



JIMMA UNIVERSITY
INSTITUTE OF HEALTH, FACULTY OF PUBLIC HEALTH
DEPARTMENT OF HEALTH POLICY AND MANAGEMENT

**ROUTINE HEALTH INFORMATION UTILIZATION AND ASSOCIATED
FACTORS AT GOVERNMENTAL HEALTH CENTERS IN JIMMA ZONE
ETHIOPIA**

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**THE RESEARCH THESIS SUBMITTED TO JIMMA UNIVERSITY
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JIMMA UNIVERSTIY

INSTITUTE OF HEALTH, FACULTY OF PUBLIC HEALTH DEPARTMENT
OF HEALTH POLICY AND MANAGEMENT ROUTINE HEALTH
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A RESEARCH THESIS TO BE SUMMITTED TO JIMMA UNIVERSTIY INSTITUTE OF HEALTH,FACULTY OF PUBLIC HEALTH, IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF PUBLIC HEALTH IN HEALTH SERVICES MANAGEMENT(MPH-HSM) ESPECIALITY.

AGUEST, 2020
JIMMA, ETHIOPIA

DECLARATION

I hereby declare that this research is my original work and all sources of material used in the document have been duly acknowledged

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As principal advisors, I have reviewed and approved the thesis for examination.

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Date: - _____

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Acronyms

AOR- adjusted odds ratio
ART- anti-retroviral therapy
CI- confidence interval
DIPH -data-informed platform for health
HCS- health centers
HIS- health information system
HIV- human immune deficiency virus
HMIS- health management information system
Lab-laboratory
MNCH- maternal, neonatal and child health
OPD-outpatient department
SPSS-statistical package for social sciences
TB-tuberculosis
WHO-World Health Organization.

Abstract

Background: Routine Health Information system (RHIS) is an important mechanism, to identify gaps in the management of the health system, and resolve them to maintain and improve performance. it plays an important role in effective and efficient health service delivery and decision making, regard to World Health Organization routine health information system an integral component of any health care system as it provides the context with which effective data collection, analysis and reporting of health information. Effective data analysis, interpretation, and utilization of information at all levels of the health system is very important for evidence-based decisions.

Objectives: To assess the status of routine health care information utilization and associated factors at Governmental Health Centers in Jimma zone, Oromia, Ethiopia, from 10 March-10 April 2020 G.C.

Methods: Institution based cross-sectional study was conducted from 10 March-10 April 2020 in randomly selected sixteen governmental health centers of Jimma Zone, Oromia Regional state

The Single population proportion formula was used to obtain a sample of 380 health professionals.

The sample allocated to health centers proportional to their population of interest. ‘

The data collection procedure was employed using quantitative and qualitative method. In quantitative method self-administered structured questionnaire were used. Data entry were made using the Epidata 3.1 software. Dichotomous Variables in bivariate analysis whose p value is less than 0.25 were included in multi variable. Finally, variables whose p value less than 0.05 ($p < 0.05$) in logistic regression were considered as statistically significant association and the strength of association were interpreted by using adjusted odds ratio.

Results: Of all 380 study participants, only 125 (33.0%) routinely used facility health information; for formal training AOR=7.03(1.88-26.38), computer access AOR=3.37(1.12-8.50), supportive supervision AOR=7.80(4.91-12.63), availability of HMIS guideline and formats were important factors affecting health information utilization.

Conclusions: In this study, the overall health information utilization of health centers were low compared to previous studies. The use of health information system influenced by formal training, computer access, HMIS formats, guidelines and supervision were determinants of health information utilization. Improving computer access, training and supportive supervision are crucial to solve the problem.

Keywords: health information use; determinants; health centers; Jimma zone; Ethiopia.

CHAPTER ONE: INTRODUCTION

1.1. Back ground

Routine Health Information system (RHIS) is a system that integrates data collection, processing, reporting, and use of the information necessary for improving health service effectiveness and efficiency through better management at all levels of health services. It is an important mechanism, to identify gaps in the management of the health system, and resolve them to maintain and improve performance. With timely complete and accurate information, managers can identify strength and weakness of health system functions and services, and take appropriate actions to maximize success. However, the system designed to track health data often falls short [1].

Routine Health Information system is the backbone for planning and management of health services at district levels as it can play an important role in effective and efficient health service delivery, decision making, and the improvement of the program [3–6].

Health management information system (HMIS) is a means that allows collection and storage as well as analysis and usage of health data that assist decision makers and stake-holders to manage and plan resources at all levels. It is also used to improve patient satisfaction with health services by tracking certain dimensions of service quality. However, the value of health information is determined by its utilization in decision-making; data generated at peripheral levels of the health system usually put in reports and shelves are not sufficiently utilized to improve health care [5].

Most health workers in developing countries associate information system with filling endless registers by names and addresses of patients, compiling information on disease every week or month, and sending reports to the next level without adequate utilization and feedback [7–11].

Effective data analysis, interpretation, and utilization of information at all levels of the health system is very important for evidence-based decisions [2]. Though, in resource limited countries where evidence based decision through better information system is highly required, routine health information system utilization is low [7,8, 12, 13]. In Africa, the level of health information utilization has been poor, ranging from 10 to 56% [14–20]. In Ethiopia, information quality and use remain weak within the health sector, particularly at the peripheral levels of districts and health facilities which have primary responsibilities for operational management [21].

As a result, most managerial decisions are being made without evidence, resulting in the failure of many health programs, perhaps because the information system in the country is cumbersome and fragmented. According to the 2002 review, health information systems at district health facility levels are weak, leading to poor quality data reporting to the next level without feedback and use [22]. Literature shows that routine health information utilization can be affected by organizational factors [23] and technical and behavioral characteristics of health workers [2]. Among the influential factors, health workers' data analysis skills [19, 24, and 25], regular supervision, and feedback [19, 25, and 26] are markedly associated with routine health information utilization.

Evidence based decision making through health information system utilization has become the top priority on the agenda of the government of Ethiopia and its development partners. Ethiopia has been strongly committed to strengthen the national Health Information System (HIS) through HMIS, and monitoring and evaluating (M&E) performance. Thus, the policy has identified Health Management Information System (HMIS) as a key component for a successful implementation of the Health Sector Development Program (HSDP) strategic plan.

Ever since the implementation of HMIS in 2008, the Ministry of Health has distributed guidelines, built capacity on health data, and established a standardized and integrated data collection and reporting formats. In addition, the use of information, and appropriate technology has been considered as critical factors for strengthening and improving health sector management information system (HMIS) [21].

Data that are accurate, complete and delivered on time to users is an important aspect in healthcare planning, management and decision making but quality of data is frequently assessed as a component of the effectiveness or performance of the HIS; however, data quality assessment is hidden within these scopes. This may lead to ignorance of data management and thereby the unawareness of data quality problem (27-32). Therefore, this study aims in assessing the current status of the routine health information system data quality and associated factors in Jimma Zone health centers.

Routine health information utilization system is also advantageous in creating opportunity for decision-making, strategic planning and budget allocation. Although it is an important, in many health systems was neglected. In Ethiopia, few studies done on the HMIS. These studies focus on the governmental health centers. Hence, this study was aimed to assess the routine health information utilization of governmental health centers and identify its associated factors. The result helps the health managers to consider during their planning and implementations.

1.2. Statement of problem

The major problems that contribute failure of HMIS serve its purposes and meet its objectives are lack of attention given to HMIS, shortage of resource , lack of strategic direction as well as lack of integration, absence of standards and guidelines, inadequate staffing and poor ownership, World Health Organization are inadequate use of existing information (7).

The study from South Africa showed that, there were lack of information-use by health workers to drive programs, improve services delivery, and inform decision making for developing action plans (33).

Sub-Saharan African countries recognized and accepted health management information system (HMIS) as a source of routine health information. However, health programs frequently fall short of its efficient use to inform decisions (34). Further studies from this region showed that health workers usually spend 40% or more of their time in filling HMIS forms but make little use of the information from this system (19).

One of the most frequently reported reason for such low use is the HMIS that is fragmented, complex, and do not fully respond to information needs of the user (34). Despite increasing the availability of health information, many decisions made by health sector in terms of planning and resource

allocation for managing programs are still not based on this evidence (25). Nationally this inadequate use of routine health information generated from Routine Health Information System (RHIS) is alarming, considering the investments made and resources channeled towards collecting such information (40).

Other part of the problem related to routine health information utilization is that the RHIS that often do not provide the information needed to improve health system because of the traditional assessment that look narrowly at technical issues such as data collection methods or information technology (41).

Utilization of health information goes beyond health sector in which health information is a base for different decision made in various sectors like communities, consumer groups, and non-governmental organizations (26). It is vital for operational, tactical and strategic decision making. However, poor RHI utilization remain the major concerns (18).

Health information are generated at each level of the health system and then submitted to each next subsequent level without adequate use for performance improvement at the point of generation (28). Health workers are either not utilizing routine health information at all or not in a best way to drive planning, performance management, and the delivery of services.

This creates hindrances to efficiency and effectiveness of health care delivery (15, 22). Even though there are gaps in the utilization of routine health information, the level of utilization and the associated factors with routine health information use are not sufficiently identified.

Considerable research has been conducted in routine data collection and ways to improve data quality but studies on routine health information utilization and associated factors are limited in Ethiopia in general and in the study area in particular.

1.3. Significance of the study

The aim of this study were to assessing routine healthcare data information utilization level and associated factor among public health centers in Jimma zone. The findings of this study were important to Jimma Zone Health Department, and it is particularly important for the studying health facilities to know about their health information use status and associated factors so that appropriate interventions can be made to scale up health centers' evidence-based practice to identify opportunity to improve the status of health information utilization level and also provide the information to program managers ,researchers, non- governmental organization and policy makers working towards health system utilization. The study were used to identify the routine healthcare data information utilization level and associated factor with the hope that the findings were help to give effective service measures and eventually improve their outcome.

CHAPTER TWO: LITERATURE REVIEW

2.1. Overview of health information in Ethiopia

The Ethiopian Federal Ministry of Health emphasized HMIS as a key to a successful implementation of the Health Sectors Transformation Plan (HSTP) and achieving the Sustainable Development Goals. Considering this initiative, the Ethiopian Health Sector Strategic Plan underlined that routine data generated at district health facilities should be considered as the entrance to utilizing health information and a primary source of information for continuous monitoring of health services in the country, and that data should be utilized at the place where it was generated (42).

Health information has an important role to support health sector and other government agencies (20). It is tracked from diverse sources. While the routine health information is managed primarily by the federal minister of health (FMOH), population based information comes predominantly from the central statistical agency (CSA).

2.2. Level of utilization of routine health information.

A study conducted in India underlined that even though health information utilization depends on data analysis skills, organizational factors play a great role in exercising the skills (38).

A range of literatures showed that routine health information is utilized by health workers for planning, monitoring and evaluation and for making decision (32). Studies showed that routine health information collection, analysis, utilization and communication are poor in Sub-Saharan Africa countries like in Ethiopia (33) and Kenya (19).

The finding from Africa indicated that utilization of routine health information is low. Studies demonstrated that health information utilization was 53% in South Africa (33), 38% in Cote D'Ivoire(34),66% in Kenya (27),58% in Tanzania(44). In these countries, overall utilization of routine health information was mainly for planning, detecting outbreak and monitoring of performance.

A systematic review study in Ethiopia showed that information utilization was 37 % (20). Studies from different parts of Ethiopia showed different level of utilization, 38.4% in Northern Ethiopia (19), 57.9% in East wollaga (22), 78.5% in Northern Gondar zone (30). Other studies conducted in Addis Ababa indicated that HMIS data utilization was limited and focused on data collection and reporting to the respective bodies (10).

An institution-based cross-sectional study was conducted by Shiferaw et al. from April to May, 2013, in government health facilities of East Gojjam Zone. This study reported that the Odds of routine health information system utilization was 2.72 times higher among health workers who had training on HMIS (19).

Likewise, studies from Jimma and Arsi district health facilities (Ethiopia) reported lower routine HMIS data utilizations for various purposes; 32.9 and 32.1%, respectively[20, 31].

2.3. Factors affecting utilization of routine health information

Routine health information utilization is influenced by factors with-in and out of the health information system. Some of key challenges include data quality information-system infrastructure, robustness of technology and culture of evidence-based decision making (39). Non user friendliness of HMIS formats and poor feedback from higher offices were causes to low HMIS utilization.

Poor data management skills, lack of management support, infrastructure, and migration of trained workers were stated factors to lower health information management and use at the health facility level (20). Here we describe implementation research to assess the feasibility of establishing the DIPH in the context of district health systems in five districts of India, Nigeria and Ethiopia (16).

The systematic literature review of district decision-making for health in low-income settings, with a particular focus on identifying good practice in formal health-system decision-making at the district level in terms of linking with HMIS data; priority-setting; consensus building among stakeholders; resource allocation in the context of centralized versus decentralized health systems; and follow-up on the implementation of decisions (15).

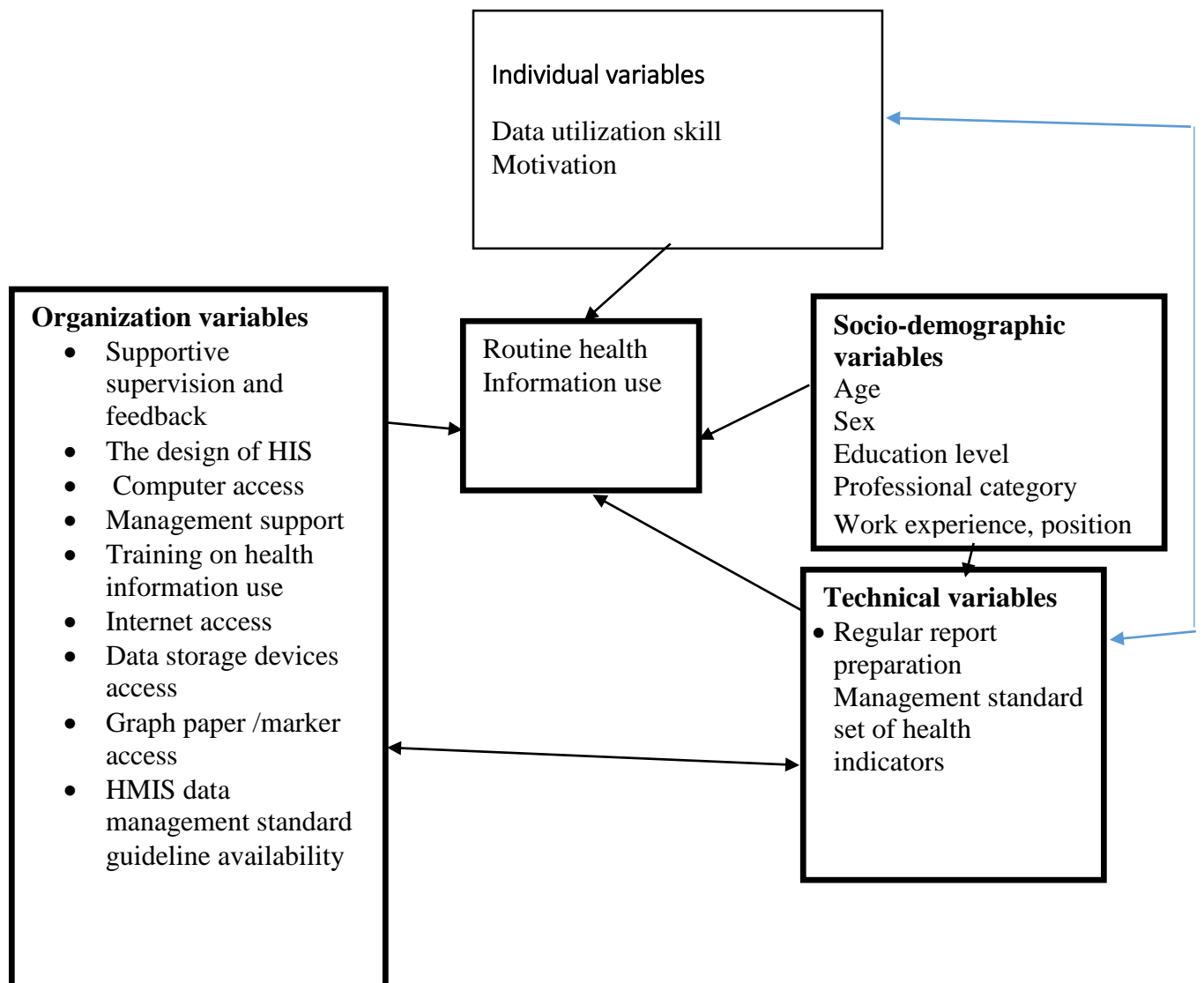


Figure 3 Conceptual framework developed after reviewing literatures (16, 19) on factors associated with routine health information utilization

Chapter three: Objectives

3.1 General Objective

- To assess the status of routine health care information utilization and associated factors at Governmental HC in Jimma zone, Oromia, Ethiopia from *10 March-10April 2020 G.C*

3.2 Specific Objective

- To assess magnitude of the routine health care information utilization
- To assess associated factor of the routine health care information utilization

Chapter four: Methods and Materials

4.1 Study Area and study period

The study was conducted at Governmental HC in Jimma zone from 10 March-10 April 2020 G.C. Jimma town, the capital city of the Zone is found at a distance of 352 km from Addis Ababa, capital city of Oromia regional state and Ethiopia.

The population gets health care service from one specialized hospital, three General hospitals, four primary hospitals, and 120 health centers. It contains twenty districts and one town administrations with total of 1411 health professionals of which 623 are working in selected fifty three public health centers in the zone.

4.2 Study design

Facility based cross-sectional study design were employed, in which the qualitative method was used to supplement findings from quantitative study selected from public health centers.

4.3 Population

4.3.1 Source population

The source population for this study included all health professions who were working in the Governmental HC of Jimma zone.

4.3.2 Study population

The Study population were all heads of selected public health centers and health professional who were working, during the study period, in the randomly selected governmental health centers that were found in districts which were selected from Jimma zone. For quantitative aspect, all randomly selected health care professionals in the study area were included.

4.4 Inclusion and exclusion criteria

4.4.1 Inclusion criteria

Health worker who had been practicing for at least six months preceding the survey period

4.4.2 Exclusion criteria:

A person who does not present during the study period (training leave or other forms of leave)

4.5. Sample size determination and sampling technique

4.5.1 Sampling size determination

The sample size for quantitative study were calculated using a single population proportion formula considering the following assumptions:-

$(Z_{1-\alpha/2})^2$ = the reliability coefficient 95% (i.e. 1.96) by taking p-value of 38.4% which is from study conducted at western Amhara regarding routine health information utilization(32).

Absolute precision (d) assumed to be 5%. Where N= 623

The sample size (n) was calculated using Fisher's *et al*, 2003. The formula was used to estimate the smallest possible categorical sample size $n = z^2pq / d^2$

Where:

n = desired sample size,

z = standard normal deviate, usually set at 1.96 which corresponds to 95% confidence level,

p = proportion of target population estimated to have a particular characteristic, to be measured which is 38.4 from the previous study proportion.

$q = 1 - p$ and

d = permitted error (5%, if the confidence level is 95%) = 0.05

Applying the formula, the required sample size was $n = 1.96^2 (0.384)(0.616) / 0.05^2 = 364$.

Because of the target population were 623 (*i.e. less than 10,000*), the finite population correction formula was used to determine sample size:

Therefore, the final sample estimate was $n_f = n / \{1 + (n/N)\} = 364 / \{1 + (364/623)\} = 230$

For non-response or low return rate (10%) the sample size was adjusted to 253 using design effect 1.5 getting the total sample size 380.

For qualitative aspect, purposive selection was conducted by considering their role in routine health information utilization in respective health centers.

4.5.2 Sampling technique

Since 30-50% of the populations are its representatives (13), out of 21 districts found in the zone, 30% of them (7 districts randomly selected due to resource related issues) were randomly selected using computer generating random numbers. Accordingly, Goma, Seka, Dedo, Manna, Nada, Mancho, Shabe district (totally 53 Hc). 30% of 53 HC, 16 HC, were selected proportionally from seven woredas. The randomly selected governmental health centers found in this districts are included in this study. Then 380 health professionals from the selected HCs, the number of health care providers for each health center were allocated using proportional allocation to size of number of professional in respective health center. Then randomly selected governmental health centers found in these districts are included in this study.

For qualitative aspect, Checklist for document review per health center were observed.

Sampling technique

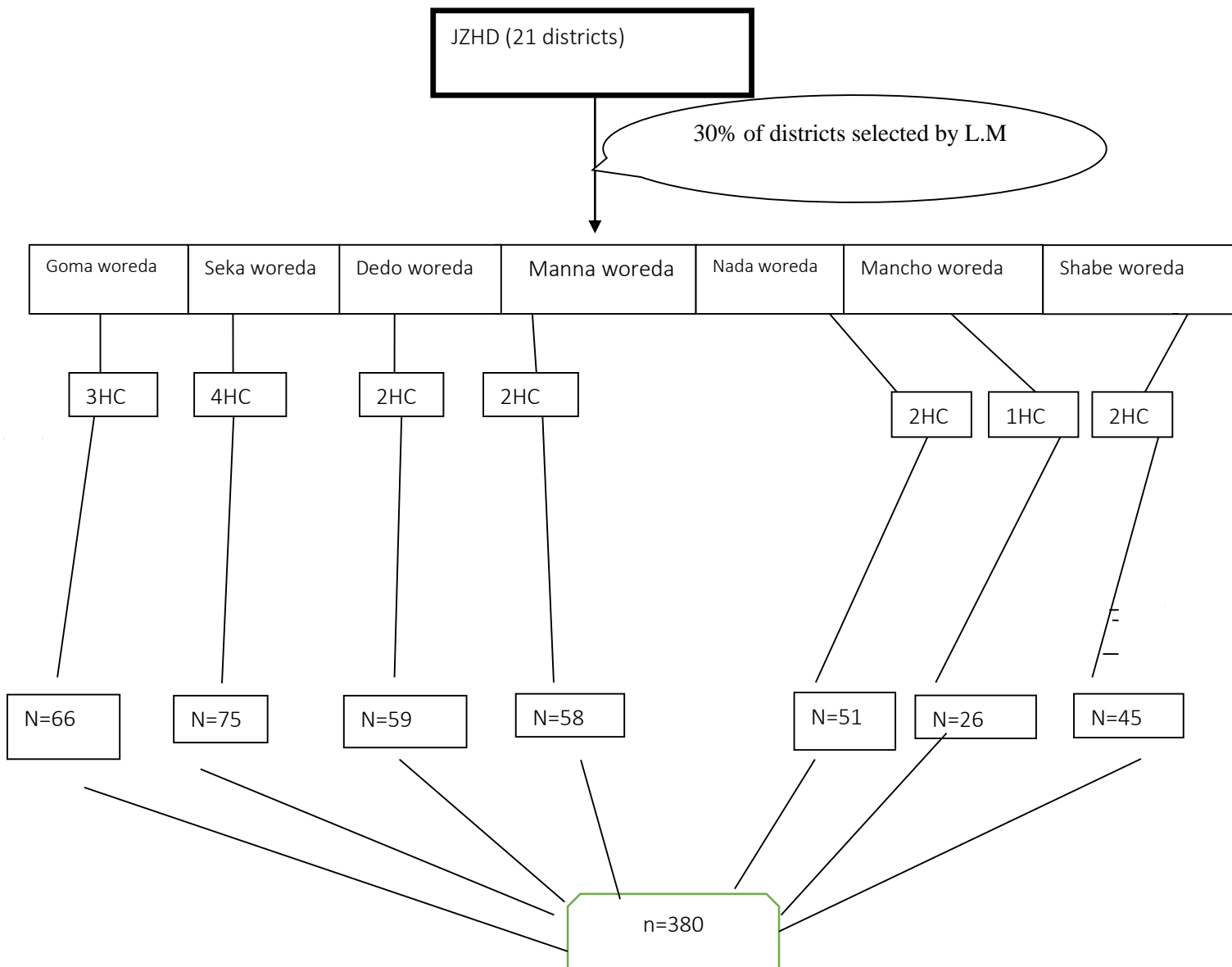


Figure 4 proportional allocation to selected governmental health centers in Jimma zone, 2020

4.6. Data collection Tools and procedures

4.6.1. Data collection instruments

The data collection procedure was employed using quantitative and qualitative method. In quantitative method self-administered questionnaires which were adapted from the performance of routine information system management (PRISM) tools on related topic and another literatures were used to collect data from the health professionals of the facilities (24).

Questionnaire is divided into five parts. The first part asks about socio-demographic of the respondents, second technical factors question, third facility related variables, fourth Individual behavioral factors of health professionals and, fifth Health information utilization in the study

health facilities. It was used to assess the status of routine health information utilization and associated factors from the respondents of 380 health professionals selected by allocating using proportional allocation to the size of numbers of professional to respective health centers.

The qualitative method involves observation to assess associated factors affecting routine health information utilization at selected areas. Checklists for observation and in-depth interview of managerial office and HMIS department the use of routine health information utilization during data collection period.

4.6.2. Personnel (data collectors)

Sixteen health officers collected all data from health centers and one supervisor from each selected district health office who is masters' holder in public health

4.6.3. Data collection methods

For quantitative data, self-administered structured questionnaire were used. For qualitative aspect, the facilitator uses checklists for observation. Before proceeding into data collection, data collectors were given a day training about general aim of the study and role of them after that ethical procedures were followed at each step during the course of data collection and necessary resources were assured by principal investigator.

4.7 Dependent and Independent variables

4.7.1 Dependent variables

Routine health information utilization

4.7.2. Independent variables

Socio-demographic factor

Age Sex, education level, and work experience, position in organization, professional category and income

Facility related variables

Supportive supervision, leadership, Computer access and routine health information evaluation

Technical Variables

Training on health information use, having standard set of health indicators and regular report preparation

Individual behavioral variables:

Data utilization skill

Motivation.

4.8. Operational definitions

Routine Health Information –for the purpose of this study routine health information is regularly collected information on services delivered, diseases diagnosed and administrative reports from public health facilities through HMIS and in the health facility level data, both from aggregated facility level records and from administrative sources, such as drug procurement records, enable health-care workers to determine resource needs, guide purchasing decisions for drugs, equipment and supplies, and develop community outreach.

Routine health information utilization when the study participant scored equal to and above 60% in the questions related to routine health information utilization for various purposes in the past six months. It is the variable calculated of ten items (use of routine health information for monitoring day to day health services activities, prediction of outbreaks, developing weekly plan, disease prioritization, resource mobilization ,detecting the cause of health problem in the community, displaying update information ,facilitating community mobilization , service delivery improvement ,drug procurement)(20).These were measured using items of 5-point Likert scale ,1 denoting strongly disagree and 5 denoting strongly agree. Percentage score were calculated for each individual participant by us summing scores on the routine health information items and then dividing by fifty which were potential maximum score.

(Actual value-1 x100

5-1

Finally the score were presented in percentages

“Good routine health information utilization ” when the study participant scored equal to and above 60% in the questions related to routine health information utilization (19)

“Poor routine health information utilization ” when the study participant scored below 60% in question related to routine health information (19)

4.9. Data management and analysis plan

The data were checked for completeness, coded, entered to Epi info and transferred to SPSS. The data were analyzed by using SPSS. Data frequency tables, graphs, charts & descriptive summaries were used to describe the study variables.

The data were checked by supervisors its completeness and consistency daily.

The SPSS version 20 (software) were used to edit and analysis the data.

Descriptive statistics were used to describe study objectives.

Different descriptive statistics were computed from observational data to support qualitative data findings. The output of the analysis is presented using adjusted odds ratio.

4.9.1. Data Quality Control

Data quality control was given for Supervisors that evaluate data daily before the next day activity.

Data quality assurance were conducted by using well designed checklist. Qualitative data were collected via observation of participants' offices using the observation checklist. It was managed by supervision of data collectors. The data were checked for completeness and consistency by researcher before receiving from the data collectors. Incomplete information on the checklist were managed by reviewing the participant. Supervision were couched by researcher. Pre-test of the data collecting format were carried out ten days prior to the actual data collecting time managed for poor health information utilization at Jimma zone health center by reviewing health center out of study area. All supervisors and data collectors were assessed for well understanding of filling the data collecting format, Pretesting the questionnaire, training the data collectors/supervisors, supportive supervision and making study participants clear on study objectives were activities to ensure data quality.

4.9.2. Plans for information dissemination

The result of this study were presented to Jimma University scientific community and submitted to the Department of Health Policy and Management. The findings were communicated to the local health planners and other relevant stake holders at districts at zonal level of the study area to access the recommendations to the stakeholders for possible considerations during their duties. Publications in peer reviewed journal will also be considered.

4.10. Ethical clearance

Ethical approval letter was obtained from Ethics Review Committee after reviewing the technical proposal and Institutional Review Board (IRB) of Jimma University institute of health. The objective of the study was explained and formal letter of permission were written for Jimma zone health department and then to district health offices. Informed oral consent were obtained from health center administrators and study participants after clear explanation on study objectives, data collection procedures, data confidentiality and their rights. Participation were fully voluntary based. No one were able to access data other than the investigator

To keep the privacy of participants their names are not included in the check list. Identification of the client were only possible through numerical codes.

5. Results

5.1. Socio demographic characteristics

In our study all selected governmental health centers were included in the study that means 16 health centers. Within these Health facilities there are around 423 health professionals.

Among the respondents 247(65%) were males, 286(75.3%) were within the age of 20-30 years old with a mean age of 28 years, 243(63.9%) of them are low-middle income and 161(42.4%) of them also have 5-10 year of services.

Distribution of level of education showed that health workers with BSc degree constituted 260(68.4%) and 108(38.4%) of the study unit were head of the respective departments. The majorities of the respondents were nurses 193(50.5%) and the least number is from pharmacy professional 29(7.6%).

Among the total respondents 169(44.5%) were working at outpatient department followed by MCH 124(32.6%) (table.1).

Table:-1 Socio-demographic Characteristics and Distributions of Study Subjects in the Health Facilities of Jimma Zone 2020. (n=380)

Socio-demographic Characteristics	Number of respondents
Sex	
Male	247(65%)
Female	133(35%)
Health professionals age a ($\mu= 28.9$; $SD= 5.14$)	
20-30years	286(75.3%)
31-56years	94(24.7%)
Professional categories	
Health officer	68(17.9%)
Midwife	61(16.1%)
Nurse	192(50.5%)
Laboratory	30(7.9%)
pharmacy	29(7.6%)
Educational level	
Diploma	108(28.4%)
BSc	260(68.4%)

MSc	12(3.2%)
Working department	
Outpatient department	169(44.5%)
maternal and child health	124(32.6%)
Inpatient department	31(8.2%)
Laboratory	27(7.1%)
pharmacy	29(7.6%)
Service year	
<5years	153(40.3%)
5-10years	161(42.4%)
>11years	66(17.4%)
Monthly salary	
low income	53(13.9%)
low-middle income	243(63.9%)
middle income	75(19.7%)
upper middle income	9(2.4%)

In most cases utilization of information in the facilities were very common by OPD, MCH and pharmacy units, (Figure 3).

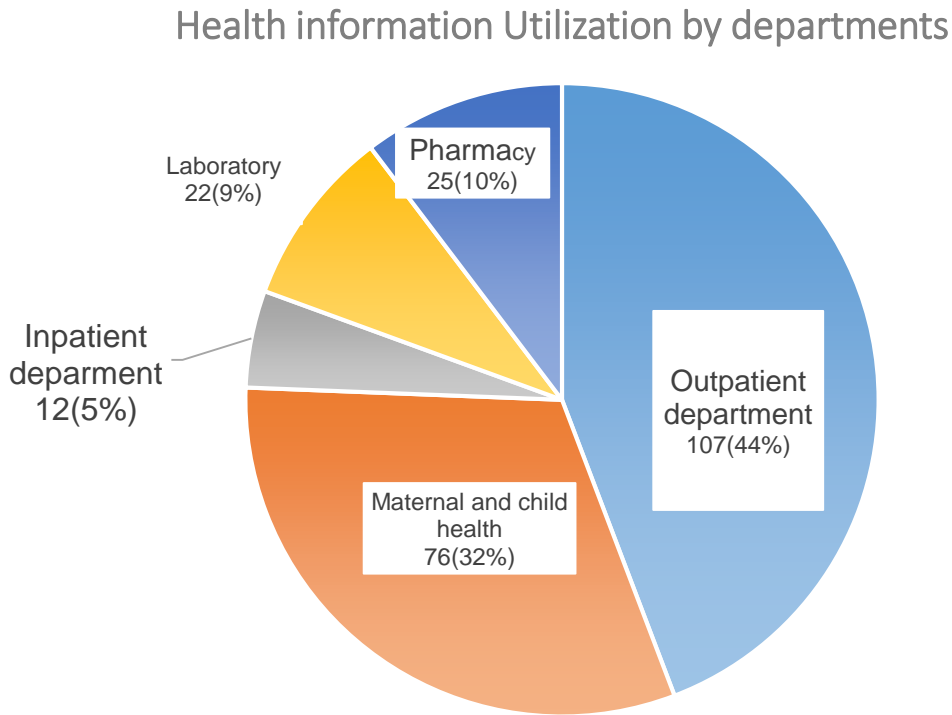


Figure: 3. Health information Utilization of health professionals working at different department of government HCs, Jimma Zone June , 2020. (n=380)

5.2. RHI Use

Three hundred eighty study subjects were expected to collect data and use information for decision-making in the study areas, health units are the primary producers of data and expected to change the data in to information at the site of data generation but it is done usually in some of the study subject Among the total aggregated 242(63.7%) were utilized information for two purposes. Of 242 study units utilized information 55.4% took formal training, 36.6% have orientation and the rest 8% have no orientation. Among the total respondent 49.2% took on job orientation HMIS but only 47.6% get training on HMIS

Among the respondents 56.1% have functional data storage device in which 48.4% uses computer and 63.2% have HMIS data management guideline.

Table 2: Frequency table associated factors to Health information Utilization of health professionals working at government HCs, Jimma Zone June, 2020. (n=380)

Variable	Health information Utilization			X ² (p-value)
		Yes	No	
Formal training received	Yes	134	47	16.8(.000)
	No	108	91	
Only orientation took	Yes	151	36	49.8(.000)
	No	90	103	
Understand standard indicators	Yes	210	62	79.4(.000)
	No	31	76	
Discuss on monthly performance	Yes	208	36	140.3(.000)
	No	33	102	
Access functional data storage device	Yes	176	36	79.3(.000)
	No	65	102	
Having HMIS data management guideline	Yes	187	52	59.6(.000)
	No	54	85	

Respondents who have formal training on data management and use were 7 times to be good on information use than others (AOR = 7.033, 95% CI = [1.875, 26.384]).

Supportive supervision and follow-up from concerning offices was found as another determinant factor of information use at health centers. Respondents who got supportive supervision and timely feedback were 7 times to be good practitioners of health information use than those who did not get it (AOR= 7.874, (95% CI = [4.908-12.631]). It is known that if health facilities get more support and feedback on data management and use, they will improve their knowledge and personal initiation to manage and use their data at hand for various purposes

Respondents who have computer access and use at office were 3.3 times (95% CI = [1.347, 8.481]) and 2.528 times (95% CI = [1.052, 6.075]) to use routine health information as compared to those who had no computer access and use, respectively (Table 3).

Table 3: The association between technical factors and health information utilization among of health professionals working at governmental health centers at Jimma zone June, 2020. (n=380)

Variables (Technical factors)	P -value	AOR (95% CI)
Formal training		
One month ago	0.004	7.033(1.875-26.384)
3months ago	0.288	3.797(0.324-44.432)
3-6months ago	0.376	1.898(0.46-7.83)
>6months		1
Discussion on monthly performance		
Yes	0.004	6.596(1.83-23.768)
No		1
Data storage device		
Yes	0.006	8.12 (1.82-36.312)
No		1
Supportive supervision		
Yes	.000	7.874(4.908-12.631).
No		1
Computer access		
Yes	0.003	3.371(1.347, 8.481)
No		1

5.2. Assessment of Determinants of HMIS Utilization.

PRISM framework classifies factors that influence implementation status of HMIS into technical, organizational and behavioral determinants.

Health workers were asked to rate their agreement towards these sets of determinants.

5.2.1. Assessment of Organizational Determinants

Table 4.8. below shows Health workers agreement on effect of organizational also referred to as environmental or systemic factors on the utilization status. Most health workers agree with the existence of coordinated Health facility encouragement (66.8%), existence of strategy and policy that show clear roles and responsibility of staff to use data for checking evidence, management and use (62.9%) and existence of organizational encourage the staff to use data for monitor changes in health service (65.5%).

There were a significant number of respondents (56.8%) that agreed with encouragement of the staff to awards good work as a motivation. among the respondents (61.8%) agree with the encouragement of the staff to use data for community action.

. The research result shows that (90.9%) used for report preparation of these only 33% used up to health information analysis.

Regular supervision, feedback and timely staff training are very important in building the capacity of the HMIS at all levels. As per the question regular supervisions accounts 59% which only 37.9% supervised quarterly the others are semiannually or annually But 73.2% of the health facilities have their own regular evaluation systems which 35.8% of them evaluated quarterly and the others semiannually or annually. Only 62.6% of health facilities have regular meeting and display information on key performance indicators to improve health information utilization.

Respondents stated that they rarely get Feedback from district health office on monthly, quarterly and annual basis account only in 50.3% from the all health facilities.

Of all respondents 79.2% stated that as HMIS has a role in their decision making and (54.4%) clearly define their job descriptions.

Concerning motivation 74.2% agreed that motivated to use health information in their daily job but only 13.9% disagreed.

Concerning competency to routine health information task 73.3%, 69.5%, 63.7% can check data accuracy, calculate percentage, and compute trends from bar charts respectively.

Concerning the health information utilization purpose 58.4% of respondents use for disease prioritization, developing of plan, prediction of outbreak ,resource mobilization and improving

service delivery and 14.2% of them used only for single purpose .while 27.4% of them stated as there were not using at all (Table, 4).

Table 4: Organizational determinants of HMIS Jimma Zone, 2012.

Organizational/environment/ systemic factors	Disagree	Neutral	Agree
Health facility encourage the staff to use data for developing action plan.	74(19.5%)	52	254(66.8%)
Health facility encourage the staff to use data for monitor changes in health service	84(22.1%)	47	249(65.5%)
Health facility encourage the staff to use data for checking evidence	84(22.1%)	57	239(62.9%)
Health facility encourage the staff to awards good work as a motivation	115(30.3%)	49	216(56.8%)
Health facility encourage the staff to use data for community action	100(26.3%)	45	235(61.8%)
Health facility encourage use of routine information for decision making	91(23.9)	50	239(62.9)

5.2.2. Assessment of Behavioral Determinants

There was an effort to see the impact of behavioral factors on the HMIS utilization status. Most health workers (78.4%) agreed that frequent use of health information utilization has benefit for patient treatment. According to table 8, bellow, there is feel motivated to use health information utilization (74.2%). Almost half number of health workers (179) agreed the collective data not customized for use in patient care. Two hundred sixty-four health workers believed collecting routine health information is meaningful.

Table 5: Behavioral determinants of HMIS Jimma Zone, 2020.

Behavioral determinants	Disagree	Neutral	Agree
I feel motivated to use health information utilization	53	45	282(74.2%)
Collecting routine health information is meaningful for me	53	63	264(69.5%)
Frequent use of health information utilization has benefit for patient treatment	48	34	298(78.4%)
Health care providers demand for information use	46	50	284(74.7%)
The collective data not customized for use in patient care.	131(34.5%)	70	179(47.1%)

5.3. Qualitative Result

An in depth interview and observation was conducted with 16 respondents in 16 health centers, of jimma zone. The interviewed personnel were PHCU director for each health centers.

Interview focuses on issues about how the HMIS is utilization ,training ,supportive supervisor feedback and presence of key performance indicator charts ,graph and table displayed .data sources used, common tools employed on data capturing and reporting, inclusion of adequate data elements, commitment of the management to prioritize this core activity, assign appropriate resources.

The most common analysis observed through interviews and inspections were; the analysis prepared from summed up reports on the incidences of disease or services provided and some presented in manually prepared graphs. These reports are aggregated according to the report forms (designed) provided by the RHB and others are comparisons of plans and performances. Some graphs were prepared in a meaningful way in some health centers; namely in Yebu and Debo Yaya health center by the help of performance monitoring team each unit try to analysis and present their key indicator by chart and graphs.

Interview Guiding Questions were prepared and asked uniformly for all respondents.

The results of the qualitative survey are described below.

All of the respondents complained that they had no sufficient Information. Correspondingly one PHCU director stated that: “I do not know the available HMIS training for Health profession.”

Most of the respondent stated that the health professionals lack supportive supervisor and one PHCU director stated that: “It is difficult to explain their supportive supervisor, to say something related to this we have to deal with responsible bodies.”

6. Discussion

Findings in this study clearly showed that routine HMIS information use at the health center level was poor even reporting which is a must task. Based on the report, 9.1% (35 of 380) respondents did not use at all and only 33 % (125 of 380) uses for analysis. If continues with this situation, it becomes challenges to the health system in several ways. The possible explanation to this condition could be law trained man power, 47 % (181 of 380) on HMIS data management and use, less attention from the management, inadequate of HMIS formats and guidelines (63.6%), poor supportive supervision from higher officials.

All these may affect communication, supervision...HMIS formats access and other services which are important to data management and information use.

In this study, of all 380 study participants, only 125 (33%) routinely used facility health information for two or more purposes in addition to reporting duties. This clearly indicated that health information at its primary source was poorly utilized and unless corrective measures made, the effectiveness and service quality of health facilities might be greatly affected. This overall information utilization is in line with study findings from Cote d'Ivoire (5) where overall routine health information use score at facility level was 38%. On the other hand, it is lower compared to study findings from Eastern Ethiopia (25), Western Amhara, Ethiopia *Cogent Medicine* (32), in which the overall routine health information use for various purposes were 54.4 and 38.4%, respectively. This variation could be the result of differences in data management knowledge (58.2% in Southern Ethiopia and 75% in Addis Ababa, but 22.4% in the current study; Table 2), management support (58.4% in the current study; Table 2) or the type of studied health facilities. On contrary, the current utilization practice level is higher than found in studies from Jimma (20), Arsi (37) and Gondar (19) zones, Ethiopia, where facility health information uses for decision-making were 32.2, 32.1 and 22.9%, respectively. The possible explanations for this variation could be differences in study period, and facility type/unit; zonal and district health offices were included in the case of Arsi and Jimma, and only the HIV/AIDS unit of health facility was studied in the case of Gondar, but in our case, all departments of health centers. In this study, 131 (34.5%) of the respondents used the routine HMIS data for managing their patients (Figure 3), which is very low compared to other studies and the national expectation (5,40). This clearly shows that unless immediate actions to improve HMIS data use such as training of healthcare workers, workshops on HMIS data use, availing HMIS data user guideline, awareness creation on the importance of routine HMIS data use are made, quality of healthcare services will be highly compromised. This may result in low patient satisfaction, decrease customer attendance, poor health center performance and profitability. Based on a multivariable logistic regression analysis, determinant factors affecting routine health information utilization at primary healthcare facilities could be grouped as personal, technical and organizational factors. These had previously been reported by others constraints to health information use in Cote D'Ivoire and other areas (32).

Respondents from rural health facilities were 51% times to practice health information use: AOR = 0.49, 95% CI = [0.27, 0.91] than their counter parts in the urban areas. The finding is supported by the WHO HMIS guideline (40) and by studies from South Africa (6) and Kenya (41). This may

be due to limited technology access, less supportive supervision, poor awareness about data management and use, and inputs (formats, guidelines, graph papers ...) shortage due to infrastructure and geographic location compared to urban regions (33) unpublished thesis). Respondents who have computer access and use at office were 3.3 times (95% CI = [1.347, 8.481]) and 2.528 times

(95% CI = [1.052, 6.075]) to use routine health information as compared to those who had no computer access and use, respectively. This finding is supported by study findings from Kenya (32), Uganda (17) and Ethiopia ;(27) .Possible explanation for this variation could be the importance of computer to collect, process, communicate and use of patient data through the application of computer.

Respondents who have formal training on data management and use were 7 times to be good on information use than others (AOR = 7.033, 95% CI = [1.875, 26.384]). This factor was also mentioned as crucial to information utilization by various studies: Kenya (16), Ethiopian Federal Ministry of Health, 2013; (25). This could be because users who have training more easily into their daily activities.

Supportive supervision and follow-up from concerning offices was found as another determinant factor of information use at health centers. Respondents who got supportive supervision and timely feedback were 7 times to be good practitioners of health information use than those who did not get it (AOR= 7.874, (95% CI = [4.908-12.631])). It is known that if health facilities get more support and feedback on data management and use, they will improve their knowledge and personal initiation to manage and use their data at hand for various purposes (32).

7. Strength of the study

- Reliability and Validity was tested

8. Conclusions

In this study, the overall routine HMIS utilization at health centers was low compared to previous studies and national expectation. Health facilities used health information principally to prepare reports and decision making, Residence, computer access and use, supportive supervision, training on HMIS data use and data management guideline access were determinant factors of routine health information use at the health centers level. Improving users' knowledge, skills, computer access, supportive follow up, data management inputs, and training access is important to scale-up information use in health centers.

9. Recommendations

Recommendations are forwarded to ensure the health information utilization (RHIU) in Jimma zone governmental health centers. One of the major tasks of health professionals in health centers is to carry out RHIU for decision making. But the result of this study in RHIU Studies at JU showed that it was mostly irrelevant.

So recommended to:-

1. Oromia regional Health Bauru. to Improve users' knowledge and skills, training access
2. Jimma Zone Health Office to access computer
3. Woreda Health Office give supportive supervision,
4. Health centers data management inputs important to scale-up information use.
5. Jimma University should give technical support

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