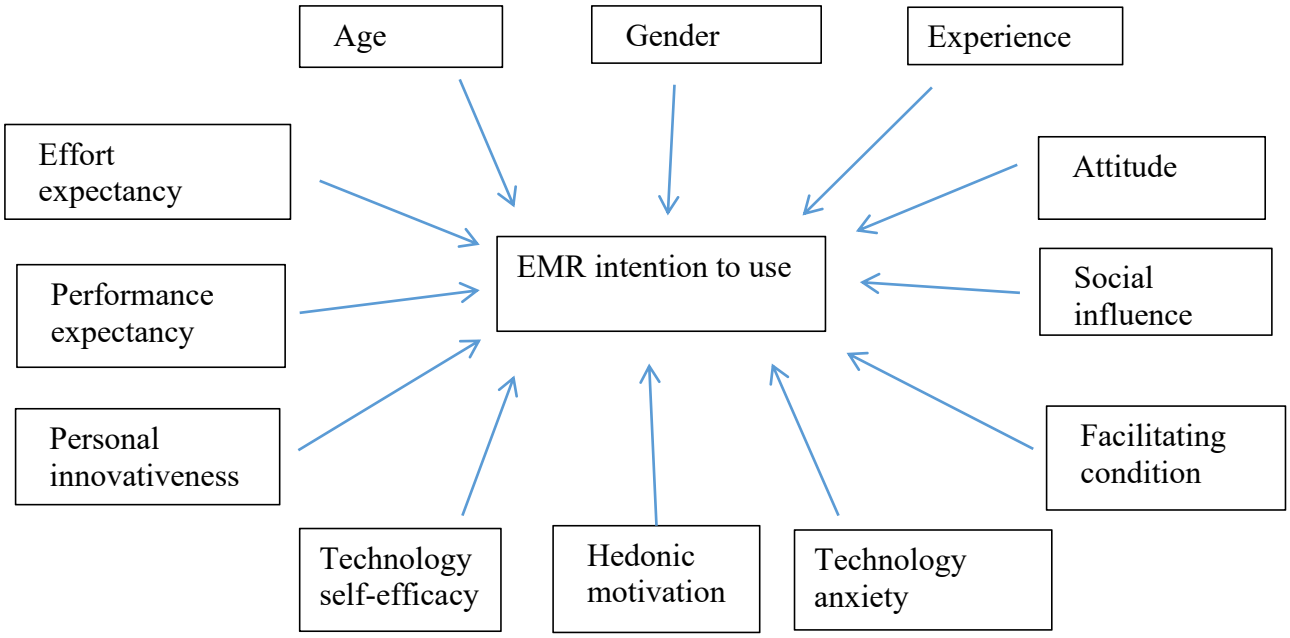


Figure 1 Conceptual framework

3.Objectives

3.1.General objective

To investigate the factors affecting health professional's adoption pattern of electronic medical records at public health facilities in Harari region in 2025.

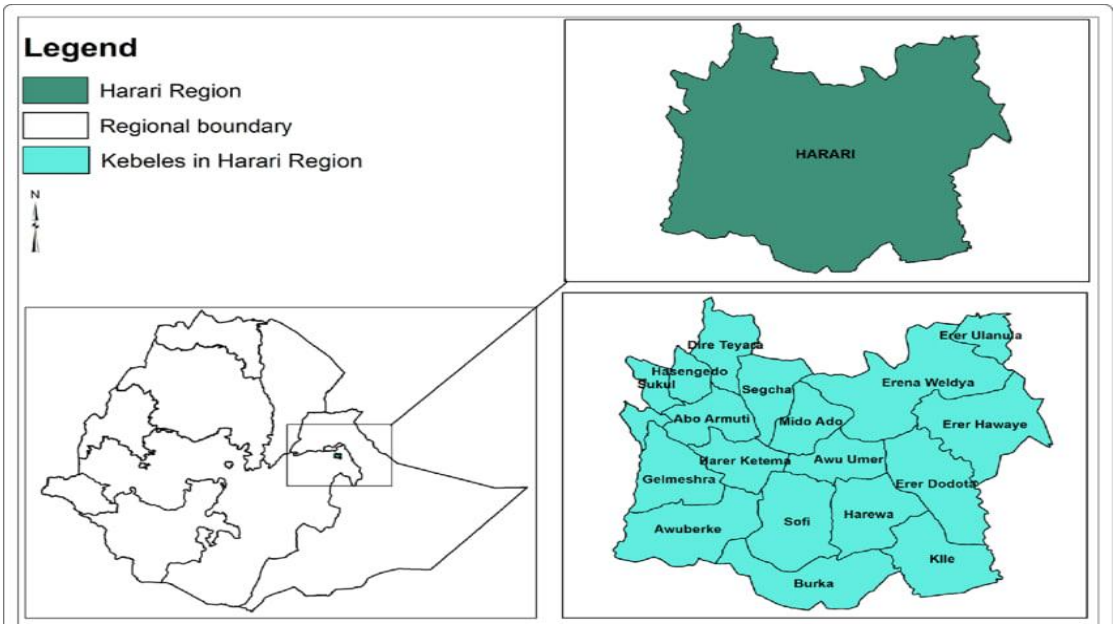
3.2.Specific objectives

- To identify the key factors influencing health professional's adoption of Electronic Medical Records (EMRs) in Harari public health facilities in 2025.
- To analyze the barriers and facilitators affecting the adoption of EMRs in 2025.

4.Methodology

4.1.Study Area

The study was conducted in the Harari region. Harari is one of the ten ethnically based regional states of Ethiopia. It is the homeland of the Harari people, and its capital is Harar. There are 9 numbered woredas in Harari region. Under the woreda there are 19 city kebeles and 17 rural kebeles. The Harari Peoples National Regional State is found in the eastern part of Ethiopia surrounded by Eastern Harargae Zone of the Oromia Regional State. Harar has two hospitals, nine health centers and 28 health posts. Based on 2012 (EFY) figures from the Central Statistical Agency (CSA) of Ethiopia, the Harar Region has an estimated total population of 263,657 consisting of 100,126 male and 98,854 female. 49.5% of the population is estimated to be rural inhabitants, while 50.5% are urban dwellers (CSA 2017). It's estimated area is 333.94 square kilometers, this region has an estimated density of 595.9 people per square kilometer.



Source: Harari Health bureau

Figure 2 Map of Harari Region

4.2 Study period

The study was conducted from Feb 20- Mar 29, 2025.

4.3 Study design

Qualitative and Quantitative (Mixed) approaches were used and the study design used was cross sectional design employed at Harari health facilities, using this design provides a snapshot of how Electronic Medical Records (EMRs) are currently adopted in the region.

4.4 Source and study population

4.4.1 Source population

The source population for the study were all health care professionals who uses electronic medical record at public health facilities in Harari region.

4.4.2 Study population

The study population for this study were all selected health professionals currently working on EMR on selected health facilities.

4.5 Inclusion and exclusion criteria

4.5.1.Inclusion criteria

- Public health facilities that utilize Electronic Medical Record continuously.
- Health care providers who use electronic medical record

4.5.2 Exclusion criteria

- Health professionals who has not used EMR more than 6 months

4.6 Sampling determination and sampling technique

4.6.1 Sampling technique

4.6.1.1 Sample Size Calculation for quantitative

For the cross-sectional study design, the sample size formula for the single population proportion [55]. In this study, a prevalence (P) of 31.7% (P = 0.317) was assumed for health professionals' behavioral intention to use EMR, as previous studies in a similar setting used 31.7% prevalence. The researchers also used a 95% confidence level (Z = 1.96) and a margin of error (d) of 5% (d = 0.05) [39].

n = required sample size

Z=the value of Z in the standard normal distribution that corresponds to a level of 0.05

p=Assumed population proportion p=31.7%

d=the margin of error (precision) =5%

$$n=\frac{Z^2\times p(1-p)}{d^2}$$

$$n=\frac{1.96^2\ (0.317(1-0.317))}{0.05^2}$$

n= 332.72 ≈ 333 (with 10% non-response rate, n =366)

4.6.1.2 Sampling for qualitative

For qualitative method key informant interview was employed and the number of participants were eight, taken from Regional health bureau and Health facilities who are Directors, HMIS departments and IT personnel.

4.6.2 Sampling Method and sampling procedure

First all eligible health professionals in Harari's public health facilities were identified and then four health facilities were found that has fully implemented the EMR system then four facilities were selected to be involved in the study and then from each facility using the systematic random sampling techniques study participants were selected with

k=2 interval from each strata which were stratified based on the departments. The proportion of participants to be selected from each health facility were according to the number of EMR users found in the facilities.

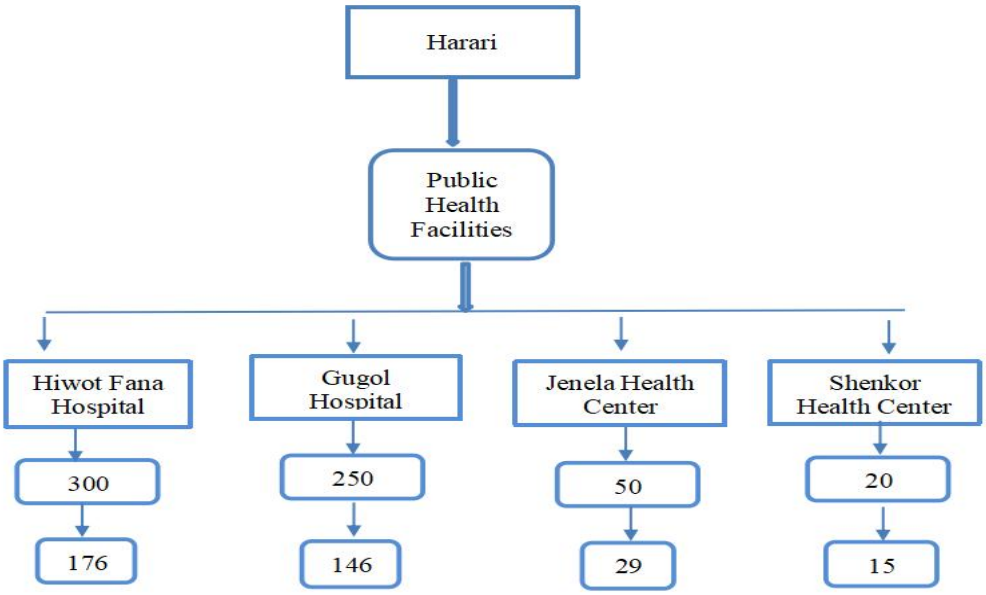


Figure 3 Sampling distribution

4.7 Study variables

4.7.1Dependent variables

Intention to Use EMR

4.7.2Independent variables

Performance Expectancy (PE)

Effort Expectancy (EE)

Social Influence

Facilitating Conditions

Hedonic Motivation (HM)

Habit

Personal Innovativeness

Technology Self-Efficacy (TSE)

Technology Anxiety (TAN)

Attitude towards EMR

4.8 Data collection method

4.8.1 Data collection for Quantitative

A validated likert scale questionnaires were used to collect quantitative data. The adapted questionnaire was translated in Amharic and distributed in Amharic and English version. The quantitative data collection at health facilities was done by principal investigator and by two trained data collectors with close supervision by the principal investigator

4.8.2 Data collection for Qualitative

The qualitative data was collected by the principal investigator at the Regional health bureau and four health facilities. The data was recorded and transcribed during the interview.

4.9. Data quality assurance

4.9.1 For quantitative

In order to provide high-quality data, quantitative structured questionnaires were pretested at Aboker Health center. For the pretest 18(5%) participants were involved. A validated survey tool was used for data collection.

4.9.2 For qualitative

The interview guide question was reviewed by the expert at regional health bureau.

4.10. Data processing and analysis

After the data collection process, data processing was executed to ensure that data is reviewed and cleaned before the analysis process. The data was entered into SPSS and cleaned for analysis. Then the data was analyzed.

4.10.1.Quantitative analysis

Descriptive statistics were done to summarize the variables. Data presentations and interpretations were made using tables and graphs to display the collected data in a concise and meaningful way.

For analysis the data was imported to the SPSS and cleaned until it was ready for the analysis. First the descriptive analysis was done involving frequency , percentage, mean, SD followed by the inferential statistical analysis involving chi-square test, logistic regression analysis, adjusted odds ratio and crude odds ratio. The confidence level used was 95% and P value <0.05 is significant.

4.10.2.Qualitative Data Analysis

ATLAS.ti was used for qualitative data analysis. Before the analysis data was translated to English and codes were prepared. ATLAS.ti use the systematic series of steps that make the analysis process less difficult and more manageable. The first step was bringing the data into the software. Second the code was given to the ideas of the participants then the codes were categorized in to themes and then the themes were grouped under larger groups. The code book was exported and the write-up was done.

4.11 Ethical consideration

The first step was seeking ethical permission from the Addis Ababa University School of Public Health research and ethics review committee (REC). The Department of Epidemiology and Bio-statistics written a letter to regional health offices asking for permission to carry out the study. Then the regional health bureaus wrote draft letters and sent them to each selected health facilities. The study was carried out with approval from the medical facilities. Respondents were informed of the purpose and

objective of the study as well as their choice to refuse to take part in the study. After that, a verbal request for the study participants' informed consent was made. The anonymity of the facilities and respondents was maintained by ensuring that the data is collected, examined, and the respondents' identities are protected.

4.12 Dissemination plan

First the thesis will be presented at the school of public health as part of the master's degree in health informatics, then the findings of the study will be distributed to Addis Ababa University school of public health, Harari health bureau and other concerned body. And also, it will be published in an international journal.

4.13 Operational definition

Electronic medical record: Electronic medical records (EMRs) are real-time, patient-centered records that provide immediate and secure information to authorized users. It typically contains a patient's medical history, diagnoses and treatment, medications, allergies, immunizations, as well as radiology images and laboratory results.

Factors affecting the adoption pattern: Barrier that prevents or facilitators that helps health care providers and organizations to use EMR software.

Intention to Use: person's subjective probability that he will perform some behavior.

Attitude towards the Technology (ATT) : is a way of thinking or feeling about something (Technology) and is usually reflected in behavior.

Performance Expectancy: The degree to which an individual believes that using the system will help him or her to attain gains in job performance.

Effort Expectancy: The degree of ease associated with the use of the system.

Social Influence: The degree to which an individual perceives that important others believe he or she should use the new system.

Facilitating Conditions: The degree to which an individual believes that an organization and technical infrastructure exist to support use of the system.

Hedonic Motivation: The fun or pleasure derived from using a technology, which has been shown to play an important role in determining technology acceptance and use.

Habit: The extent to which people tend to perform behaviors automatically.

Personal Innovativeness: is the degree to which a person's personality reflects his or her propensity to experiment with digital technologies independently of the conveyed experience of others. It is the aspiration to try out emerging digital technologies

Technology Self-Efficacy: Refers to perceived digital competency, which refers to the perceived know-how and skill required to use digital technologies

Technology Anxiety: an individual elicits negative emotions, apprehension, and fear that arise due to the introduction of technology [27,35].

Challenges: Difficult activity or situation that tests someone ability and needs some thought and skill to solution.

BAHMNI: open source health information system and electronic medical record system software solution designed for data management purpose [56].

5.Result for Quantitative

5.1 Socio-Demographic Characteristics

A total of 351 respondents participated in the study making response rate of 95.9%. More than half of the respondents were female 204 (58.12%). The mean age (+SD) of the respondents is 32.34±8.9.

Over half of the respondents 263(74.93%) are holding BSc degree, followed by 74(21.08%) diploma and 14(3.99%) master's degree.(Table 1).

Table 1 Socio-demographic characteristics of Health professionals on intention to adopt EMR in Harari public Health facilities, April 2025

Characteristics	Frequency	percent (%)
Sex		
Male	147	41.88
Female	204	58.12
Age		
<25	38	10.8
25-30	156	44.4
31-36	79	22.5
>36	78	22.2
Profession		
Nurse	95	27.07
Pharmacist	76	21.65
Medical Doctor	57	16.24
Midwife	46	13.11
Health officer	26	7.41
Laboratoy Technologist	22	6.27
Radiology Technologist	16	4.56
Information Technologist	6	1.71
Work experience		
<5 years	162	46.15
5-10 years	113	32.24
>10 years	76	21.61
Level of Education		
Diploma	74	21.08
Degree	263	74.93
Masters	14	3.99

From the likert scale questionnaire to assess the factors affecting the adoption of the EMR among of Health professional summary results involving the frequency and percentage regarding the 11 variables stated in the model are presented below .

1.Performance expectancy

Among the 351 participants, 282(80.3%) agreed on "I found the EMR system useful" and 273(77.8%) agreed on "using the EMR system increase my productivity". Half of the respondents, 274(78%) agreed on the idea that "Using the EMR system enables me to accomplish tasks more quickly".

Table 2 Summary of health professionals' response regarding performance expectancy on using EMR

Variables	Strongly disagree N_o (%)	Disagree N_o (%)	Neutral N_o (%)	Agree N_o (%)	Strongly agree N_o(%)
I found the EMR system useful in my job	13(3.70)	18(5.13)	38(10.83)	179(51.00)	103(29.34)
Using the EMR system enables me to accomplish tasks more quickly	7(1.99)	21(5.98)	49(13.96)	176 (50.14)	98(27.92)
Using the EMR system increases my productivity	8 (2.28)	20 (5.70)	50 (14.25)	175(49.86)	98 (27.92)
Using the EMR system helps me to perform my role effectively, which in turn enables me to increase my chances of getting a reward or promotion	15(4.27)	32(9.12)	57(16.24)	154(43.87)	93(26.50)
Total				351 (100.00)	

2. Effort expectancy

Using Likert scale questions respondents were asked on the effort expectancy and more than half of the respondents (79.8% & 78.4%) agree on the idea that "my interaction with the EMR system would be clear and understandable" and "it would be easy for me to become skillful at using the EMR system" respectively. Regarding the ease of use, 276(78.6%) of the respondents agree that the system is easy to use.

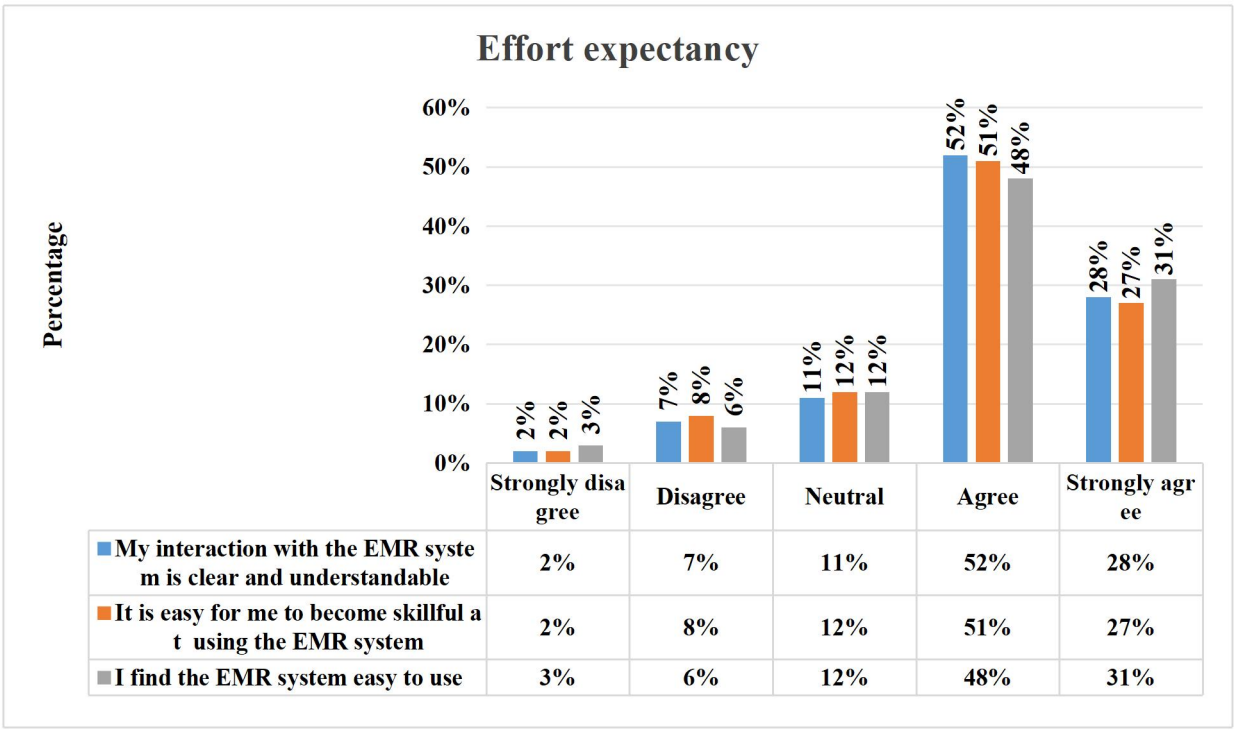


Figure 3 Summary of health professionals' response regarding performance expectancy on using EMR

3.Social influence

Regarding the social influence on using EMR, from all respondents 240(68.38%) agree on the idea that "my work colleagues thinks that I should use the EMR system". On the opinion stated as "the senior managers of this facility have motivated me in the use of EMR system" around 270(76.9%) of the participants agreed.

Table 3 Summary of health professionals' response regarding social influence on adopting the EMR

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Variables	**N₀ (%)**	**N₀ (%)**	**N₀ (%)**	**N₀ (%)**	**N₀(%)**
My work colleagues thinks that I should use the EMR system	19(5.41)	22(6.27)	70(19.94)	155(44.16)	85(24.22)
My friends think that I should use the EMR system	11(3.13)	15(4.27)	66(18.80)	167(47.58)	92(26.21)
The senior managers of this Facility have motivated me in the use of the EMR system	11(3.13)	28(7.98)	42(11.97)	162 (46.15)	108 (30.77)

Total	351(100.00)

4.Facilitating condition

When assessing the availability of the facilitating condition with five-point likert scale, Among all, 259(74%) of the participants agree on the availability of a specific person (group) for assistance with difficulties experienced with the EMR. Around 73.8% of participants agree that they have the resources necessary to use the EMR system. Regarding the training, 240(68.4%) of the participants agree on the idea that "I have been given adequate training on the EMR system".

Table 4 Summary of health professionals' response on the availability of Facilitating conditions for adopting EMR

	Strongly disagree	**Disagree**	**Neutral**	**Agree**	**Strongly agree**
Variables	**No (%)**	**No (%)**	**No (%)**	**No (%)**	**No(%)**
I have the resources necessary to use the EMR system	16(4.56)	30(8.55)	46(13.11)	160(45.58)	99(28.21)
I have been given adequate training on the EMR system	22(6.27)	40 (11.40)	49(13.96)	150(42.74)	90(25.64)
I have the knowledge necessary to use the EMR system	8(2.28)	36(10.26)	57(16.24)	155(44.16)	95(27.07)
The EMR system is compatible with other systems I use	9(2.56)	22(6.27)	73(20.80)	176(50.14)	71(20.23)
A specific person (or group) is available for assistance with difficulties experienced	8(2.29)	31(8.86)	52(14.86)	166 (47.43)	93(26.57)
Total	351(100.00)				

5.Habit

Among all, 255(72.9%) of the respondents agree on the statement that states “the use of digital technology becomes a habit for me”. 253(72%) of the participants agree on the idea that “ using digital technology has become a natural to me”. Regarding the dependency on the digital technology, 223(63.54%) of the respondents agree that they are dependent on using digital technology.

Table 5 Summary of health professionals' response on Habit of using technology

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Variables	**No (%)**	**No (%)**	**No (%)**	**No (%)**	**No(%)**
The use of digital technology becomes a habit for me	13 (3.71)	30(8.57)	52 (14.86)	166 (47.43)	89 (25.43)
I am dependent on using digital technology	21(5.98)	39(11.11)	68(19.37)	142(40.46)	81(23.08)
Using digital technology has become a natural to me	12(3.42)	30 (8.55)	56 (15.95)	160 (45.58)	93 (26.50)
Using digital technology has become a must for me	16(4.56)	26(7.41)	57(16.24)	153(43.59)	99(28.21)
Total	351(100.00)				

6.Hedonic Motivation

273(77.78%) of the participants agree that using the EMR is enjoyable and 258(73.5%) agree that using EMR is entertaining.

Table 6 Summary of health professionals' response on Hedonic motivation when using EMR

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Variables	**No (%)**	**No (%)**	**No (%)**	**No (%)**	**No(%)**
Using EMR is enjoyable	8(2.28)	16(4.56)	54(15.38)	177(50.43)	96(27.35)
Using EMR is entertaining	13 (3.70)	17 (4.84)	63(17.95)	168 (47.86)	90 (25.64)
Total	351(100.00)				

7.Personal innovativeness

To assess the personal innovativeness of the health professionals, five point likert scale questions were used and among all 278(79.2%) agree on the idea that "If I heard about a new digital technology, I would look for ways to experiment". Around 239(68%) agree on the idea that states as "among my peers, I am usually the first to try out new digital technologies".

Table 7 Summary of health professional response on personal innovativeness regarding using digital technology.

Variables	Strongly disagree N_o (%)	Disagree N_o (%)	Neutral N_o (%)	Agree N_o (%)	Strongly agree N_o(%)
If I heard about a new digital technology, I would look for ways to experiment	8(2.28)	19 (5.41)	46 (13.11)	157 (44.73)	121(34.47)
Among my peers, I am usually the first to try out new digital technologies.	14(3.99)	28 (7.98)	70(19.94)	147(41.88)	92(26.21)
In general, I am not hesitant to try out new digital technologies.	10 (2.85)	25(7.12)	41(11.68)	163(46.44)	112(31.91)
Total			351(100.00)		

8.Technology self-efficacy

When studying on the technology self-efficacy, 273(77.8%) of the participants agree on "I can confidently speak that I have the capability to use digital technology" and 260(74%) of them agree on the statement of "I feel confident to use new digital technology even if no one around to tell me what to do". Around 190(54.14%) of the participants agree on the idea of "While using digital technology, I am worried that I might press the wrong button, and I feel it is risky for my work."

Table 8 Summary of health professionls' response regarding technology self-efficacy when using digital technology

Variables	Strongly disagree No (%)	Disagree No (%)	Neutral No (%)	Agree No (%)	Strongly agree No(%)	
It is easy for me to use digital technology		8(2.28)	30(8.55)	51(14.53)	164(46.72)	98(27.92)
I can confidently speak that I have the capability to use digital technology		8(2.28)	19(5.41)	51(14.53)	187(53.28)	86(24.50)
I feel confident to use new digital technology even if no one around to tell me what to do		7(1.99)	28(7.98)	56(15.95)	178(50.71)	82(23.36)
I do not feel comfortable using digital technology		61(17.43)	81 (23.14)	58 (16.57)	114 (32.57)	36(10.29)
While using digital technology, I am worried that I might press the wrong button		50(14.25)	57(16.24)	54(15.38)	144 (41.03)	46(13.11)
Total					351(100.00)	

9. Attitude

For assessing the attitude of health professionals, participants were asked some questions and it was found that 287(81.77%) of the respondents have favorable attitude on the idea of “Using EMR is a good idea” and 286(81.5%) of them agree that using the system is beneficial. Around half of the respondents 290(82.6%) agree on the statement of “using EMR is pleasant”. Among all 296(84.33%) of the respondents agree that they are interested to use EMR. Most respondents have favorable attitude towards the EMR.

Table 9 Summary of health professionls' attitude regarding the EMR system

Variables	Strongly disagree No (%)	Disagree No (%)	Neutral No (%)	Agree No (%)	Strongly agree No(%)
Using EMR is a good idea	11(3.13)	13(3.70)	40(11.40)	169(48.15)	118(33.62)
Using EMR is pleasant	9 (2.56)	16 (4.56)	36 (10.26)	176 (50.14)	114 (32.48)
Using EMR is beneficial	6(1.71)	21(5.98)	38(10.83)	164 (46.72)	122(34.76)
I am interested to use EMR	7(1.99)	15 (4.27)	33(9.40)	172(49.00)	124 (35.33)
Overall, I like the idea of using EMR	14(3.99)	22(6.27)	33(9.40)	159(45.30)	123(35.04)
Total				351(100.00)	

10.Technology Anxiety

73(20.5%) of the participants agree on the statement “Working with a digital technology would make me very nervous” and 57(16%) of the participants agree on the idea that “Using digital technology make me feel uncomfortable”. Among all, only 59(16.8%) of the participants agree on “Using digital technology make me feel uneasy and confused”.

Table 10 Summary of health professionals' response regarding technology anxiety when using digital technology

Variables	Strongly disagree No (%)	Disagree No (%)	Neutral No (%)	Agree No (%)	Strongly agree No(%)
Working with digital technology would make me very nervous	96(27.35)	126(35.90)	56(15.95)	47(13.39)	26(7.41)
I get a sinking feeling when I think of trying to use digital technology	95(27.07)	127(36.18)	58(16.52)	51(14.53)	20(5.70)

Using digital technology makes me feel uncomfortable	107(30.48)	130(37.04)	57(16.24)	45(12.82)	12(3.42)
Using digital technology make me feel uneasy and confused	117(33.33)	124(35.33)	51(14.53)	41(11.68)	18(5.13)
I feel bored while thinking about working with digital technology	110(31.34)	135(38.46)	45(12.82)	46(13.11)	15(4.27)
Total			351(100.00)		

11.Intention to use

When examining the intention of using the EMR among health professionals, 286(81%) of the respondents intend to use the EMR system in future and 278(79%) of them agree on the statement “I will always try to use the EMR system”. Regarding the plan to use the EMR system, 289(82%) of the participants agree on the plan to continue to use the EMR system frequently. The Overall intention to use the EMR system is 81.01%.

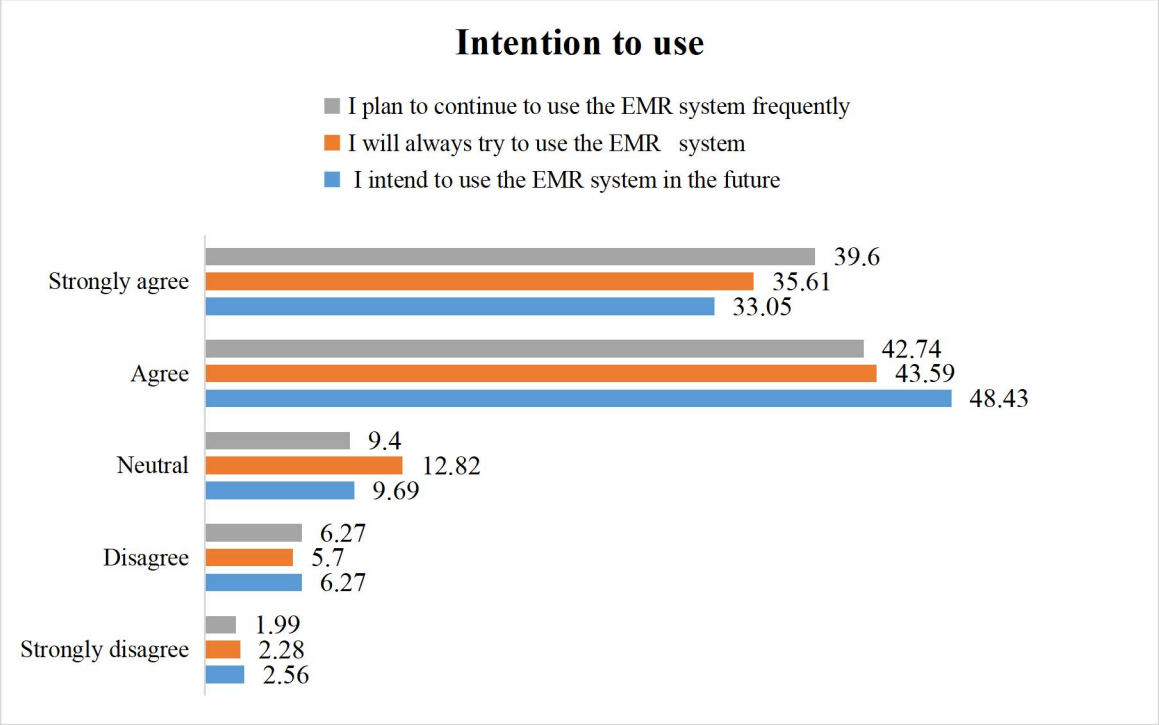


Figure 4 Health Professionals' response on the intention to use EMR

Factors associated with the EMR intention to use

Bi-variate analysis of factors associated with the EMR Intention to use

Factors such as performance expectancy [COR=12.4 (95% CI 5.10-30.2)], effort expectancy [COR= 21.1(95% CI, 8.5-52.7)], social influence [COR=5.33(95% CI 2.0 -14.1)], facilitating condition [COR=7.8(CI 3.2-19.1), habit [COR=11.26(95% CI 4.7 - 27.1)], hedonic motivation [COR= 17.05 (95% CI 6.908 -42.111)], personal innovativeness [COR= 31.500(95% CI 11.66- 85.08)], technology self-efficacy [COR= 4.34(95%CI 1.58-11.9)], attitude [COR=24.47(95%CI 9.20-65.05), and technology anxiety [COR= 0.33(95% CI 0.13- 0.83)] have an association with the intention to use EMR. In contrast being male or female [COR=0.59 (95% CI 0.27–1.32)], type of profession, age [COR=1.13 (95% CI 0.74–1.73)] experience and level of education has no association with the intention to use EMR.

Variables	Sig.	Value	95% C.I.for EXP(B)	
			Lower	Upper
Performance expectancy	0.00	12.4	5.10	30.2
Social influence	0.00	5.33	2.0	14.1
Habit	0.00	11.26	4.7	27.1
Effort expectancy	0.00	21.1	8.5	52.7
Facilitating Condition	0.00	7.8	3.2	19.1
Hedonic Motivation	0.00	17.05	6.908	42.111
Personal Innovitivness	0.00	31.500	11.66	85.08
Technology self-efficacy	0.02	4.34	1.58	11.9
Attitude	0.00	24.47	9.20	65.05
Technology Anxiety	0.01	0.33	0.13	0.83
Age	0.87	1.13	0.74	1.73
Experience	0.21	3.1	0.18	0.26
Gender (Female/Male)	0.19	0.59	0.27	1.32

Table 11 Bi-variate analysis-Crude odds ratio

The multivariate analysis of factors associated with EMR intention to use

The multivariate logistic regression analysis reveals several predictors of the outcome. Gender has a statistically significant association ($p < 0.05$), with an adjusted odds ratio [AOR=0.22, (95% CI 0.054-0.90)], indicating that females show a 78% lower intention to use EMR compared to males. Personal Innovativeness shows a statistically significant positive association ($p < 0.05$), with an [AOR =20.78, (95% CI 2.54-170.49)], suggesting higher personal innovativeness significantly increases the odds of the outcome. Attitude is also a significant positive predictor ($p < 0.05$), with an [AOR= 7.5, (95% CI 1.11-50.70), indicating a positive attitude increases the odds of intention to use EMR. Finally, the Experience category shows a significant positive association ($p < .005$), with an [AOR= 6.64, (95% CI 1.59-27.72), suggesting higher experience increases the odds of the Intention to use EMR. The constant is also significant ($p < .005$). Other variables, including Performance expectancy, social influence, Habit, Effort expectancy, Facilitating Condition, Hedonic Motivation, Technology self-efficacy, Age , and Technology anxiety, were not statistically significant predictors in this multivariate model.

Variables	Sig.	Exp(B)	95% C.I.for EXP(B)	
			Lower	Upper
Performance expectancy	.923	.916	.155	5.426
Social influence	.971	.965	.142	6.573
Habit	.132	4.119	.654	25.926
Effort expectancy	.218	2.939	.530	16.313
Facilitating Condition	.745	.718	.097	5.289
Hedonic Motivation	.047	5.171	1.025	26.095
Personal Innovitivness	.005	20.793	2.536	170.494
Technology self-efficacy	.051	.105	.011	1.014
Attitude	.039	7.500	1.109	50.700
Technology Anxiety	.181	.356	.078	1.618
Age	.400	.687	.287	1.645
Experience	.009	6.642	1.592	27.717
Gender(Female /male)	.036	.220	.054	.903
Constant	.004	.001		

Table 12 Logistic Regression Table

Qualitative study

Demographic information of the Key informants

For the Qualitative interview, 8 participants participated. Around 3(37.5%) of respondents are female and 5(62.5%) are male. Their mean age is 37.6 ±8.5 with range of 29-57. Among them, 5(62%) were from HMIS department, 1(12%) was from IT maintenance and 2(25%) were medical directors. Regarding their level of education, 50% of the participants were degree holders and other 50% were Master's degree holders.

Themes and codes identified

Themes

State of EMR implementation, challenges faced during implementation and now, Factors affecting the EMR adoption and usage and recommendation

Codes

- **Status**:paper based system, implementation time,
- **Challenges**: electricity,IT support,training, users related, management, infrastructure
- **Factors**:Demographic, attitude,ease of use, fear of technology, social impact, technology self-efficacy, facilitating condition, habit, performance of the system and self motivation(personal innovativeness)
- **Recommendation** :MOH, RHB, Health facility, researchers

1.EMR implementation

In Harari region there are 4 health facilities, 2 Hospitals and 2 Health Centers that has implemented and currently using Electronic Medical Record system(EMR). These health facilities are Hiwot Fana Referral and Teaching Hospital, Gugol Primary Hospital, Jenela Health Center and Shenkor Health Center. These health facilities has been using Tena care / Smart care since 2011, then new EMR system called BAHMNI EMR system has now replaced the previous systems. This new system was implemented 2 years ago.

Two health facilities: Hiwot Fana Referral and Teaching Hospital and Shenkor Health center are using paper based system parallelly with the EMR system, Gugol Primary

Hospital has prepared to remove paper based system fully and Jenela Health Center has removed paper based system, and now using the EMR system only.

2.Challenges during the implementation

This theme describes the main challenges faced by the health facilities during the implementation. The participants were asked about the major challenges encountered during the implementation of the EMR system. Among the challenges, shortage of computer desktop, network cable, server computer, electric power outage, users being reluctant to adopt the system, shortage of IT personnel and language barrier among users to adopt the EMR system

One HMIS head from the health facility stated that:

"There was a material shortage like Desktop Computer, network cables and server computers" RI (Health Information Technology, 8 years)

A notable problem faced by the hospitals and health centers during the implementation of the electronic medical records was the shortage of fundamental materials. Key infrastructures, like desktop computers, network cable and server computers, were inaccessible. server computers, specially, put a big challenge due to its higher cost, making it very difficult for the health facilities to buy them. 50-60 desktop computers are needed for the successful implementation of the system. This high need of infrastructure posed a big stress and made the successful implementation very challenging. Giving attention to these materials makes implementation very easy.

One participant from IT department mentioned that:

"Electric shock and Electric power outage were another biggest challenge that caused damage to many materials like switches and computer servers" RII (IT, 8 years)

The occurrence of electric shocks and frequent power outages were the major challenges faced by the health facilities during the implementation. These disruptions caused damage to the equipment such as servers and switches and impeded the functionality of the system. Health facilities have been troubled by the inconsistent electricity supply, which is an essential demand for the functionality of the EMR system. Any interruption in the power supply majorly impacts the process of the health

service, causing delays and inefficiency that affect both clients and health care providers. Addressing these problems is very crucial to ensure the effective health care service provision.

Another participant from IT department stated that:

"EMR users were reluctant to adopt and use the system because the perceived it as an extra burden without an incentive or additional income" RIII (IT, 11 years)

"There were some challenges that we had encountered during the implementation process, those were : users' acceptance of the system since they had been using the paper based system for a long time, it was very difficult for them to shift to the digital system easily." RIV (IT, 9 years)

EMR users showed reluctance in accepting and adopting the Electronic Medical Record (EMR) system. This resistance comes from the comprehension that the system poses workload to their activity without any additional benefit or financial compensation. This result implies that users perception about the system should be considered when implementing the system Moreover, the persistent habit of using the paper-based record for a long time hindered the adoption making it very hard for the users to shift from the paper based to digital record system. The users developed a strong habit and routines which makes the transition from paper based record system to digital system difficult. Many users perceive the new digital system as a burden instead of being useful tool. This habit of using one system for a long time is a significant challenge for the adoption of new system.

One respondent from HMIS mentioned that

"There was a shortage of IT staff support during the implementation and now it is still the problem. We need adequate IT staffs that support users throughout the day and night" RV (IT, 10 years)

The key informants also emphasized the lack of adequate IT staff support, this problem has persisted until now. Adequate number of IT staff are needed at any time for the

supporting the users day and night. The gap in technical support brings interrupted workflow in the service delivery, it makes the the documentation delay and creates frustration and lack of confidence in the system among the health professionals. This lack of enough staff is a shared problem in many health care facilities.

Other respondent from HMIS department mentioned that

"*There is a language barrier that affects the acceptance and the adoption of the EMR system*" RVI (IT, 4 years)

Another challenge was the language barrier confronted by some users. Users who cannot read or write in English face troubles in understanding and navigating it because the system completely operates in English. This language related problem impacts the adoption and acceptance of the EMR. English language skill training should be given along the training for the system.

3.Factors affecting the EMR adoption

This theme describes the factors affecting the adoption of EMR. There are sub themes included under the theme listed below with their respective explanations and opinions from the key informants.

3.1 Performance Expectancy

This sub-theme clarifies how the performance expectancy affects the adoption of EMR system among users.Performance expectancy is the health professionals' belief that the EMR system will be helpful for achieving their tasks more effectively and efficiently.

" *when the system was introduced at first they were all confused and did not understand it's use , but when they see that the system saves data and makes retrieving the data easy they start to thank us*" RI (Health Information Technology, 8 years)

At the time when the EMR was implemented users were confused and struggled to understand the purpose and the use of the system. However, as they began to see its benefits, such as its ability to securely store data and make the information retrieval quick and efficient, they changed their opinion. Through time, users start to appreciate the system and expressed gratitude for the improvement it brought to the health care service. This result indicates that, as the system is introduced the users should be well

informed that the paper based system has limitation and lacks efficiency and that the digital system enhances the delivery of the quality service.

"*Performance expectancy is considered as a factor to adopt the system, if the system is useful for their work they will accept it. If the system doesn't support their work they wont accept it*." RVIII (Psychiatry, 7 years)

"*when the system breaks down, the users think that it is not a good system, the system fails sometimes and replaces by the older version for some time when this happens they complain about "you introduced the system that does not work properly and lose courage to use it again*" RII (IT, 9 years)

Performance expectancy determines the users adoption and intention to use of the system. If users perceive that the system is useful and supportive for their activity, they are more likely to adopt and use it. On the other hand, if the system fails to do what it's expected to do, users are unlikely to accept and use it. This demonstrates that users should be informed that the system is useful for their work.The issue of system breakdown is another problem faced by users. When the system fails, it is often temporarily replaced by older version of the system or paper based record system. This situation makes users lack trust on the system which affects their usage in the future. Developing a more reliable system and tackling these failures is significant to ensure user confidence and long-term acceptance.

3.2 Effort Expectancy

This sub theme describes how effort expectancy affects the acceptance and use of the EMR system. Key informants' opinion will be stated below with the interpretation.

One key informant stated that:

"*The systems are User friendly; this helped many users to adopt the system easily*" RV (IT, 10 years)

"*Having easy user interface for the system would facilitate the acceptance and use of the system* " RVIII (Psychiatry, 7 years)

Using a system needs an interaction with the interface, which is designed for the users to easily interact and communicate with the system. The successful adoption of the EMR system is ensured when the system has a user-friendly design. Many users found it easy to navigate, which inspired them to accept the system more easily. Simple and

intuitive interface greatly facilitates acceptance and use. On the other hand, a complex interface discourages users and hinders the effective adoption of the system. prioritizing user-centered design is an important point to ensure a smooth and positive experience for health care professionals

3.3 Social Influence

This sub-theme describes the factor affecting the EMR adoption related to social like management, clients or patients, work colleagues and friends. The informants were asked to state their experience regarding social influence.

HMIS head from one health facility mentioned that:

"*Social influence: patients have no idea about the health professionals use the system for the purpose of giving health service hence they do not have patience to get a treatment and complain on physicians.*"RI (HIT, 8 years)

Many clients are unaware that the health professionals use the system when giving health care services. As a result, they often misunderstand that professionals are busy doing something else using computers. Clients' misunderstanding leads to frustration and impatience while waiting for their treatment. Due to this some health professionals prefer using the paper based system rather that the digital system. Knowing this, clients should be informed that there is a system implemented for improving health care service provision. This influences on the adoption of the system is from the clients side.

One participant from HMIS department mentioned that:

"management support has an influence on adoption, there is a medical director we can raise him as a model, he is always available near the users to follow-up the system adoption because of this the health center he is administering is considered as a model for other health facilities"RIII (IT, 11 years)

Regarding social influence managers' support has also a significant role in the adoption process. A good example for this is a manager of one health facility who actively supports the users by making himself available to follow up the system's acceptance and implementation. His commitment to facilitate the system's acceptance and implementation has influenced the adoption positively. As a result, the health facility he leads has become a model for other health facilities in Harar. This proves that the managerial support and follow-up helps in the adoption and use of the EMR system.

3.4 Facilitating Condition

This sub theme narrates about the facilitating condition or convenient environment for the users to use the EMR system. Respondents idea on this matter will be quoted below.

One HMIS head stated that:

"*In our facility mouse is continuously being damaged and broken the users complain about breakage of the mouse and stop working with EMR*" RI (HIT, 8 years)

Availability of adequate resources to use the system is an essential issue when assessing the implantation. The recurring issue in this case is the continuous damage of the computer mouse. When the mouse is damaged, users stop working until it is replaced by the new one, this affects the successful adoption of the system. Addressing this issue by providing the durable equipment or providing a quick maintenance system could help the smooth work flow.

One HMIS department mentioned:

"*Taking training is a must, each department head takes off site training and they give on job training for other users* " RV (IT, 10 years)

Training is an essential component of successfully implementing the electronic medical record system. In many facilities, team heads are sent to off-site training to gain knowledge about the system then they pass their knowledge and skill to the users by giving on job training. This approach guarantee that all staff members or users are ready to use the system effectively. Providing a well-structured training program is key to building user confidence and increasing the system's adoption.

3.5 Habit

This sub theme describes the opinion of key informants regarding the habit as a factor for the adoption.

One HMIS head stated that:

"*In our facility using the EMR system is an obligation because of this health professionals are forced to adopt the system*" RVIII (Psychiatry,7 years)

In some health facilities using the EMR system is mandatory, which forces the health professionals to adopt the system regardless of their willingness. While this approach

makes the adoption very fast it may lead to frustration among some users who are not equipped and confident in using the system. Regarding this giving adequate awareness of the system's functionality and purpose and creating positive environment for the users is very essential.

3.6 Technology Anxiety

This sub theme elaborates the opinion of the key informants regarding the fear of technology as a factor for EMR adoption.

One informant from the HMIS mentioned that:

"*Related with title especially medical doctors fear to try using the system that is because they think their work colleagues make fun of them. one doctor was not willing to use the system because of the fear of technology so we were forced to put him to other position that does not need using the system."* RI (HIT, 8 years)

One issue being raised when introducing the new technology is fear of technology. Specially medical doctors are unwilling to use the system thinking that their work colleagues make fun of them for not using the system effectively. This pressure discourages them from using the system, particularly if they feel uncertain about their skill on using the technology. From the experience, one medical doctor was reluctant to use the system due to the fear of the technology, so he was obliged to be reassigned to another department. Addressing this issue by encouraging the users to use the system is a very essential thing for the system's successful adoption.

One key informant stated that:

"*among users in health facilities fear of technology is a common thing affecting the adoption of the EMR. Some users delegate their work to their work colleagues because they have a technology anxiety*" RVI (IT, 4 years)

Some users delegate their tasks to other colleagues who are more efficient with the technology, which can create inequity in workload and affect overall work flow. Such delegation of work to others results in inbalances in the distribution of the tasks which makes the workers to bear an extra burden. This activity not only affects the efficiency of the work flow but also leads to burnout among the health professional. Addressing this issue through consistent support and confidence-building training is an appreciated way of addressing the problem.

3.9 Demographic Factors

This sub theme describes the demographic factors like age, gender, level of education and experience according to the key informant's opinion. All participants stated that sex is not a factor. Regarding age and experience most of the participants stated that age and experience are negatively associated with the intention to use EMR. And also level of education has stated to have no relation with the adoption and use of the system

One key informant stated that:

"*Age is a factor users with higher age tend to be reluctant some complaining about an eye problem and users with lower age are interested in using*." RI (HIT, 8 years)

Age can be considered as a factor for the adoption of the system. Older users often show unwillingness, sometimes complaining about physical challenges such as eye problems, which make interacting with the system more difficult for them. While younger users tend to be more willing and keener about using the system due to their familiarity with technology. Handling these differences by adjusting the user interface more inclusive for both old and young age users is good way of supporting the system use.

One participant stated that:

" *users with high experience are slow to adopt and users with low experience are fast to adopt because they are near to technology and IT course in the curriculum when they learn medical education*" RI (HIT, 8 years)

Level of experience somehow affects the adoption of the EMR, health professionals with high experience working in the facility tend to be reluctant to adopt and use the system easily because of their long term usage of the paper based system while professionals with low experience tend to accept the system readily because of their familiarity with the technology and exposure to IT courses during their studies. This is related to the habit of using the paper based system for along period of time. So level of experience is related to the habit of using the system.

6.Discussion

6.1 Major findings and interpretation

The purpose of the study was to assess the factors affecting the EMR adoption pattern among health care providers in public health facilities in Harari region. The study used both qualitative and quantitative approach.

Main findings from our study, the overall intention to use EMR is >80%, meaning the users showed high level of willingness to use the system. From the crude odds ratio analysis many factors were found to be associated with the intention to use EMR. These are performance expectancy effort expectancy, social influence, facilitating condition, habit, Hedonic motivation, personal innovativeness, technology self-efficacy, attitude and technology anxiety have found to be associated with the intention to use EMR. On the other hand, after controlling the potential confounding variables, only some factors were found to be significant predictors of the intention to use EMR factors like personal innovativeness, attitude towards EMR, gender, and experience were discovered to be the factors influencing the intention to use of EMR. This indicates that while many factors generally may influence the intention to use, these five variables play significant role in influencing the intention to use.

The qualitative finding also shows performance expectancy determines the users adoption and intention to use of the system and demonstrates that users should be informed that the system is useful for their work. More over,effort in regard to effort expectancy many users found it easy to navigate, which inspired them to accept the system more easily. Social influence was was found to cause waiting time frustration among clients as many clients are unaware that the health professionals use the system when giving health care services. This forces some health professionals prefer using the paper based system rather that the digital system. Facilitating condition or convenient environment including adequate resources for the users to use the EMR system also contributes to implementing the electronic medical. Moreover, technology anxiety was also found to be a factor that affects effective implementation.

In this study, when assessing the user's opinion on the performance expectancy, 78% of the respondents agreed on the system's usefulness in accomplishing their task quickly and increasing their productivity. For the case of effort expectancy around 79% of the respondents agreed on system's ease of use: which means the system is easy and clear to understand and to become skillful when using it. Regarding the social influence on adopting the system our study found that 76% of the respondents agreed that their manager or work colleagues motivated them to adopt and use the system. When assessing the availability of the facilitating condition for adopting the system,74% of them agreed on the availability of support staff, 74% of them agreed on the availability of the resources and 68% of them agreed on the availability of adequate training. When studying the habit of using technology, 73% of the respondents agreed that using technology has become a habit and 63% of them agree that they are dependent on using technology. Around 3/4 of respondents agreed that using the system is enjoyable and entertaining. Regarding the personal innovativeness in adopting the system, our study found that 77% of participants agreed on the idea of trying new technology by oneself. When assessing self-confidence in using the system, around 74% of participants agreed that they have confidence in using the system. More than 80% of participants have a favorable attitude towards the EMR system. Only 20% of participants agreed that using the system makes them very nervous, uncomfortable and confused. When examining the intention of using the EMR among health professionals, more than 80% of them have agreed to use the system frequently.

When assessing the association between dependent variable and independent variables, our study found that gender, age, experience, level of education and profession have no association p(>0.05) with the intention to use EMR. While, performance expectancy, effort expectancy, social influence, facilitating condition, hedonic motivation, personal innovativeness, technology self-efficacy, attitude and technology anxiety have an association p (<0.05) with the intention to use.

6.2 Comparision with previous study

In this study, it is found that the performance expectancy [COR=12.408 (95% CI 5.101-30.181)] and effort expectancy [COR= 21.137 (95% CI 8.486-52.652)] are a

statistically significant predictor of the intention to use of EMR. Similar result reported from the study conducted in Taiwan, performance expectancy and effort expectancy are highly related to the intention to use E-Health technologies, with around 63% of participants indicating they would 'definitely or probably use' this technology if offered. It also found that perceived ease of use and perceived usefulness influence the intention to use telehealth technology [8]. The complexity of the software for users was cited in Nigerian research as one of the reasons why EHRs were not implemented and used [37]. This study is also supported by the study conducted in north west and north Ethiopia: that performance expectancy played an important role in predicting health care providers' intention to use EMRs (β =0.39, $p < 0.001$) [33,40,50].

In our study, it is found that Effort expectancy is a highly significant positive predictor of the outcome this result is supported by many literatures like the study conducted in Shangi, Sri lanka, south Ethiopia, northern Ethiopia and systematic review, stating that the intention to use is directly and significantly affected by the effort expectancy meaning the intention to use the EMR is dependent on the degree of simplicity associated with the use[33,35,40,43,46,47].

According to our finding regarding the relationship between social influence and intention to use, it was found that social influence is a statistically significant positive predictor of the outcome ($p < .001$). similar result was found in the studies Chen Y,2024, Bramo SS 2022: Social influence had a significant but negative impact on behavioral intention [33,36,46,43].

In our study, the presence of facilitating conditions has found to be a positive predictor of the intention to use. It is notable that facilitating conditions have a substantial, direct, and favorable influence on usage intention, according to Chen Y,2024. Furthermore, facilitating conditions are one of the most important factors influencing usage behavior, as demonstrated by Li et al.'s 2023 research. Other study conducted in Uganda found that lack of necessary ICT infrastructures and resources like the internet and training, absence power supply, absence of ICT technical professionals and insufficient technical assistance from software developers were found to be barriers to the adoption and use of EHR in developing nations [33,45,46,47].

Our study discovered a strong and favorable correlation between the intention to adopt an EMR and one's level of personal innovation This result is in line with earlier studies carried out in different areas. This association may be explained by the fact that people who are willing to experiment with novel digital health solutions are more likely to be highly motivated to use and gain from them. Put more simply, people are more inclined to adopt and use digital health solutions when they are open to embracing innovation in the sector [27,35].

From our study, Attitude is also found to be a highly significant positive predictor of the intention to use ($p < .001$). Other studies also found the same result: Dwivedi 2019 found that attitude played a central role in acceptance and use of IS/IT innovations and negative attitudes against health technology advances were shown to be a major problem [27,36,49,45].

As per our findings, technology anxiety is a statistically significant negative predictor of the intention to use EMR ($p < .019$). Chen et al have stressed that technology anxiety significantly affects the older adults' behavioral intention in terms of adopting mHealth in the setting of developing countries [46]. Muhaise H et al also stated that technophobia is a factor negatively affecting the intention to use of technology and according to Agmasie et al technology anxiety was the most barrier to sustainable acceptance of e-health systems in Ethiopia [40,45].

From the logistic regression results we found that habit and hedonic motivation is also a highly significant positive predictor of the intention to use the electronic medical record ($p < .001$). This result is supported by other studies [33,36].

Our study showed that technology self-efficacy has a positive association with the intention to use EMR. Past study also highlighted a positive relationship between TSE and use of ICT tools [40].

Our study found that Gender, level of education, profession, age and experience are not a significant predictor of the intention to use EMR. other studies identified that the participant age, level of education and computer literacy are the factors affecting the intention to use of EMR [36].

From the qualitative study eight key informants were involved from IT, HMIS and Managerial department. In the region four health facilities were found that implemented the EMR system.

From our study on the challenges faced by the facilities regarding the system, shortage of major infrastructures, electric power problem, users' reluctant to use the system, shortage of IT man power and language barrier to use the system were identified. Regarding the factors related to the use of the EMR system, Performance expectancy - users' expectation that the system works well, Effort Expectancy- system easy of use, social influence- perspective of patients, managers and work colleagues, Facilitating condition- the availability of necessary materials, IT support and training, Habit- the habit of using the system , Technology anxiety -fear of technology, age and experience -having negative effect on the adoption, were marked by the focal personnel working in the health facilities.

6.3 Strength and limitation

Strength

As a strength this research used mixed approach combining the qualitative and quantitative method which gives comprehensive understanding on the factors influencing the adoption of the EMR system. Moreover, this study addresses the gap by focusing on the post-implementation phase and utilizes the integrated and modified UTAUT3 model.

Limitations

This study also has drawbacks: The study did not include the private health facilities in the region. Though the study tried to include HMIS, IT personnel and medical directors from the regional health bureau and health facilities, the sample size for the qualitative study was relatively small due to the small health facilities included in the study and some participants were not available during the interview.

7.Conclusion

The study deduces that there is generally high intention among health professionals in Harari public health facilities to use Electronic Medical Records (EMR), with over 80% expressing willingness to use the system frequently. This study revealed that the adoption of the EMR in public health facilities in Harari region is affected by factors like performance expectancy, effort expectancy, habit, social influence, Facilitating condition, hedonic motivation, attitude, personal innovativeness, technology anxiety, gender and experience. Majority of the participants showed a strong intention to use EMR with a favorable attitude towards EMR system. While technology anxiety is found to be a barrier to the adoption of the system. To improve the EMR system adoption rate it is advised to provide ongoing training, infrastructure support, monitoring, and evaluation continuous follow-up and support with manpower.

8.Recommendation

Based on the findings of the study, I suggest the following recommendations.

1.FMOH

- The Ministry of Health should support health facilities with necessary materials
- The Ministry of Health should respond quickly to the health facilities demand
- Manual documents should be prepared regarding how to use the system
- Adequate training should be given to IT and HMIS personnel
- EMR training should be included in the health education curriculum
- Clear structure should be created that employ EMR experts from civil service

2.HRHB

- The regional health bureau should do monitoring and evaluation on the system implementation and adoption frequently
- Refreshment training should be given to all users and the training should include English language skill
- Manpower should be adequate to support the system
- Budget for generators and fuel should be allocated
- The system should be developed that holds EMR users accountable for their activity when using the system
- EMR experts should be employed at all health facilities
- UPS should be provided to make the system standby throughout the day
- Applying enforcement of using the system
- Motivating and appreciating the users to adopt the system
- The system should be implemented in all health facilities that are found in the region

3.Health Facilities

- Health facilities should motivate users to adopt the system
- High level commitment is needed from the medical directors
- Health facilities should create awareness for the clients about the EMR usefulness and purpose

4.Researchers

- Researchers should include both public and private health facilities for the study

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Annex-1

Category	Codes	Description
State of EMR		
	Implementation Status	refers to the implementation status of the EMR system
	Remove paper-based system	refers to the use of full EMR system by removing the paper based system
	Implemented time	when the system is implemented
Challenges		
	Electricity	refers to the challenge related to electricity
	Lack of infrastructure	refers to the challenge related to lack of the essential infrastructure
	Lack of support team	refers to a challenge due to lack of IT support team
	Management	refers to the challenges due to management staff for the system implementation
	Related to users	refers to the challenges related to users for the implementation system
	Training users	refers to the challenges related to training
	Understanding	refers to the challenges related to understanding of the system
	Factors	
	Educational Background	refers to the educational background of the participants
	Experience	refers experience of the participants
	Gender	refers to sex of the participants

Profession refers to the type of profession of the participants

Effort expectancy refers to the effort needed to use the system

Facilitating conditions refers to enabling conditions that help EMR usage

Performance expectancy refers to the efficiency of the system to accomplish the task

Personal innovativeness refers to self-motivation to try and use a technology

Social influence refers to the role of managers, work colleagues and clients on using the system

Attitude refers to the attitude of users regarding the EMR

Recommendation

Avoid fear of technology describes the avoidance of the fear of technology as a recommendation

Budget for training refers to the budget needed for training purposes and budget needed for improving the implementation

Class room refers to additional classrooms in health facility to support the distribution of the EMR

Commitment from managers refers to the dedication of the health facility managers

EMR included in curriculum describes the inclusion of the EMR training in curriculum in universities and colleges

Immediate response refers to the readily response from the EMR developers and MOH

Man-power support refers to additional man power for supporting the EMR

Manual Training document refers to provision of manual training material

Monitoring and Evaluation refers to continuous monitoring and evaluation regarding the EMR implementation from the MOH,RHB and managers from health facilities

Motivate refers to motivation of users to use the system

Reinforce the use of the system refers to reinforcing the system use in health facilities

Structure for EMR experts refers to developing a clear employment structure for EMR experts

Training and material support refers to developing training and material support

Training for HMIS and IT personnel refers to preparing training for HMIS and IT personnel

UPS support Refers to material support , uninterrupted power supply

Annex-II

1.Information sheet

My name is Ealroi Alemayehu. I am here on behalf of Addis Ababa University College of Health Sciences, School of Public health and Information Science, Department of Epidemiology and Biostatistics. I am doing this study for the partial fulfillment of the requirements for a Master of Science in Health Informatics. This research aims to assess the factors that influence how health professionals in public health facilities in the Harari Region use electronic medical records (EMRs). I will use a combination of surveys and interviews to gather information about your experiences and opinions.

I have gained the ethical permission from the Addis Ababa University School of Public Health Ethics Review Committee (ERC). A letter has been written to regional health offices asking for permission to carry out the study. The study will eventually be carried out with approval from the medical facilities.
Your cooperation and honest participation in filling questionaries will provide me with valid results and use to identify the factors affecting the adoption of electronic medical record which will help to recommend appropriate interventions to concerned bodies to promote the use of electronic medical record.

2.Consent form

Hence, I kindly request you to be honest in your response. Your participation in filling out the questionnaires and every aspect of the study is completely voluntary based,you can withdraw at any time without any consequences. Your name will not be written in this form and all information that you give will be kept confidential.

You may skip any question that you may prefer not to answer, but I would appreciate your cooperation. You may also ask me to clarify questions if you don't understand them.

Your responses to our questions are identified only by number, never by your name and your facility name. If you have any questions or concerns, please do not hesitate to contact me.
Thank you

Ealroi Alemayehu

Email: ealroialemayehu@gmail.com Tel: +251-947-190-259

Annex III. Questionnaire

Quantitative tool

Items	**Part One:** This section aims to assess the socio-demographic factors of health professionals. Please encircle or fill in the blank space with the appropriate response that best represents your situation.
1.1.Your age in years	_____
1.2. Gender	A. Male B. Femle
1.3. specialized field of study / Profession	A)Nurse B)Medicine C)Midwifery D)Pharmacy E)Health officer F)Laboratory G)Other(Specify)
1.4. Working experience in years	_____
1.5. Level of Education	A)Diploma B) B.Sc. degree C) Master D) Other specify

Part Two: This section is designed to assess the UTAUT-based predictors of intention to use Electronic Medical Records (EMR). Please rate your level of agreement on each of the following statements. The statements are expressed using the Likert scale, where 1 represents "Strongly Disagree," 2 represents "Disagree," 3 represents "Neutral," 4 represents "Agree," and 5 represents "Strongly Agree." Please indicate your level of agreement by selecting the appropriate number and encircling it in front of each item.

Performance Expectancy (PE)	PE1: I would find the EMR system useful in my job.	1	2	3	4	5
	PE2: Using the EMR system enables me to accomplish tasks more quickly.	1	2	3	4	5
	PE3: Using the EMR system increases my productivity.	1	2	3	4	5
	PE4: Using the EMR system helps me to perform my role effectively, which in turn enables me to increase my chances of getting a reward or promotion	1	2	3	4	5

	PE4: Using the EMR system helps me to perform my role effectively,which in turn enables me to increase my chances of getting a reward or promotion	1	2	3	4	5
Effort Expectancy (EE)	EE1: My interaction with the EMR system would be clear and understandable.	1	2	3	4	5
	EE2: It would be easy for me to become skillful at using the EMR system.	1	2	3	4	5
	EE3: I would find the EMR system easy to use.	1	2	3	4	5
Social Influence (SI)	SI1: People who influence my behavior think that I should use the EMR system.	1	2	3	4	5
	SI2: People who are important to me think that I should use the EMR system.	1	2	3	4	5
	SI3: The senior managers of this hospital have motivated me in the use of the EMR system.	1	2	3	4	5
Facilitating Conditions (FC)	FC1: I have the resources necessary to use the EMR system.	1	2	3	4	5
	FC2: I have been given adequate training on the EMR system	1	2	3	4	5
	FC3: I have the knowledge necessary to use the EMR system.	1	2	3	4	5
	FC4: The EMR system is compatible with other systems I use.	1	2	3	4	5
	FC5: A specific person (or group) is available for assistance with difficulties experienced with the EMR system.	1	2	3	4	5
Habit	H1: The use of digital technology become a habit for me	1	2	3	4	5
	H2: I am dependent on using digital technology	1	2	3	4	5
	H3:Using digital technology has become a natural to me	1	2	3	4	5
	H4: Using digital technology has become a must for me.	1	2	3	4	5
Hedonic motivation	HM1: Using EMR is fun	1	2	3	4	5
	HM2: Using EMR is enjoyable	1	2	3	4	5
	HM3: Using EMR is entertaining	1	2	3	4	5

Personal Innovativene ss in digital technology (PI)	PI1: If I heard about a new digital technology, I would look for ways to experiment with it.	1	2	3	4	5
	PI2: Among my peers, I am usually the first to try out new digital technologies.	1	2	3	4	5
	PI3: In general, I am not hesitant to try out new digital technologies.	1	2	3	4	5
Digital technology self-efficacy	TSE1: It is easy for me to use digital technology.	1	2	3	4	5
	TSE2: I can confidently speaking that I will have the capability to use digital technology.	1	2	3	4	5
	TSE3: I feel confident to use new digital technology even if no one around to tell me what to do as I go.	1	2	3	4	5
	TSE4: I do not feel comfortable using digital technology.	1	2	3	4	5
	TSE5: While using digital technology, I am worry that I might press the wrong button and I feel it is risky for my work.	1	2	3	4	5
Attitude toward EMR	ATT1: Using EMR is a good idea.	1	2	3	4	5
	ATT2: Using EMR is pleasant.	1	2	3	4	5
	ATT3: Using EMR is beneficial.	1	2	3	4	5
	ATT4: I am interested to use EMR	1	2	3	4	5
	ATT5: Overall, I like the idea of using EMR.	1	2	3	4	5
Technology Anxiety	TAN1: Working with a digital technology would make me very nervous	1	2	3	4	5
	TAN2: I get a sinking feeling when I think of trying to use a digital technology	1	2	3	4	5
	TAN3: Using digital technology make me feel uncomfortable	1	2	3	4	5
	TAN4: Using digital technology make me feel uneasy and confused	1	2	3	4	5
	TAN5: I feel bored while thinking about working with digital technology	1	2	3	4	5
Part three: This section is designed to assess the behavioral intention to use Electronic Medical Records (EMR). Please indicate your level of agreement on each of the following statements using the Likert scale, where 1 represents "Strongly Disagree," 2 represents						

"Disagree," 3 represents "Neutral," 4 represents "Agree," and 5 represents "Strongly Agree." Please rate your level of agreement and encircle the corresponding number in front of each item.							
Behavioral Intention to Use EMR	BI1: I intend to use the EMR system in future.		1	2	3	4	5
	BI2: I will always try to use the EMR system.		1	2	3	4	5
	BI3: I plan to continue to use the EMR system frequently.		1	2	3	4	5

Qualitative tool

Key informant interview guide

Section I: General Information and Demographic Background of Respondents.

1.Specialized field of study / Profession

2.Sex----

3.Age (in years)----------

4.Level of Education

a)College Diploma b) bachelor's degree c) Postgraduate

5.How long have you been working in the facility?

a)Less than 1 Year b) 1-5 years c) 6-10 years d) more than 10 years

Section II Interview questions

1.Can you tell me the state of the EMR system implementation in your organization?

2.What have been the key challenges and the main obstacles that came up during the EMR implementation process?

3.What are the strategies or actions that have been used to deal with these problems?

4.As a professional, what are the basic factors that affect health professionals' willingness to use the EMR system?

5.how can these factors such as performance expectancy, effort expectancy, social influence, and facilitating conditions in EMR systems promote or not the adoption of EMR systems?

6.To what extent do personal traits such as innovativeness, technology anxiety, and attitude have a bearing on the process of accepting EMR systems?

7.Do you think gender and other demographic characteristics might moderate the relationship between these factors and the EMR adoption?

8.According to your experience, what are the suggestions you would give to facilitate the application and usage of EMR systems among health professionals?

9.What can a company or government do to make sure that the system is used and the organization is supported successfully?

ነ.የመረጃ ቅጽ

ስሜ ኤልሮኢ አለማየሁ ነው። እዚህ የመጣሁት የአዲስ አበባ ዩኒቨርሲቲ የጤና ሳይንስ ኮሌጅ፣ የህዝብ ጤናና ኢንፎርሜሽን ሳይንስ ትምህርት ቤት፣ የኤፒዲሚዮሎጂና ባዮስታቲስቲክስ ክፍል በመወከል ነው። ይህ ጥናት በሐራሪ ክልል በሚገኙ የመንግስት ጤና ተቋማት ውስጥ የሚገኙ የጤና ባለሙያዎች የኤሌክትሮኒክስ የህክምና መዝገቦችን (EMRs) ሲጠቀሙ ተፅዕኖ የሚያሳድሩ ነገሮችን ለመገምገም ነው። ስለ እርስዎ ተሞክሮዎች እና አስተያየቶች መረጃ ለመሰብሰብ ጥያቄ ቅጽ እና ቃለ-ምልልሶችን አንድ ላይ እጠቀማለሁ።
ይህ ጥናት እንዲጠና ከአዲስ አበባ ዩኒቨርሲቲ የኤቲካል ኮሚቴ(Ethical Committe) ፍቃድ ተሰቶኛል።በተጨማሪም ከአዲስ አበባ ዩኒቨርስቲ ከ ኢፒዲሞሎጂ እና ባዮስታቲስቲክስ ትምህርት ክፍል ጥናቱ ወደሚካሔድበት ክልል ጤና ቢሮ ደብዳቤ ተፅፏል።
የእርስዎ ትብብር እና ጥያቄዎችን በመሙላት ረገድ በሐቀኝነት መሳተፍ ትክክለኛ ውጤቶች እና በኤሌክትሮኒክ የሕክምና መዝገብ ተቀባይነት ላይ ተጽዕኖ የሚያሳድሩትን ምክንያቶች ለይቶ ለማወቅ ይጠቅመኛል። ይህም የኤሌክትሮኒክ የሕክምና መዝገቦችን አጠቃቀም ለማስፋፋት ለሚመለከታቸው አካላት ተገቢ መረጃ ለመስጠት ይረዳል።

2.የስምምነት ቅጽ
ጥያቄ በመመለስ ረገድ የምታደርገው ተሳትፎና እያንዳንዱ የጥናቱ ዘርፍ ሙሉ በሙሉ በፈቃደኝነት ላይ የተመሠረተ ነው፤ ፍቃደኛ ካልሆኑ በማንኛውም ጊዜ ራስዎን ከተሳትፎ ማውጣት ይችላሉ። ስምዎ እና የተቋሙ ስም በዚህ ጥናት ላይ አይጠቀስም፤ የምትሰጡትም መረጃ ሁሉ በምሥጢር የሚያዝ ይሆናል።
እንዲሁም ልትመልሱት የማትፈልጉትን ማንኛውንም ጥያቄ ትተው ማለፍ ይችላሉ፤ በዚህ ጥናት የምታደርጉትን ትብብር አደንቃለሁ ። በተጨማሪም ጥያቄዎች ላይ ግልጽ ያልሆነ ነገር ካለ ልትጠይቁኝ ትችላላችሁ። ማንኛውም ጥያቄ ወይም ስጋት ካለዎት, እባክዎ እኔን ለማነጋገር ወደ ኋላ አይበሉ።
አመሰግናለሁ!
ኤልሮኢ አለማየሁ
ኢሜይል: ealroialemayehu@gmail.com
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የጥያቄ ቅጽ

ጥያቄዎች	ክፍል አንድ- ይህ ክፍል የጤና ባለሙያዎችን ማህበራዊ ጉዳዮችን ለመገምገም ነው። እባክዎን በማክበብ ወይም ባዶውን ቦታ በተገቢው ቦታ መሙላት ምላሽ ይስጡ።
1.1. ዕድሜ	_____
1.2. ፆታ	ሀ. ወንድ ለ ሴት
1.3. የሙያ መስክ	ሀ)ነርስ ለ)ሐኪም ሐ)አዋላጅ ነርስ መ)ፋርማ ሲ ሠ)የጤና መኮንን ረ)የላብራቶሪ ባለሞያ ሰ)ሌላ(ይግለጹ)
1.4. የሥራ ላይ ልምድ በአመት	_____ _____
1.5. የትምህርት ደረጃ	ሀ)ዲፕሎማ ለ) ዲግሪ ሐ) ማስተርስ መ) ሌሎች ካሉ ይግለጹ

ክፍል ሁለት፡- ይህ ክፍል የተዘጋጀው በኤሌክትሮኒክ ሜዲካል ሪከርድስ (ኢኤምአር) ለመጠቀም ተጸእኖ የሚያረጉትን ነገሮች ለመገምገም ነው።

እባክዎ በሚከተሉት ጥያቄዎች ላይ የተስማማችሁበትን መጠን ገምግሙ። 1 "በጣም አልስማማም"ን ይወክላል፣ 2 "አልስማማም"ን ይወክላል፣ 3 "ገለልተኛ"፣ 4 “እስማማለሁ” ን ይወክላል፣ 5 ደግሞ «በጣም እስማማለሁ»ን ይወክላል። እባክዎን ትክክለኛውን ቁጥር በመምረጥ ይመልሱ

የአፈጻጸም ብቃት	PE1፡ የ EMR ስርዓት በሥራዬ ጠቃሚ ሆኖ አጊንቼዋለሁ።	1	2	3	4	5
	PE2: የ EMR ስርዓት መጠቀም ተጨማሪ ስራዎችን በፍጥነት ለማከናወን ያስችለኛል።	1	2	3	4	5
	PE3፡ የ EMR ስርዓት መጠቀም ምርታማነቴን ይጨምራል።	1	2	3	4	5
	PE4: የ EMR ስርዓት መጠቀም የስራ ድርሻዬን ውጤታማ በሆነ መንገድ ለማከናወን ይረዳኛል፤ይህም በበኩሌ ሽልማት ወይም የሥራ እድገት የማግኘት አጋጣሚዬን ከፍ ለማድረግ አስችሎኛል።	1	2	3	4	5
የመጠቀም ብቃት	EE1፡ ከ EMR ጋር ያለኝ ግንኙነት ግልጽ እና ቀላል ነው።	1	2	3	4	5
	EE2 ፡EMRን የመጠቀም ክህሎት ለማዳበር ቀላል ሆኖልኛል።	1	2	3	4	5
	EE3፡ EMRን ለመጠቀም ቀላል ሆኖ አግኝቼዋለሁ።	1	2	3	4	5
የማህበረሰብ	SI1፡ የቅርብ ጓደኞቼ EMRን እንድጠቀም ያነሳሱኛል።	1	2	3	4	5

ተፅእኖ	SI2፡ የስራ ባልደረቦቼ EMRን እንድጠቀም ያነሳሱኛል።	1	2	3	4	5
	SI3 የዚህ ጤና ተቋም ከፍተኛ አመራሮች EMRን እንድጠቀም አነሳስተውኛል።	1	2	3	4	5
የሁኔታዎች መመቻቸት	FC1 :EMRን ስርዓት ለመጠቀም የሚያስፈልጉ ግብዶች አሉኝ።	1	2	3	4	5
	FC2 : EMR ን ለመጠቀም በቂ ስልጠና ተሰቶኛል።	1	2	3	4	5
	FC3 : EMR ስርዓት ለመጠቀም አስፈላጊ እውቀት አለኝ።	1	2	3	4	5
	FC4 : EMR ስርዓት እኔ ከምጠቀምባቸው ሌሎች ሲስተሞች ጋር ይጣጣማል።.	1	2	3	4	5
	FC5 ፡ከEMR ሲስተም ጋር በተያያዘ ችግር ሲገጥመኝ የሚረዳኝ ሰው አለ።	1	2	3	4	5
ልማድ	H1: የዲጂታል ቴክኖሎጂን መጠቀም ለእኔ ልማድ ሆኗል።	1	2	3	4	5
	H2; የዲጂታል ቴክኖሎጂ ጥገኛ ሆኛለሁ።	1	2	3	4	5
	H3; የዲጂታል ቴክኖሎጂን መጠቀም ለእኔ የተለመደ ተግባር ሆኗል።					
	H4: የዲጂታል ቴክኖሎጂን መጠቀም ለእኔ ግዴታ ሆኗል ።	1	2	3	4	5
የሄዶኒክ ውስጣዊ ግፊት/ተነሳሽነት	HM1: EMR መጠቀም አስደሳች ነው።	1	2	3	4	5
	HM2 EMRን መጠቀም ያዝናናኛል።	1	2	3	4	5
ዲጂታል የቴክኖሎጂ	PI1 ስለ አዲስ ዲጂታል ቴክኖሎጂ ከሰማሁ አዲስ ነገር ለማየት ና ለመሞከር ዝግጁ ነኝ።	1	2	3	4	5

የመጠቀም የግል ተነሳሽነት	PI2 አብዛኛውን ጊዜ ከስራ ባልደረቦቼ መካከል አዲስ ዲጂታል ቴክኖሎጂዎች ለመሞከር የመጀመሪያው ነኝ።	1	2	3	4	5
	PI3: በጥቅሉ ሲታይ አዳዲስ የዲጂታል ቴክኖሎጂዎችን ለመሞከር አላመነታም።	1	2	3	4	5
ዲጂታል የቴክኖሎጂ የመጠቀም አቅም	TSE1 የዲጂታል ቴክኖሎጂን መጠቀም ለእኔ ቀላል ነው።	1	2	3	4	5
	TSE2 ዲጂታል ቴክኖሎጂን የመጠቀም ችሎታ እንዳለኝ በእርግጠኝነት መናገር እችላለሁ።	1	2	3	4	5
	TSE3 ማንም ሰው ባይኖርም እንኳን አዲስ ዲጂታል ቴክኖሎጂን ለመጠቀም በራስ የመተማመን ስሜት አዳብሪአልሁ።	1	2	3	4	5
	TSE4 የዲጂታል ቴክኖሎጂን መጠቀም ያስጨንቀኛል።	1	2	3	4	5
	TSE5 የዲጂታል ቴክኖሎጂ ስጠቀም የተሳሳተ ነገር እነካ ይሁን ብዬ እጨነቃለሁ፤ ይህም ለስራዬ ጉዳት እንዳለው አስባለሁ።	1	2	3	4	5
ስለ ኢሌምአር ያለው አመለካከት	ATT1 EMRን መጠቀም በጣም ጥሩ ነው.።	1	2	3	4	5
	ATT2 EMR መጠቀም ደስ የሚል ነገር ነው.።	1	2	3	4	5
	ATT3 EMR መጠቀም ጠቃሚ ነው.።	1	2	3	4	5
	ATT4 EMR ለመጠቀም ፍላጎት አለኝ።	1	2	3	4	5
	ATT5 ባጠቃላይ EMRን የመጠቀም ሀሳብ ደስ ይለኛል።	1	2	3	4	5
የቴክኖሎጂ ጭንቀት	TAN1፡- ከዲጂታል ቴክኖሎጂ ጋር መሥራት በጣም ያስፈራኛል።	1	2	3	4	5
	TAN 2 ዲጂታል ቴክኖሎጂን ለመጠቀም ስሞክር የ ስጋት ስሜት ይሰማኛል።	1	2	3	4	5
	TAN 3 የዲጂታል ቴክኖሎጂን መጠቀም ለኔ ምቹ አይደለም ።	1	2	3	4	5
	TAN 4 የዲጂታል ቴክኖሎጂን መጠቀም እንድጨነቅና ግራ እንድጋባ ያደርገኛል።	1	2	3	4	5
	TAN 5 ከዲጂታል ቴክኖሎጂ ጋር ለመስራት ሳስብ አሰልቺ ሆኖ ይሰማኛል።	1	2	3	4	5
ክፍል ሶስት- ይህ ክፍል የተዘጋጀው የኤሌክትሮኒክ ሜዲካል ሪከርድስ (EMR) ከመጠቀም ጋር ያለን ሃሳብ ለመገምገም ነው። እባክዎ በሚከተሉት መግለጫዎች ላይ የእርስዎን ስምምነት ደረጃ ይጠቁሙ 1 "በጣም አልስማማም"ን ይወክላል፣ 2 "አልስማማም"ን ይወክላል፣ 3 "ገለልተኛ"፣ 4 “እስማማለሁ” ን ይወክላል፣ 5 ደግሞ «በጣም እስማማለሁ»ን ይወክላል. እባካችሁ ስምምነታችሁን ገምግሙና አክብቡት።						
EMRን የመጠቀም ባህሪ	BI1፡ ወደፊትም EMRን ለመጠቀም አስቤያለሁ።.	1	2	3	4	5
	BI2 ፡ሁልጊዜ EMRን ለመጠቀም እሞክራለሁ።.	1	2	3	4	5
	BI3 ፡EMRን በተደጋጋሚ ለመጠቀም እቅድ አለኝ።.	1	2	3	4	5

የቃለ መጠይቅ መመሪያ

ክፍል ፩ አጠቃላይ መረጃ እና የሪፐስተሪዎች የድህረ ገፅ ታዳሚዎች።

1.ልዩ የጥናት ዘርፍ /የሙያ መስክ

2.ዕድሜ

3.እድሜ (በዓመታት)----------

4.የትምህርት ደረጃ

ሀ) ዲፕሎማ ለ) የባችለር ዲግሪ ሐ) ማስተርስ

5.በተቋሙ ውስጥ ለምን ያህል ጊዜ ሰርተሃል?

ሀ) ከ1 ዓመት በታች ለ) 1-5 ዓመት ሐ) 6-10 ዓመት መ) ከ10 ዓመት በላይ

ክፍል ፪ ቃለ መጠይቅ ጥያቄዎች

6.በዚህ ጤና ተቋም ውስጥ የ EMR ስርዓት ምን ይመስላል?

7.በEMR አፈፃፀም ሂደት ወቅት የተነሱ ዋና ዋና ተግዳሮቶች ምን ምን ነበሩ?

8.እነዚህን ችግሮች ለመፍታት ጥቅም ላይ የዋሉት ስልቶች ወይም ተግባራት ምንድን ናቸው?

9.እንደ ባለሙያ የጤና ባለሙያዎች የ EMR ስርዓት ለመጠቀም ወይም ላለመጠቀም ተጽዕኖ የሚያደርጉ መሠረታዊ ነገሮች ምንድን ናቸው?

10.እንደ አፈጻጸም አቅም እና የ EMR ስርዓት ስራዬን ያቀልልኛል ብሎ ማሰብ፤የ EMR ስርአት ለመጠቀም ቀላል መሆን ተቀባይነቱ ላይ ምን ያህል ተጽዕኖ አለው?

11.የማህበረሰብ ተጽዕኖ እንደ የስራ ባልደረባ / አመራር ድርሻ ተቀባይነቱ ላይ ምን ሚና አለው?

12.አስፈላጊ ግብአት ፣ስልጠና ልምድ የመሳሰሉት እነዚህ ምክንያቶች እንዴት የ EMR ስርዓቶች ተቀባይነትን ሊያበረታቱ ወይም ላያበረታቱ ይችላሉ?

13.የግል ድክመቶች ለምሳሌ እንደ የቴክኖሎጂ ፍርሀት ፣ለ EMR ያለ አመለካከት እና አዲስ ቴክኖሎጂን የመሞከር ፍላጎት የምንላቸው እስከምን ድረስ የ EMR ሲስተምን መቀበል ላይ ተፅእኖ አላቸው?

14.ዕድሜ፣እድሜ ፣ የትምህርት ደረጃና የመሳሰሉት በ EMR ሲስተም አጠቃቀም ላይ ተፅእኖ ብለው ያስባሉ?

15.በእርስዎ ተሞክሮ መሰረት, የ EMR ሲስተም አጠቃቀም እንዲጎለብት መደረግ ካለባቸው ተግባራት አንጻር እርስዎ የምትሰጧቸው ሐሳቦች ምንድን ናቸው?

16.የ EMR ሲስተም አጠቃቀም እንዲጎለብት ለማድረግ የመንግስት እና የጤና ተቋማት ድርሻ ምንድነው?