ASSESSEMENT OF DATA MANAGEMENT PRACTICE AND ASSOCIATED FACTORS AMONG HEALTH EXTENSION WORKERS IN ILLU ABA BOR AND BUNNO BADELE ZONES, SOUTHWEST ETHIOPIA 2021,G.C.

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A THESIS SUBMITTED TO THE DEPARTMENT OF EPIDEMIOLOGY INSTITUTE OF HEALTH SCIENCE OF JIMMA UNIVERSITY; IN PARTIAL FULFILMENT OF THE REQUIREMENT FOR THE DEGREE OF MASTER OF PUBLIC HEALTH IN EPIDEMIOLOGY

November, 2021 GC

Jimma, Ethiopia

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APPROVAL SHEET

As thesis research advisor, I hereby certify that I have read and evaluated this thesis report prepared under my guidance by Leulseged Alemayehu entitled assessment of data management practice and associated factors among health extension workers in Illu aba bor and bunno Badele zones, southwest Ethiopia 2021,g.c.'' I recommended that the thesis to be submitted requirements as fulfilling the degree of Master of Public Health ,in Epidemiology.

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As member of the board of examiners of the MPH thesis report open defense, we certified that we have read and evaluated the thesis report prepared By Leulseged Alemayehu and examined the thesis. We recommend that the thesis be accepted for completion as fulfilling the thesis requirements for the degree of Master of Public Health in Epidemiology.

Examiner_____ Signature_____ Date _____

Abstract

Background: Health data is gathered at many levels throughout Ethiopia. The four health extension packages, in particular, represent the majority of the population and must be accurate, dependable, and timely. As a result, in order to obtain this accurate, dependable, and timely health information, we must first identify the major barriers to obtaining quality data. Therefore; this study will have a greater input to program managers for designing programs, proper implementation, and evaluation of their contribution. It could serve as the baseline for further study.

Objective: To determine data management practice and associated factors among health extension workers in Illu Aba bor and Bunno Bedele zones, Oromia region, southwest, Ethiopia **2021, G.C.**

Method: An institutional based cross-sectional study design was conducted among 461health extension workers selected by simple randomly sampling technique in Illu Aba bor and Bunno Bedele zones, south west Ethiopia administered and observational checklists. The data were entered using epi data version 3.5.1 and exported to SPSS version 20 for analysis. Descriptive statistic were computed, bivariate and multivariable logistic regression models were fitted. Odds ratio with 95% confidence interval was estimated to use the association between outcome and explanatory variable p-value less than 0.05 was considered as to declare association.

Results: More than three-quarters (78%) of the study participants had good data management practice. Knowledge of data management (AOR=5.11, 95%CI=(2.62, 9.94), having a frequent supportive supervision (AOR=3.49, 95% CI=(1.8, 6.8),adequate Reference materials (AOR= 2.31, 95% CI= (1.15, 4.75)Training of data management practice and community health information system (AOR=3.4 (95% CI: (1.5, 7.6) and not having workload out of routine (AOR=3.39, 95% CI= (1.78, 6.80)were factors significantly associated with good data management practice.

Conclusion: This study revealed that the overall data management practice was higher compared to the previous studies. Improving regular supportive supervision, reducing workload out of their routine, and training crucial to more improve health extension workers' data management practice.

Keywords: data management practice, health extension worker Ethiopia.

Acknowledgments

I am deeply grateful to my advisors, Mrs., Chaltu Fikru and Mr., Zerhun Kura for assisting with devotion and concern, in every step of the thesis writing. I am also grateful to the staff in the epidemiology Department University of Jimma for providing the opportunity to conduct this research in my study area. Last but not least, we would like to acknowledge the supervisors, data collectors, and study participants.

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Abbreviations

CHWs - Community Health Workers

CHIS- community health information system

ETB- Ethiopian Birr

HEP- Health Extension Package

HEW- Health Extension Worker

HIS- Health Information System

HMIS- Health Management Information System

ICT- Information and communication technology

LGA -Local Government Area

MGT- Management

PHC- Primary health care MoH- Ministry of Health

WHO- World Health Organization

UHC-Universal health coverage

CHAPTER 1: INTRODUCTION

1.1. Background

Reliable and timely data are the foundation of the overall system and inform decision making in each of the other five building blocks in the health system. Health Information Systems (HIS) are comprised of health information system resources, indicators, data sources, data management, information products, dissemination and use [1].

Data from different sources are essential for multiple purposes at different levels of the health care system such as community level data are used for public health decision-making and generate information not only about those who use the health care services but also, important, about those who do not use them. In many countries, health sector reform and decentralization have brought about shifts in functions between the central and peripheral levels and generated new information needs with changing requirements for data collection, processing, analysis and dissemination Health sector reforms also magnify the need for standardization and quality of information [2]

Community Health Workers play a great role in community health information system, health care and often serve as the sole interface between patients and health services[3]. They are an essential part of the front-line primary health care team and serve an important role in integrated health systems. The Ethiopian government has adopted a nationwide Health Extension Program at the community level since 2003. To encourage access to care in rural communities on four package and eighteen program of health extension [2,3,4,5]. Each rural kebeles is expected to have one Health Post staffed by two female Health Extension Workers (HEWs)[2,6].

One of the important primary health care pillars is a health information system that produces quality information for decision making[6]. Health Management Information System forms a backbone for strong health systems, mostly[9]. Health care practices depend on evidence-based decisions and need the use of quality health care data [10]. A Health Information System is a system that integrates data collection, processing, reporting, and use of the information necessary for enhancing health service effectiveness and efficiency through better management at all levels

of health services[11].Public health decision-making is seriously reliant on the timely availability of sound data. All HEWs are expected to collect, process, and generate reports for their day-to-day activities[8].

The best practices in data management though specific data needs are unique to the organization and making a framework will smooth the path to easier, more effective data management. Best practices like make a plan, store data and share data are the key successful strategy to good data management practice[12].

1.2. Statement of the problem

World health organization has identified health information system (HIS) as critical to achieve the campaign health for all and links it to improve HIS [13]. Developing countries are reported to have a large amount of unreliable health data, poor human resources, and poor information technology infrastructure, and defective Health Management Information Systems[14].

Ethiopian national HIS, done by federal minster of health (FMOH) and world health organization (WHO) outcome, health information system resource, data management, and dissemination and use were rated as not adequate among the six major components. Health information is important at all levels from health post at kebeles level up to MoH[15].

Primary health care is a decentralized level where much of the original health system data are generated. In Ethiopia, the Health information revolution is one of the key components of health system strategies and plans. However, its quality and use are reported to be weak, particularly in primary health care facilities [16]. Data accuracy is affected by lack of data quality check process, absence of HMIS procedural manual and minimum use of data quality checklist during supervision. Knowledge of data quality check methods also found limited ranges between 58%-68% particularly among health post and health center staff [17].

Central Ethiopia study results show that the convenience of the recording tools to register or collect data, 47.5% of the reply there was incompleteness and difficulty to understand the formats while 32.8 % replied the formats were simple and completed and 19.6% were not commented on this issue[13]. Also, in the study in Southern Ethiopia, the existing reporting formats were complex or difficult to understand for 24.9%. In this study, frequency of

supervision and availability of reporting formats were found to be the crucial factor in predicting the data management knowledge status of HEWs[8].

A study in western Amhara, Ethiopia showed that routine HMIS information use at the health center level was poor even reporting which is a must task. Based on the report, 20% did not use their routine health information even for reporting[18].

A study revealed east Wollega Ethiopia the Registration completeness, timeline report, accuracy and report completeness were 78,70,48 and 86 percent respectively Commonly reported reasons for the poor practice of data quality were; poor support of management, lack of accountability for the false report, poor supportive supervision, and lack of separate and responsible unit for health information management [16].

The HMIS is at poorly coordinated at primary health units[17,19]. While data management practice is highly critical all level of the health workers in the use of information for decision making,[6] there was no previous study that investigated the data management practice of HEWs and associated factors in the study area. Therefore; this study will have a greater input to program managers for designing programs, proper implementation, and evaluation of their contribution. It could serve as the baseline for further study.

1.3. Significance of the study

Data management practice is highly critical all level of the health workers in the use of information for decision making. The proportion and associated factors of data management practice of health extension workers were not known in the study area. Therefore, need to conduct a research to know the result of data management practice and associated factors of health extension workers in the study area. Health extension workers and health professionals will utilize the result of this research as a reference.

The finding of this study have also provide the district health office, regional health bureau, policy makers and NGOs (non-governmental organizations) with relevant information for future planning and interventions of appropriate strategies to promote and maintain data management practice and associated factors among health extension workers. It could serve as the baseline for further study in the areas.

CHAPTER 2: LITERATURE REVIEW

2.1 level of data management practice

Health management information systems are important for guiding the attainment of health targets in low and middle-income countries[20]**.** However, the quality of HMIS data and the data management knowledge and practice of Ethiopian health extension workers are poor[19,22].

A study in South West State in Nigeria suggests that the prevalence of good data management practice is very low (9.7%), particularly among data officers in the community PHCCs with a low level of education and without information and Communication Technology (ICT) equipment[23].

According to a study conducted in Tanzania, knowledge on HMIS and the basic concept was found to be associated with improved quality of data; The quality of data where facilities with a focal person had a higher data completion rate (69.9%) compared to those without (44.7%)[24].

The study done in Kenya shows that completeness of reporting for the three months was 95.4%. Community Health Volunteers' reporting was very good, with a score of 90 percent. The Community Health Volunteers data element completeness was 100 percent. The completeness of Community Health Extension Workers (CHEWS) reporting was also excellent with a score of 96.4%[25].

The study conducted in northwest Ethiopia shows that 53.3% of HEWS had good data management practice. Inaccessibility of transportation, communication services, reference materials, and data collection or reporting formats were the mentioned challenges[6]**.**

The study conducted in South West Shoa Central Ethiopia shows only 58% had Health management information system unit Fifty 50% of the health posts and (8%) health centers had no electric power access. At the health center level Health management information system recording and reporting. Data quality and information use manuals available are 25%, 33%, 17%, and 58% respectively. Health management information system performance improvement challenges in South West Shoa zone relate mostly to improving data accuracy, access to computerized HMIS data and competencies to analyze, interpret and use HMIS data at Woreda

health office and Health facility levels. Resources are insufficient and although some structures are present on the ground like the presence of reporting mechanism, feedback is poor from the higher to lower levels[26].

Study result in Hadiya, southern Ethiopia good level of utilization of routine health information was reported by 62.7%, of the health workers. A good level of utilization of routine health information was noted that two-thirds of the study participants. Further training, supportive supervision, perceived culture of health information, having a standard set of indicators, and competence on routine health information tasks were factors that improve routine health information utilization [27].

Study in southern Ethiopia shown 74.3% of respondents have good data management practice. Availability of reporting formats and frequency of supervision for data management knowledge and relevance of feedback for data management practice of respondents were identified as significant determinants. Therefore, giving training on data management, supplied format early, frequency of supervision and feedback timely are necessary tasks to be accomplished [8].This assessment was to compare the data elements in the Community Health Extension Workers summary against the same data elements in development of health information system (DHIS) [28]. The third level of assessment for accuracy was to compare the Community Health Extension Workers summary report with the chalkboard report [25]

2.2. Factors affecting data management practice among health extension workers

2.2.1. Socio-demographic Factors

The study conducted in northwest Ethiopia shows that urban residence was positively associated with better data management practice as compared to the rural HEWs which, could be due to relatively better access to transport, materials, information, and supervision. Also, their overall education level urban- three years diploma certificate and rural nine months certificate may cause the variation[6].

2.2.2. Knowledge Factors

A cross-sectional study in public health facilities in North Wollo Zone, Northeast Ethiopia among health professionals showed that having knowledge on data management was

significantly associated with good practice of health data management. Another study conducted in northwest Ethiopia shows that data management knowledge was positively associated with better data management practice[6,27]**.**

In the study in Northwest Ethiopia, 47.4% of the HEWs had good data management knowledge. This clearly showed that over half of the HEWs practiced data management without knowing which leads to poor data management and decision quality [6].

In the study in southern Ethiopia, 58.2% of the HEWs had good data management knowledge. This clearly showed that over half of the HEWs practiced data management which leads to good data management and decision quality(8).

2.2.3. Technical Related Factors

The cross-sectional study conducted in public health facilities in North Wollo Zone, Northeast Ethiopia among health professionals showed having a high competency level on data management tasks and friendliness of data management format were significantly associated with good practice of health data management [29].

2.2.4. Organizational Factors

A cross-sectional study in public health facilities in North Wollo Zone, Northeast Ethiopia among health professionals showed that supervision and training were significantly associated with good practice of health data management[29].

In the study in Gamo Gofa, data management practice was significantly associated with the availability of data registration books and reference materials with respectively [8].

In the study in Northwest Ethiopia**,** the regression analysis identified important factors in data management practices. HEWs that had good data management knowledge were more likely to be good data managers than their counterparts. A good data manager was 1.86 times more among urban health extension workers than the rural ones. HEWs with adequate reference materials were 1.64 times more likely to be good data managers compared to their counterparts HEWs Trained HEWs were found to be good data management practitioners compared to the non-trained groups. A good data management practitioner was 1.82 times more among non-over loaded HEWs compared to overloaded HEWs [6].

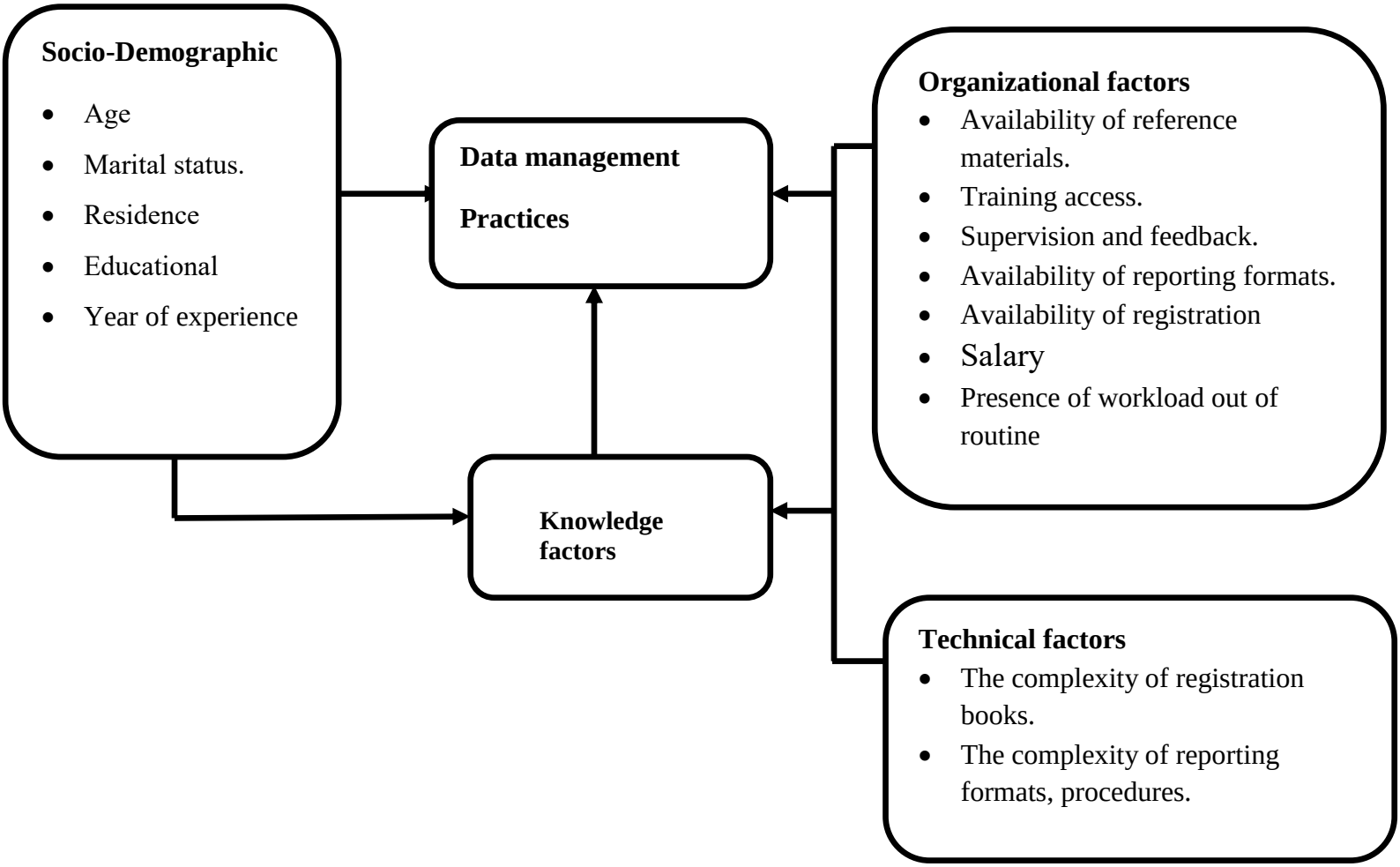

Figure 1 **shows the conceptual framework for data management practice and factors affecting data management practice among Illu aba bor and Bunno Bedele Zone HEW**

Source adopted from different literature [6,8,17].

CHAPTER 3: OBJECTIVES

3.1 General objective

To assess data management practices and associated factors among health extension workers in Illu Aba Bor and Bunno Bedele zones, Oromia southwest Ethiopia, 2021, GC

3.2. Specific objectives

To determine data management practice of health extension workers in Illu Bababoor and Bunno Bedele Zones, southwest Ethiopia, 2021, G c

To identify factors associated with data management practice of health extension workers in Illu aba bor and Bunno Bedele Zones, Southwest Ethiopia, 2021, G c

CHAPTER 4: METHODS AND MATERIALS

4.1. Study area and period

This study was conducted in the Illu Aba bor and Bunno Bedele zone from May to August 2021. They are the zones of the Oromia region of Ethiopia. Bunno Bedele Zone is 480 km and Illu Aba bor 600km from Addis Ababa in the southwest of Ethiopia. Illu Aba bor and Bunno Bedele zone are bordered on the south by the southern nations, nationalities, and peoples region on the southwest by the Gambela region, on the west by kellem welega zone, and on the north by west welega zone, and on the east Jimma zone[28,29]. Illu Babor and Bunno Bedele zone is composed of rural districts with 509 kebeles, and urban administrative with 26 kebeles. The total population of the two Zones is estimated to be 1,832,415. Among these, 87.84% of them living in rural kebeles and the remaining population 12.16% live in Urban. Illu Babor and Bunno Bedele zones haves two referral hospitals and three primary hospitals, 73 health centers, 534 health posts, 932 Rural Health Extension Workers, and 48 Urban Health Extension Workers(519hew in Illu Aba bor and 461 in Bunno Bedele)[Illu Aba bor and Bunno Bedele zone health office].

4.2. Study design

Institution based cross-sectional study was conducted.

4.3. Population

4.3.1. Source population

All health extension workers, working in Illu Aba Bor and Bunno Bedele Zones

4.3.2. Study population

The study population for this study was health extension workers from selected health posts in Illu Aba Boor and Bunno Bedele Zones

4.4. Eligibility Criteria

4.4.1 Inclusion criteria

Health extension workers selected from the selected health post that are on working or present at health posts during data collection were included.

4.4.2 Exclusion criteria

Health extension workers who were ill, on education and HEW who has taken annual leave during the study period were excluded.

4.5. Sample size determination and sampling procedure

4.5.1. Sample size determination

The sample size required for this study was determined using single population proportion formula by considering the following assumptions:

Population proportion = 74 %. From similar study was conducted in Southern Ethiopia[8].

95% level of confidence

4% margin of error.

The sample size is calculated as $\boldsymbol{n = \frac{(Za_2)^2(P(1-P)}{w^2}}$ $\boldsymbol{n = \frac{(1.96)^2(0.74(0.26)}{0.04^2}}$ **= 461**.

4.5.2. Sampling procedure

Study subjects were selected by using a simple random sampling technique. First, a unique number was given for all health posts in the Illu aba bor and Bunno Bedele zone based on the list which is found in the Illu Aba Bor zone and Bunno Bedele health office. From Bunno Bedele zone 217 and Illu aba bor zone 244 by using the lottery method health posts were selected. Then from each health post randomly selected one health extension worker from HEWs was on working or present at health posts during data collection.

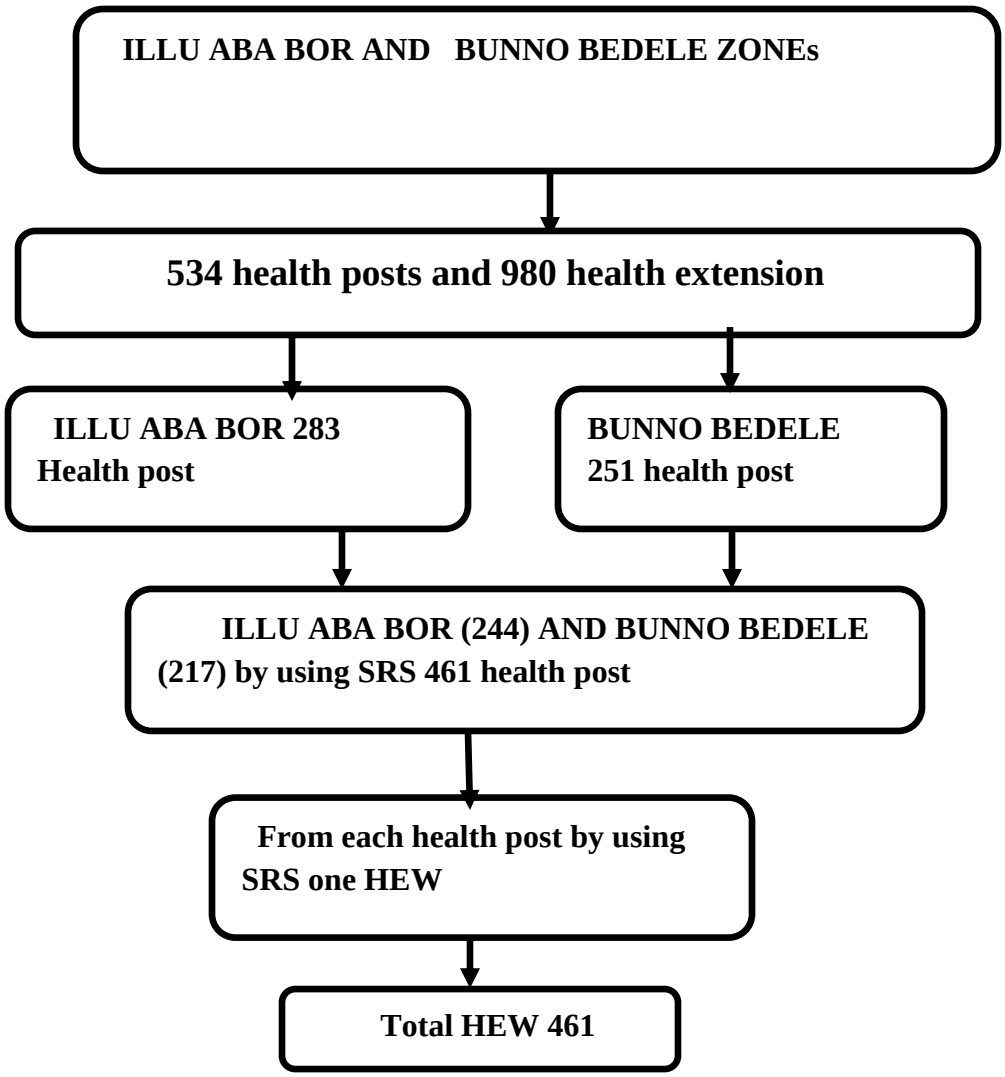

Figure 2 Schematic presentation of sampling procedure

4.6. Data collection methods and tools

Data were collected using a pre-tested structured interviewer-administered questionnaire which included socio-demographic, data management knowledge, data management practical, technical, and organizational factors. In addition to the questionnaire data collection was conducted by observation using checklists to measure data completeness and accuracy such as copy of the report, tally sheet, HMIS book, storage, field format, and epi monitoring chart. Adopted from related studies [4,6,29,30] and the Oromia Regional Health Bureau HP supportive supervision checklist, and The English version questionnaire ware translated to the Afan Oromo version and retranslated back to English to check its consistencies. The data collectors were 10 heaths professional that had an experience on data collection and 3 supervisors were also used for the supervision recruited. The training was given to the data collectors and supervisors before the actual data collection.

4.7. Study variables

4.7.1. Dependent

Data management practice

4.7.2. Independent variables

- **Socio-Demographic factors (Age,** Marital status, Residence, educational, Service Year)
- **Technical factors (**The complexity of registration books, the complexity of reporting format).
- **Knowledge**
- **Organizational factors (**Availability of reference materials, Training access, Supervision and feedback, Availability of reporting formats, Availability of registration, Salary. Presence of workload out of routine.)

4.8. Operational definitions

- Data management is the set of procedures of collecting, storing, processing , reporting and using data securely, efficiently, and cost-effectively [34].
- Frequency supervision is the process of overseeing the daily activities of a department or facility and managing the efficiency of its employees[35].
- Reference material is a manual or guideline sufficiently with respect to one or more specified properties, which has been established to be fit for its intended use in a measurement process and help as a guide [36].
- Good data management practice: HEWs who scored mean and above the mean out of thirteen questions adopted from a different study for assessment data management practice.
- Poor data management practice: HEWs who scored below the mean out of thirteen questions adopted from a different study for assessment data management practice.
- Good Data management knowledge: HEWs who scored mean and above the mean out of sixteen questions adopted from a different study for assessment data management knowledge.

4.9. Data quality assurance

The data's collection tools were pre-tested on 5% of study subjects in the Illu Aba Bor and Bunno Bedele zones on health posts not selected for the actual data collection. Those were not be included in the study before the starting of the main study on non-selected health post Findings and experiences from the pre-test was utilized in modifying the data collection tool. Supervision was conducted by the Principal Investigator and Supervisor. To ensure data quality, each data collector checked the questionnaire from each study participant for completeness on daily basis. The Supervisor and Principal Investigator reviewed each questionnaire daily and checked for completeness and edited it.

4.10. Data processing and analysis

All filed questioners were checked for completeness, consistency, and cleaned. The Data were entered into the computer with Epi-data Version 3.5.1 and exported the statically package of social science (SPSS) version 20 for further analysis. Descriptive analyses (frequency, mean, and percentage) were carried out for the variables. Binary logistic regression was used to determine the relationship between the outcome and independent variable. Those variables having a p-value of 0.25 and less in the bivariate analysis were added in the multivariable logistic regression analysis. Hosmer-Lemeshow goodness of fit test was used to check the fitness of the model, which did statistically significant. The Adjusted odd ratio along with 95% of the confidence interval was estimated to identify factors associated with the outcome variable. The level of statistical significance was declared at a p-value less than 0.05. The result was presented in table, graph and text.

4.11. Ethical consideration

Ethical clearance was taken from the University of Jimma, the health institute institutional review board. Before the initiation of data collection permission from all concerned bodies was obtained based on the letter obtained from the University of Jimma. After getting a support letter from the Illu Aba Bor and Bunno Bedele zone Health office and woredas health office, the purpose, and objective of the study were informed for all participants, and informed consent was obtained from each participant to initiate data collection.

4.12. Dissemination of Result

The result obtained from this study will be disseminated to the University of Jimma, the institute of public health, Illu Baboor, and Bunno Bedele zone Health office, and will be published to reach wider audiences.

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CHAPTER 5: RESULTs

5.1.Socio-demographic characteristics of health extension workers

A total of 422 HEWs were included in the study making the response rate 91.5%. Respondents' ages range from 24-39 years with a mean (±SD) age of 29.7 and a standard deviation of 2.56 years. More than half, (50.9%) were in the age group above 29 years. Regarding marital status, the majority 383(90.8%) of the respondents were married. As to the religious background, the great number 169(40%) were Protestants. Concerning the majority of the educational levels of the health extension workers, a significant number, 397 (94.1%) they were educational level 4. residence of most 388(91.9%) HEWs were rural kebeles and the remaining 34(8.1%) live in urban areas (table: 1).

Table 1 Socio-demographic characteristics of health extension workers in Illu Babor and Bunno Bedele zone, Oromia southwest Ethiopia, 2021 GC. (n=422)

Socio-demographic	variables	Frequency	Percentage
Age	24-29	207	49.1
	Above 29	215	50.9
Marital status	Single	39	9.2
	Married	383	90.8
Ethnicity	Oromo	373	88.4
	Amhara	49	11.6
Residence	Rural	388	91.9
	Urban	34	8.1
Educational status	Level3	25	5.9
	Level4	397	94.1
Year of experience	<5years	29	12.3
	≥5years	393	87.7

5.2.Data management Knowledge of health extension workers

Out of the total study participants, 307(72.7%) respondents had good knowledge of data management, and the rest 115 (27.3) had poor knowledge.

From the types of data collection methods 386(91%) respondents know interview as data collected methods followed by document review252(60%) and observation 202(48%).

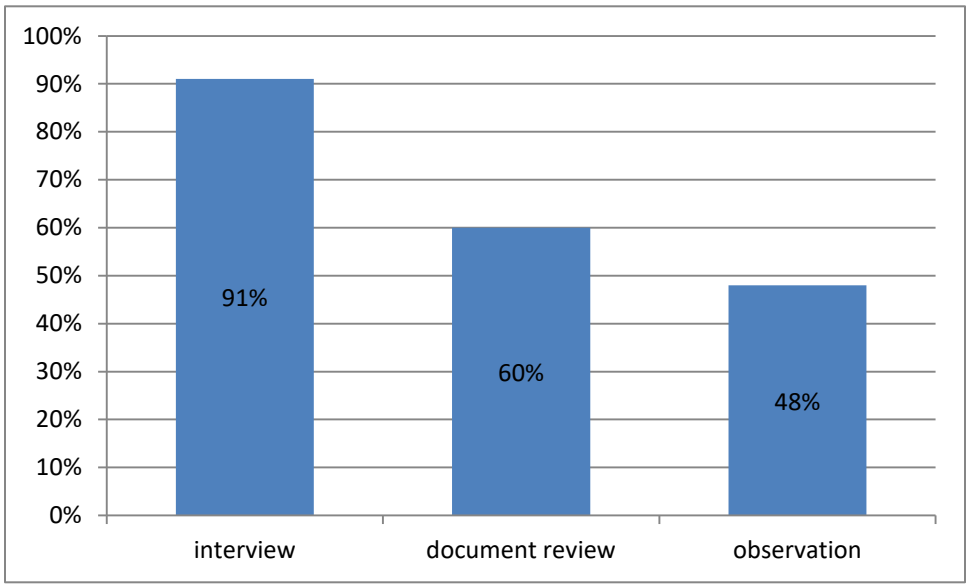

Figure 3 Distribution of data collection methods

Regarding to types of data, 258(61%) respondents were knew that primary data followed by secondary data 181(43%). All 422(100%) of the respondents know to whom they report the performed activity.

Concerning of the report quality 334 (79%) respondents were reported that they knew report should timely followed by clearly 358(85%), not redundant 213(50.5%) and 174(41%) free from mathematical error.

5.3.Organizational factors

Out of the total respondents, 389(92.2%) have been supervised by their respective supervisors weekly 317(75.1%), and monthly 105(24.9%). Feedback from the supervisor was given to 349(82.7%) respondents. Two hundred seventy-six (65.4%) respondents reported having

reference material in their office. Nearly all 99.1% of respondents were supplied with registration books. The majority 367(87%) of the respondents obtained pen and pencil from the respective health office. (See-table 2 below)

Table2. Organizational factors of health extension workers in Illu Aba bor and Bunno Bedele zone, Oromia, southwest Ethiopia, and 2021 GC.

Variables		Frequency	Percentage
supervised	Yes	389	92.2
	No	33	7.8
Frequency of supervision			
	Weekly	317	75.1
	Monthly	105	24.9
Feedback from your supervisors	Yes	349	82.7
	No	73	17.3
Trained on data management	Yes	372	88.2
	No	50	11.8
Reference material available	Yes	276	65.4
	No	146	34.6
Stationary available	Yes	367	87.0
	No	55	13
Report formats in your office	Yes	356	84.4
	No	66	15.6
Registration books in your office	Yes	418	99.1
	No	4	.9
Workload other than your routine work	Yes	227	53.8
	No	195	46.2
Salary	<5000	26	6.2
	≥5000	396	93.8

5.4.Technical factors

Almost all 413(97.9%) subjects responded that reporting and registration formats are understandable. The rest 9(2.1%) was not clear due to abbreviations and uncommon words. Concerning Methods of reporting 422(100%) by paper and 58(13.7) by phone.

5.5.Data management practice

More than three quarter 329(78 %) of the respondents have good data management practice and the rest 93(22%) have poor data management practice. Almost all of the respondents collect data 403(95.5%), storage 403(95%), and analysis 130(31%) the data respectively. Concerning the purpose of use of the collected data328 (78%) of respondent use for planning, 307(73%) for monitoring and evaluation and 297 (70%) for routine activity.

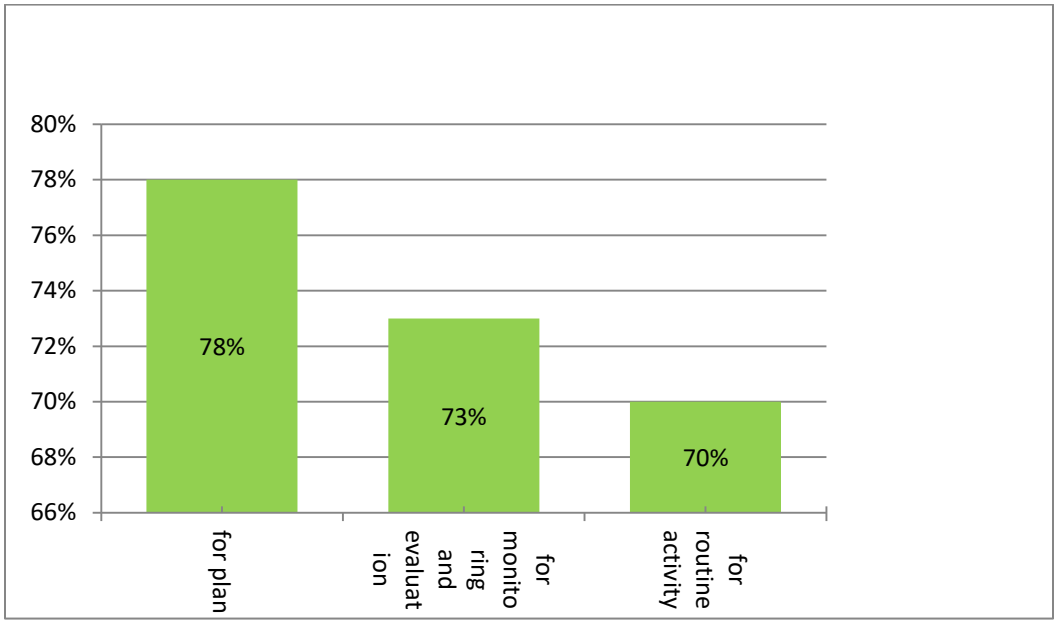

Figure 4 Distribution of collection data use

Regarding reporting, 403(95%) of the respondents are reporting data timely. among the respondents 297(70%) were tally all daily activities immediately after performing. according to351 (83%) of respondents fill all fields of a reporting format. From 351(83%), study participant most of crosscheck the recoded data from registration with the tall.

5.6. Observation result of data management practice of health extension worker.

From the total of 461 health posts in the two zones, 422(91.5%) were observed. Out of observed health posts, 307 (72.2%) have kept copies of the last five-year report data in their office. A significant number of the observed health post, 343 (81.2%) have tally sheet format in their health post whereas a little 79(18.8%) do not have in their health post. The remaining is shown in the table below (table: 4).

Table4. Observation result of data management practice of health extension worker in Illu Baboor and Bunno Bedele Zone July 2021, GC.

Observational variables	Category	frequency	percentage
Copy of all reported data last five years	no	115	27.1
	yes	307	72.9
Tally sheet format	no	79	18.8
	yes	343	81.2
HMIS registration	no	346	82.2
	yes	76	17.8
Data stored on a separate shelf	no	62	14.9
	yes	360	85.1
Data stored on the labeled shelf	no	150	35.7
	yes	272	64.3
Recorded data is readable	no	13	3.1
	yes	409	96.9
All fields of reporting format filled	no	71	17.0
	yes	351	83.0
All fields of registration book filled	no	48	11.1
	yes	374	88.9
EPI coverage monitoring chart is posted and filled	no	202	47.9
	yes	220	52.1

5.7.Factors associated with data management practice of health extension workers

In the bivariate logistic regression analysis, data management practice was significantly associated with data management knowledge, age, marital status, educational level, year of experience, frequency of supervision, training on data management and community health information system, reporting format, reference material, stationery, Workload out of routine, However, in the multivariate logistic regression analysis, data management practice was significantly associated only with the available Reference material, data management knowledge, Frequency of supervision, Training of data MGT and CHIS, Workload out of routine, Thus HEWs who have good knowledge of data management were 5.1 times more likely to be good data management practice than their counterparts (AOR=5.11, 95%CI= (2.62, 9.94))The odds of having a good data management practice were 3.5 times more among HEWs having frequency of supervisions weekly than HEWs having a frequency of supervisions monthly (AOR=3.49,95% CI= (1.8,6.8))HEWs with adequate reference material available were 2.3 times more likely to be good data management practices compared to the counterparts HEWs (AOR= 2.3, 95% CI= (1.15, 4.75))Not having workload hews were good data management practice (AOR=3.39, 95% CI= (1.78, 6.80)) when compared to having workload. (Table: 5).

Table5. Multivariate logistic regression analysis of factors associated with data management practice of health extension workers in Illu Baboor and Bunno Bedele zone, southern Ethiopia, August 2021 (n = 422).

variables	Category's	Data Mgt practice		**COR(95%CI)**	**AOR(95% CI)**
		Good N (%)	Poor N (%)		
age categories	24-29	150(35.5)	57(13.5)	1	1
	above 29	179(42.4)	36(8.5)	1.9(1.2,3.02)	1.659 .865 3.179
marital status	single	17(4)	22(5.2)	1	1
	married	312(76)	71(16.8)	5.7(2.8,11.3)	5.2(2.1, 10.1)*
residence	rural	308(72.9)	80(18.9)	2.4(1.14,4.9)	. 1.45(.49,4.25)
	urban	21(5)	13(3)	1	1
educational	level3	13(3)	12(2.8)	1	1
	level4	316(74.8)	81(19.2	3.6(1.6,8.2)	1.6(.5, 5.14)
data Mgt knowledge	poor	60(14.2)	55(13)	1	1
	good	269(63.7)	38(9)	6.5(3.9,10.6)	5.11(2.62, 10)*
Frequency of supervision	weekly	278(65.8)	39(9.2)	7.5(4.5,12.5)	3.49(1.8,6.8)****
	monthly	51(12)	54(12.8)	1	1
Training of data Mgt	yes	303(71.8)	58(13.8)	7(3.9,12.6)	3.4(1.5, 7.6)*
	no	26(6.1)	35(8.3)	1	1
Reference materials	yes	243(57.5)	33(7.8)	5.1(3.1, 8.3)	2.31(1.15, 4.75)****
	no	86(20)	60(14.2)	1	1
Stationery materials	yes	297(70)	70(16.6)	3.15(1.7, 5.7	2.22(.89,5.3)
	no	31(7.3)	23(5.4)	1	1
Report formats	yes	293(69.4)	63(14.9)	3.8(2.2 6.7)	.85(.34, 2.13)
	no	36(8.5)	30(7.1)	1	1
workload	Yes	155(36.7)	72(17)	1	1
	No	174(41.2	21(4.9)	3.8(2.2, 6.5)	3.39(1.78, 6.80)****

CHAPTER 6: DISCUSSION

Health management information systems are important for guiding the attainment of health targets in low and middle-income countries[37].

In this study, the overall data management practice of health extension workers in this study area was 78% good data management practice according to the operational definition set for measurement of data management practice, and the remaining 22% of respondent's haves poor data management practice. This study was assessed by measuring the capacity of health extension workers for data management practice. This briefly points out that overall the health extension workers' data management practices were leads to good data and decision quality.
This finding was somewhat consistency to the study in southern Ethiopia where 74% of health extension workers had good data management practice[8].

However, considerably higher than study in Nigeria on improving the quality of health management information system: determinants of effective data management conducted in a southwest state in Nigeria where 9.7% of head of data management officers at primary health care centers had good data management practice. The difference might be due to the difference in a study setting, population characteristics , data management knowledge, and variations of HMIS between Ethiopia and this country[23].

It is also higher than the primary health care data management practice of health extension workers assessment conducted in Northwest Ethiopia where 53.3% of health extension workers had good data management practice[6]. This discrepancy might be due to the study setting, study period, difference in knowledge, training, and frequency of supervision. The study conducted in the northwest and southern Ethiopia revealed that 47.4% and 58.2% of health extension workers had good data management knowledge respectively and 41.6% of the participants got training in data management. In this study, the knowledge of health extension workers was 72.7% this briefly indicated that one-fourth of health extension workers practice data management without know-how, which leads to poor data and decision quality and 85.5% of the health extension got training[6,8]. Also, our finding was considerably higher than the study conducted in the north wollo zone, northeast Ethiopia on health data management practice of health professionals and National Health Information System Road Map of Ethiopia the HIS assessment found that the

practice of data management, in general, would be considered were 56.1% and 13% respectively. The difference might be due to the study setting, study period, characteristic of the study population. The other possible explanation could be the study setting in northeast Ethiopia was health professionals at health centers and hospitals, whereas the current study was conducted on health extension workers. [26,27].

The knowledge of health extension workers is highly associated with data management practice. Health extension workers who had good knowledge were 5.11 times more likely to have good data management practice as compared to those health extension workers who had poor knowledge on data management. This is supported by the study conducted before [3,27,34]. This might be explained as knowing how and what to do is the prerequisite for practicing.

This study indicates that health extension workers who had frequency supervision were 3.49 times more likely to had good data management practice than those who had not frequency supervision. This is supported with the finding in previous studies on health extension workers and health professionals[4,6,32,27,16].The description for this could be that the frequent supervision of health extension workers helps to be committed since they are considered to spend their time when managing routine data. Having frequent supervision indicates an understanding of the relevance and usage of managing data that could lead to good practice by making health extension workers responsible.

Health extension workers who do not have a workload out of routine are 3.39 times more likely to be good data management practice. This is supported by the studies in Southern Ethiopia northern and northern east Ethiopia on health extension workers and health professionals. [4,6 27,16,35,36].

Our finding of this study indicates that health extension workers who have training are 3.4 times more likely to be good data management practice than those who did not get training. This is supported by the previous studies conducted in the southwest, northern and northern east Ethiopia on health extension workers and health professionals [4,6,32,27,16,35,36]. This could be as a result of training can enhance the capacity to carry out data management activities and it might create a skilled human resource that is confident and motivated to perform data management tasks.

Strength and Limitation of the study

Strengths

- Frequency supervision was made by principal investigator during data collection period.

  .

Limitations

- The reason why the non-respondents, the study period was politically not stable particularly some woredas and kebeles in our study area that hindrance to launching our plan.

Conclusion

In this study, the overall data management practice for health extension workers (HEWs) was higher compared to the previous study. Knowledge factors and organizational (workload, training, references material and regular frequency supervision) were determinants of the data management practice of health extension workers. Improving regular supportive supervision, reducing workload out of their routine, and filling the skill gap of health extension workers (HEW) by training in every regular consistent manner is crucial to more improving the data management practice of health extension workers.

Recommendations

For zonal health bureau

- To improve data management knowledge training needs to be given for HEWs.
- To improve data management practice need to reducing another workload that is out of their routine work.
- Supply adequate resources/materials required for data management activities of HEWs (like references, reporting formats, graph papers, Epi monitoring chart, markers, pen, pencils, etc.).
- Adopted experience sharing and promotion in between health extension workers.

For supervisors

- The frequency of supervision should be improved.
- Adequate and timely feedback in an appropriate way/form should be given for all HEWS.

For researchers

- Further investigation is needed on the data management knowledge and attitude of health extension workers in the zones with different methods.

ASSURANCE OF PRINCIPAL INVESTIGATOR

The undersigned agrees to accept responsibility for the scientific ethical and technical conduct of the research project and for provision of required progress reports as per terms and conditions of the Faculty of Public Health in effect at the time of grant is forwarded as the result of this application.

Name of the student: Leulseged Alemayehu

Date._____ Signature _____

APPROVAL OF THE FIRST ADVISOR

Name of the first advisor: _____

Date._____ Signature _____

APPROVAL OF THE SECOND ADVISOR

Name of the second advisor: _____

Date._____ Signature _____

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Annex

Questionnaire

Information sheet and consent form

Title of the research project:- data management practice and associated factors among health extension workers in Illu Baboor and Bunno Bedele Zone, Ethiopia, 2021

Principal Investigator: Leulseged Alemayehu (BSc)

Advisors: 1 Chaltu. Fikiru (BSc, Mph)

2. Zerhun Kura (BSc, Mph)

Name of the organization: the University of Jimma, institute of Health, Department of Epidemiology.

Sponsor----------

Information sheet and consent form prepared for persons who are going to participate in this research project.

Introduction

My name is Leulseged Alemayehu and I am a student at University Jimma for a masters' degree. I am researching data management practice as part of my study course. Right now I am going to give you the relevant information concerning my research and I invite you to be part of this research. Before you decide to be part of the research you can talk to anyone to feel comfortable with the research. If there is any word that you do not understand while I am giving the information, please stop me and ask and I will explain to you.

Purpose of the Research project

Data management practice is an important aspect to increase the efficiency of health care delivery. Plan and make informed decisions health officials need accurate, reliable, and timely information. This can be when there is good data management practice at all a level of health institutions. Therefore, this research is aimed to determine the magnitude and determine associated factors of data management practice.

Procedures We select you based on a sampling technique to be involved in the study. Data collectors will ask you some questions based on questionnaires about your socio-

demographic, knowledge, practices, techniques, and institutional factors. Observation of some documentation will be included during data collection.

Duration of the study

If you agree to participate in the study, the survey will take about 20 minutes for both questionnaires and to the observation of documents

Risks/ discomforts

There is no risk to you to be in the study except the time you waste during data collection.

Benefit: your participation in this research may/may not directly provide you a certain benefit as an individual but the outcome may help health officials to plan for data management and make an evidence-based decision.

The right to draw from the study:

If you are not willing to participate in the study, you have the right to draw from their search study at any time. By not participating in the study you will not be penalized and you will not lose anything

Confidentiality

Any records relating to you will be strictly confidential. Your name will not be used in any reports from the study.

The right of compensation

During participating in the study no compensation will refund for the time that we take during interviewing and make document observation

Consent

If you provide me consent, I will ask you questions and observe your documents on immunization. The observation helps the investigator to measure data management practices that are not measured by interviewing

Voluntariness

You do not need to participate in the study if you do not want to?

Privacy The data collection will be held in a separate room to keep your personal information secret and the collected data will be not shared with anyone and will be discarded after the data is used for this intended purpose safely.

Persons to contact

If you want to talk to someone about this study, if you feel you have not been treated properly, if you are hurt by joining the study, if you have any questions, you can contact: Principal investigator:

Tell: **+251-0941208651**

Advisors at Institute of public health, department of Epidemiology University of Jimma

Advisors Ms., Chaltu Fikru (BSc, Mph)

Mr., Zerhun Kura (BSc, Mph)

Questionnaire

Assessment of data management practice and associated factors among health extension workers in Illu Aba bor and Bunno Bedele zone, Oromia, southwest Ethiopia, 2021, GC

Table 1: Socio Demographic characteristics

S/n	Question	Possible answer(s)	Code/skip to
001	Age	(___)years old	
002	Marital status	1. Single 2. Married 3. Divorced 4. Other, Specify_____	
003	Religion	1, Protestant 2. Orthodox 3. Muslim	
004	Ethnicity	1, Oromo 2.Amhar 3. Others	
005	Residence	1. Rural 2. urban	
006	Educational status	1. Level III 2. Level IV 3. Other specify_____	

007	Year of experience	----------year	

Questions assessing data management Knowledge

Ser.no	Question	multi-response also possible	Skip to
201	What is data management means?	• Data collection • Data processing • Data utilization • Storage • I don't know	
202	Which data collection method do you know?	1. Observation 2. Interview 3. Document review 4. No idea	
203	What types of data do you know?	1. Primary data 2. Secondary data 3. No idea	
204	If you have 30 pregnant women in your kebeles and among these 20 women have ANC follow up. What percent of women has ANC followed Up?	1. 66.6% 2. 33.3% 3. No idea	
205	For whom did you report performed activities?	1. Cluster health center 2. District health office	

		3. Others _specify_____	
206	When do you say the report has quality?	1. If it is timeliness 2. If it is clear 3. If it is not redundant 4. IF It is free from mathematical errors 5. I don't know	

Table 2: Data management practice

S/N	Question	Multi response possible	Skip to
301	Do you collect data?	1. Yes 2. No	
302	Do you store data?	1. Yes 2. No	
303	Do you analyze data?	1. Yes 2. No	
304	Which material do you use to record data?	1. HMIS registration 2. Notebook 3. Other specify----------	
305	For what purpose do you use the collected data?	1.for planning 2. For routine activities 3. For M& E my activities 4. Not use 5. Other specify----------	
306	Is data easily retrieved (show) when needed?	1.yes	

		2.no	
307	Do you report timely (always)?	1. Yes 2. No	
308	If your answer for Q.305 is yes what is the reason?	1. I fear punishment from my boss 2. Is my duty 3. Other, specify___	
309	What is the frequency of reporting?	1. Weekly 2. Monthly 3. Not specified	
310	Do you tally all daily activities immediately after performing each activity?	1. Yes 2. No	
311	If your answer for Q308 is No, why?	1. Consume time 2. I forget totally 3. I don't have a tally sheet 4. I think that no problem 5. Other, specify	
312	Do you fill all fields of a reporting format?	1. Yes 2. No	
313	Do you crosscheck the recoded data from registration with the tally sheet daily?	1. Yes 2. No	

Table 3; Organizational factors

Ser.no	Question	Possible answer	Skip patter n
401	Do you get supervision from your supervisors?	1.Yes 2. No	
402	If yes for Q.401. How often do you get supervised?	1. Every week	

		2. Every month 3. Every quarter 4. Every year 5. No specific pattern 6. Other specify___	
403	If yes for Q401. Does your supervisor observe your record book and tally sheet?	1. Yes 2. No	
404	What do you think about supervision?	1. Important 2. Not important 3. No idea	
405	Have you received oral/ written feedback from your supervisors?	1. Yes 2. No	
406	Do you have training on data Mgt and CHIS within the last 1 year?	1. Yes 2. No	
407	Is their HMIS manual or other reference material in your office?	1. Yes 2. No	
408	Does the Health center provide a pen, pencil, and marker?	1. Yes 2. No	
409	Do you have a telephone?	1. Yes 2. No	
410	Do you have graph paper in your office?	1. Yes 2. No	
411	Do you have report formats in your office?	1. Yes 2. No	
412	Do you have registration books in your office?	1. Yes 2. No	
413	Do you have a workload other than your routine work?	1.yes	

		2. no	
414	Salary	( )ETB	

Table 4: Technical Factors

S/n	Question	Multi Possible answer(s) possible	Code/skip to
501	What do you think is the understandability of reporting and registration forms?	1. clear, 2. not clear	
502	If your answer is not clear for Q501. What is the possible cause?	1. Uncommon words 2. Abbreviations 3. Formats are inconsistent 4. Other, specify	
503	Which method do you use to report your activities?	1. By paper 2. By phone 3. By SMS 4. Other _____	

Table 5; Observation checklists

S/n	What will be observed	Yes	No	Remark
1	Is there a copy of all reported data last five years in the office?			
2	Are there tally sheet formats?			
3	Are there HMIS registration books?			
4	Is the data stored on the separated shelf?			
5	Is the data stored on the labeled shelf?			
6	Is the recorded data is readable (check filled report and all must be readable)?			
7	Are all fields of reporting format filled?			
8	Are all fields of the registration book filled?			

9	Is the EPI coverage monitoring chart is posted and the fields on it updated?			

I have finished my observation thank you

Annex

Gucaa Eyyema gaafanaa

Inistituutii fayya jimaatti gaafii sirna bulchinsa ragaaa fi wantoota ragaan walqabatee jiruu irratti ekisitashiin fayyaaf kan qopha'ee.

Seensa: akkam fayyadhaa maqaan koo----------jadhamaaa. Kaniin asi dhufeef qoronno kana gochuufif ani miseensa obbo Li'ulsagad alamayyoo barataa digrii lammaffaa fayyaa yuniivarisitii Jimmatii . kanatti aansun dhaan hojiimaata sirn bulchinsa raga irratti gafii tokko tokko singafachuu ta'a kaayyon qoranno kanaas kaayyoo arman oliitti sinii ibsinee qofaaf ta'a. bu'aan qoranno kanaas sirna bulchins ragaa irratti hojii hojatamuu hundaaf gargaarsa ta'a gaafii gaafanuu hundaf deebiin keessan sirri baayye barbachiisaa. Gafii kana irratti shakki qabaanan irra deeebitanii gafachun hubachuu dandeessu. Akkasumasa deebii sini irraa argannu hundaa iccitidhan qabanaa. qorranno kana keessa kan isiin hirmaachifnuu yoo eyyema keessan agranee qofaa. Gafii barbaadan deebisuu dhisuun mirgaa kessan. Gafichii daqiiqaa 15-20 fudhachuu danda'a.

Gafiicha kessatti hirmachuuf eyyemamadhaa

1.Eyyee

2. lakki

Maqaa ragaa fuudhaa----------malattoo _____guyyaa----------

Maqaaa to'ataa----------

Annex:

Mataduree qoranno

Hojiimaata sirna bulchinsa raga fi wantota ragan walqabatanii jiranuu heksitanshinii fayyaa zoonii illu baa booritti

Qorataan: Li'ulsagad alamayyo (BSC)

Maqaa dhabattichaa: jimma yuniversiti ,inisititutii fayyaa.

Qarshii kanfaa ba’u abbumaadhan----------

Formii kun kan qophaa’ee sirn bulchinsa ragaa heksitanishin fayya irratti zonii illu baa boor waliigalta’e dhaaf

Kayyon isaas: wa’ee qoranno kana ifaa gochufif heyyema argachuuf.

Sababinii qorronnon kun demsiisamuf.

Kayyon qoranno kanaas sirna bulchinsa raga fi wantoota walqabatanii jiranuu heksitanshinin fayya qorachuf kan kayyefamee kan qopha’ee dha. Bu’an qoranno kanaa rakkina jiruu hukuuf akkasumas bakka qornoon kuun itti gagefamuutti qixaa sirri ta’ef furmata ka’uf nuu fayyadaa.

Hojiira holmaa isaa: heksitashin fayyya zonii illu ba boor hojatanuuf

Rakkin mudachu danda’u

Qoranno kan irratti irramachuu jaratiif daqiiqaa baduu qofa. Hata’umalee ragan immo bayye barbachisa dhaa.

fayyida:

kalattidhaan fayyida yoo hinjireeyyu sirna bulchinsa raga irratti zoniicha fayyadaa.

Hirrimatootaf benyaan kafalamuu hin jiru.

Icitii eeguu

Ragan qorrano kanaan sasabamuu kanni keessan ta’u hin ibsuu.

Qorranno kan keessatti qoda fudhachus ta’e dhisuus nidandessu ykn mirgaa.

Gaaficha keessaa amma barbadan deebisu ykn hunduma dhiisu dandesuu.

Qorataan: Li’ulsagad alamayyoo (BSC) ⁞ yuniversiti jimma institutii fayyaa hawwassa **lakk bilibilaa:** 0910636457

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gafii afana oromo Lakka gaffi_____

Hubannoo: gaffi itt maraaa akkasumas gaffi lamaa tokko ol filachuun danda'am.

Jimma yuniiversiti institutii fayyya dipartimenta epidimoology

Sirn bulchisa raga heksitation fayyafi wantoota itti walqabatanzonii illu baa boora gaffi qoranno

Questionnaire

Assessment of data management practice and associated factors among health extension workers in Illu Baboor and Bunna Bedele zone, oromia southwest Ethiopia, 2021 GC

Table 6: Socio Demographic characteristics

S/n	gaafii	deebii	Code/skip to
001	(Umire)	(___)	
002	Ga'ila	5. hin funee 6. fudheraa 7. (ikeraa) 8. Other,(kan bira) Specify_____	
003	Amanitii	1, Protestant(amantii) 2. Orthodox 3. Muslim	
004	Saba	1, Oromo 2.Amhar 3. Others	

005	bakka jirenyaa	3. Rural(magalaa) 4. urban	
006	sadarkaa barumsaa	4. Level III 5. Level IV 6. Other specify_____	
007	muxxanno wagga meqaa qabdaa?		

I. gaafii (bekumsa bulchinsa sirna raga)

Ser.no	gaafii	deebii	Irra darbii
201	Sirna bulchinsa raga jechun maljachudhaa?	1. raga funanuu 2. raga ademsisu 3. fayyadam raga 4. hin beekuu	
202	Which data collection method you know? Toftaa raga ittin funaannu?	1. ilaaluu 2. gafachuu 3. galmee sakata'u 4. yaada hinqabuu	
203	Gosa ragaa	1. raga jalqabaa 2. raga sedekaa lammaffa 3. No idea	
204	Ulfaa 30 gand kessa qabnu kessa 20 yoo hordoofii dhaf yoo dhuufan parsantaa meqatuu hordoofii dhufan?	1. 66.6% 2. 33.3% 3. Yaada hin qabuu	
205	Eyyuf gabasa gabaftuu?	1. Bufata fayyaf 2. Wajjira fayyaf 3. Kan biraa_____	
206	Yoom kan gabaafin qulquludha jannu?	1. Yeroosa egatee	

		2. Ifaa yoo ta'ee 3. If it is not redundant 4. If is free from mathematical errors 5. hin bakuu	

Table 7: hojii maat sirn bulchinsa ragaa.

S/N	Question	Possible responses	Skip to
301	Guidline kan ittin raga funantu,ittin kessu,ittin xinxaltuufi raga kenituu barrefaman qabdaa?	1. eyye 2. lakki	
302	Raga barrefaman kahuf Meshaa akkami fayyadamtaa?	1. galmeeHMIS 2. galmee 3. kanbiraa-------	
303	Raga fuunaantee fayyedansa malii fa'aa?	1.karooraaf 2. hojii idileef 3. For M& E may activiti 4. Not use 5. Other specify	
304	Raga kan halsalphan argachuun danda'amaa?	1.eyye 2.lakki	
305	Yeroo dhaan nigabaaftaa?	1. eyye 2. lakki	
306	Yoo gabafta taatee maliif?	1. Adabii sodaa 2. Dirqamaa kootii 3. Other, specify___	
307	Amamiin gabaftaa?	1. torbanin 2. Ji'aan 3. kan hin murtoofnee	

308	Talli nigotaa hojii idilee keetii akkuma fixeen?	1. eyye 2. lakki	
309	Lakki yoo jatte maliif?	1. Yeroo fudhataa 2. naniiraafadha 3. Talli shiiti hin qabuu 4. Akka yaadutti rakkina hin qabuu 5. Kan biraa	
310	formii gabaasaa hunda nii guttaa?	1. eyye 2. lakki	
311	Nimirkaneefataa raga tallif barrefamanjiruu	1. eyyee 2. lakki	

Table 8; gaafii dhaabataa keessa.

Ser.no	Question	Possible answer	Skip pattern
401	Nii hodoofamataa hordofaadhan?	1.eyye 2. lakki	
402	Amamiin hordofamtaa?	1. torbaniin 2. ji'an 3. kurmaanaan 4. waggaan 5. pattern guyya murta'ee hin qabuu 6. kan biraa	
403	Hordofaan tally sheetif galmee kee nii ilaalaa?	1. eyye 2. lakki	

404	Wa'ee hodofii mal yadaaa?	1. Barbaachisa Dhaa 2. hin barbaachisuu 3. yaada hin qabuu	
405	Barrefamaan ykn afaanindurdubee fudhate bektaa?	1. eyye 2. lakki	
406	Wagga tokko asii leenjii raga qabinsa irratti fudhatetaa?	1. eyye 2. lakki	
407	Manualin ykn riifaraansiin toftaa bulchnisa odefanno fayyaa irratti jiraa?	1. eyye 2. lakki	
408	Bufattin fayyaa qubeessa,penna fi markera siini kenna?	1. eyye 2. lakki	
409	Bilbila qabdaa?	1. eyye 2. lakki	
410	Warqaa giraafa jiraa bufata kessa?	1. eyye 2. lakki	
411	Foormiin gabaasa jiraa?	1. eyye 2. lakki	
412	Do you have registration books in your office Galmeen jirra?	1. eyye 2. lakki	
414	mindaa	( )ETB	

Table 9: Technical Factors

S/n	Question	deebii	Code/skip to

501	Wa'ee formii gabasafi galmee mal yadaa?	1. Ifaa 2. ifa mitii	
502	Ifa yoo ta'uu bate sababni isaa?	1. jecha bekama hin tanee 2. gabajee 3. formii yaada cicitaa 4. kan biraa	
503	Gabasaaf malfayadamtaa?	1. waraqaa 2. bilbila 3. sms 4. Other specify _____	

Table 10; checklists ordoofii

S/n	(wan ilaalamu qabuu)	Yes	No	Remark
1	Hafteen gabaasaa jiraa?			
2	Tally sheet formii jira?			
3	Hmis galmee jira?			
4	Kusaan ragaa shelf garaagaraa barrefamee jiraa?			
5	galmeen sirritti ni dubifamaa?			
6	ragaan hojii hundaa jiraa?			
7	galmeen hojii hundaa jiraa?			
8	chartiin talaalii haraan jiraa?			