Health Workers' Knowledge, Perceptions, and Self-Efficacy Regarding the Use of Information Systems in Rural Districts of Oromia and Gambella Regions, Ethiopia

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Abstract

Background: Sound and reliable information is the foundation for informed decision-making across all health system building blocks. However, there is a shortage of evidence regarding the organizational and behavioral performance of health information systems in Ethiopia. This study aimed to assess the organizational and behavioral performance of the routine health information system (RHIS) in the Digaluna-Tijo and Godere districts of Oromia and Gambella regions.

Methods: Descriptive institutional-based cross-sectional study was conducted on purposively selected 67 health workers based on their experience in dealing with health data to design interventions that will help better RHIS performance. A self-administered semi-structured questionnaire was used to collect the data from March 19 - 27th, 2021. The data analysis was done using SPSS version 25. Chi-square was carried out to identify the relation between dependent and independent variables. Tables and figures were used to present the findings.

Results: Among the respondents, only 8(12.8%) correctly described at least three dimensions or aspects of data quality. In comparison, only 3 (4.5%) participants described at least three ways or mechanisms of correctly ensuring data quality. There is a negative perception toward emphasis given by managers/supervisors on data quality (13.5%) and the use of data to inform decision-making (7.5%). Perception of self-efficacy to perform RHIS tasks ranged from 4.98 to 8.25. Only 23.9% and 12% of respondents could compute data analysis and correctly interpret the presented data. There is a positive relation between self-efficacy and training at a P-value of 0.03. Moreover, being HIT/IT personnel and perceiving information use culture are positively related (P-value 0.049).

Conclusion: Few health workers could describe the dimensions of data quality and ways of ensuring data quality. Health workers have low perceptions toward managers/supervisors to seek input from relevant staff, emphasize data quality, and conduct routine data quality checks at points where data are captured, processed or aggregated. Health workers also have a very low perception of their self-efficacy to perform RHIS tasks. Similarly, only a few health workers were able to present the information and were able to interpret the figure correctly. It is recommended to provide need-based training and regular mentorship to have knowledgeable and skillful health workers improve RHIS performance at the low level of the health system. [*Ethiop. J. Health Dev.* 2022;36 (SI-2)]

Keywords: Knowledge, perception, self-efficacy, routine health information system, Oromia, Gambella

Introduction

All of the components of the healthcare system rely on accurate and reliable data to make educated decisions. The health information system provides the underpinnings for decision-making, which has four key functions: data generation, compilation, analysis and synthesis, and communication and use (1). This system helps collect data from the health sector, analyses the data, ensures its overall quality and relevance and timeliness, and converts data into information for decision-making (2). Furthermore, it is also an important alarming area used to promote a high standard of patient care and is also very important for the allocation of the health care budget (3).

Despite the high demand for quality data at all health system levels, there is literature revealing it is a challenge in developing countries, particularly at the primary healthcare level (4,5). In the Ethiopian health system, the health management information system is the major source of routine data information for the sector, aiming to generate quality data, reduce data burden, and ensure information use at all levels (6). Although several efforts have been made to strengthen health management information systems, data quality remains poor within the health sector, particularly at the peripheral levels primarily responsible for the operational management of health data. The institutional will and guidance to correct this state are strong and clear to improve data quality to support

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improved management and enhance credibility in reporting to external agencies (6-8).

There is also evidence showing that, in health facilities in developing countries, health professionals have poor knowledge of and are less motivated to use health information in their working units. This poor information-use culture at the facilities could be attributed to a lack of financial and human resources dedicated to routine health information systems, a lack of health workers' understanding of the rationale for collecting health data and information, and the absence of regular follow-up and support from higher supervisory levels and. This, in turn, shows the need for leadership commitment to the improvement of the optimum quality of health information and the promotion of information used for informed decision-making at all levels of the health system (8-11).

To improve the continual use of information in decision-making, health workers' capacity in core competencies to ensure data quality and use must exist at all levels of the health system. The performance of routine health information systems and processes such as data collection, analysis, and presentation is affected by the gap between the real competencies and perceived competencies of healthcare providers. There is also evidence showing the discrepancy observed in the country between the desired and actual levels of data quality at the health facility level, which particularly requires extra effort (11,12).

In Ethiopia, as in many low-income countries, implementation of health management information systems is challenging. In this study, the determinant model, the consolidated framework for implementation research (CFIR), was used to describe and guide the process of translating research into practice (13). The model is divided into five domains: intervention characteristics, outer and inner settings, individual characteristics, and process. Two domains, inner setting and characteristics of individuals, were applied at this time. From the inner setting, culture, which includes values, attitudes towards the importance of data quality, and emphasis is given to recording or keeping quality data was assessed. Individual characteristics, knowledge of data quality assurance techniques and tools, and beliefs about maintaining data quality using recommended techniques and tools were all used. In addition, personal attributes like demographic characteristics, sex, service year, profession/field of study, and type of facility were also applied.

Therefore, the aim of this study, as part of implementation research, was to assess the health workers' knowledge, perceptions, and self-efficacy towards health data management and a culture of information use in selected health institutions in the Oromia and Gambella regions. The findings of this study will be an input for the identification and design of interventions addressing organisational and behavioural gaps so that the selected institutions can have quality data for informed decision-making.

Material and Methods
Study setting
The study was conducted at two selected sites in the Oromia and Gambella regions; Digaluna-Tijo district from Oromia and Godere district from Gambella (one from each region), as shown on the map (Figure 1). The study areas were selected as part of implementation research to improve data quality. Digaluna-Tijo district is located 200 km (southeast) of Addis Ababa, the capital. The Godere district is 628 km southwest of Addis Ababa and 205 km from Gambella, the region's capital. There are seven health centres, two hospitals, and 39 health posts in both districts. Five health centres, one referral hospital, and 25 health posts are found in the Digaluna-Tijo district.

Figure 1: Map of the study sites; 2021
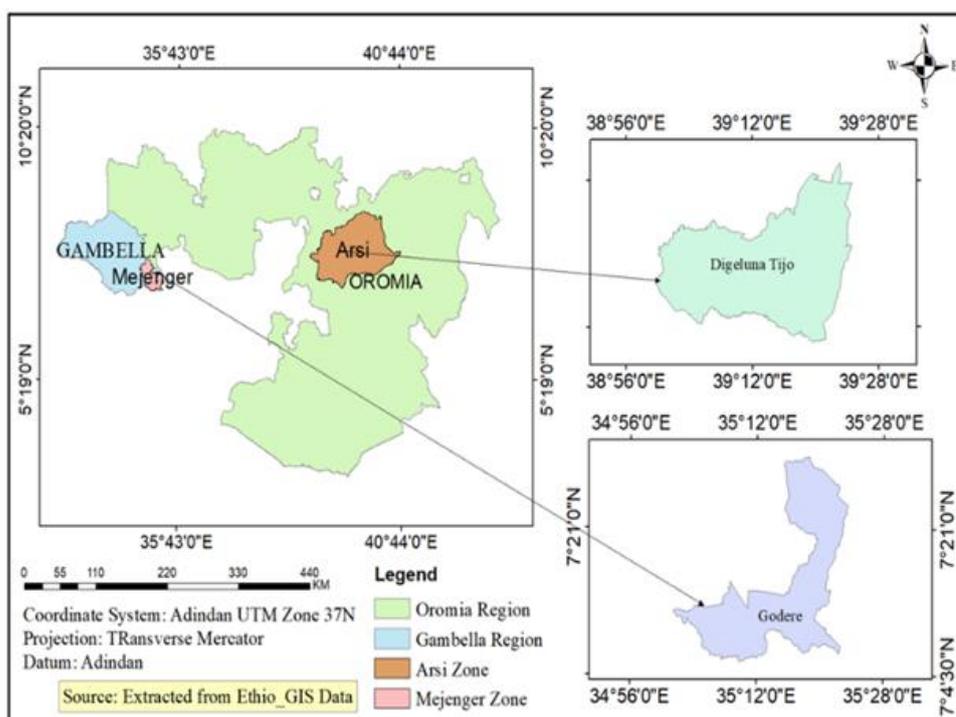
The total population of Digaluna-Tijo is 206,950, while Godere is 61,015. In both districts, there are 416 health workers, comprising 217 healthcare providers; 93 health extension workers; and 106 administrative staff (229 in Digalu and 187 in Godere, respectively).

Study design and period
The study employed an institutional-based cross-sectional study design and was conducted from March 19 - 27, 2021, as a baseline assessment for implementation research.

Study population
The study population included all purposively selected health workers working in public health facilities and those with a minimum of six months of work experience in the study institutions. The focus of the study was health workers, including health care providers, health extension workers, and those who work on health data.

Sample size and Sampling technique
A purposive sampling method was employed. The study included health workers who have experience dealing with data related to health institutions, such as heads of district health offices, health facilities, case teams or department units, HIT professionals, or IT professionals who work on health data management and health extension workers. Hence, the total sample size for this study was 67 health workers.

Data collection procedure and tools
Data were collected through self-administered interviews using a standardised semi-structured questionnaire. To assess the organisational and behavioural variables on data quality and information use, the data collection instrument was adapted from the performance of the routine information system management (PRISM) framework (14). The questionnaire comprises five sections addressing respondents' characteristics, information use culture, RHIS knowledge, self-perception of competency to perform RHIS tasks, and competency to perform RHIS tasks.

Study Variables
Dependent variables in this study were self-efficacy to perform HRIS tasks and perception toward information use culture. Independent variables were socio-demographic characteristics of respondents such as sex, level of education, region, entire service year, profession, experience with data, facility type and training.

Measurement
Knowledge about RHIS was assessed using items with "'yes' or "'no' questions, indicating the possible reasons for collecting and using aggregated data every month for various data types. More specifically, health workers' knowledge of the reasons for collecting and using aggregated data about diseases, immunisation, and selected demographic characteristics such as population size and composition, and residence were captured and analysed. Responses with 'yes' are considered as 'knowledgeable' in all cases.

Perceptions toward managers'/supervisors' characteristics and the promotion of information use culture were assessed using ten items on a five-point Likert scale ranging from strongly disagree (one) to agree (five) strongly. Computed means were calculated for both composite variables, which were thirty. Suppose responses greater than or equal to the computed mean, the perception of health workers towards managers/supervisors and the information use culture. In that case, we affirm that the perception was 'good'. When it is less than thirty, it is considered 'low'. Six items on a five-point Likert scale assessed personal feelings, ranging from strongly disagreeing (one) to strongly agreeing (five). The computed mean was eighteen. Values greater than and equal to the computed mean were considered as 'good', while those less than the mean were considered as 'low'. Self-efficacy to perform RHIS tasks was assessed using six items to rate their confidence in accomplishing various RHIS activities on a scale of zero to ten, where 0 is 'not 'confident' and ten is 'confident enough'.

The skills to perform RHIS tasks were assessed by giving case studies to examine the respondents' skills related to data quality, data analysis, presentation, interpretation, and making decisions using available data. Respondents with correct answers were considered to be 'skilled' to perform RHIS tasks.

Data analysis
The statistical packages for social sciences (SPSS) version 25 were used to enter and analyse data. Descriptive statistics (frequencies, proportions, and means) were used to summarise demographic characteristics and calculate the level of knowledge and perception toward health data and information use culture. The Chi-square test / Fisher's exact test was used to compare categorical data, and Spearman's correlation was used to determine the association between dependent and independent variables.

Ethical approval
Ethical approval was obtained from the Ethical Review Board of Health Institute at Jimma University (Letter dated 26/08/2020; ref IHRPGD/743). A letter of cooperation was obtained from the respective regions and districts. Verbal consent was obtained from each respondent before the start of data collection. Confidentiality of the data was ensured through anonymity.

Results
Demographic characteristics of respondents
The study included 67 participants with a response rate of 100%. Of these, 39 (58.2%) respondents were from Oromia, and the remaining 28 (41.8%) were from the Gambella region. More than two-thirds (67.2%) of the respondents reside in rural areas. Among these, 28 (41.8%) were HEWs, followed by health professionals from health centres (32.8%), and 59.7% were female. Regarding their service years, 23 (34.3%) respondents

have >10 years of experience, followed by 20 (29.9%) having 6-10 years of total service years. From these, 27 (40.3%) respondents have worked with health data (RHIS/HMIS/CHIS) for 2-5 years, and about one-fourth (25.4%) have 6-10 years of experience with health data. More than half (58.2%) of respondents have received formal training on RHIS/HMIS/CHIS,

and among these, 33 (84.6%) have received it in the last year before the commencement of data collection. The most widely delivered training was on HMIS/CHIS (data collection, transmission, storage, and data quality assurance) for the large majority (84.6%) (Table 1).

Table 1: **Demographic characteristics of study respondents for knowledge, perception, and self-efficacy toward health data and information use culture in Digaluna-Tijo and Godere sites, Oromia and Gambella regions, Ethiopia, 2021.**

Characteristics	Category	Frequency	Percent
Region	Oromia	39	58.2
	Gambella	28	41.8
Administrative location of respondent's facility/organisation	Urban	22	32.8
	Rural	45	67.2
Type of respondent's facility/organisation	Referral/Specialised hospital	5	7.5
	Primary hospital	4	6.0
	Health centre	22	32.8
	Health post	28	41.8
	Woreda health office	8	11.9
Sex	Male	27	40.3
	Female	40	59.7
Formal technical/medical training	Physician	2	3.0
	Health officer	7	10.4
	Nurse/Midwife	18	26.8
	HIT/IT	6	9.0
	HEW	28	41.8
	Others	6	9.0
Service year	Less than or equal to 1 year	3	4.5
	2-5 years	21	31.3
	6-10 years	20	29.9
	>10 years	23	34.3
Years of working with health data or RHIS/HMIS/CHIS	Less than or equal to 1 year	10	14.9
	2-5 years	27	40.3
	6-10 years	17	25.4
	>10 years	13	19.4
Ever received formal RHIS/HMIS/CHIS training	Yes	39	58.2
	No	28	41.8
Type of formal RHIS training ever received (n=39)	Health statistics	2	5.1
	HMIS/CHIS (data collection, transmission, storage, and data quality assurance)	33	84.6
	Data analysis and use	1	2.6
	General M&E	3	7.7
Received RHIS/HMIS/CHIS RHIS-related training in the last year (n=39)	Yes	33	84.6
	No	6	15.4

Others: Pharmacists and Laboratory technicians

Knowledge of Routine Health Information System (RHIS) data

The majority of respondents identified the possible reasons for collecting or using aggregated diseases and immunisation, age/sex of patients/clients, geographical data or residence of patients', and population data (e.g.,

number of people living in the catchment area). The average correct response for knowledge items ranged from 55.2% (reasons for collecting or using age/sex aggregated data of patients/clients) to 79.1% (reasons for collecting/using aggregated immunisation data (Figure 2).
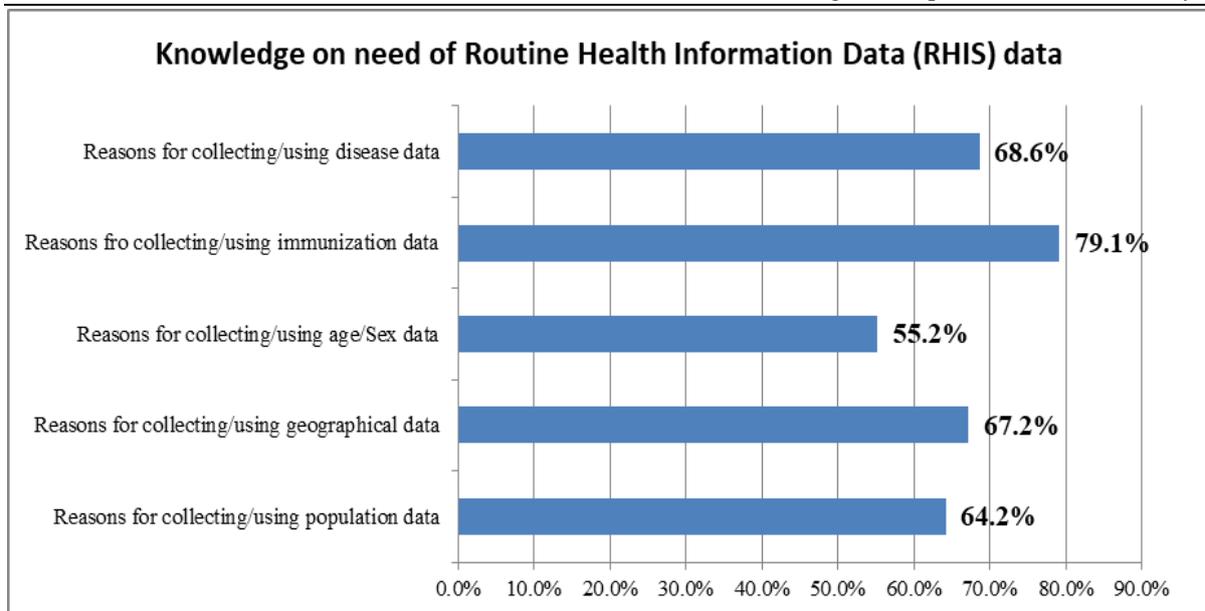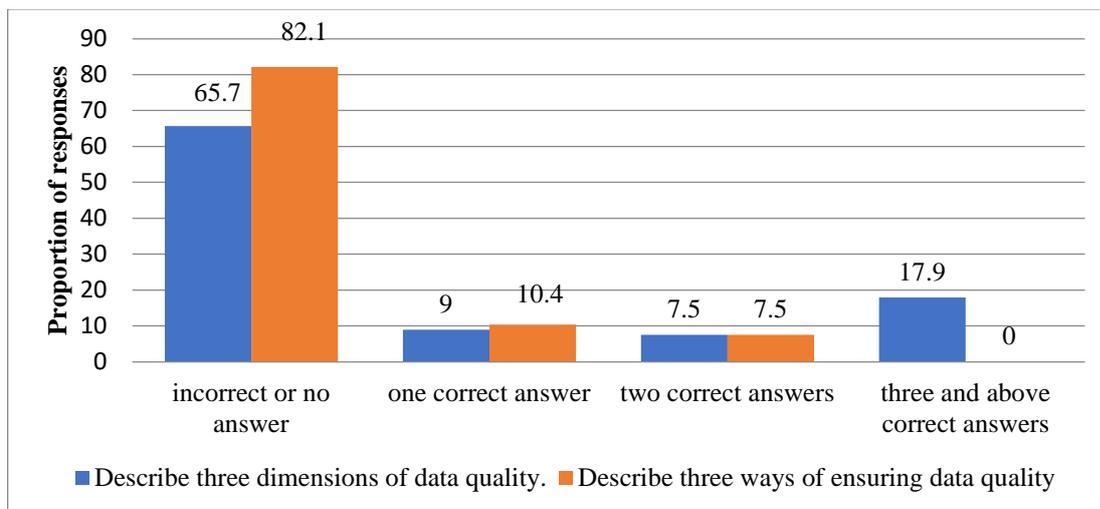
Figure 2: Knowledge of respondents on the reasons for collecting RHIS data in Digaluna-Tijo and Godere sites in the Oromia and Gambella regions of Ethiopia, 2021

Knowledge of data quality dimensions and mechanisms to ensure data quality

Eight (12.8%) of respondents correctly described at least three dimensions or aspects of data quality. More than half (52.6%) of respondents either mentioned the dimensions of data quality incorrectly or did not give correct answers to the questions. Only 3 (4.5%) participants described at least three ways or mechanisms of ensuring data quality correctly. Overall, the majority (83.5% and 85%) of respondents neither know the dimensions of data quality nor the mechanisms to ensure data quality, respectively (Figure 3).

Figure 3: Respondents' knowledge of dimensions (aspects) of data quality and mechanisms to ensure data quality in Digaluna-Tijo and Godere districts in the Oromia and Gambella regions of Ethiopia, 2021

Personal beliefs (feelings) of respondents toward RHIS tasks

The majority of respondents believe that the data they collect is important for monitoring service performance and is meaningful/useful (91% and 88%), respectively, and that their work of collecting data was appreciated and valued by their supervisors (76.1%). Forty-four (65.7%) respondents feel discouraged when the data that they collect /record are not used for taking action (either for monitoring or decision-making), and 43 (64.2%) of them find collecting /recording HMIS/CHIS data tedious. Furthermore, 20 (29.8%) feel that data collection/recording is not the responsibility of healthcare providers. The overall computed mean

(+SD) of personal feelings towards RHIS tasks was 22.20 (SD + 3.044).

Perception of HMIS task performance by staff

Respondents were asked about their perceptions of their staff's performance on HMIS tasks. The majority of them had a positive perception of their staff's performance in preparing data visuals (graphs, tables, maps, etc.) to show achievement toward targets (83.6%) and monitoring whether an initiative or intervention achieved the targets or goal (82.1%). However, using RHIS data for day-to-day management was the least performed activity (58.2%), followed by using disaggregated RHIS data to identify

and solve health equity related problems (73.1%) as perceived by health workers.

Perception of the promotion of information use culture

The majority of respondents (82%) perceive decisions are made based on the official health sector strategic objectives followed by locally identified health needs of the catchment population (51%) and supervisors' directives (51%). However, a considerable number of respondents, 47 (70.2%), agreed that decision is based on the personal preference of decision makers, and 40 (59.7%) responded that decision-making is based on history or what was done last year rather than the actual performance. Furthermore, less than one-tenth (7.5%) of respondents agreed on the use of evidence/facts/data to inform decisions, and more than a quarter (37.3%) of them perceived decision-making at their facility/organisation is politically informed (Table 2). The overall computed mean ($\pm$SD) of the perception of the information use culture of their organisation was 35.63 (SD $\pm$ 6.201) (Table 2).

Table 2: **Perceived promotion of information use culture at facilities and organisations of Digaluna-Tijo and Godere sites; Oromia and Gambella regions, Ethiopia, 2021**

Items Decision-making at my facility/organisation is based on the following:	Disagree Freq (%)	Neutral Freq (%)	Agree Freq (%)
Personal preference of decision-makers	11 (16.4)	9 (13.4)	47 (70.2)
Superiors' directives	9 (13.5)	7 (10.4)	51 (76.2)
Evidence/facts/data	7 (10.5)	55 (82.1)	5 (7.5)
History, what was done last year	12 (17.9)	15 (22.4)	40 (59.7)
Funding directives from higher levels	27 (40.3)	11 (16.4)	29 (43.2)
Political considerations	24 (35.8)	18 (26.9)	25 (37.3)
Official health sector strategic objectives	8 (12)	4 (6)	55 (82)
Health needs of the catchment population as identified locally	13 (19.4)	3 (4.5)	51 (76.2)
The relative cost of interventions	22 (32.8)	11 (16.4)	34 (50.7)
Participatory by taking inputs from relevant staff	8 (12)	10 (14.9)	49 (73.1)

Perception towards the characteristics of organisation managers/supervisors

The majority of respondents perceive their managers/supervisors use RHIS data for service performance monitoring and target setting (80.6%), and they emphasise the need to use RHIS data in identifying potential disparities in service delivery or use (77.6%). In line with this, more than two-thirds of respondents (68.7%) believe managers/supervisors ensure that decisions are made, and follow-up actions are identified in performance monitoring team (PMT) meetings based on the presented data. However, less than one-fifth of respondents perceive managers/supervisors to seek input from relevant staff (17.9%), emphasise data quality (13.5%), promote feedback mechanisms (10.4%), and conduct routine data quality checks at points where data are captured, processed or aggregated (12%). Besides, only 9 (13.4%) respondents perceive managers/supervisors' characteristics as recognising or rewarding staff for good performance. The overall computed mean ($\pm$SD) of perception towards the characteristics of organisation managers/supervisors was 37.67 $\pm$ (7.79) (Table 3).

Table 3: Perception of respondents on the characters of organisational managers/supervisors in the Digaluna-Tijo and Godere districts of Ethiopia's Oromia and Gambella regions in 2021.

Items	Disagree Freq (%)	Neutral Freq (%)	Agree Freq (%)
Seek input from relevant staff	47 (73.1)	8 (11.9)	12 (17.9)
Emphasise data quality procedures	53 (79)	5 (7.5)	9 (13.5)
Promote feedback mechanisms	50 (74.6)	10 (13.9)	7 (10.4)
Use RHIS data for service performance monitoring and target setting	8 (12)	5 (7.5)	54 (80.6)
Emphasise the need to use RHIS data to identify potential disparities in service delivery or use	7 (10.4)	8 (11.9)	52 (77.6)
Conduct routine data quality checks at points where data are captured, processed or aggregated	53 (79)	6 (9)	8 (12)
Ensure that performance data are reviewed and discussed in the regular meetings	13 (19.4)	46 (68.7)	8 (11.9)
Ensure that decisions are made and follow-up actions identified in PMT meetings based on presented data	13 (19.4)	8 (11.9)	46 (68.7)
Provide regular feedback on reported data quality	50 (74.6)	6 (9)	11 (16.4)
Recognise or reward staff for good work performance	17 (25.3)	41 (61.2)	9 (13.4)

Perception of respondents on self-efficacy toward performing RHIS tasks
The mean score for respondents' perceptions of each item dealing with self-efficacy ranged from 4.98 to 8.25. Using data for identifying performance gaps and checking data accuracy were the items rated highly, with mean scores of 8.25 ($\pm$1.23) and 7.75 ($\pm$1.61),

respectively. In contrast, health workers had relatively low perceptions of self-efficacy in using data for making operational/management decisions and explaining the findings of the data analysis and their implications (mean scores = 4.98 ($\pm$3.02) and 5.96 ($\pm$2.12), respectively) (Figure 4).
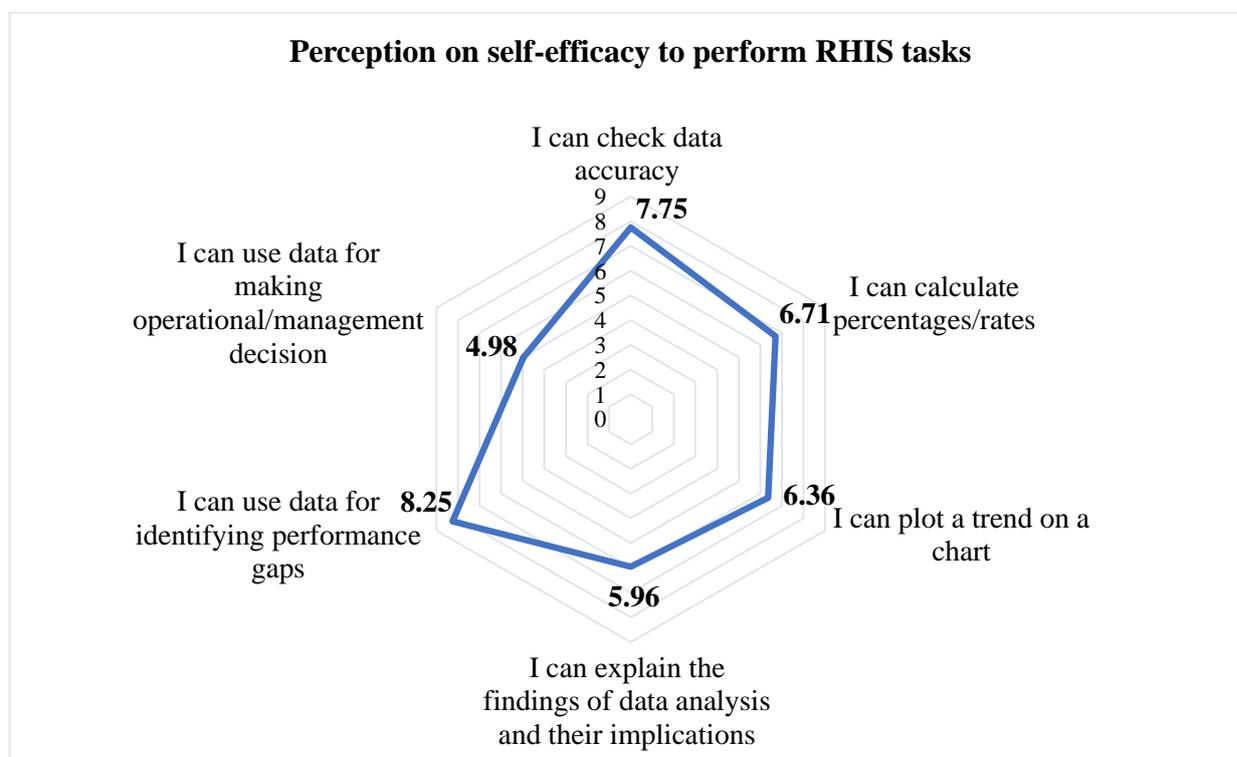
Figure 4: Perceived self-efficacy on competency to perform RHIS tasks among the respondents at Digaluna-Tijo and Godere sites, Oromia and Gambella regions, Ethiopia, 2021

Self-efficacy of respondents to conduct RHIS tasks
Competency in data analysis and interpretation skills
The computational skills of participants were assessed using an open-ended question requiring data computation. The first question was a calculation of ANC service coverage. For this question, about one-third (21 out of 67) of the participants did the calculation correctly. Another question aimed to examine respondents' data analysis and interpretation skills. They were asked to calculate the prevalence of malnutrition among children, disaggregated by sex or age. And for this question, only 23.9% (n=67) of respondents attempted at all or calculated correctly the malnutrition rates disaggregated by sex or age.

Information presentation and interpretation skills
Respondents were also given a hypothetical dataset on pregnant women attending ANC for the first time for 12 months, in a hypothetical health centre. Besides the ANC_1 visit, data on the number of women who received iron 90+ for the prevention of anaemia was also provided. Respondents were then requested to develop a line graph depicting the trend over one year for Iron 90+ coverage among the ANC_1 attendants. Accordingly, only four health professionals (6%) could present the information correctly by developing an appropriate line graph. Another hypothetical bar graph

was presented to the respondents to assess their interpretation skills regarding the mix of family planning methods for new users in a specific health centre. Accordingly, only 8 (12%) of the study's respondents could interpret the figure correctly.

Correlation of self-efficacy with study variables
A chi-square test has been done to see the relationship between respondents' self-efficacy to perform RHIS tasks and independent variables. Accordingly, region, year of working with data, full-service year, and training of RHIS in the last year were associated with the self-efficacy of health workers to perform RHIS tasks. But only the professional category was associated with perceived information use culture. The study participants' self-perception of competency to perform RHIS tasks was positively associated with the region in which they live (P<0.05). Similarly, the service year is associated with a higher perception of self-efficacy in performing RHIS activities (P<0.05). The year of working with data is negatively associated with the self-perception of health workers' ability to perform RHIS (P<0.05). Training and self-efficacy also have associations. Taking training in the last year has been positively associated with the self-efficacy of health workers (P<0.05) (Table 4).

Table 4: Correlation of socio-demographic variables with self-efficacy among health workers in Digaluna-Tijo and Godere sites, Oromia and Gambella regions, Ethiopia, 2021

Variables	Self-efficacy		X^2/ Fisher's Exact Test	P-Value
	Disagree	Agree		
Region				
Oromia	34 (51)	5 (7.5)	3.681	.045*
Gambella	19 (28)	9 (13.5)		
Total service year				
Less than 5 years	17(25.3)	9(13.5)	4.838	.030*
Greater than 5 years	36(53.7)	5(7.5)		
Year of working with data				
Less than 5 years	32(48)	11(16)		
Greater than 5 years	21(31)	3(5)	-0.249	0.049*
Trained in the last year				
Yes	27(62.2)	6(15.4)	24.130	0.039*
No	4(10.2)	2(5.2)		
Sex				
Male	19(28.4)	8(11.9)	2.087	0.221
Female	34(50.7)	6(8.9)		
Profession				
Physician	2(3)	0(0)		
Health officer	5(7.5)	2(3)		
Nurse/Midwife	12(18)	6(9)	3.332	0.646
HIT/IT	5(7.5)	1(1.5)		
HEW	24(34.3)	4(7.5)		
Other	5(7.5)	1(1.5)		
Location				
Urban	19(17.4)	3(4.6)	1.044	0.359
Rural	34(35.6)	11(9.4)		

Correlation of Perceived information use culture with study variables

A chi-square test was done to see the relationship between perceived information use culture and other independent variables. Consequently, only profession was associated with perceived information use culture to perform RHIS tasks. The study participants' perceived information use culture was positively associated with the profession of health workers (P< 0.05) (Table 5).

Table 5: Correlation of socio-demographic variables with perceived information use culture among health workers in Digaluna-Tijo and Godere sites, Oromia and Gambella regions, Ethiopia, 2021

Variables	Perceived culture	Information use	X^2/ Fisher's Exact Test	P-Value
	Disagree	Agree		
Profession				
Physician	2(3)	0(0)		
Health officer	3(4.5)	4(6)		
Nurse/Midwife	6(9)	12(18)	10.730	0.039*
HIT/IT	1(1.5)	5(7.5)		
HEW	5(7.5)	23(34.3)		
Other	0(0)	6(9)		
Sex				
Male	8(11.9)	19(28.4)	0.433	0.574
Female	9(13.4)	31(46.3)		
Location				
Urban	6(8.9)	16(24)	0.062	0.513
Rural	11(16.4)	34(50.7)		
Ever received training				
Yes	8(11.9)	31(50.7)	1.164	0.394
No	9(13.4)	19(28.4)		
Region				
Oromia	7(10.4)	32(47.8)	2.717	0.154
Gambella	10(14.9)	18(26.9)		

Discussion

This study assessed health workers' knowledge, perceptions, and self-efficacy towards health data management and culture of information use. The findings identified that health workers have little knowledge of data quality and mechanisms to ensure it, low perception of the promotion of information use culture, and characteristics of managers/supervisors. On the other hand, participants reported a positive perception towards their staffs performance of RHIS tasks and self-efficacy to perform RHIS tasks. However, health workers were found to have low self-efficacy in performing selected RHIS tasks.

In the current study, most health workers (84.6%) were trained on RHIS/HMIS/CHIS; this result was higher than that of studies conducted in the country and other parts of Africa. According to a study conducted in the Oromia special zone and East Gojjam zone, 55.8% and 46.8% of health workers have received HMIS training, respectively (15,16). According to a study conducted in Tanzania, 20% of health workers have received HMIS training (17). The possible explanation for this difference might be due to the effort to improve the health information system, which is among the transformational agendas of the health sector transformation plan (7).

This study finding revealed that 68.6% of health workers believe that the reason for collecting aggregated disease data was to provide level care, know the magnitude of the disease, identify disease outbreaks, and plan for preventive and promotive activities. This finding was in line with another study in which 59.1% of health workers had good knowledge of the reason for collecting aggregated disease data (18).

In this study, the majority (83.5% and 85%) of study participants could not describe dimensions of data quality and mechanisms to ensure it, respectively. A lack of clear understanding of the dimension of data quality and ways of ensuring it may lead to poor quality of data collection and suggest that decision-making in the study areas may be less than adequately informed. This study contradicts the study done in the Ilu Ababor Zone, in which 81.1% and 58.6% of health workers had an excellent understanding of data quality dimensions and a good understanding of data quality improvement mechanisms (18). The variation might be due to the difference in context, support, training, supervision and mentorship.

On the contrary, despite their lack of knowledge about HMIS, most health workers believe that the data they collect is important for monitoring service performance and is meaningful and useful (91% and 88%), which is consistent with other findings (19,20). This indicates considerable acceptability, which could be a good driving factor for improvement. Besides, health 'workers' positive perception toward HMIS task performance by their staff is also an significant finding promising for the improvement of HIS. However, a significant number of health workers perceived that using RHIS data for day-to-day management and to identify and solve health equity-related problems were the least practised activities by staff, implying room for specific and focused interventions to have quality data and promote information use culture. This finding is also reflected in health workers' negative perceptions toward characteristics of managers/supervisors

regarding emphasis given to data quality and the presence of recognition or reward for staff on a good performance, which is much lower than the finding of a study conducted in the Amhara region, Ethiopia (19).

In line with this, poor perception toward the promotion of information use culture, particularly the use of evidence/facts/data to inform decisions, is among the major findings of this study. This requires an urgent call to improve health workers' perception to promote an informed decision-making culture at health facilities/organisations. There are also shreds of evidence elsewhere indicating information use culture at primary level facilities were low, enlightening behavioural, technical, and organisational factors; and among these, organisational factors played a key role in enhancing the other factors (21-25).

It is well known that organisational factors such as the culture of information use, availability of resources, training of health workers, supportive supervision, and governance influence HMIS performance and informed decision-making (26-28). Low perception of health workers toward self-efficacy to perform RHIS tasks could have an outcome of low self-efficacy of the respondent measured in terms of their analytic and interpretation skills. This, in turn, significantly contributes to the poor performance of the RHIS tasks resulting from poor knowledge and perception. There is evidence depicting a similar finding (29-30) stated as health workers' low efficacy in analysing, interpreting, and using HMIS data, indicating the need for integrated improvement interventions.

Results of the current study indicate that apart from the demographic characteristics of respondents, total years of experience and being trained in the last year were found to have an association with workers' self-efficacy when performing RHIS tasks. This finding is in line with other studies conducted in Begi and Ilu Abba Bora, Oromia region (18,29), which implies the need-based refresh training for health workers to update themselves and get motivated.

Strength and limitations
This study has some strength in that it used a pretested standard tool to assess the organisational and behavioural factors for RHIS, and it captured responses in a real-time context, which provided an in-depth view of the topic of interest. However, some limitations also entail interpretation of study's findings with caution. The first limitation is that the study populations were small, which hindered the researchers not to conduct advanced statistical analysis to quantify the degree of association among variables. The other limitation is the data collected cannot be used to generalise to other people in similar settings, meaning the results only apply to the cases (respondents) studied.

It is recommended that other researchers have a large sample size and identify the statistical evidence that could be a base for in-depth or case studies to address the organisational and behavioural determinants of RHIS.

Conclusion and recommendations
The study's findings concluded that health workers have knowledge of the dimensions (aspects) of data quality and the perception of their self-efficacy to perform RHIS tasks is very low. Only a few health workers could develop a line graph depicting the trend over one year, present the information in a bar graph, and interpret the figure correctly. Moreover, respondents' self-efficacy towards the task of RHIS is associated with the region, service year and years of working with data. The profession is associated with perceived information use culture. Hence, it is recommended that providing need-based training to health workers is essential as they can be knowledgeable, motivated, and skilled in performing RHIS tasks. It is also suggested that regular mentorship and supportive supervision with a feedback mechanism is crucial to have quality data and promote an information-use culture in health organisations. Furthermore, it recommended context-specific interventions to have a functional health information system, as the study's findings depicted region-specific differences.

List of Abbreviations
CHIS: Community Health Information System
HEW: Health Extension Workers
HIT: Health Information Technicians
HMIS: Health Management Information System
IT: Information Technology
M&E: Monitoring and Evaluation
RHIS: Routine Health Information System

Competing interest

The authors declare that they have no conflicts of interest in this work.

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