

STROBE Statement—Checklist of items that should be included in reports of *cross-sectional studies*

Section/Topic	Item #	Recommendation	Reported on page #
Title and abstract	1	Utilization of Health Management Information and Its Determinant Factors among Health Professionals Working at Public Health Facilities in North Wollo Zone, Northeast Ethiopia: A Cross-Sectional Study	Page 1
		The study aimed to assess health management information utilization and associated factors among health professionals working at public health facilities in North Wollo zone, Northeast Ethiopia. A total of 664 (56.3% male and 43.7% female) health professionals participated in the study. The finding from this study revealed that enhancing motivation, building a culture of information use, having standardized indicators, strengthening the governance of health information system and a comprehensive HMIS training were measures to be taken to improve utilization of health management information in this study setting.	Page 2
Introduction			
Background/rationale	2	A Health Information System (HIS) is an integral part of the healthcare system. Previous research finding implied that weak routine health information use in developing country. However, previous studies in Ethiopia weren't widely addressed organizational factors and we argue that the relevance of those untouched factors was undeniable which poses challenges to utilizing health management information. Our review showed that inconsistent findings from previous studies in different parts of Ethiopia. It indicated that not a uniform level of utilization in this country. This means low generalizability of those results to the current study setting, and study area specific finding is required in Northeast Ethiopia.	Page 4-5
Objectives	3	<ul style="list-style-type: none"> ✚ To determine health management information use among health professionals working at public health facilities in North Wollo zone, Northeast Ethiopia ✚ To identify factors associated with data management practice among health professionals working at public health facilities in North Wollo zone, Northeast Ethiopia 	Page 5
Methods			
Study design	4	An institution-based cross-sectional study was employed by using a quantitative approach.	Page 6
Setting	5	The study was conducted at public health facilities in North Wollo zone, Northeast Ethiopia.	Page 6
Participants	6	All health professionals permanently working in North Wollo were eligible in this study. However, health professionals who had less than six months of experience or not permanent employees weren't including in this study. Accordingly, a total of	Page 6

		664 (56.3% male and 43.7% female) health professionals were approached.	
Variables	7	<p>Outcome measure: The outcome variables were health management information utilization.</p> <p>Independent Variables or Predictors: were grouped in to four classes. First, organizational factors such as training, supervision, feedback, and so on. Second: Behavioral factors such as competence, attitude and knowledge of health professionals. Third: Technical factors such as user friendliness of reporting tools, standardized indicator and availability of appropriate technology. Fourth: Socio demographic factors: Age, gender, residence, educational level, and so on.</p>	Page 7 to 8
Data sources/ measurement	8*	A structured self-administered questionnaire was used to collect data among healthcare professionals. Two-day training was given for data collectors and supervisors.	Page 7
Bias	9	Participants were selected randomly and the study tool was also pre-tested in Ethiopian context.	Page 6
Study size	10	The sample size was calculated using single population proportion formula, considering the following assumptions: a 95% level of confidence, a 5% of margin of error, a design effect of 2, P= 78.5% from previous study and a 5% of non-response rate. Finally, we got and approached a total number of 721 health care professionals within the selected clusters.	Page 6
Quantitative variables	11	The quantitative variables were measured using different item questions. Health management information use was assessed using Likert scale questions rated on a five-point Likert scale (ranging from “1=strongly disagree” to “5=strongly agree) and finally interpreted as good and poor utilization. Mean of health professionals score were calculated by first sum-up score of respondent for each item then divided for total respondents. Health professionals who scored greater than or equal to the mean value of likert scale questions provided to measure health management information use were labeled as good use of health management information.	Page 7 to 8
Statistical methods	12	Both bi-variable and multi-variable logistic regression analyses were used to measure associations between the independent variables and the dependent variable. Variables who were significant at P-value ≤ 0.02 were subjected to binary logistic regression to control confounding effect. P-value ≤ 0.05 was considered as cut point for multi-variable logistic regression. Descriptive analyses (mean and percentage) were used to describe variables. A stepwise forward selection of variables was used to build the multi-variable model.	Page 7 to 8
		Chi-square test was employed.	Page 10
		We have planned to restrict the analysis to subjects with complete data. The data was assessed for the missing values; there was no missing data in our study.	Page 10
		Participants were selected based on simple random sampling technique.	Page 10

		Assumption was checked for binary logistic regression.	Page 10
Results			
Participants	13*	A total of 664 (56.3% male and 43.7% female) health professionals participated in the study. All health professionals permanently working in North Wollo Zone were included in this study. However, health professionals that weren't present during the data collection period by any means and who had less than six months of experience weren't included in this study.	Page 6
		Health professionals who were worked for less than six months or not permanent employee and those who were on annual leave, sick leave, who left for a long time education during data collection period were excluded from the study.	Page 6
		We have provided flow diagram to show selection of participants in the study.	Supplementary file 1
Descriptive data	14*	<p>More than half 373(56.2%) of the respondents 373(56.2%) were male with the mean age of participants was 33.24 ± 8.3 years. In terms of educational level, this study revealed that, a large number the majority of 387(58.3%) of the respondents were degree holders 387(58.3%). Regarding to their residence, more than half 375(56.5%) of the study participants were lived in rural residents 375(56.5%).</p> <p>This study implied that health professionals who had good HMIS knowledge on data management were found to be 55.1% [95% CI: 50.4 to, 58.7]. Health professionals who had good motivation toward HMIS were found to be 64.3% [95% CI: 59.3, to 68.5]. Perceived culture of health information use of health professionals was 46.7% [95% CI: 42.6, to 49.2] and RHIS tasks self-efficacy was 46.7% [95% CI: 42.6 to, 49.2].5%) of them got feedback at least within a year.</p>	Page 9 to14
		There was no missing data	
Outcome data	15*	Overall good routine health management information utilization was noted among 58.4% (n = 388) [95% CI of 54.4% to 62.0%] of the health professionals.	Page 14 to 15
Main results	16	In the bi-variable logistic regression analysis, Position, knowledge to HMIS, motivation level, the perceived culture of information use, RHIS self-efficacy, standardized indicator, management support, governance of HHIS, availability of reference material, training of HMIS, and supervision were factors associated with good routine health information utilization at a p-value of less than 0.2. Consequently, these variables were subjected to the multivariable logistic regression analysis to control potential confounders, and it was noted that, position, motivation level, perceived culture of information use, standardized indicator, training of HMIS, and governance of HIS were significantly associated with good data management practice at a P-value of less than 0.05.	Page 14 to 15
		Based on validated HMIS assessment tool utilization of participants was,	Page 6

		categorized in two: health professionals who scored above the mean were considered as good in using health information and who scored below mean were considered as poor ion utilizing health management information.	
		Not-applicable	
Other analyses	17	The chi-square test was used to evaluate the statistical significance of the differences between the responses of the participants.	Page 9
Discussion			
Key results	18	The finding showed that the utilization of health management information was 58.4% (n = 388) [95% CI of 54.4% to 62.0%]. Accordingly, health management information use was inadequate. In this study, higher odds of good routine health information system utilization were noted among health professionals who had position[AOR = 3.11; 95% CI: 1.84, 5.24], good motivation level[AOR = 4.42; 95% CI: 2.82, 6.93], good perceived culture of information [AOR = 6.17; 95% CI: 3.35, 11.36], standardized indicator [AOR = 4.11; 95% CI: 2.65, 6.38], good governance of HIS [AOR = 1.75; 95% CI: 1.13, 2.72], and among who took HMIS training [AOR = 3.10; 95% CI: 1.89,5.07].	Page 16-20
Limitations	19	This study was not supported by qualitative finding. Additionally, this study used cross-sectional study design which leads to recall bias. The data collection was based on self-reported information which might lead to overestimation of participants' real utilization practice. In this regard we used. The mean score of health management information utilization questions might also be a limitation to this study.	Page 20
Interpretation	20	In summary, this study revealed that utilization of health management information was inadequate. Enhancing motivation, build culture of information, having standardized indicator, strengthening governance of health information system and a comprehensive HMIS training were measures to be taken to improve utilization of health management information.	Page 18-19
Generalisability	21	In general, in resource-limited settings evidence based decision has a potential to enhance patient care. Our study indicated, government and other responsible bodies should consider encouraging mechanisms and enforce strategies based on the identified results and predictors. At the organizational level, managements should convey their capacity building efforts towards the provision of trainings and building information culture. The study was done at health post, health centers, primary hospital, general hospital and referral hospitals with a large sample size this increases its generalizability.	Page 20
Other information			
Funding	22	No funding was received for this study.	Page 21