



**HAWASSA UNIVERSITY COLLEGE OF MEDICINE AND
HEALTH SCIENCE SCHOOL OF PUBLIC HEALTH**

**UTILIZATION OF ELECTRONIC COMMUNITY HEALTH
INFORMATION SYSTEM (eCHIS) AND ASSOCIATED
FACTORS AMONG HEALTH EXTENSION WORKERS IN
SIDAMA REGION, ETHIOPIA**

KIDEST FEKADU (BSc.)

MAY, 2023

HAWASSA, ETHIOPIA

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INFORMATION SYSTEM (eCHIS), AND ASSOCIATED FACTORS
AMONG HEALTH EXTENSION WORKERS IN SIDAMA REGION,
ETHIOPIA 2023**

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**A RESERCH PROPOSAL TO BE SUBMITTED TO THE SCHOOL OF
PUBLIC AND ENVIRONMENTAL HEALTH, COLLEGE OF MEDICINE
AND HEALTH SCIENCES, SCHOOL OF GRADUATE STUDIES,
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DEGREE IN
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Declaration

I hereby declare that this thesis is my original work and has not been presented for a degree in any other university, and all sources of material used for this thesis have been duly acknowledged.

Name: _____

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This thesis is submitted for examination with my approval as thesis advisor.

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Date: _____

Approval sheet

I, the undersigned agree to accept all responsibilities for the scientific and ethical conduct of the research project. I have been providing timely progress report to my advisor and seek the necessary advice and approval from my primary advisors in the course of the research. I also communicate timely to my advisors all stakeholders involved in the study including any source of funding for this research.

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Acronyms

ANC	Antenatal Care
CHIS	Community Health Information System
DHIS	District Health Information System (DHIS)
DHILC	Digital Health Innovation and Learning Center
Echis	Electronic Community Health Information System
EHRI	Electronic health information resource
EMR	Electronic medical record
HEP	Health Extension Program
HEW	Health Extension Workers
HH	House hold level
HIS	Health Information System
HMIS	Health management information system
HP	Health Post
HSTP	Health Sector Transformation Plan
ICT	Information Communication Technology
LMICs	low- and middle-income countries
MOH	Ministry of Health
RMNCH	Reproductive, Maternal, Newborn, and Child Health
EHIR	Electronic health information resource

Abstract

Background: Effective community health management information systems (C-HMIS) are important in low-resource countries that rely heavily on community-based health care providers [3]. Electronic community health information systems (eCHIS) have been increasingly developed and deployed to quantify and support services delivered by community health workers. However, there is no evidence of the level of utilization of electronic community health information systems.

Objective: The main aim of this study is to assess the level of electronic community health information system (eCHIS) and associated factors among health extension workers in the Sidama region, Ethiopia, in 2023.

Methods: This study employed quantitative (cross-sectional) studies complemented by qualitative (Phenomenology) study designs. All health posts found in the Sidama region and health extension workers have been included in the study. Quantitative data has been collected using a pre-tested, structured, self-administered questionnaire whereas qualitative data has been collected from in-depth interviews with key informants (KIs). The collected quantitative data has been entered into Epi-Data Version 3.1 and is being analyzed using SPSS version 25 software. A descriptive summary has been computed using proportions and frequencies. Multi Variable Logistic Regression analysis has been computed to identify the factors associated with eCHIS use and Adjusted Odds Ratio (AOR) with 95% Confidence Interval (CI) has been reported. On the other hand, the qualitative data has been analyzed thematically and the results had being presented in narration.

Work plan and Budget: The study has been conducted from January October 2022 to May 2023 and a total of **131,540.2** Birr has been required to carry out this study.

Keywords: Utilization, eCHIS, HEW, Sidaama, Ethiopia

1. Introduction

1.1. Background

The electronic community health information (eCHIS) is a digital adaptation of the paper-based CHIS, which served as one of the corner stones of Ethiopia's highly effective health extension program. It is a top-priority Information Revolution effort that shows the MOH's aspirations to use data and technology even more to enhance the delivery of health services, starting at the local level [1, 2]. Previously Health Extension Workers (HEWs) were using manual (paper-based) Community Health Information System (CHIS) that was created to allow HEWs to record, monitor, and report data at the health post and community levels. HEWs use the system to identify pregnant women and children who need services, and they follow people's health using a family folder and the tickler file system to identify defaulters [3].

Global organizations promote the use of ICTs to speed up progress on priorities like the Sustainable Development Goals, the Roadmap for Measurement and Accountability, and the Global Strategy for Women's, Children's, and Adolescent Health[4]. Particularly, the switch to digital systems from paper-based ones for managing service delivery and regular health information systems has garnered significant investment[5, 6]. Making reports from paper-based data is not only labor-intensive and prone to error, but it also runs the danger of spreading these issues to various administrative levels and reducing the availability of real-time, data-driven decision-making[7, 8].

Currently the Federal Ministry of Health (MOH) have planned to digitalize the Health Extension Program (HEP) and HEWs will use the mobile platform and the associated mobile clinical referral application to promote access to and utilization of data about community service delivery, assisting them in their duties and providing decision-makers with pertinent, high-quality data for improving the health system. The mobile platform and associated clinical, reporting, and system management tools are anticipated to facilitate use of and access to data about the provision of community services within the Health Extension Program, supporting HEW duties and providing decision-makers with pertinent, high-quality data to advance the Ethiopian health system [2].

The capture, storage, transmission, and retrieval of health data are made easier by the digitization of CHIS. Particularly in community settings with limited resources, eCHIS is a practical solution to save lives and enhance care[9]. CHWs improve the relevance, acceptability, and accessibility of health care in low resource contexts by bridging the gap between formal health systems and local populations. Many tasks are carried out by CHWs, including home visits, disease assessment and treatment, health education and counseling, referrals for additional care and treatment to higher-level medical facilities, data gathering and reporting, and home visits [10].

Ethiopia has been implementing a number of steps to strengthen the national HIS, like the 2017 modification of the national HMIS, which was made possible by the development of the roadmap for the information revolution, which served to direct the implementation of the information revolution. For instance, the Capacity Building and Mentorship Partnership Program was established by the MOH in collaboration with institutions of higher learning [11, 12]. Particularly, eCHIS implementation was commenced in September 2018. The manual family folder was digitalized using the eCHIS, a mobile application that operates both online and offline. It helps HEWs track patient status and makes it easier for them to share household and personal information with other personnel.[13] Currently, more than 4,000 rural health posts across six agrarian regions (Tigray, Amhara, Oromia, Sidama, Benishangul Gumuz, and SNNPR) use the eCHIS [1, 2].

In order to scale up, the eCHIS needs to be continuously monitored, learned from and adjusted. Additionally, guaranteeing HEW adoption and use of eCHIS in their routine job is essential for its expansion. Although studies show that community health workers (CHWs) embrace digital health systems well, their implementation is very limited, and CHWs prefer to use paper forms [14]. Despite the numerous advantages of digitizing the health information system, there are numerous obstacles to deployment, which prevent health workers from using the program to its full potential [15].

1.2. Problem statement

Studies show that data are frequently compiled in databases, shelves, or reports in many developing nations, and are not sufficiently utilized for lobbying, strategic planning, monitoring, evaluation, program development, policy formation, and improvement[16]. The research suggests that data use was quite low in Kenya, particularly for data that is regularly collected. It showed that only 51% of healthcare professionals use data. Lack of and differences in human capacity for data collection, analysis, and standardization were among the factors mentioned[16]. According to a study from South Africa, health professionals were not using information to drive programs, enhance service delivery, and inform decision-making for creating action plans[17].

In Ethiopia, it is still difficult and not satisfactory to use information locally. Poor data utilization at the lower administrative level or peripheral levels of the woreda, and health facilities, remains an issue, according to the Ethiopian Ministry of Health's 2019 annual report[18]. In addition, health extension worker using the family folders that is bulky and vulnerable to damage from rain when carried from house to house. Therefore, HEWs ended up recording in registers instead and transferring the data to the family folders later on which predisposed the system to error and poor data quality[19]. In general, Ethiopia's health information system faces difficulties due to poor data quality[20].

Low staff commitment, inadequate support, poor data analytics skills, restricted adoption of e-Health apps, and bad HIS infrastructure, all of which have led to poor data quality and low information consumption, are just a few examples of the factors that lead to poor HIS infrastructure[21, 22]. WHO lists the following reasons for poor digital health information utilization Lack of unified health care policy and governance models to support digital health information initiatives, inability to consistently measure clinical effectiveness, conflicting healthcare priorities, unmaintained operating costs, lack of understanding of the potential applications of DHIs and public health outcomes, absence of IT infrastructure to support DHI programs, literacy, privacy concerns, and cultural issues[23, 24].

The Ethiopian healthcare system was long regarded as one of the least technologically sophisticated. Ethiopia published Health and eHealth frameworks by the Ethiopian Ministry of Health and its Partners in 2011GC to enhance the healthcare system[25]. Ethiopia announced its Health System Transformation Plan (HSTP) in 2015 to expand on the country's significant

progress in improving health outcomes[25]. The Digital Health Innovation and Learning Center (DHILC), the first of its type, will open in Addis Ababa in August 2020, according to the Ethiopian Ministry of Health (MOH). The DHILC is thought to be a location where health professionals will be able to create and validate digital health solutions, compile and promote best practices, and scale-up breakthroughs[26].

To assist the health management information system and modernize the healthcare system, the Ethiopian government is training health informatics specialists [27]. The goal of the strategy is to advance and encourage the use of digital techniques and tools for gathering, analyzing, presenting, and disseminating information on the health system. Ethiopia has started implementing eCHIS gradually. eCHIS was used to digitize the manual family folder. The eCHIS is mostly an offline mobile application made specifically for HEWs. To enable digital referral linkage and synchronize data with a backend server, however, connectivity is necessary[13]. Despite early attempts to create a set of strategic goals, the overall programming aims of eCHIS remain unclear, and no measuring methods or indicators have been developed[2].

The system cannot be expanded until HEW accepts it and incorporates it into their daily operations. In a thorough analysis of CHWs' use of digital health, it was discovered that when they converted from paper-based forms to digital devices, their initial reactions were positive. But in reality, CHWs kept using and favoring paper forms. Resistance to the move was cited for a number of reasons, including the obligation to use paper-based forms simultaneously, a lack of device expertise, and a lack of application interface flexibility[14]. There has been no study done on electronic health information system so that difficult to know the current status of implementation. Therefore the study aims to assess the level of utilization and associated factor of electronic community health information system implementation in Sidama region, Ethiopia.

1.3. Rationale

Digital health technologies are recognized to facilitate remote monitoring and quicker medical care delivery. The workload of medical personnel would be reduced, and their level of job satisfaction would rise. Even if the health system has recently produced a number of revolutionary technologies, their quick uptake and acceptability may not be entirely guaranteed. The perception and willingness to use those technologies is more likely to be influenced by several contexts, including the sociocultural and economic environment as well as the nation's health care system and legislation. The availability of alternative options and prior experience with using such technology may also have an impact on acceptability.

eCHIS is one of digital health system that has being implemented in Ethiopia commenced from September 2018. Sidama is one of eCHIS implementing region but there is no study conducted. Therefore the finding of this study could be relevant input in addressing problems related with eCHIS utilization in the Sidama regional state. Secondly, it is believed that the study can help the government and other implementing partners understanding factors in hindering implementation of electronic community health information system. Furthermore, the finding of this study can be used as an additional source of evidence for those researchers working on eCHIS.

2. Literature review

2.1. Health Information System in Ethiopia

The Ethiopian government and its development partners' major priority now is to use health information systems to make evidence-based decisions. Ethiopia has a strong commitment to improving the national health information system (HIS) through HMIS and doing performance monitoring and evaluation (M&E). As a result, the policy has recognized the Health Management Information System (HMIS) as a crucial element for the strategic plan of the Health Sector Development Program (HSDP) to be implemented successfully. The Ministry of Health has developed capacity for health data with the installation of HMIS in 2008 and established standardized and integrated data collection and reporting formats. Additionally, it has been recognized that information use and the deployment of appropriate technology are essential components of a strengthened and improved health sector management information system (HMIS)[28].

2.2. Electronic Health Information System

The advent of technology has made the potential and financial advantages of health care management clear. Globally, it has been demonstrated that IT systems, such as electronic health information systems (EHIS), are a useful tool for enhancing disease diagnosis and treatment at the point of care[29]. The primary goals of IT use in the healthcare industry include expanding geographic access to healthcare, improving patient-provider communication, improving illness diagnosis and treatment, improving data quality management, and preventing fraud and abuse of patient confidentiality[30].

2.3. Utilization of Electronic Health Information system

It is crucial to effectively analyze, interpret, and use data to make use of information at all levels of the health care system. The main issues, however, continue to be poor data quality (incompleteness and incorrectness), and limited utilization[31, 32]. Findings from Africa show that regular use of health information is still low[22, 33]. 59% in Uganda 42% in Tanzania[34]. 58% in Liberia, and 65% of the health workers in South Africa[35]. According to a Rwandan study, 80% of EHIRs are used to support clinical decision-making, and 92% of respondents thought accessing recent Internet-based information will help them provide their patients with

better clinical care. Regarding frequently searched information, 34.8% looked for information on clinical procedures and 24.8% looked for information on medicinal prescriptions[36].

According to various studies conducted across Ethiopia, between 22.5 and 69% of routine health information was used [21, 37-39]. Cross sectional studies conducted on Electronic Health-Information Resource Utilization and Its Associated Factors among Health Professionals in Amhara Regional State Teaching Hospital shows 70.8% of study participant use electronic health information resource [40]. According to a survey carried out in western Oromia, about 42% of medical professionals used EHIRs, 57.9% did so to obtain the most recent health information, and 11.2% did so for research[41].

2.4. Factors associated with utilization of electronic health information system

Factor that hinders the proper use of information technology and the interchange of electronic patient records are poor training. However, this is dependent on the training organization and institution[42]. Incentives for users to use electronic health information exchange more frequently have been the subject of several studies[43]. Institution based cross sectional study conducted in Gonder shows 67.5% of study participants reported having difficulty using EHIRs. The most common issue was a slow Internet connection (42.9%), followed by retrieving too much data (14.9%), and having trouble finding information (9.7%) [40].

2.5. History of electronic community health information system in Ethiopia

Since 2008, the Ethiopian Health Management Information System has been in operation, capturing and providing key metrics that can be utilized to enhance the delivery of healthcare services and, ultimately, the population's health[44]. The Health Sector Transformation Plan (HSTP), a five-year strategy plan from 2015/16 to 2019/20, is now being implemented by the Federal Ministry of Health. One of the four transformation agendas of HSTP is the Information Revolution, which aims to improve the availability, usability, quality, and use of health information for decision-making processes through the appropriate application of ICTs. This will have a positive effect on the equity, quality, and accessibility of healthcare delivery at all levels[45].

The MOH hosted an eHealth workshop in 2011 to start creating suitable health informatics standards. The efforts made included, among others, revising key performance monitoring indicators, standardizing data recording and reporting tools, conducting capacity building training, implementing electronic medical records (eMR), introducing District Health Information System (DHIS), and implementing SMART care at the level of health facilities[46]. eCHIS implementation in Ethiopia started in September 2018. The offline and internet mobile application eCHIS was used to digitize the manual family folder. It makes it simpler for HEWs to share household and personal information with other professionals and aids in tracking patient status[1].

2.6. Utilization

The system's ability to scale up depends on HEW adoption and use of eCHIS in their everyday job. When transferring from paper-based forms to digital devices, CHWs first responded favorably, according to a systematic assessment of the usage of digital health among CHWs. However, in actuality, CHWs continued to use and preferred paper forms. Lack of experience with the device, the requirement to simultaneously use paper-based forms, and the application interface's restricted flexibility were a few of the reasons cited for the resistance to the move. Another study found that CHWs found eCHIS to be very acceptable, feasible, and usable[14]. However, despite the availability of the existing options, nothing was actually used [47].

In a 2015 survey conducted in Jeddah, Saudi Arabia, the EMR components that were most frequently used were gathering and analyzing lab results and writing patient discharge instructions (86.5%), with no additional tools for team communication being used [48].

National study shows despite almost complete acceptance of eCHIS among HEWs, only 50% of HEWs use eCHIS regularly or always in their daily job. This finding shows that there is a significant difference between HEWs' intention to use and actual use of eCHIS [49].

2.7. Factor associated with eCHIS

2.7.1. Technical factors

a. Infrastructure

Refers to infrastructure associated with information technology (IT), which by definition includes hardware, software, and networks. For the eCHIS implementation to operate at its best,

IT infrastructure must be accessible and functional. The majority of HEWs indicated that infrastructure issues such as faulty tablets, SIM cards, connectivity, servers, and power supplies hindered their use of eCHIS [49]. Each of the HPs considered in the study has a different level of IT infrastructure accessibility. Most HEWs identified many infrastructure issues. The majority of HEWs noted that inconsistent airtime replenishing interfered with their ability to send and receive referral data, sync information about the delivery of health services and household (HH) profile registration to servers, back up their data, and download version 20 updates [49].

Ethiopia does not have a policy on the safety and security of personally identifiable information (PII) which has led to some difficulties in the use of certain infrastructure, e.g., cloud hosting, to store individual level data. Even if a framework for mHealth in Ethiopia suggested mobile technologies can be used to address HEWs' critical needs (referral, training and education, supply chain management, data exchange and consultation[50]). Lack of infrastructure is still a challenge[51]. Government-controlled Ethiopian telecom (Ethiotel) has just recently begun to show signals of opening up to the private sector. Around 85% of Ethiopians have access to at least 2G mobile coverage through Ethiotel, while 66% have 3G connectivity and only 4% have 4G[50].

Ethiotel recently began rolling out a 5G network. Connections are typically spotty or nonexistent in the rural areas where HEWs reside and work. The availability of power in Ethiopia's rural and urban areas differs significantly. Nearly all significant urban areas have access to electricity. Compared to 83% of people in small towns, 95% of people in major towns have access to power, even if blackouts are frequent. Rural locations have a significant difference from urban places. Only 9% of persons in rural areas (excluding small towns), as measured by the Living 5 Standards Measurement Study, have access to electricity[50]. Many digital health technologies strongly depend on the uptake and appropriate use by health care professionals. This may lead to new health care professionals as well as existing health care professionals acquiring new skills and competencies[52].

b. Supportive supervision

Utilization of the community health information system in the Hadiya zone's health post was the subject of a facility-based cross-sectional study shows one of the factors that significantly correlated with using community health information was regular supportive supervision. When

compared to those who were not monthly observed, health extension workers who received supportive supervision were 1.72 times more likely to use CHIS in a positive way. Utilization of community health information is significantly correlated with sending written feedback. Comparing those who received comments to those who did not, those who received input were 5.33 times more likely to use CHIs[48].

2.7.2. Organizational factors

Organizations must make complicated decisions in the face of uncertainty, trade-offs, and broad implications, yet doing so rationally might be hampered by the cognitive constraints of individual decision-makers. The decision-making process is mediated by numerous organizational concerns. Policies and procedures, organizational hierarchy, and organizational politics are some of these concerns. Information culture, structure, resources, and major contributors' roles and duties at each level of the health system are all organizational determinants[53]. Only 63 (15.67%) of the participants own the EMR manual[54]. Study participants who had access to the EMR manual were three times more likely to use the EMR system than those who had no EMR manual[54].

a. Availability of Trained Manpower

A more compelling challenge in transitioning CHWs to digital data collection were the levels of training of CHWs and the sense of comfort that the data collectors felt about the technology[55]. This indicates the huge gap laying ahead in building the capacity of CHWs to utilize digital tools. An evaluation of a community-based health information system in Kenya also highlights the need for intensive training with periodic refresher courses for CHWs involved in data collection for a smooth functioning of digital CHIS[56]. The inadequate training and assistance that HEWs received from supervisors at the woreda and health center levels has made it difficult for them to use eCHIS.

The study identified many key issues, including insufficient training that included material skipping, a lack of sufficient demonstration and practical sessions, a lack of consistent post-training follow-up, and a lack of technical support from staff at the woreda and health center levels[57]. Cross section study conducted in Hareri and Diredawa shows compared to individuals who did not receive training, health workers who did receive EMR training were more likely to use it (AOR = 5:88; 95% CI; 2.93-11.88). Effective training and refresher training are proven

methods for developing EMR-related skills and boosting user confidence[58]. EMR use has been linked to higher levels of education, EMR training, managerial support, and computer literacy[59].

b. Availability of Adequate Budget

The major barriers to widespread electronic medical record implementation and utilization are cost both direct and indirect. Information systems and capabilities are constantly changing, ongoing and continued evaluation, education, and training are necessary to optimize clinician efficiency and effectiveness[60].

2.7.3. Behavioral factor

The discrepancies between actual competencies and perceived competences of healthcare professionals have a direct impact on the performance of RHIS and activities like data collecting, data integration, data capture, transmission, processing, analysis, display, and feedback.

In 2015 study conducted on Health workers' experiences, barriers, preferences and motivating factors in using mHealth forms in Ethiopia shows the majority of the healthcare professionals (91.3%) have been using the smartphone we provided as their main phone. None of them were in favor of keeping a smartphone at a medical facility like other medical equipment; instead, they preferred to always have their smartphone with them[13].

Cross sectional study conducted in 2021 on Electronic Health-Information Resource Utilization and Its Associated Factors among Health Professionals in Amhara Regional State Teaching Hospitals shows Lack of knowledge of how to access and use EHIR was the most frequently cited barrier to their use(42.22%)[40]. Respondents with a work experience of 6 years or less were about two times more likely to use EMRs than those with a work experience of greater than 6 years[54].

2.8. Conceptual frameworks

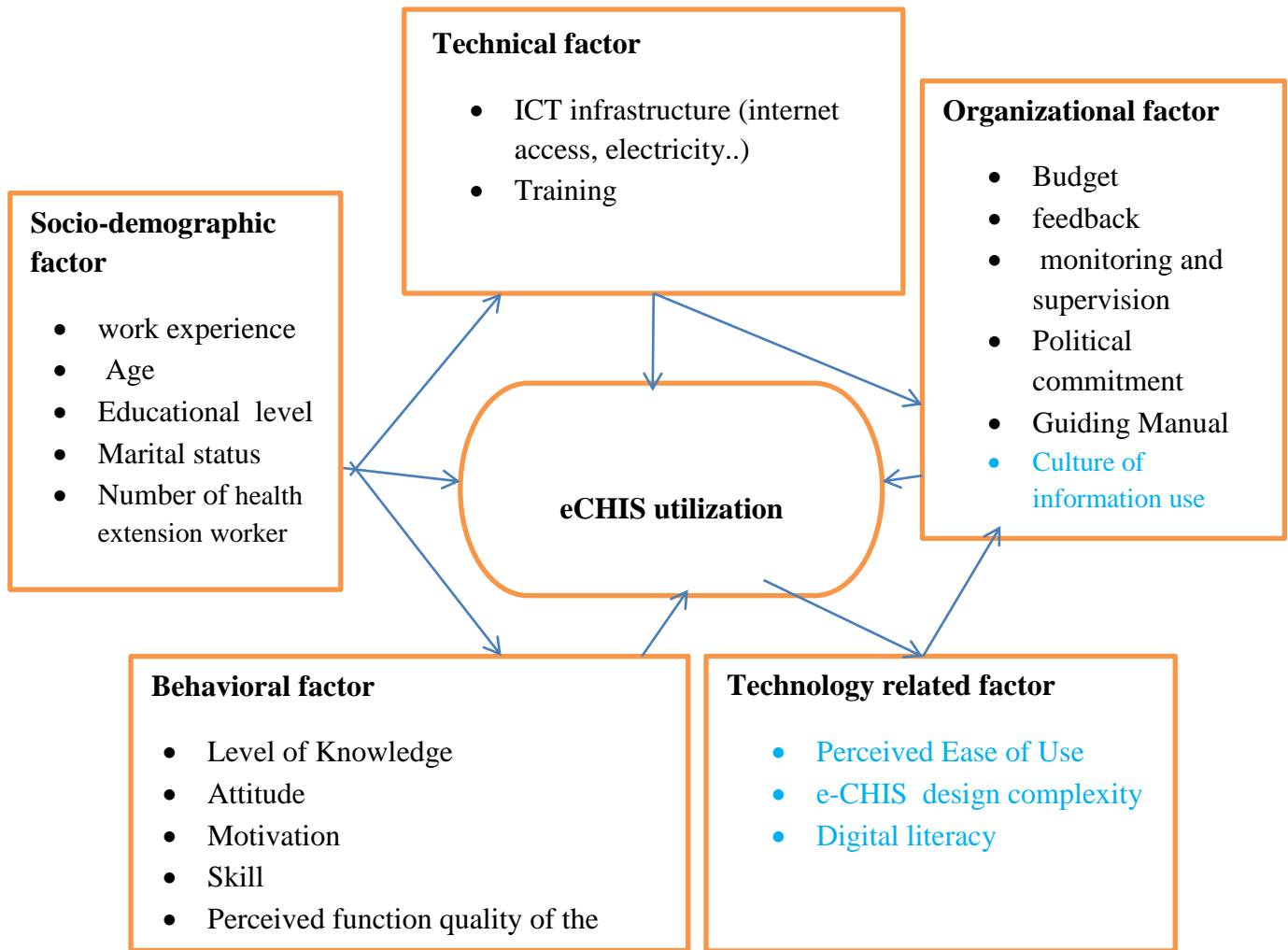


Figure 2-1: Conceptual framework developed by using different literature

3. Objectives

3.1. General Objective

- To assess utilization of electronic community health information system (eCHIS), and associated factors among health extension workers in Sidama region, Ethiopia, 2023.

3.2. Specific objective

- To assess utilization of electronic community health information system (eCHIS) among health extension workers in Sidama region, Ethiopia, 2023.
- To identify associated factors of electronic community health information system utilization among health extension worker in Sidama region 2023.

4. Method and materials

4.1. Study area

The study has been conducted in health post in Sidama regional state located in the southern part of Ethiopia. The region has an area of 6,538 km² with a location between 3° 14' N latitude and 33° 48' E. The capital city of the region is Hawassa city located 275 km from Addis Ababa. The region is organized into 30 districts, one city administration, and 6 reform town administrations. According to a 2017 report around 5 million people live in the region. The Sidama regional state has a total of 553 Health Posts, 134 Health Centers, one specialized hospital, three general hospitals, and 17 district hospitals. From the 30 districts found in Sidama 84 health post have implemented eCHIS. The total number of HEWs in 12 implementing woreda is 659.

4.2. Study design and period

Quantitative (cross-sectional) studies complimented by qualitative (Phenomenology) study designs have been employed from February to May, 2023.

4.3. Population

4.3.1. Source population

a. Quantitative study part

All health extension workers implementing electronic community health information system in their health post in Sidama region are considered as source population.

b. Qualitative study part

Purposively selected HEWs and HEW supervisors working on electronic community health information in Sidama region has been source population.

4.3.2. Study population

a. Quantitative study part

All health extension workers implementing electronic community health information system in selected health post in Sidama region are considered as study population.

b. Qualitative study part

Purposively selected HEWs and HEW supervisors implementing electronic community health information system in selected health post in Sidama region are considered as study population.

4.4. Inclusion and Exclusion Criteria

4.4.1. Inclusion Criteria

a. Quantitative study part

HEWs working in health posts are implemented e-CHIS for at least 3 months have been included in the study.

b. Qualitative study part

Health extension workers who have been working on eCHIS for at least six months have been included.

4.4.2. Exclusion Criteria

a. Quantitative study part

Regardless of e CHIS implementation experience of health posts, HEWs who recently joined the health system (less than 3 months) have been excluded.

4.5. Sample Size Determination

4.5.1. Sample size for first objective

Single population proportion formula has been employed to calculate the sample size for this study with the following assumptions: 95% confidence level and margin of error 5%, p=50%.

$$n = \frac{(Z_{1-\frac{\alpha}{2}})^2 p(1 - p)}{d^2}$$

n= sample size

$Z_{1-\alpha/2} = 1.96$ (Z score corresponding to 95% confidence interval).

p= proportion of e-CHIS utilization among health posts which is conservatively taken as 50% (0.5)

d = the margin of error (5%) that can be accepted in this study = 0.05

$$n = \frac{(1.96)^2 0.5(0.5)}{0.05^2} = 384$$

Since the study population is less than 10,000 sample size correction formula for finite population has been used to calculate the final sample size. Accordingly;

$$n = \frac{no}{1 + \left(\frac{no}{N}\right)}$$

Where:

For infinite population n -----sample size for finite population

n_0 -----sample size for infinite population (using the above formula

HEW who are working in the areas where eCHIS was implemented =659

$$= n = \frac{384}{1 + \left(\frac{384}{659}\right)}$$

$$= 243$$

By multiplying 1.5 design effect and by adding 10% none response rate, the final sample size for the first objective has been **402 HEWs**.

4.5.2. Sample size for objective two

Table 4-1: Sample size calculation for the second objective of the study, 2021

Factor	Power	CI	Ratio	Percent of Outcome in unexposed	AOR	Sample Size
Attitude level (poor)[58]	80%	95%	1	21.9%	2.14	218(factor 1)
Work experience) >6, ≤6 years[54]	80%	95%	1	30.4%	2.13	258 (factor 2)

The final sample size for these studies has been 402.

The participants of the qualitative study have been selected purposively. The sample size has been determined by saturation of information which is taken until redundancy of information.

4.6. Sampling technique and sampling procedure

Multi-stage sampling techniques have been used to select 7 districts from 12 eCHIS implementing district. Then the total sample size was allocated to select the districts proportionately. Finally the study participants were randomly selected from the list HEW in the selected district by using SPSS soft wore.

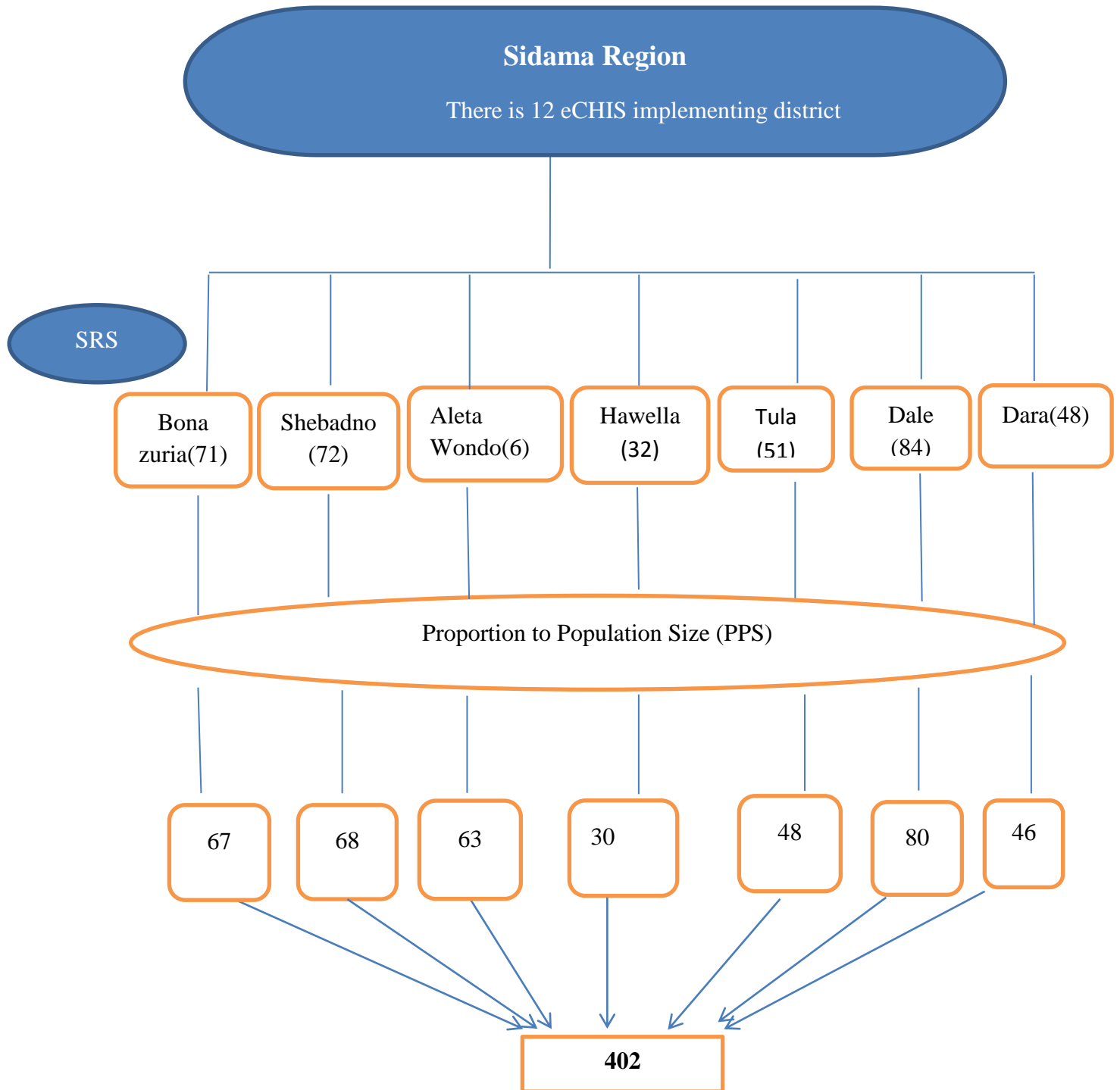


Figure 4-1: Sampling technique

4.7. Variables

4.7.1. Dependent variables

- eCHIS utilization (good/poor)

4.7.2. Independent variable

- a. Socio-demographic factor:** Education content on status, work experience, Age, Educational level
- b. Technical factor:** ICT infrastructure (internet access, electricity), Training gap, weak monitoring and supervision
- c. Organizational factor:** Training, Budget
- d. Behavioral factor:** Level of Knowledge, Motivation

4.8. Data collection tools and procedures

Quantitative part

The structured questionnaire is prepared by reviewing different literatures and adopted from national eCHIS implementation guideline. The questionnaire has four sections including Socio-Demographic factors, Technical factor, Organizational factor and Behavioral factor. The data has been collected by interview administered questionnaire. Twelve data collectors and 4 supervisors have been overseeing the data collection procedure.

For this qualitative part;

Based on an open-ended, semi-structured questionnaire, information has been gathered through in-depth interviews. With a purposefully chosen interviewee, a roadmap to the interview has been created with adaptable probing strategies. On the same day as the interview, all Amharic language interviews have been taped, translated, and transcribed. Participants are encouraged to freely express their opinions and share personal stories on the subject. The lead researcher conducts each interview alongside a capable research assistant.

4.9. Data processing and analysis

a. Quantitative part

The data has been coded, cleaned, and entered into Epi Data version 3.1 and exported to SPSS version 25 for analysis. The descriptive statistics such as mean and standard deviation have been

calculated for continuous variables and frequency or percentage has been used to describe the categorical variables. The data has been analyzed by using binary logistic regression to see an association between independent variables and dependent variable and also to control potential confounders. First, independent variables have been fitted into the bi-variable logistic regression model and those variables with a p-value ≤ 0.25 have been eligible for multivariable logistic regression analysis. The Hosmer and Lemeshow goodness of-fit tests have been used to assess model fitness and a p-value > 0.05 has been considered a good fit model.

Crude and adjusted odds ratios with their 95% confidence intervals have been calculated and Variables having a p-value < 0.05 in the multivariable logistic regression have been considered significantly associated. Multi-collinearity has been checked to see if there is inter-correlatedness among independent variables by using the variance inflation factor (VIF). Accordingly, if the value of VIF is less than 10, then multi-collinearity has not been a problem.

b. Qualitative part

For the qualitative data analysis portion, Padgett's suggested interconnected phases and content-driven themes have been followed (2016). As a basis for analyzing the qualitative data, in Social Work Research, Padgett offered a qualitative method on how to do in-depth qualitative research. The five steps included: 1) preparing and transcribing the raw data; 2) coding; 3) memoing; 4) creating themes/categories; and 5) interpretation. Each stage was carried out in order, and each IDI session was held in a comfortable location with little chance of interruption or significant noise interference. Introductions and explanations of the IDI's purpose and processes were given before the interviews began.

A facilitator used a booklet that included questions on various subjects to help with the IDIs. The IDI conductor provided an overview and led the sessions. Every interview is taped. Participants are praised for their contribution after the interviews. Each session of qualitative data collection ended with the beginning of word-by-word transcription of the tape recordings. The daily debriefing meeting with the PI and data collectors covered work progress and important problems related to qualitative data collecting. The verbatim taped recordings from each IDI session have been entered into Microsoft Word.

The following headings appeared in IDI transcriptions: participant/s description, facilitator name, interview date, participant number, and participant demographics (s). The outcome report has been synthesized using the content-driven themes and related stages methodologies of Padgett (2016) as a guiding principle. The conclusions from the qualitative study are used to formulate suggestions that accurately address the study objectives.

4.10. Data quality assurance

a. Quantitative part

Pre-test has been done on 5% of the sample which will not be included in the study. Appropriate modifications have been made after the pre-test result before the actual data collection. Additionally, to maintain the quality of data to be collected, data collectors and supervisors have been trained on the significance of the research, independent factors, how to control the quality of data and efficiency of data collectors and importance of confidentiality for one day. Supervision of data collectors had being includes observation of how the data collectors do data collection. The filled questionnaires have been checked for completeness by data collectors, supervisors and PI on a daily basis. Consequently, any problems encountered have been discussed among the team and solved immediately.

b. Qualitative part

A hand interview guide has been created and used with care to maximize the study's validity and credibility. The qualitative in-depth interview has then been tested as a pilot with three focal people for the health extension.

4.11. Ethical considerations

Ethical clearance has been secured from the institutional review board (IRB) of Hawassa University, College of Medicine and Health Sciences. Permission letters have also been requested from Sidama Region Public Health Institute and Sidama region Health Bureau before the beginning of the study. To ensure confidentiality, code numbers, instead of names have been used to show results, and all formats have been kept locked.

4.12. Operational definitions

4.12.1. Utilization of eCHIS

How do you use the eCHIS information?

1. Budget allocation(Yes/No)
2. Requisition of manpower (Yes/No)
3. Calculation of area coverage (Yes/No)
4. Monitoring & evaluation (Yes/No)
5. Medical supplies management (Yes/No)
6. Organize feedback. (Yes/No)
7. Evidence-based decision-making. (Yes/No)

Good utilization: Then average score of respondents equal or more than the mean score was used to indicate as good eCHIS Utilization[48].

Poor utilization: Average score of respondents below the mean score was considered as poor utilization[48].

ICT infrastructure: Everything in an organization that facilitates the movement and processing of information, such as network infrastructure, technology policy, computers, and ICT services.

Technical Factors: Every aspect of information technology, software development, and technology used to create, administer, and apply eCHIS for evidence-based decision making[61].

Organizational Factors: To generate, manage, and use information in eCHIS, every issue relating to organizational structure, financial resources, supervision, training, and culture must be taken into consideration[61].

Behavioral Factors: All those elements that affect staff members' motivation, confidence, and skill in using eCHIS[61].

4.13. Dissemination and utilization of the results

The findings of the study will be presented to Hawassa University, School of Medicine and Public Health, Sidama regional health bureau, Sidama region public health Institute and other key stake holders in the research area, and other responsible governmental and nongovernmental organizations. An attempt will be made to present the findings in different conferences and workshops and will be sent to publication on reputable scientific journal.

5. Results and Discussion

5.1. Result

5.1.1. Demographic Characteristics of the Respondents

A total of 402 respondents were participated in the study, making a response rate of 100%. All respondents were females 402 (100%).most of the respondents were within the age of 22-27 are 45% years old with the mean age of 29.7 years with SD of 3.93 years and range from 22 and 48 years. More than three-fourth (92.5%) of the study participants were married. Among the total participant 73.6%were level IV in educational status. Regarding on work experience of respondents, 339 or 84.3% of them had work experience of 5- 10 years and in more than half of health posts had 3 and above health extension worker (59.7%).

Table 5-1: Socio-Demographic Characteristics of Health Extension Workers in Health post Sidama region Ethiopia, 2023

Variable	Categories	Frequency	Percent%
Age	22-27 year	181	45.0
	28-33	125	31.1
	34-39	69	17.2
	40 and above	27	6.7
educational level	level III (10+3)	106	26.4%
	level IV (10+4)	296	73.6%
Work experience	<5	27	6.7
	5-10	339	84.3
	>10	36	9.0
Number of health extension workers	2	162	40.3
	3 and above	240	59.7
marital status	Married	372	92.5
	Single	19	4.7
	Widowed/divorced	11	2.7

5.1.2. Technical characteristics

From total of 402 all were attended training and 86 of respondent's rate the level of training good and 54.5% of the respondents disagree on adequacy of the training. According to assessment of

studies participants tablet time and date set correctly were 59.0% and all of participants had SIM card and 21.4% had not active air time. More than half of respondent's tablet had connectivity. 67.9% and 89.3% of respondents not adequately support data synchronization. All respondents were no primary power backup.

Table 5-2: Training of Health Extension Workers in Health post Sidama region Ethiopia, 2023

Variable	Categories	Frequency	Percent%
Did you attend training	Yes	402	100%
	No	0	0%
how would you rate your level of training on eCHIS	Poor	39	9.7
	Good	347	86.3
	very good	16	4.0
Was the training you received adequate	Strongly disagree	35	8.7%
	Agree	127	31.6%
	Disagree	219	54.5%
	Strongly disagree	21	5.2%
Are time and date of the tablet's set correct	Yes	237	59.0
	No	165	41.0
Does the tablet have SIM card	Yes	402	100.0
If yes, does the tablet have active air time	Yes	316	78.6
	No	86	21.4
Does the tablet currently have connectivity	Yes	273	67.9
	No	129	32.1

If yes, can it adequately support data synchronization	Yes	43	10.7
	No	359	89.3
Do you have primary power back	Yes	402	100.0%
	No	0	00.0%

5.1.3. Utilization of Electronic community health information system

All variables that indicate utilization of electronic community health information system were recoded and after that one outcome variable was created. Then average score of respondents equal or more than the mean score was used to indicate as Good health information utilization and average score of respondents below the mean score was considered as poor utilization. Based on this, Good utilization of the electronic community health information system was 40.3%.

Table 5-3: Utilizations of Health Extension Workers in Health post Sidama region Ethiopia, 2023

Variable	Categories	Frequency	Percent%
Utilization	Poor	240	59.7
	Good	162	40.3

5.1.4. Organizational characteristics

Regarding to organizational factors according to their response, 37.1% of the participants had no supportive supervision from PHCU in the last quarter; 81.1% did not get support from woreda health office; 73.4 % had not get support from regional health office and 90 % of participants had not received support from others on eCHIS supporting organizations in the last quarter. Regarding to written feedback 58.7% had not received feedback and availability of different reference material and manuals that help as a guide eCHIS, and among the total participants 47.1% were did not have manuals on eCHIS.

Table 5-4: Organizational factors of Health Extension Workers in Health post Sidama region Ethiopia, 2023

Variable	Categories	Frequency	Percent%
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Have you received support from PHCU in the last quarter	Yes	253	62.9
	No	149	37.1
Have you received support from WorHO in the last quarter	Yes	76	18.9
	No	326	81.1
Have you received support from Regional health office in the last quarter	Yes	107	26.6
	No	295	73.4
Have you received support from others on eCHIS supporting organizations in the last quarter	Yes	40	10.0
	No	362	90.0
have you received written feedback	Yes	166	41.3
	No	236	58.7
Have you received support eCHIS manual/guideline	Yes	191	47.5
	No	211	52.5
If yes do you use the manual or guideline	Yes	189	47.1
	No	213	52.9

5.1.5. Behavioral characteristics

- **Attitudes**

Attitude of Health extension workers towards eCHIS were measured using Likert scale. In this study, when HEW whose score is greater than mean score was considered as having Favorable attitude. The mean value of health extension workers attitude towards design of CHIS was 39.69 (SD±13.1). (36.1%) of the health extension workers had Favorable attitude towards electronic community health information system.

Table 5-5: Attitudes of health extension worker in Health post Sidama region Ethiopia, 2023

Variable	Categories	Frequency	Percent%
	favorable attitude	145	36.1

Attitudes	unfavorable attitude	257	63.9
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5.1.6. Level of knowledge

An individual knowledge of HEW to undertake CHIS task, among total of respondents 1.5% had difficulty on how to manage the device date, time and 1.2 % of respondents had difficulty on language change and all of the respondents know how to assign head of household and change.

Table 5-6: Knowledge of health extension worker in Health post Sidama region Ethiopia, 2023

Variable	Categories	Frequency	Percent%
Does the HEW have any difficulties on how to manage the device (Date and time setting and other	Yes	6	1.5
	No	396	98.5
Does she know how to change language and how to check app version	Yes	397	98.8
	No	5	1.2
does the HEW know how to register new household using the app	Yes	402	100%
does HEW know how to assign head of household and change	Yes	402	100%

5.1.7. Technology related factor

The respondents were asked to rate their self-competency for performing eCHIS measured using Likert scale. For this study, average score of respondents equal or more than the mean score of questions was considered as having “High perceived self-competency”. The mean value of health extension workers perceived self-competency toward eCHIS activities was 17.68. Among the total respondents, 52.7% of them had High perceived self-competency to perform eCHIS.

Table 5-7: Technology related factor extension worker in Health post Sidama region Ethiopia, 2023

Variable	Categories	Frequency	Percent%
Perceived ease to use	high perceived self-competency	212	52.7

	low perceived self-competency	190	47.3

5.1.8. Bi-variable and multivariable logistic regression analysis

The Bi-variable and multivariable logistic regression analysis utilization of eCHIS among health extension worker in Sidama region 2023, first, bi-variable analysis was done for all independent variable with separately the outcome variables to identify candidate variables for multi-variable analysis. Variables with $p < 0.25$ during bi-variable analysis were selected as candidate for multi variable analysis. Based on this, age, work experience, number of health extension worker connectivity, data synchronization support from PHCU, support from WoHo, feedback attitude perceived competency towards CHIS task are variables selected for multi variable analysis. Multivariable logistic regression was used to identify factors independently associated with utilization of eCHIS by controlling the confounders.

Those who have connectivity in the health post were two times more likely to utilize eCHIS as compared to their counterpart [AOR 1.79, 95% CI (1.069-3, 01)]. Health extension workers who have no adequate support for data syncornization were 58.5% less likely to utilize eCHIS as compared to those who have adequate support for data syncornization [AOR 0.415, 95% CI (0.17-0.98)].

Table 5-8: Bi-variable and multivariable logistic regression analysis

Variable	Category	Utilization of Echis		COR 95% CI	P-value	AOR 95%ci
		poor	good			
age of the respondents	22-27 years	105	76	1		
	28-33 years	84	41	.674 (.419, 1.085)	.105	.718 (.421, 1.226)
	34-39 years	39	30	1.063 (.607, 1.861)	.831	1.217 (.657, 2.256)
	40 and above	12	15	1.727	.189	2.027 (.812,)

				(.765, 3.899)		5.059)
How long have you employed in your current position	<5	17	10	1		
	5-10	212	127	1.018 (.452, 2.293)	.965	.840 (.338, 2.087)
	>10	11	25	3.864 (1.345, 11.096)	.012	1.832 (.560, 6.002)
how many health extension work	2	95	53	1		
	3 and above	145	109	1.347 (.887, 2.046) *	.162	1.026 (.637, 1.653)
Does have currently connectivity	No	94	35	1		
	Yes	146	127	2.336 (1.482, 3.683)*	.000	1.796 (1.069, 3.016)
can it adequately support data synchronization	No	205	154	1		
	Yes	35	8	.304 (.137, .674)*	.003	.415 (.175, .0984)
Have you received support from PHCU in the last quarter	No	109	40	1		
	Yes	131	122	2.538 (1.637, 3.934)	.000	1.928 (1.174, 3.167)
Have you received support from WorHO in	No	205	121	1		
	Yes	35	41	1.985 (1.199,	.008	2.043 (1.141,

the last quarter				3.285)*		3.657)
have you received written feedback	No	148	88	1		
	Yes	92	74	1.353 (.903, 2.026)*	.143	1.228 (.772, 1.953)
Have you received support eCHIS manual/guideline	No	133	78	1		
	Yes	107	84	1.339 (.898,1.996)	.153	1.109 (.693, 1.773)
Attitude of respondents	favorable attitude	64	81	1		
	unfavouvara ble attitude	176	81	0.364 (.239,.554)*	.000	.437 (.271, .704)
perceived competency	high perceived self-competency	140	72	1		
	low perceived self-competency	100	90	1.750 (1.170, 2.617)*	.006	1.813 (1.146, 2.868)

5.2. Discussion

This study attempted to assess utilization of electronic community health information system and its associated factors among health extension worker of Sidama region, Ethiopia. The overall good utilization of electronic community health information system was 40.3% according to operational definition set for measurement of electronic community health information system use. In this study, the proportion of utilization of electronic community health information system is 40.3%. This information utilization is in line with study findings from Illu Aba Bora Zone, Ethiopia where utilization of district health information was 45.8% [62].

When compared to research done in East Gojjam, the Dire Dawa administration, and the Hadiya zone, where the cumulative use of health information in the study region was 41% and 53.1%,

respectively, this study is lower[63, 64]. Since those studies were reported from health centers, the decrement in this study might be the less attention given by the government to health posts by providing supervision. However, in both studies the utilization of health information was less than the national expectation of information utilization that is 90%[65]. The finding of this study, the current utilization of electronic community health information is much lower than the studies in Zanzibar, Kenya which is 77% and 65.8% respectively[66].

Their better performance could have resulted from good skills and a better level of knowledge of the staff on data collection, data handling, information analysis, and presentation. Availability of ICT infrastructure and supportive supervision enhances the eCHIS utilization. The study also showed that the majority 59.7% of respondents confirmed that poor utilizing electronic community health information system among health extension worker can be influenced by organizational, ICT infrastructure, technology, and behavioral factors. Based on the study finding the main determinants in the utilization of electronic health information system included availability internet and ability to synchronize data. The eCHIS utilization requires the availability and functionality of IT infrastructure for optimal performance.

Availability of internet connectivity was found one of the factors that determine the utilization of electronic community health information system at health extension worker. Availability of connectivity were one point seven times more likely to have good utilization of electronic community health information system than those who did not have internet connectivity (AOR 1.796 95% CI = 1.069, 3.016). and also ability to synchronize data were zero point four times more likely to have good utilization of electronic community health information system than those who did not have (AOR .415 95% CI = .175 ,0984). The availability of internet connectivity and ability to data synchronize, is very crucial to data transfer in eCHIS systems. This can improve the availability of reliable information for decision-making at each level.

HEWs claimed that using eCHIS was hampered by infrastructure problems, such as inadequate connectivity, servers, and power backup. HEWs reported that they occasionally pay for airtime recharges for eCHIS-related activities out of their own pockets.

The problem for HEWs is their inability to sync data

(woreda health office from aleta wondo)

To sync their data, some HEWs travel to Wi-Fi locations. As a result, some health posts experience service interruptions or the workload of the other HEW is increased.

I travel to wifi available area to sync data there is no network in our area.

(HEW from bona woreda)

There is no electricity in our area. In some Kebeles, there is no electricity at all so that I travel to electric available area or nearby town to charge my tablet

(HEW from bona woreda)

In some place eCHIS users noted that lack of power banks and frequent interruption of electricity prevents them to use eCHIS. This has been a significant obstacle, especially in distant locations where the national electric grid has a limited reach. Scheduled follow-up and Supportive supervision follow-up from concerning offices were found as another determinant factor of eCHIS information use with health extension worker. Health extension worker that had supportive supervision from PHCU one point nine times more likely to utilize district health information than did not conduct supportive supervision (AOR 1.928 95 % CI= 1.174, 3.167). And supportive supervision from WoHO two times more likely utilize Echis (AOR 2.043 95% CI = 1.141, 3.657).

The result was supported by study conducted in Gamo Gofa zone those Health facility who were supervised regularly were 4 times more likely to have good knowledge and health information utilization respectively[67]. This might be because of frequent supportive supervision has a significant role in identifying the gaps and increase the capacity of health extension workers. One of the most important mechanisms to enhance health information utilization is regular supportive supervision. Therefore without regular supportive supervision it is difficult to increase information use culture at the point of data collection. Supervision facilitates the delivery of materials. In order to facilitate the utilization of eCHIS-based service delivery, assist data use for decision making, ensure the status of HH registration activities, evaluate HEW performance and provide feedback, and provide troubleshooting support for tablets for sustainable eCHIS utilization.

There is no routine follow up from supervisors. There is no regular supportive supervision. No one follows us

(HEW from tulla woreda)

Budget constraints and a lack of commitment are the main issues preventing the usage of

(woreda health office from shebedion)

Knowledge of health extension worker (perceived ease to use) is one of the determinant factors of eCHIS utilization. The health extension worker had knowledge on electronic community health utilization were one point eight times more likely utilize electronic community health information system (AOR 1.813 95 % CI = 1.146, 2.868). This result supported by studies conducted in Gamo Gofa zone Health Extension Workers who had reporting format in their office were 2.6 times [AOR= 2.631, 95% CI: (1.331-5.203)] more likely to have good knowledge than with no reporting format in their office. other studies done in Ilu Aba Bora Zone shows respondents who have a good competency to use district health information system data for their decision making were 2.41 times [AOR = 2.41, 95% CI: (1.27, 4.55)] more likely devoted to using DHIS2 data than those who have no good competency in district health information task.

Due to their lack of understanding on how to use eCHIS apps, the majority of HEWs expressed a lack of competence and confidence in using the software. The majority of eCHIS users, especially HEWs attribute it with the poor quality of eCHIS training and absence of regular post-training follow up.

I am fears of this technology in some way. I am not comfortable using this technology

(HEW from leku woreda)

The attitudes of healthcare providers in this study was also assessed where 36.1% (AOR .437 95% =CI .271, .704)) of respondents have favorable attitudes towards use of DHIS, which is fewer than study conducted in Illu Aba Bora where 56.4% (95% CI: [53.2, 59.8])[68]. The study conducted in Isfahan hospitals was also more than the result of this study[69]. This might be due to the fact that the infrastructure in Isfahan is more advanced than that of in Ethiopia. Other study done in India where the attitudes of health professionals to use eHealth was 39% [70].

1. Conclusion

More than half of the health extension workers had poor electronic health information system utilization. The study results showed that technical factors: availability of infrastructure, organizational factors: regular supportive supervision influence on the utilization and level of attitude and perceived competency to perform eCHIS also influence the utilization of electronic health information system.

Therefore, Improving, boosting internet connectivity, employ skilled manpower provide supportive follow-up and training access is important to scale up the utilization of electronic health information system of health extension worker.

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Annex

Annex III: English version questionnaire

Study Information Sheet and Consent Form

Name of Principal Investigator: kideest fekadu

Name of Organization: - hawassa University

Name of Sponsor: -----

My name is kideest fekadu. I am a second-year Master of Public Health student at hawassa a University, School of medicine. I am doing my master's thesis on eCHIS utilization and associated factor among health extension worker in sidam region, ethiopia . As you know, the eCHIS has been implemented in the country since 2018. However, it is not progressing as expected. To address such a gap, I am highly interested to conduct this research to identify associated factors to use the electronic medical record in selected health post. This research will help the health post, health bureau at large to identify major barriers to use eCHIS, which will help to address and implement this program at large at the national level. Your name will never be mentioned, and the information provided here will not be disclosed to anyone unless it is for its intended purpose and there is no any harm introduced to you. If you want to stop the interview, you can stop at any time. The purpose of the study, ethical issues and its significance has been approved by the college of health science ethical review board. You are being invited to take part in this research because we feel that your experience as a senior professional can

contribute much to our understanding and knowledge of eCHIS. For any question, please call. Kidest fekadu- Phone number-0927146731 Email- kidestf84@gmail.com .

If you are volunteer to take part in my study, please put your signature here.

1. Datesignature

2. Data collector name signature..... Thank you for participating in my survey

SECTION I: Background Information

Sr. no		Response/ Answer	Skip
101	Name of the institution you are working in		
102	Your Position /occupation in the institution		
103	Age in years		
104	Your highest educational level	1. Level I (10+1) 2. Level II (10+2) 3. Level III (10+3) 4. Level IV (10+4)	
105	How long have you employed in your current position?		
106	How many health extension workers work at this health post?		
107	What is your marital status?	Married Single Widowed Divorced	

SECTION II: FACILITY’S eCHIS INPUT

	Training status		Skip
201	Did you attend training on eCHIS?	1) Yes 2) No	
205	How would you rate your level of training on eCHIS?	1) Very poor 2) Poor 3) Good 4) Very Good	
206	Was the training you received adequate?	1) Strongly agree 2) Agree 3) Disagree 4) Strongly disagree	
	ICT Infrastructures,	Response/ Answer	
209	Is the installed eCHIS app updated to the latest linked app? (Indicate the current version_____)		
210	Are time and date of the tablet's set correct? (Check)	Yes No	
211	Does the tablet have SIM card? (Check) specify the Type (M2M or standard SIM)	1.Yes 2.No	
212	If yes, does the tablet have active air time?	1.Yes 2.No	
213	What is the primary power source HEW use to charge the tablet? (Electricity (grid), Solar, Generator...)		
114	Does the tablet currently have connectivity?	1.Yes 2.No	
115	If yes, can it adequately support data synchronization?		
116	If no, for how long mobile data connectivity has interrupted?		

SECTION III: UTILIZATION OF eCHIS

	Question	Response/ Answer	Skip
301	If YES how do you use the eCHIS information in your case team/ institution	1. Planning. yes/no 2. Budget allocation. Yes/no 3. Requisition of manpower. Yes/no	

		4. Calculation of area coverage. Yes/no 5. Monitoring & evaluation. Yes/no 6. Medical supplies management. Yes/no 7. Organize feedback. Yes/no 8. Evidence-based decision-making. Yes/no	
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SECTION IV: ORGANIZETONAL FACTORS INFLUENCING USE eCHIS

	Question	Response/ Answer	Skip
	Support		
401	Have you received support from PHCU in the last quarter?	1. No 2. Yes	
	Have you received support from WorHO in the last quarter?	1. No 2. Yes	
	Have you received support from Regional health office in the last quarter?	1. No 2. Yes	
	Have you received support from others on eCHIS supporting organizations in the last quarter?	1. No 2. Yes	
402	If yes to Q401 .1, have you received written feedback?(see Document)	1. No 2. Yes	
403	Have you received support eCHIS manual/guideline	1.yes 2. no	
404	If yes do you use the manual or guideline	1.yes 2.use	

SECTION V: BEHAVIORAL FACTORS INFLUENCING USE eCHIS

	Question	Response/ Answer	
Attitude, perception of quality of system and benefit towards e-CHIS			
504	eCHIS increase practice productivity (i.e. Patients/day)	1. Strongly Disagree 2. Disagree 3. Neutral 4. Agree 5. Strongly Agree	
505	eCHIS improve quality of work practice (i.e., work-life)	1. Strongly Disagree 2. Disagree 3. Neutral 4. Agree 5. Strongly Agree	
506	eCHIS improve quality of care	1. Strongly Disagree 2. Disagree 3. Neutral 4. Agree 5. Strongly Agree	
507	eCHIS reduces hard work	1. Strongly Disagree 2. Disagree 3. Neutral 4. Agree 5. Strongly Agree	
508	eCHIS need more time for training	1. Strongly Disagree 2. Disagree 3. Neutral 5. Strongly Agree	
509	eCHIS benefits outweigh the cost	1. Strongly Disagree 2. Disagree 3. Neutral 4. Agree 5. Strongly Agree	
510	eCHIS impacts the cost of service	1. Strongly Disagree 2. Disagree	

		3. Neutral 4. Agree 5. Strongly Agree	
511	eCHIS improve the confidentiality of patient information	1. Strongly Disagree 2. Disagree 3. Neutral 4. Agree 5. Strongly Agree	
512	eCHIS is more complex than paper-based record	1. Strongly Disagree 2. Disagree 3. Neutral 4. Agree 5. Strongly Agree	
513	eCHIS helps in avoiding errors	1. Strongly Disagree 2. Disagree 3. Neutral 4. Agree 5. Strongly Agree	
514	eCHIS should be implemented at large	1. Strongly Disagree 2. Disagree 3. Neutral 4. Agree 5. Strongly Agree	
515	CHIS enables me to accomplish tasks more quickly	1. Strongly Disagree 2. Disagree 3. Neutral 4. Agree 5. Strongly Agree	
516	eCHIS has made it easier to provide health extension services	1. Strongly Disagree 2. Disagree 3. Neutral 4. Agree 5. Strongly Agree	

517	I find eCHIS to be useful for my job	1. Strongly Disagree 2. Disagree 3. Neutral 4. Agree 5. Strongly Agree	
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SECTION VI: LEVEL OF KNOWLEDGE IN THE USE OF eCHIS

S.no	Question	Response	Mark
602	Does the HEW have any difficulties on how to manage the device (Date and time setting and other (specify)?	Yes/no	
603	Does the HEW know how many active buttons are there on the eCHIS app home screen and their functions? (Start, log out & synch button)	Yes/no	
604	Does she know how to change language and how to check app version? (ask her to demonstrate) Does the HEW know all modules on the START button on the eCHIS app home screen? (Please ask the function of each module	Yes/no	
605	Does the HEW know how to register new household using the app?	Yes/no	
606	Does the HEW know how to assign head of household and change Supportive supervision	Yes/no	
607	Have you received support from PHCU and/or WorHO and others on eCHIS in the last quarter?		
608	If yes to Q610, have you received written feedback?(see Document)		
609	Have you received support WorHO and others on eCHIS in the last quarter		
610	Have you received support from region health office last quarter		
611	Have you received others on eCHIS in the last quarter		

SECTION VII: Technology related factor

S.no	Question	Response	Mark
Perceived Ease of Use and eCHIS design complexity			
701	My interaction with eCHIS in doing my task is clear and understandable	1=Strongly Disagree 2=Disagree 3=Neutral 4=Agree 5=Strongly Agree	
702	Overall, eCHIS is easy to use	1=Strongly Disagree 2=Disagree 3=Neutral 4=Agree 5=Strongly Agree	
703	Work with eCHIS was easy for me	1=Strongly Disagree 2=Disagree 3=Neutral 4=Agree 5=Strongly Agree	
704	The use of eCHIS for my daily duty does not confuse me	1=Strongly Disagree 2=Disagree 3=Neutral 4=Agree 5=Strongly Agree	
705	eCHIS is easy to navigate	1=Strongly Disagree 2=Disagree 3=Neutral 4=Agree	

		5=Strongly Agree	
706	Using eCHIS enables me to have more accurate information	1=Strongly Disagree 2=Disagree 3=Neutral 4=Agree 5=Strongly Agree	
707	e-CHIS design is easy to use	1=Strongly Disagree 2=Disagree 3=Neutral 4=Agree 5=Strongly Agree	

Qualitative part

1. Has the eCHIS project been a success or a failure or some combination? Describe where you have realized success and where it is deemed a failure.

2. Challenges/Gaps faced during utilization

3. Describe any Lesson learnt during the utilization

4. Does the organization have an adequate budget for Echis

5. What do you suggest workable solutions or recommendations solve the above problems?

6. Describe additional support you require

Bitima

Gola III: Sidaamu afii xa'mo

Buuxote mashalaqqe qoolanna sumimmete forme

Qara buuxote investigeetere/Principal Investigator/ su'ma: Kidest Fekadu

Urrinshate su'ma: - Hawassa University

Sponsorsorete su'ma: -----

Su'maya Kidest Fewkadu yaamameemma. Hawaasi yuniversitye Mediisinetee kolleejjera layiinki diri 'Master of Public Health' roosaanchooti. Xaa yannara Maasterse'ya thesis Sidaamu Qoqqowira Tophiyaho 'eCHIS' appe horoonsi'nanni garanna amadisiisamino qarra(master's thesis on eCHIS utilization and associated factor among health extension worker) lainohunni Xeenaa extenshiinete loosaasine/HEW/ aana loosanni afameemma. Anfummonte gede, 'eCHIS' appe gobboomu deerrinni hananfoonnihu 2018 kayiseeti. Ikkollana kayiinni, hendoonni garinni agarroonni garinni diharinsoonni. Elekitroonik meedikaali rikerde/Electronic Medical

Record(EMR) horoonsire dooramino fayyimmate xaawira konne qarra/ foonqe tirate anera lowo hasatto nooe. Tini buuxo gobboomu deerrinni ‘eCHIS’ progiraame horoonsirate aana noo qarra tiratenna ‘eCHIS’ progiraame halashshatenna faajje assate fayyimmate xaawira ikko hattono fayyimmate biirora lowohunni horo uyiitanno yine hendanni. Su’makki diegeniisanni, hattono aattonke mashalaqqe baalate wolu hajo la’annonsakki bissara sayiinse uyiinannikki daafira umokki egensiisatenni ate miicannori nookki gede buuxa hasiisanno. Tenne buuxote xa’mora fajjamaancho ikka hoogittoro aye yannarano agura dandaatto. Tenne buuxoti qara hajo, akatu soorronna iillishshanno guma(ethical issues and its significance) yitannotenni kolleejjete fayyimmate sayiinse ‘Ethical Review Board’ kaajjinshoonni. Ate tenne buuxote beeqqora koyiisa dandiinoonnihe korkaati ‘eCHIS’ egennora lowo rosichi heerannohe yine hendoonnihe daafiraati. Roore mashalaqqera/xa’mora bilbili. Kidest Fekadu- Bilbilu kiir- 0927146731 Email- kidestf84@gmail.com.

Tenne buuxora beeqqaancho ikkate fajjamaancho/volunteer ikkittoro woroonni malaatekki wori.

1. Barra Malaate
2. Mashalaqqe gamba assinohu su’ma Malaate
Beeqqaancho ikkakkira galateeffateemma.

GOLA I: Umosi egensiisanno mashalaqqe

Aantete kiir		Dawaro/qolo	Agure sa”a/skip
101	Loossanni afamatto uurrinsha su’ma		
102	Uurrinshate giddo nooheha Loosikki qeecha		
103	Diro		
104	Ateha rosikki deera	1. Deerra I(10+1) 2. Deerra II (10+2) 3. Deerra III (10+3) 4. Deerra IV (10+4)	
105	Xa loossanni afamatto bayiicho mageeshshi yanna ikkannohe?		
106	Me”e ikkitanno xeena ekistenshiine loosaasine		

	loossanno konni fayyimmate keellira?/ How many health extension workers work at this health post?		
107	Ateti adhammete danikki?	<ol style="list-style-type: none"> 1. Adhewooho(adhamin oho)/Married 2. Diadhinoho/Single 3. Gashshaanni lubbaminote/Widowed 4. Adhe tirinoho(adhame tiraminoho/Divorced) 	

GOLA II: UURRINASHANNITA eCHIS KEENO

	Qajeelshudeerra		Agure sa'a/skip
201	eCHIS qajeelsha adhite egennootto/ta?	<ol style="list-style-type: none"> 1) Ee 2) Dee'ni 	
202	Aliidixa'mo (13) dawarokki "Ee" ikkituro me"u barrira qixxeessinoonni?		
203	Hiittoo daninni qinaawino qajeelshu?	<ol style="list-style-type: none"> 1) Borrotenni calla 2) Borrotenninna praktikaaale/loose leellishatenni 	
204 4	Hiikkoye qajeelsha adhootto/ta?	<ol style="list-style-type: none"> 1. Wiliilchu/house hold woyi qaddo ikkino 	

		qajeelsha 2. RMNCH 3. TB 4. Shekkeere/Malaria nutrition	
204	Ate deerrinnie CHIS qajeelshahiittoogarinnideerraaattowoyila”atto?	1)Lowontadiduushshino 2)diduushshino 3) dachaho 4)lowontanni danchaho	
205	Adhooatto qaleelshi duushshino yite hedatto?	1)Lowontanni sumuuyee 2) Sumuuyee 3) Sumuuyee 4) lowontanni sumuuyee	
	ICT loosuxinta/ICT Infrastructures,	Dawaro /qolo	
207	Mageeshshi HEWs taabileete adhino/iillitinonsa kunni Fayyimmate xaawira/HP?	_____	
208	Taabileete horoonsira hanafootta?	Ee Dee’ni	
209	eCHIS appe haaroonsine xaa yannahu ledoxaadinsoonni/updated to the latest linked app?/ (xaadeerraxawisi_____)		
210	Yannanna barra taabileetekki aana taashshinooni?(Buuxiri)	Ee Dee’ni	
211	Taabileetekki SIM kaarde no?(Buuxiri) danasaxawisi(M2M or standard SIM)	1.Ee 2.Dee’ni	
212	Dawarokki “Ee” ikkituro, taabileetekki bilchaata ikkitino kaarde noose?/ If yes, does the tablet have active air time?	1.Ee 2.Dee’ni	
213	HEW		

	Taabileetewonshatehoroonsidhannotiqaaddoikitinoticaabbichuw olqahiittenneeti?(Electricity (grid), Solar, Generator...)		
114	Taabilettkkira xaa yannara xaadooshshu buusi noose?/ Does the tablet currently have connectivity?	1.Ee 2.De'e'ni	
115	Dawarokki "Ee" ikkituro, data danchu garinni loossanno?/If yes, can it adequately support data synchronization?		
116	Dawarokki "Dee'ni" ikkituro mageeshshi yannara moobayiilete daati qarrisannohe?/ If no, for how long mobile data connectivity has interrupted?		
117	Taabileetesera Loosannokki daati noonni? Eetiro, me'e hige?/ Is there unsynchronized data on her Tablet? If yes how many? _____		
118	ikkituro,hiittenne neetworke woyi ranke dana horoonsiratto?/which net work type you use?	1. 2G 2. 3G 3. 4G 4. 5G	

GOLA III: eCHIS HOROONSIRATE DEERRA

	Xa'mo	Dawaro/qolo	Agu re sa'a
301	eCHIS data uurrinshakkira horoonsidhe egennootto	1) Ee 2) Dee'ni	
302	eCHIS dandoote keenora horoonsidhe egennootto?/ Have you ever used eCHIS Data for performance monitoring	1) Ee 2) Dee'ni	
303	eCHIS daati atera woyi heeratto qooxeessira horaanno yite hedatto?/ IS eCHIS data important to you or your area of work?	1) Ee 2) Dee'ni	

304	<p>Dawarokki “Ee” ikkituro eCHIS mashalaqqe ate keesitiimera/uurrinsharahiittoonnihoroonsiratto?(f aajjeikkinohadoori)/</p> <p>If YES how do you use the eCHIS information in your case team/ institution? (Tick what is applicable) /</p> <p>Duucha dawaro doora dandiinanni</p>	<ol style="list-style-type: none"> 1. Mixote golira/Planning 2. Baajeettete tuqishshira/Budget allocation 3. Mannu wolqa hasiisanno basera/Requisition of manpower. 4. Amadote bikka shalago loosate/Calculation of area coverage. 5. Keenotenna Qorqorate golira/Monitoring & evaluation. 6. Medical supplies management. 7. Qolo gamba assate/ Organize feedback. 8. Evidence-based decision-making. 9. wolootuheedhuroxawisi_____ 	
304	<p>Gumulaancho hedo sayiisate eCHIS qara kora ikkinori maati/ What factors favor the use of information in eCHIS for decision-making?</p> <p>Duucha dawaro doora dandiinanni</p>	<ol style="list-style-type: none"> 1. Taabileete heera/Availability of tablet 2. Networkenna interneetete horo/Network and internet services 3. wolqasuuqa/ Power backup 4. ICT irko la’nohunni kaa’loassa/ ICT Support Supervision 5. Seeru wodho/Conducive Policy and Legal Framework 6. Qajeeltinoloosu mini miilla/Trained staff 7. Aliidimassagotebissakaa’lo/Management Support 8. uurrinshate poletika/Organizational politics 9. wolootuno, 	
305	‘eCHIS’ horoonsidhe mashalaqqete gumulo aate	1. Taabileetete	

	<p>qarra ikkinori maati?(lamete alee higgino dawaro aa dandiinanni)/What factors favor the use of information in eCHIS for decision making? (multiple answers accepted)</p>	<p>heera/Availability of tablet</p> <ol style="list-style-type: none"> 2. Neetiworkenna interneetete horo/Network and internet services 3. Caabbichu wolqa ba'anno wotira suuqira/Power backup 4. ICT irko towaanyo/ICT support supervision 5. Injaabbino wodho kalaqa/Conducive policy and legal framework 6. Qajeeltinotino loosu mini miilla heera/Trained staff 7. Manaajimentete irko/Management support 	
306	<p>'eCHIS' horoonsidhe mashalaqete amadissisantino yoo sayiisatto gedde qara qarra ikkinohehu hiikkoyeeti?/</p> <p>What challenges are experienced in the use of information in eCHIS for evidence-based decision making?</p>	<ol style="list-style-type: none"> 1.gashshootu widiidi irko hooga/Lack of management support 2. horoonsiraanote widoonni duushshitinokki dandoo heera/Poor skills sets amongst users 3. ikkado ikkitino kompiwuutere hooga/Lack of adequate computers 4. interneetete horo duushshitinota ikka hooga/Unreliable internet services 5. babbaxxitino wolqa suuqi'nayiiri hooga/Lack of power back up 6.softiweereete antivayiirese hooga/Lack of antivirus software 7. soorrote dandoo hooga(ikkado ikka hooga)/Resistance to change 8. mashalaqqe co'ichonna taalado ikka hooga/Lack of accurate and quality data 	

GOLA IV: eCHIS HOROONSIRATE UURRINSHATE QARA QARRA IKKINORI

	Xa'mo	Dawaro/qolo	Aguresa'a
	Kaa'lo		
401	Sa'u sasu agannara PHCU widoonni kaa'lo/irko assine egenninoonnihe/kaa'lo afidhe egennootto?	1. Dee'ni 2. Ee	
402	Sa'u sasu agannara WorHO(Woradu fayyimmate ofiisere) widoonni kaa'lo/irko assine egenninoonnihe/kaa'lo afidhe egennootto?	1. Dee'ni 2. Ee	
403	Sa'u sasu agannara Qoqqowu fayyimmate Ofiisere(Regional Health Office) widoonni kaa'lo/irko assine egenninoonnihe/kaa'lo afidhe egennootto?	1. Dee'ni 2. Ee	
404	Sa'u sasu agannara 'eCHIS' irkissanno uurrinshate bissawiinni(eCHIS supporting organizations) kaa'lo/irko afidhe egennootto?	1. Dee'ni 2. Ee	
405	Dawarokki xa'mo 401 "Ee" ikkituro, borrote qolo/written feedback/ adhite egennootto? (see Document)	1. Dee'ni 2. Ee	
406	Maanuwaale/guideline kaa'lo adhite egennootto?	1 .Ee 2 Dee'ni	
407	Dawarokki "Ee" ikkituro, maanuwaale/guideline horoonsiratto?	1.Ee 2.Dee'ni	
408	Sumimmete kaa'lonna massago poletiku bissa widoonni noota hiittoonni bikkatto? Poletiku xaaddo(political commitment)	1. lowontanni sumuu diyeemmo 2. sumuu diyeemmo 3. sumuu yeemmo 4. lowontanni sumuu yeemmo	

409	Co'icha ikkitinota qeecho fula lainohunni gumulaancho hedo sayiisate/aate aana noota hiittonni bikkatto?/ How do you rate your agreement on the existence of clear roles and responsibilities related to decision-making/	1. lowontanni sumuu diyeemmo 2. sumuudiyeemmo 3. sumuu yeemmo 4. lowontanni sumuu yeemmo	
410	Ikkadu garinni eCHIS horoonsiratenna ikkadimmase aana qajeeltino loosu mini miila heeransa hiittonni bikkatto? /utilization/implementation?	1. lowontanni sumuu diyeemmo 2. sumuu diyeemmo 3. sumuu yeemmo 4. lowontanni sumuu yeemmo	
411	Kaa'lote irko noohe sumimmeYanna murroonitanna barru baala ikkase hiittonni bikkatto? How do you rate your agreement existence of Regular and scheduled supportive supervision?	1. lowontanni sumuu diyeemmo 2. sumuu diyeemmo 3. sumuu yeemmo 4. lowontanni sumuu yeemmo	

GOLA V: eCHIS HOROONSIRATE QARA KORA IKKITINOTI AKATU SOORRO

	Xa'mo	Dawaro/qolo	
501	eCHIS horoonsidhe Daata eessatenna analiisise loosate aana noohe dandoo hiittonni bikkatto?/perform e-CHIS related activities such as data entry, analysis	1. lowontanni sumuu diyeemmo 2. sumuudiyeemmo 3. sumuuyeemmo 4. lowontanni sumuuyeemmo	
502	eCHIS horoonsidhe tiro anno garinni loosate aana noohe dandoo hiittonni bikkatto?/perform e-CHIS related activities such as interpretation	1. lowontanni sumuu diyeemmo 2. sumuu diyeemmo 3. sumuu yeemmo 4. lowontanni sumuu yeemmo	
503	Fayyimmate mashalaqqe agarate aana noohe kakka'ooshshe hiittonni bikkatto?/ How do you rate your agreement on the level of motivation to create and keep health information for use?	1. lowontaani diduushshinoho 2. diduushshinoho 3. Mereerimaho 4. Lowoho 5. Addintanni lowoho	

Fayyimmate ogeeyye loosaasine eCHIS la"ooshshenna akata/ Attitude and perception of health care providers towards Echis

504	eCHIS loosuguma loose leellishedandooledanno/ eCHIS increase practice productivity (i.e. Patients/ day)	1. lowontanni sumuu diyeemmo 2. sumuu diyeemmo 3. sumuu yeemmo 4. lowontanni sumuu yeemmo	
505	eCHIS loosu isilanchimma leddanno/eCHIS improve quality of work practice (i.e., work-life)	1. lowontanni sumuu diyeemmo 2. sumuu diyeemmo 3. sumuu yeemmo 4. lowontanni sumuu yeemmo	
506	eCHIS xissamaanote mashalaqqe amadate isilanchimma leddanno/eCHIS improve quality of care	1. lowontanni sumuu diyeemmo 2. sumuu diyeemmo 3. sumuu yeemmo 4. lowontanni sumuuyeemmo	
507	eCHIS lowo wolqa xa'manno loosinni harancho yanna giddo gumulate kaa'litanno/eCHIS reduces hard work	1. lowontanni sumuu diyeemmo 2. sumuu diyeemmo 3. sumuu yeemmo 4. lowontanni sumuuyeemmo	
508	eCHIS qajeelsha adhate yanna adhitanno/eCHIS need more time for training	1. lowontanni sumuu diyeemmo 2. sumuu diyeemmo 3. sumuu yeemmo 4. lowontanni sumuu yeemmo	
509	eCHIS fultanno fulonni horaameeyye assitanno/ eCHIS benefits outweigh the cost	1. lowontanni sumuu diyeemmo 2. sumuu diyeemmo 3. sumuu yeemmo 4. lowontanni sumuu yeemmo	
510	eCHIS horoonsira woxu fulo aana soorro abbitanno/ eCHIS impacts the cost of service	1. lowontanni sumuu diyeemmo 2. sumuu diyeemmo 3. sumuu yeemmo 4. lowontanni sumuu yeemmo	
511	eCHIS xiwamaanote/xissamaanote mashalaqqe danchu garinni amadate lowo irko uyitanno/EMR woraqatu loosinni shiimare kaajjitanno	1. lowontanni sumuu diyeemmo 2. sumuu diyeemmo 3. sumuu yeemmo	

		4. lowontanni sumuu yeemmo	
512	Woraqatu aana loonse maareekkinanni loosinni roore 'eCHIS' kaajitanno/eCHIS is more complex than paper-based record	1. Lowontanni sumuu diyeemmo 2. Sumuu diyeemmo 3. Sumuu yeemmo 4. Lowontanni sumuu yeemmo	
513	eCHIS soro ajishate kaa'litanno/eCHIS helps in avoiding errors	1. lowontanni sumuu diyeemmo 2. sumuu diyeemmo 3. sumuu yeemmo 4. lowontanni sumuu yeemmo	
514	eCHIS hala'ladunni faajje assinooni/ eCHIS should be implemented at large	1. lowontanni sumuu diyeemmo 2. sumuu diyeemmo 3. sumuu yeemmo 4. lowontanni sumuu yeemmo	
515	'eCHIS' babbaxitino keeno shotu garinni horoonsireemmo gede fa'laasho uyiitannoe/eCHIS enables me to accomplish tasks more quickly	1. Lowontanni sumuu diyeemmo 2. Sumuu diyeemmo 3. Sumuu yeemmo 4. Lowontanni sumuu yeemmo	
516	'eCHIS' fayyimmate ekstenshiine looso shotu garinni harissanno/eCHIS has made it easier to provide health extension services	1. Lowontanni sumuu diyeemmo 2. Sumuu diyeemmo 3. Sumuu yeemmo 4. Lowontanni sumuu yeemmo	
517	'eCHIS' loosi'yara lowo horo/kaa'lo uyiitannoe gede afoommo/I find eCHIS to be useful for my job	1. Lowontanni sumuu diyeemmo 2. Sumuu diyeemmo 3. Sumuu yeemmo 4. Lowontanni sumuu yeemmo	

GOLA VI: eCHIS HOROONSIRATE AANA NOOTA EGENNOTE DEERRA/LEVEL OF KNOWLEDGE IN THE USE OF ECHIS

Aantete	Xa'mo	Qolo	Deerra/Mark
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kiiro			
601	<p>La'aabissara me"e higge sokkanno?(ajayi ajeenna barruyi lame higge sokkanno)</p> <p>How often she synch?(please note that she has to synch at least twice per day)</p>		
602	<p>HEW uduunnicho hiittoonni horoonsidhannoro xaadinose qarri nooni (barranna yanna taashshirate aana hattono wolootu (xawissona)/</p> <p>Does the HEW have any difficulties on how to manage the device (Date and time setting and other (specify)?</p>		
603	<p>HEW me"e buttons 'eCHIS' appe aana albiidi qoolira nooronna uyiitanno horonsa buuxidhino? (Start, log out & synch button)</p>		
604	<p>HEW Taabileetete Afoo hiittoonni soorinannironna/ change language/ appete suuda buuxidhanno/ check app version? leellishanno gede xa'mise (ask her to demonstrate)</p> <p>58 3.9 HEW 'eCHIS' appera albiidoonni noota fannanni bayiicho affino(mitte mittennita horose xa'mi)/Does the HEW know all modules on the START button on the eCHIS app home screen? (Please ask the function of each module</p>		
605	<p>HEW 'eCHIS' appe horoonsidhe Minu wiliilchu kiironni borreessa egentino?/does the HEW know how to register new household using the app?</p>		
606	<p>HEW minu manna hiittoonni maareekinannironna soorinanniro huwattino?/ how to assign head of household and change</p>		
607	<p>HEW minu woyi wiliilchu anna mitto mittoho maareekkinoonni buuxidhino/Does the HEW know whether the head of HH assigned or not for specific HH?(check if she knows the icon for head of HH</p>		
608	<p>Borreessamino woyi maareekkamino manniha maatensa buuxidhino?/Does the HEW know how to register household members for the registered households?</p>		

609	Kaa'lo/support		
610	eCHIS lainohunni Sa'u sasu agannara PHCU woyi WorHO widoonni kaa'lo afidhe/assine egennootto/egenninoonnihe/		
611	Xa'mote kiiri 5.1 Dawarokki "Ee" ikkituro, borrotenni tumo borreessine egenninoonnihe? Borro la"i(see Document)		

GOLA VII: Tekinolloje la"inhunni xaadanno qarra/Technology related factor

Aantete kiiri	Xa'mo	Qolo/dawaro/response	Guma/Mark
Horaammeette ikkitinota 'eCHIS' Buuxonna kalaqo/ Perceived Ease of Use and eCHIS design complexity			
701	Looso'ya keenate 'eCHIS' ledo noo"e xaadooshshi xawashshohonna shotu garinni leellannoho/My interaction with eCHIS in doing my task is clear and understandable	1=Lowontanni sumuu diyeemmo 2=Sumuu diyeemmo 3=Hedo beeqqannokkiho/aannokkiho/Neutral 4=Sumuu yeemmo 5=Lowontanni sumuu yeemmo	
702	Konni baalunkura, horoonsirate 'eCHIS' shotate/Overall, eCHIS is easy to use	1=Lowontanni sumuu diyeemmo 2=Sumuu diyeemmo 3=Hedo beeqqannokkiho/aannokkiho/Neutral 4=Sumuu yeemmo 5=Lowontanni sumuu yeemmo	
703	Ani 'eCHIS' horoonsire shotu garinni horoonsira dandeemmo/Work with eCHIS was easy for me	1=Lowontanni sumuu diyeemmo 2=Sumuu diyeemmo 3=Hedo beeqqannokkiho/aannokkiho/Neutral 4=Sumuu yeemmo 5=Lowontanni sumuu yeemmo	
704	'eCHIS' horoonsire barri'ya loosate loosate soro	1=Lowontanni sumuu diyeemmo 2=Sumuu diyeemmo	

	diabbitannoe(diessitannoe)/The use of eCHIS for my daily duty does not confuse me	3=Hedo beeqqannokkiho/aannokkiho/Neutral 4=Sumuu yeemmo 5=Lowontanni sumuu yeemmo	
705	'eCHIS' Daassesaho(navigate) shotu garinni horoonsira dandiinanni/eCHIS is easy to navigate	1=Lowontanni sumuu diyeemmo 2=Sumuu diyeemmo 3=Hedo beeqqannokkiho/aannokkiho/Neutral 4=Sumuu yeemmo 5=Lowontanni sumuu yeemmo	
706	'eCHIS' horoonsira'ya anera taalo ikkitino mashalaqqe heedhannoe gede fa'laasho uyiitannoe(kaa'litannoe)/Using eCHIS enables me to have more accurate information	1=Lowontanni sumuu diyeemmo 2=Sumuu diyeemmo 3=Hedo beeqqannokkiho/aannokkiho/Neutral 4=Sumuu yeemmo 5=Lowontanni sumuu yeemmo	
707	'eCHIS' kalaqo shotu garinni horoonsi'nannite/e-CHIS design is easy to use	1=Lowontanni sumuu diyeemmo 2=Sumuu diyeemmo 3=Hedo beeqqannokkiho/aannokkiho/Neutral 4=Sumuu yeemmo 5=Lowontanni sumuu yeemmo	

Isilanchimmate paarte/gaamo

1. eCHIS uyiitanno horo maati?

2. Horoonsirate aana xaaddanno qarranna foonqe/Challenges or Gaps faced during utilization

3. Horoon sidhanni rosoottoha rosicho xawisi/Describe any Lesson learnt during the utilization

4. Ikkado ikkitinoti eCHIS baajeette uurrinshate noose/Does the organization have an adequate budget for eCHIS

5. Aliidi qarra tirate ikkannoha woyi woyyitanno hedo maati?/What do you suggest workable solutions or recommendations solve the above problems?

6. Ledote kaa'lo hasirattoha ikkiro xawisi
