



ADDIS ABABA UNIVERSITY
COLLEGE OF HEALTH SCIENCES
SCHOOL OF PUBLIC HEALTH

ASSESSMENT OF QUALITY OF REFERRAL SYSTEM AMONG
HEALTH CENTERS IN EASTERN ZONE OF TIGRAY, ETHIOPIA,
2019

By: Fre Gebremeskel (BSc)

THESIS SUBMITTED TO SCHOOL OF PUBLIC HEALTH,
COLLEGE OF HEALTH SCIENCES, ADDIS ABABA UNIVERSITY IN
PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE
OF MASTERS OF PUBLIC HEALTH IN HEALTH SYSTEM
MANAGEMENT.

October 22, 2019
Ethiopia, Addis Ababa



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Advisor's Approval Sheet

I, the under signed, declare that this thesis is my original work, has not been presented for a degree in any other university and that all resources of material used for this thesis have been fully acknowledged.

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ACRONYM AND ABBREVIATION

ANC	Antenatal Care
AOR	Adjusted Odds Ratio
CI	Confidence Interval
COR	Crude Odds Ratio
Dr.	Doctor
FMOH	Federal Ministry Of Health
HC	Health Center
HSDP	Health Sector Development Plan
HSTP	Health Sector Transformation Plan
SPSS	Statically Package For Social Science
MRN	Medical Record Number

ABSTRACT

Background: Implementation of a well-managed and functional referral system leads to good health care quality. The referral system is an important public health issue. However, in Ethiopia, there is no available literature that assesses the quality of the referral system of Health Centers. So these results will help health managers as a baseline in decision making.

Objective: To assess the quality of the referral system among Health Centers in Eastern Zone of Tigray, Northern Ethiopia, 2019.

Method: Institutional based cross-sectional quantitative study was conducted. Eight Health Centers were selected using simple random sampling. A total of 422 sample size was calculated and allocated to each health center using probability allocation technique. Three data collection tool was used, data on the availability of inputs were collected through observation, patient interview questionnaire was used to assess patient satisfaction, and record review form was used to gather data from referral paper and feedback paper for the process part at the study period. Study participants were selected using the systematic sampling technique every k^{th} value. Collected data were entered using epi info version 7 .2.0 .1. Data were also cleaned and analyzed using SPSS version 25. Descriptive and, binary logistic regression was performed using SPSS version 25.

Result: The response rate was 98.5%. Half (50%) of Health Centers had referral registry form, 22% of patients were provided ambulance, 63.6 % of patients were referred with referral paper and none of the health centers had a focal person (liaison). Concerning referral papers, 17 % of them were good in quality. Feedback to health centers was sent for 15% of referral; of those feedbacks 35 % were good in quality. Patient satisfaction was 47 % and there were no statically significant socio-demographic factors.

Conclusion and recommendation: the quality of a referral system of Health Centers was poor. It needed to be strengthened by selecting a focal person at Health Centers, availing registry form and referral papers to health centers, and by strengthening feedback mechanism. Further study will be also helpful to assess the predictor of poor quality of referral system.

Key Word; Quality; referral; health center; Ethiopia

1 INTRODUCTION

1.1 Background

A referral is a process by which a health worker transfers the responsibility of care temporarily or permanently to another health professional or social worker or to the community in response to its inability or limitation to provide the necessary care. It can be vertical from the lower end of health tier to the higher one and horizontal between the similar level of facilities in the interest of patient cost, location and other reasons(1, 2).

Essential elements of a referral system includes a group of organizations that in aggregate provide comprehensive health care services in a defined geographic area , unit that coordinates and oversees referral activities ,designated referral focal persons at each health facility ,directory of services and organizations within a defined territory ,Standardized referral format ,feedback loop to track referral ,and documentation of referral feedback given(1).

The health care delivery system is one of the major determinants of the level of health in society. In the hierarchy of health care delivery system where health care facility differs both in the level of care and the level of experts, an effective referral system is an important part in ensuring that people receive appropriate care. It is particular importance for the lower socio-economic group of people(3).

Five million people die each year in low and middle-income countries from poor quality of health care and is a leading, preventable killer of people around the globe. it is three times higher as many people annually die than HIV and malaria combined (4, 5).

In most developing countries including Ethiopia, the health referral system is weak across the different level which can affect the overall performance of the health system and contributes to negative health outcomes(3, 6).

According to a study conducted in Iraq using patient satisfaction quality of referral system was poor. Which a large number of clients were dissatisfied with the referral system of primary health care and a study done in Nigeria also shows that a considerable number of referred patients were dissatisfied with the referral process(3, 7).

The international conference on primary health care held at Alma Ata underlined the need for a properly organized referral process as a means of achieving success in primary health care. The ministry of health pointed out the lack of an organized referral system as one problem in Ethiopia's health service. But referral service in Ethiopia is under-documented and under-researched. it needs more studies that dig out more data to improve it (8-10).

1.2 Statement of the Problem

Ethiopia introduced a three-tier health care delivery system in which one woreda (district) includes a primary Hospital (with population coverage of 100,000 people), Health Centers (1/25,000 population), and their satellite Health Posts (1/5,000 population) connected by a referral system (8).

Despite the remarkable expansion in the number of health posts and health centers in Ethiopia, people routinely accessed hospitals without a formal referral from the health center or health post and without seeking any prior source of care (8).

In Ethiopia, cancer accounts for 5.8% of total national death in which 80% of them diagnosed at advanced stage .the reasons mentioned were, low awareness of cancer sign and symptom, inadequate screening and early detection and treatment service, poorly structured referral system of health facilities(11).

In addition to the above, even if there is a great improvement in health status, maternal death is still high in which the majority of death was reported from the Tigray region. Weak referral system, especially at the health center level, was identified to be a major reason for the unacceptably high maternal mortality and morbidity in Ethiopia(8).

To improve the referral system the Ethiopian FMOH is pushing for accelerated construction of roads, effective ambulance services, and efficient communication systems between referring and referral units(12).

In Ethiopia, depending on available literature researches was done on referral related to a patient-centered understanding of referral, surgical referral to a tertiary hospital, magnitude and determinant of self-referral, and referral status of obstetric and gynecological. In addition to these, there is no available literature that assesses the quality of the referral system of health centers in Ethiopia.

1.3 Rational of the Study

The international conference on primary health care held at Alma Ata underlined the need for a properly organized referral process as a means of achieving success in primary health care. The ministry of health pointed out the lack of an organized referral system as one problem in Ethiopia's health service. But referral service in Ethiopia is under-documented and under-researched and it needs more studies that dig out more data to strengthen the primary health care unit (8-10).

1.4 Significance of the Study

The result of these study will help for health sector managers in decision making and planning, for researchers, it will help as a baseline to identify further research gaps, for Health Centers it will also help to know the level of quality of referral system and to work upon that. Besides that, by providing data to the above stakeholders, the referral system will be improved accordingly so the improvement will benefit the patients.

2 LITERATURE REVIEW

2.1 Definition and concepts of terms

Quality can have several legitimate and possible definitions depending on what one looks for during assessment. It depends on whether one assesses only the performance of practitioners or also the contribution of patients and the health care system; on how broadly health and responsibility for health are defined; on whether the maximally effective or optimally effective care is sought. Donabedian developed the three widely used parameters of quality assessment from which inferences can be drawn about the quality of care. These parameters are structure, process, and outcome. Several studies of quality of care assessment have used this classification either individually or in combination(11).

The structure represents the attributes of the setting in which care occurs. This includes Resources such as equipment and facilities, human resources such as number and qualification of persons and organizational structure. The underlying concept in structural assessment is to decide whether care is provided under conditions favorable for good health care or not. Regarding the referral system as a structure, it includes focal person, registry form, transport, and referral paper. Researchers are mostly attracted to the structural assessment of the quality of care because they are relatively easy to measure(13, 14).

The process of health care includes a set of activities done by health professionals. To assess the referral process, we can measure the following, Proportion of referrals with completed referral form, Number of self-referrals, Proportion of completed feedback sent/received, appropriateness of referrals as determined by assessing the quality of referral paper(1).

Outcome denotes the effects of care on the health status of patients and the population. Measurement of the effects of the outcome, such as changes in infant mortality rate is generally more difficult to carry out and is less frequently done(13).

Besides, we are not sure if changes in mortality status are attributable to changes in health services only. These can be due to improvements in the economic situation so that better

nutrition was available or better water supply was available resulting in improved environmental conditions. Controlling for such environmental factors usually requires numerous areas of observation, sophisticated statistical technique and greater expenditure on research. Another simple dimension of outcome is to determine patient satisfaction and is included under a broad definition of health(13).

Consumer satisfaction has gained considerable attention as a measure of quality health services since the 1980s. Several studies have been done to assess patient satisfaction ranging from small scale research to highly financed grant projects(15).

2.2 Structural part of referral system

The research done in Kenya using cross-sectional revealed that, 48.0% of the health facilities uses standard referral paper for transferring of a patient. A similar study done in Kenya also revealed that 59.1% of health facility use standard referral paper. Standardized referral paper to refer a patient which serves as a channel for clinical information both upwards and downwards in the referral chain was considered as obligatory as a standard even if all health facilities were not using it. In addition to that 53% of health professionals replayed that they did not have the skill on how to refer a patient because they were not trained. Among those referred 67.2% of the patients claimed that there was no access to transport to reach the destination health facility, 71.8% of the health facilities had referral registry form, 4% of them had service directory of referral system(6, 16).

A study conducted in South Africa also stated that 32% of urgent referral cases and 34% of non-urgent referred cases were provided transport, in 72 % of them ascertained the use of national standard referral paper to communicate with the receiving health facility. From those referred patients 66% of them had been reported that they never receive feedback from hospitals (17).

A study done in Felege Hewet Hospital, Northwestern Ethiopia on referral status of emergency obstetrics and gynecological patients using cross-sectional shows that 81.2 % of the referral paper was legible for further intervention and management. Among those referred

cases 28.2% of the referred patient from total obstetric and gynecological referrals was referred with standard referral paper the rest were referred with a different format and with a different component of referral paper(18).

2.3 Process of Referral System

A study done in Baghdad, Iran on quality of referral system which assesses the quality of referral paper and quality of feedback at primary health care using cross-sectional study design shows that there was poor quality of referral paper in (30.5%) of the referral, poor quality of feedback paper in (21.5%) of them. generally, there was a poor quality of referral system in which important information was missed(19).

A similar study done in Iraq on the quality of referral paper using cross-sectional also shows that legibility of referral paper was 73% and delivery related referral paper was better in quality than other cases, only 27 % of patient main symptom was reported. Besides that psychiatric, the social condition of the patients was not included. the referral paper lack quality and none of the referral paper contains patient management and treatment plan(20).

A study done in Saudi Arabia using cross-sectional showed that the quality of referral paper was good in 63% of the referral paper. And feedback papers were good in quality in 39% of them. In addition referral paper items were recorded as follow , chief complaint recorded in 96.%, vital sign recorded in 70.3 % ,investigation done recorded in 47.9%,reason of referral recorded in 90% ,treatment given recorded in 52%, name of referring health facility recorded in 95.5 % (21).

In addition the above study revealed that, Feedback paper items were recorded as follow , physical examination was recorded in 66.7%, investigation done recorded in 51.9% ,diagnosis recorded in 77.9%, management plan recorded in 75.2 % , recommendation recorded in 66 % , follow up recorded in 61.9 % , date of feedback report recorded in 66%, name of referrer recorded in 41.8%(21).

A study done in South Africa using cross-sectional showed that patient's information was recorded in 90% of referral paper. Items were recorded as follow, name of patients were recorded in 99 % , age of patients were recorded in 93 % , sex of patients were recorded in 94

%, date of referral was recorded in 98%, and name of referrer was recorded in 94% of them. Health Facilities reported that 66% of the referred patients did not receive feedback(17).

Depend on a study done in Nigeria using cross-sectional revealed that, 21.9% of health professionals who work in urban and 21% of health professionals who work in rural had good knowledge about referring to a patient. From those, 12.9% of urban health workers and 11.3% of rural health workers had a good practice of referral. Besides 74.3% rural and 67.7% of urban health professionals they did not get training regarding the referral of a patient(22).

A study done in Addis Ababa tertiary hospital, Ethiopia using cross-sectional revealed that the overall referral rate was 15.3%. The reason for referral was included such as, lack of inpatient bed which was listed in 65.6 %, and need of specialty was listed in 34.4% of the referred patients(23).

A study carried out at Tikur Anbesa specialized hospital, Ethiopia using cross-sectional on information use revealed that, referral document was poor and were recorded as follow, chief complain were recorded in 61.9%of the cases, time of referral were recorded in 62.4%of the cases, clinical finding was recorded 86.4%of cases, treatment given were recorded in 39.2%of cases, and there was no documentation in 42.2%of cases (24).

A research conducted in Felege Hewet hospital, Northwestern Ethiopia on the status of referral system using cross-sectional revealed that 82.7% of the paper was legible from those only 28.2% % were referred with standard referral paper. Beside that information was recorded as follow, pre-referral management were recorded in 42.2% of the cases, reason of referral were recorded in 87.8%of the case , referral health facility was recorded in 98.6% of the cases ,date of referral were recorded 94.6% of the cases ,referral destination were recorded in 76.99%of the cases .and full name and signature of referrer was recorded 82.2% of the cases(18).

2.4 Patient satisfaction and factors associated with it

Patient or Client Satisfaction (CS) has emerged as an increasingly important parameter in the assessment of health care quality. Determination of the most important contributor to overall satisfaction can assist health care provider in improving care(25)

A research done in Karbala, Iraq on the quality of the referral system at the primary health care center using cross-sectional revealed that 67% of patients were satisfied with the referral process of primary health care. Among those satisfied clients females, were highly satisfied than males. but there was no statically significance between patient satisfaction toward referral and residence, patient satisfaction toward referral and educational status, patient satisfaction toward referral and marital status(7).

Based on research carried out in Kenya using cross-sectional suggested that, challenges for referral system were lack of clear guideline for referral, inadequate resource facilities, lack of formal communication and transport, poor relationship between referrer and receiving facility, inadequate capacity to monitor referral system and give feedback, inaccurate reported referral data(16).

Based on a study done in Abuja, Nigeria on Referral Services under the National Health Insurance Scheme using Cross-Sectional shows that 53.2% of patients were satisfied with the referral process of primary care. Reasons for dissatisfaction were listed as, 61.9% of them complained that there was difficulty in obtaining referral request, 40.5% of the patients complained that there were delayed response, 38.1% stated that getting approval was time-consuming and difficult ,and 23.8% of them complained that hospital did not communicate with referred health facility on time(3).

2.5 Conceptual Framework

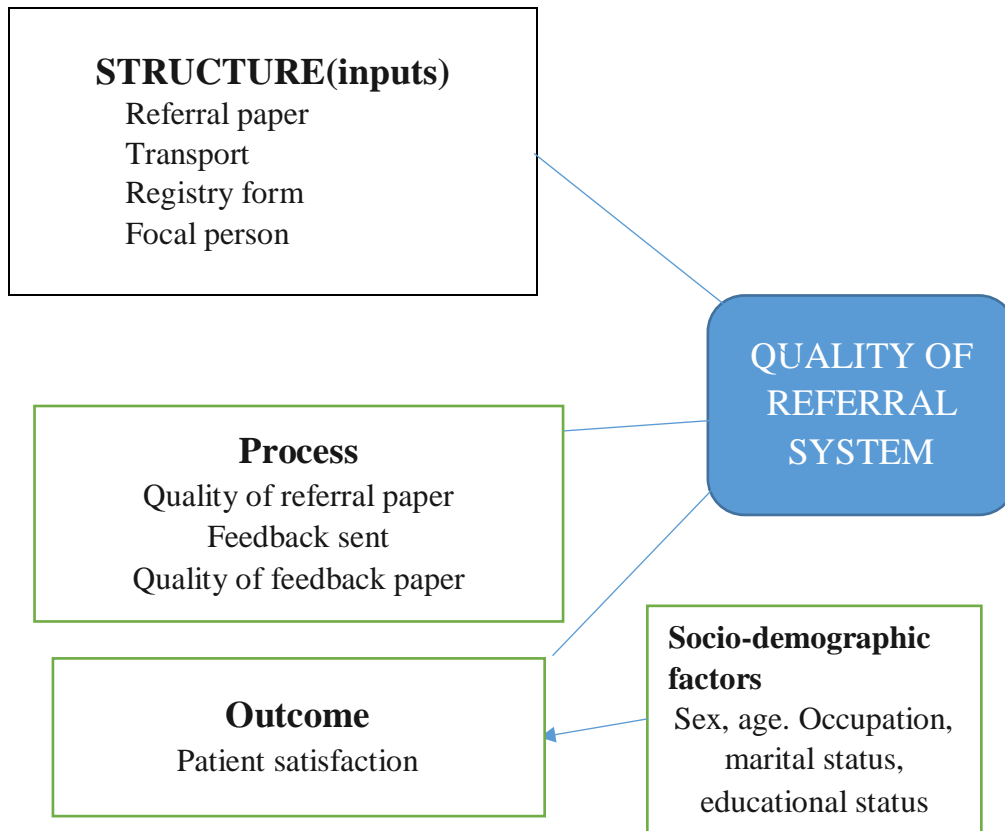


Figure1, Schematic presentation of conceptual framework modified from Donabedian model

3 OBJECTIVE

3.1 General Objective

To assess the quality of the referral system among health centers in Eastern Zone of Tigray, Northern Ethiopia, 2019.

3.2 Specific Objectives

1. To identify inputs of the referral system among Health Centers in Eastern Zone of Tigray.
2. To assess the referral process of referral system among Health Centers in Eastern Zone of Tigray.
3. To assess patient satisfaction toward the referral system among Health Centers in Eastern Zone of Tigray.
4. To assess factors associated with patient satisfaction among Health Centers in Eastern Zone of Tigray.

4. METHOD AND MATERIAL

4.1. Study setting

This study was conducted among health centers of Eastern Zone of the Tigray region. Tigray is one of the national regional states. The region has seven administrative zones and 47 districts and Eastern Zone is one of the seven administrative zones where its head office is found in Adigrat, which is located 900 km away from Addis Ababa. Eastern Zone has a total area of 13, 268.99 km². It is bordered on the east by the Afar region, on the South by the South Eastern zone, on the West by Central Zone and on the North by Eritrea. In the zone, there is one administrative town (Adigrat) and seven districts (Atsibi-wenberta, Gan-Afeshum, Gulomakada, Hawzen, Irob, Kiltie-Awulael, Saesi-Tsaedaemba). Eastern zone has a total population size of 755,343 (35,963 men and 395,705 women). According to the 2014 report of the Tigray region Health Bureau, health service coverage in the Eastern zone of Tigray was approximately 80% (19).

4.2. Study Design and period

An institution-based cross-sectional quantitative study was conducted from February 9/2019 –April 28/2019.

4.3. Population

4.3.1 Source population

All referred patients by the Health Center in Eastern zone Tigray, Ethiopia.

4.3.2 Study Population

Those of referred patients, who had referral paper and arrived destination health facility during the study period.

4.4 Eligibility criteria

4.4.1 Inclusion criteria

Referred patients by selected health centers for the first time during the study period.

4.4.2 Exclusion criteria

Those who were referred more than twice and were interviewed during the study period, severely ill patient and under 18 aged without attendants were excluded from the study.

4.5 Sample Size Determination and Sampling Procedure

4.5.1 Sample Size determination

The sample size was calculated using a single population proportion, with the assumption of, a confidence level of 95 %, proportion 48%, and a marginal error of 5%. Among the total health centers, 25% of them were included due to the delay in the budget(6, 26). Fisher formula was used as follow,

$N = \text{sample size}$ $P = \text{proportion}$ $d = \text{margin of error}$

$$N = \frac{p \cdot q \cdot (Z_{1-\alpha/2})^2}{D^2}$$

D^2

Detail calculation is shown below in table 1

Table 1: Sample size calculation for assessment of the quality of the referral system among health centers in the eastern zone of Tigray, Northern Ethiopia, 2018

Objective	proportion	Sample size	Sample size including a 10% non-response rate
Objective 1	48 (6)	384	422
Objective 2	30.5 (27)	326	358
Objective 3	67 (7)	340	374
Objective 4	32 (6)	335	369
Referral rate	15.3 (23)	200	220

After calculating the sample size for each specific objective we had taken the maximum sample size which was 422.

4.5.2 Sampling technique and Procedure

The eastern zone of Tigray has 32 health centers. Sampling frame of health centers was taken from Tigray Regional Health Bureau .eight HCs were selected using simple random sampling.

The total sample size was allocated to the selected health centers using a proportion allocation technique based on the size of a quarterly referral made by the health center to hospitals. A quarterly health center referral was obtained from the Health Center referral registry. Respondent was selected every K^{th} value of 2. K value was calculated from the total quarterly referral of health centers.

$$k=778|422=2$$

Using the lottery method, from 1 and 2 we selected 1st participant then it was selected every 1st, 3rd, 5th and so on.

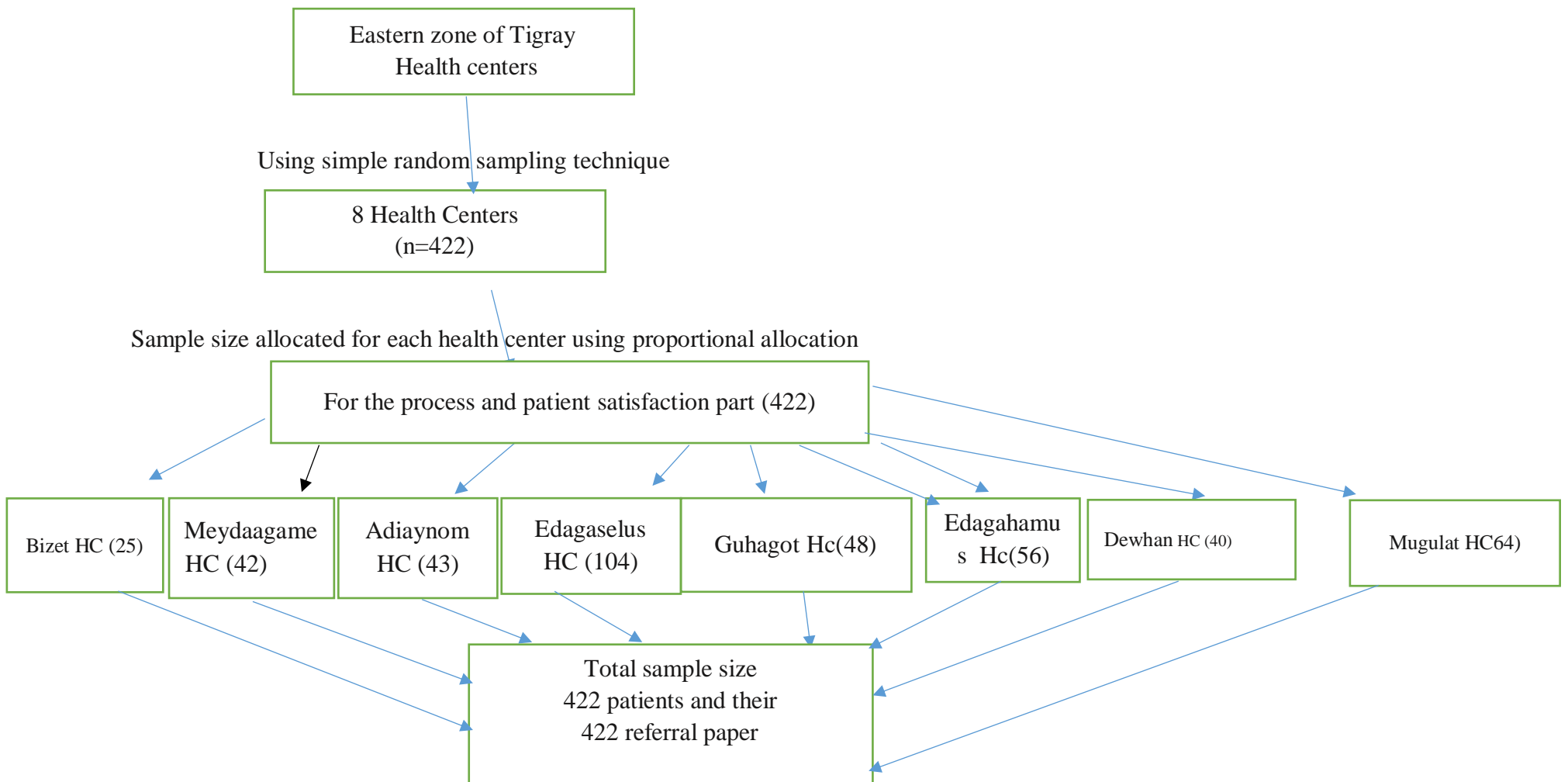


Figure 2, schematic presentation of sampling procedure

4.6 Data Collection instrument and procedure

Structural part of referral system

The questionnaire for the structural (inputs) part was developed from Ethiopian guidelines for referral systems and related literature. The availability of inputs was observed according to the prepared questionnaire in Health Centers during the study period.

Process of referral system

In our study to assess the process of referral system (referral paper and feedback), a questionnaire was developed from referral guidelines of EMOH and similar literature. Data collectors were selected and trained. A pretest was done out of the study area. Referral papers of those patients who were interviewed for satisfaction were also reviewed at referral receiving health facility due to the inaccessibility of referral paper copy at the health center. The proportion of Feedback sent to the health center was checked. Referral papers were also assessed for their quality

Patient satisfaction and associated factors (outcome)

In our study, Patient satisfaction toward referral was assessed using a 5 point Likert scale questionnaire developed from similar literature. A pretest was done out of the study area. Respondents were asked at their arrival at the hospital. Data was collected regarding socio-demographic characteristics of the patients (age, sex, religion, marital status, and occupation, and educational status), and their satisfaction with the referral system of health center.

4.7 operational definition

Quality' is the achievement of the desired objectives most efficiently and effectively, with the emphasis on satisfying the customer or the consumer. We measured quality based on, "simple system theory of health care quality, as having three components: structure, process, and outcome(11).

Quality of referral system is a combination of three factories it should be necessary, timely, and effective and benefit outweigh the costs(28). Referral quality was measured using the Donabedian model.

Inputs were assessed as if they were present as “Yes” and if they were absent as “No” after that percentage was computed.

Referral process (quality of referral and feedback paper)

The quality of referral paper was assessed based on 14 components of the referral paper in which it was recorded as "yes" if present and "no" if absent. From the total scored 0-9 were considered as poor in quality and 10-14, were considered as good in quality(29). Those of the components of the referral paper which were difficult to read for the data collectors were considered as absent.

Quality of feedback paper was assessed using the nine components of the paper if it was present as “Yes “and if it was absent as” No “. From the total score 0_6 score was considered as poor in quality and 7_9 score was considered as good in quality(29). Those which were difficult to read for the data collectors were considered as absent.

Scoring of patient satisfaction

Total satisfaction score was calculated and then those who score above the average were considered as satisfied and those who score below the average were considered as dissatisfied

The overall quality of referral: good performing or good quality if the three components of the quality score were > 75%(30).

4.8 Study Variable

Dependent variable: Quality of referral was considered as the outcome variable of the study. It was measured using the structure, process, and outcome of the referral system. And it was dichotomized to indicate whether it is good in quality or poor.

Good if the three measures of quality (structure, process, and outcome) were 75 % or above.
Poor if the three measure of quality were (structure, process, and outcome) < 75%(30)

Independent variable

The variables used to measure the quality of the referral system and factors associated with the satisfaction were obtained from different literatures and guidelines of the referral system.

Structure: the referral system of structure or input includes standard referral paper, registry form, transport, and focal person.

Standard Referral paper: A structured form or letter completed by the referring health worker to provide necessary relevant information (administrative and illness-related) concerning the patient being referred. Health centers were assessed if they use referral paper or not(17).

Coded as 0 if absent and 1 if present.

Filled referral paper sent to hospital by referrer was also assessed to measure the quality of referral paper .each item of the referral papers was coded as 1 if present and 0 if absent.

Referral Registry form: At the facility level that properly document outgoing and incoming referrals

Focal person: A person who coordinates the overall referral activities within the health facility. And Coded as 1 if present and coded as 0 if absent(1).

Referral Feedback: A note or letter written by a health worker who has attended to a referred patient supplying feedback concerning the investigation, diagnosis, and management of the patient(17).

Outcome: Outcome denotes the effects of care on the health status of patients and the population.

Patient satisfaction: is the feeling of pleasure or disappointment as a result of a given service with a comparison of the performance of the institution's care against the expectation of the patient.

Socio-demographic factors

Age, Sex, Ethnicity, Religion, Occupation, Educational status

4.9 Data Quality Management

To assure the quality of data, Questioner was developed in English version then translated to the Tigrigna version then translated back to English. A pretest was conducted out of the study area in 5% of the sample for detection of any difference and to set the appropriate time. Then, the necessary correction was made. Data collectors were trained and supervised every day. During the data collection process, the filled questionnaire was checked for their completeness by the principal investigator. After data collection, data was stored in a secured place to maintain confidentiality and back up of the data was stored in different areas not to lose the data. Finally, data were cleaned for missing data using a frequency table before entering the analysis.

4.10 Data Management and Analysis Procedure

The collected data were coded, entered using Epi info version 7.2.1.0 then exported to SPSS version 25 after that it was cleaned and analyzed. Descriptive statistical of Frequency and percentage were used to present categorical data. The frequency distribution table was used to describe most of the finding .graphs was also used to plotted for overall patient satisfaction. Odds ratio (ORs) and 95%confidence intervals (CIs) were calculated using a logistic regression model to determine factors associated with patient satisfaction. A variable having a $P < 0.2$ value in bivariate logistic regression was included in the multivariable logistic model.

4.11 Ethical Consideration

The study protocol was approved by the Research and Ethical Committee of the School of Public Health of Addis Ababa University. A supportive letter was received from AAU, CHS, and SPH. A letter of support was written for health centers and hospitals for those who were included in the study. Oral informed consent was obtained from the respondents before data collection. The respondents' privacy, right to anonymity, right to refuse, confidentiality was respected all the time. Besides, those respondents were brief about the aim and benefit of the study.

4.12 Dissemination of Result

The result of this study will be presented and submitted to AAU, CHS, and SPH as partial fulfillment of the master of public health specialty in health system management. It will be submitted to Tigray Regional Health Bureau as well as to Eastern Zone Woredas and other concerned bodies. It will be also presented at seminars and an attempt will be made to publish in a reputable journal.

5 RESULT

5.1 Socio-Demographic Characteristics of the study participants

In our study, the response rate was 98.5%. Reasons for none responding mentioned were, data collection process would interfere with their service, did not have time, and were worried about their cases and some did not give clear reasons for refusal although reassurance was given that the data would be confidential.

Of these, 56.7% were females, 76.9% of them were orthodox by religion, 30% of them were in the age group of 25-34, regarding occupation, 26.4% were housewives, and 61.4% of the respondents were residing in a rural area.

Table 1: Socio-demographic characteristics of referred patients among health centers in the Eastern zone of Tigray, Northern Ethiopia 2019 (n=422)

Variable	Frequency%	Percentage (%)
sex		
female	236	56.7
male	180	43.3
age		
18_24	99	24.3
25_34	123	30.1
35_44	98	24
≥45	88	21.6
marital status		
married	278	66.8
never married	99	23.8
divorced or widowed	39	9.4
Occupation		
governmental	44	10.6
student	66	15.9
farmer	86	20.7
housewife	110	26.4
merchant	59	14.2
unemployed	30	7.2
others		5
religion		
orthodox	320	76.9
Muslim	34	8.2
catholic	38	9.1
protestant	24	5.8

Residence		
rural	254	61.4
urban	160	38.6
educational status		
uneducated	180	43.3
primary	62	14.9
secondary	139	33.4
≥12	35	8.4

Other in occupational status includes NGO worker and pension

5.2 Structural (input) part of the referral system

Concerning to input of referral, 22.8% of patients has been provided transport, 50% of the Health Centers had referral registry form, and 63.6 % of referred patients had referral paper for communication of health professionals. But none of them had a focal person.

5.3 Process of the Referral System

Referral paper

Regarding referral paper, the most recorded item was the sex of the patient in which it was recorded in 88.2% of referred patients, followed by age which was recorded in 84.1% of referred patients, and pre-referral management was recorded in 76.4% of referred patients. In opposite to that the less recorded items were, name of health center which was recorded in 15.9%, and the name of referring health professional recorded in 20.2% of referred patients. The detail is shown in (table 3) as follows.

Table 3: Frequency distribution of a relevant component of referral papers among Health Centers in Eastern Zone of Tigray, Northern Ethiopia, 2019(n=422)

Component of the referral letter	No Number (%)	yes Number (%)
Health center	350(84.1)	66(15.9)
Hospital	170(40.9)	246(59.1)
Age	66(15.9)	350(84.1)
Sex	49(11.8)	367(88.2)
MRN	285(68.5)	131(31.5)
Chief complaint	138(33.2)	278(66.8)
Duration	261(62.7)	155(37.3)
Vital sign	159(38.2)	257(61.8)
Diagnosis	124(29.8)	292(70.2)
Pre referral management	98(23.6)	318(76.4)
Reason	163(39.2)	253(60.8)
Date of referral	231(55.5)	185(44.5)
Referring health professional	332(79.8)	84(20.2)

Regarding feedback paper investigation done at hospital was recorded in 90.4% of the feedback sent, address of health center was recorded in 87.3% of the feedback, and health center diagnosis was recorded in 76% of the feedback sent. The detail is shown in table 4.

Table 4: Frequency distribution of components of feedback paper sent among Health Centers in Eastern Zone of Tigray, Ethiopia 2019

Components of Feedback Paper	NO Number (%)	YES Number (%)
Address of Health center	8(12.5)	55(87.3)
Health center diagnosis	15(24)	48(76)
Action taken at a health center	19(30)	44(70)
Name of feedback sender	22(34.9)	41(65.1)
Investigation	6(9.5)	57(90.4)
Diagnosis	16(25.3)	47(74.7)
Management plan	18(29)	45(71)
Appointment	50(79.3)	13(20.3)
Recommendation	56(88.9)	7(11.1)

Quality of referral and feedback paper

In our study, of those referral papers, 83% of them were scored as poor in quality whereas only 17% were good in quality. The Score of items of feedbacks sent to health centers were good in quality only 35% of them.

Table 5: Assessment of referral and feedback paper quality among Health Centers in Eastern Zone of Tigray, Ethiopia, 2019.

Quality of referral and feedback paper	Number (%)
Referral letter(n=416)	
0-9(poor)	344(83)
10-14(good)	72(17)
Feedback(n=63)	
0-6(poor)	41(75)
7-9(good)	22(35)

5.4 Patient satisfaction

In our study we used eight satisfaction questions, 41% referred patients strongly agree that health professionals include patients in deciding referral, followed by 39% strongly agree that health professionals ask patients to return after referral, in contrary to that 32% patients disagree they did not visit traditional healer before they came to health center, 31% strongly disagree that health centers refer patient when they are unable to treat the patient. The detail is shown in (table 6)

Table 6: patient satisfaction toward referral among health center in Eastern Zone of Tigray, Northern Ethiopia, 2019(n=422)

Satisfaction questions	Strongly disagree N (%)	Disagree N (%)	Neutral N (%)	Agree N (%)	Strongly agree N (%)
HP calls an ambulance when patients are very ill	123(29.6)	83(20)	3(7)	123(29.6)	84(20.2)
There was difficulty in the referral	116(27.9)	72(17.3)	15(3.6)	66(15.9)	147(35.5)
They referred me because they can't treat me at the health center	132(31.7)	72(17.3)	9(2.2)	82(19.7)	121(29.1)
Health professional in health centers ask patients to return to see how they are doing	109(26.2)	58(13.9)	3(7)	83(20)	163(39.2)
HP told me about my referral in a way I can understand	118(28.4)	78(18.8)	15(3.6)	67(16.1)	138(33.2)
health professional includes the patient in decision making	87(20.9)	73(17.5)	14(3.4)	67(16.1)	175(41.1)
When I am sick did not visit traditional healer before I came to HC	133(32)	87(20.9)	6(1.4)	73(17.5)	117(28.1)
I am satisfied with the overall referral service	108(26)	89(21.4)	16(3.6)	89(21.4)	114(27.4)

Overall satisfaction of patients toward referral of health centers

In our study, we found that 47 % of the referred patients were satisfied with the referral of health centers.

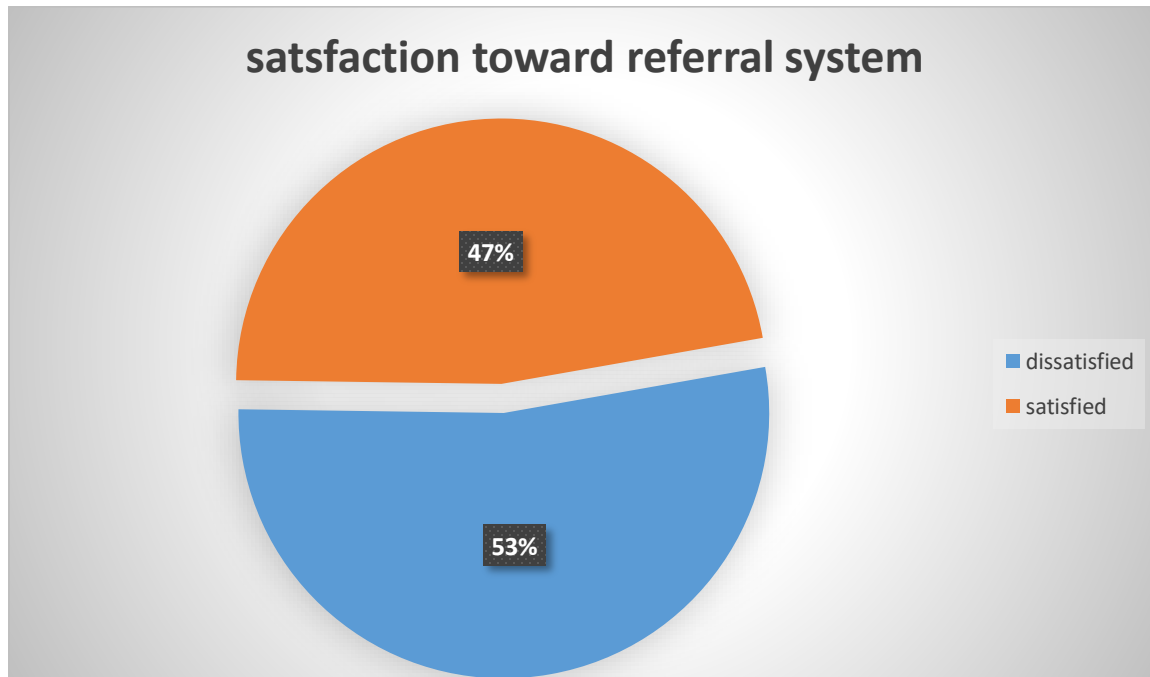


Figure3, patient satisfaction toward referral system of health centers of Eastern Tigray, Northern Ethiopia, 2019

5.5 Socio-demographic Factors Associated with Patient Satisfaction toward referral system

All the socio-demographic factors were non-significant with patient satisfaction toward the referral of Health Centers.

Table: 7 Factors associated with patients referral satisfaction among health centers in Eastern zone of Tigray, Northern Ethiopia, 2019 (n=422)

Variable	P value
Age	0.136
Sex	0.439
Occupation	0.737
Marital Status	0.197
Residence	0.825
Educational Status	0.126

6 DISCUSSION

Referral service is among the areas in which attention is not given and under researched. So this result will help as a baseline.

We assessed quality of the referral system among Health Centers in Eastern Zone of Tigray, Northern Ethiopia by measuring the three quality components (structure, process, and outcome) suggested in the Donabedian model. The three components are interlinked to each other and if one component is defective it can affect the other.

Our finding showed that 63.6% of health centers ascertained the use of national standardized referral paper, 50% of them had registry form, 22.8 % of them were provided transport and none of them had a focal person.

These show that health centers don't have the necessary referral inputs which are very important for and which can affect the process and outcome of the referral system. This finding was similar to a study done in Kenya(6, 16). The similarity could be due to similarity in socio economic status of the two countries, and the other reason could be due to the referral is challenging issue in both countries.

Our study showed that availability of inputs were lower as compared to the study done in South Africa(17) .the difference could be due to socio economic difference in which south Africa had much better socio economic status and the governments can allocate enough budget to assure the availability of the referral inputs. The other reason might be also in our country attention is not given like the other services.

Concerning to referral paper items review, sex of patients were recorded in 88.2% of them, age of patients were recorded in 84% of them, name of referring health centers were recorded in 15.9% of them, receiving facility was recorded in 59%, reason of referral were recorded in 60.8% of them, pre-referral management was recorded in 76% of them, diagnosis at health centers was recorded in 70% of them, referrer was recorded in 20.2% of them.

This shows that patients were referred with incomplete referral papers. But it like channel for transferring information and is very critical for communication of the referrer and receiving health professionals. Insufficient information can negatively affect the health outcome of the patients and the health system as a whole.

This finding was lower as compared with the study done in Ethiopia, and South Africa(17, 18). This difference could be due to the difference in health professional's status, difference in health professional's knowledge and practice toward referral, difference in patient flow to health facilities.

In contrary to the above , our finding was higher as compared to the study conducted in, Iraq(20). The difference might be because of the study conducted in Iraq was 8 years back so this time difference could contribute to the improvement of referral through time in our study.

Regarding the quality of referral paper, our study showed that referral paper was good in quality in 17% of them. The quality of referral paper used by health centers to refer a patient was very poor.

This poor referral paper indicated that patients were referred with insufficient details which can lead to discontinuity of care, delayed diagnosis, poly pharmacy, weak follow-up plans, repeated and unnecessary tests, and also inability of the receiving physician to recognize the need for referral, all of which cause reductions in quality of care, medical errors, and increases in health sector expenses(20) . This finding was lower than compared with the study done in Saudi Arabia (21, 29).

Regarding feedback, our finding shows that health centers receive feedback for 15% of referred patients. From those sent letters, 35% were good in quality. these were lower than as compared to the study done in Saudi Arabia(21, 29). The difference might be due to difference in socio economic status, difference in health professional (number, knowledge, practice) toward referral, difference in patient flow in ours there is high patient flow in which health professionals might not have time to write feedback.

The process component is the least achieved from the three components of the referral system. The poor referral process of health centers has serious implications on the efficiency and effectiveness of the care provided in the health facilities, leading to duplication of investigation, overtreatment and delayed treatment that in turn negatively affect the outcome of patients.

Concerning patient satisfaction, our finding revealed that 47% of the referred patients were satisfied with the referral system of health centers. This finding was lower than compared to a study conducted in Nigeria and Iraq (3, 7).

Our finding showed that none of the socio-demographic factors were significantly associated with the patient satisfaction toward referral of health centers. Whereas study done in Iraq showed that there was significant association between age and satisfaction with referral in which younger ages were satisfied than older age , and sex was also significantly associated with satisfaction with referral in which females were more satisfied than males. This difference might be due to sample size difference.

Overall quality of the referral system of health centers: the three-component of the quality measures of the referral of health centers were poor in which three of them were less than 75 % .Referral system is neglected which can affect the overall health system as a whole . In reality however, functional referral system is very important in resource-limited areas and hierarchal health systems which are connected by functional referral system like in Ethiopia.

7. STRENGTH AND LIMITATION

7.1 Strength

1. We use the three quality measuring dimension which is input, process, and outcome
2. The study was done at the grass-root level of the referral system.

7.2 Limitation

1. Since the study was conducted at a health facility there might be social desirability bias
2. There was a limited similar literature for comparison.

8. CONCLUSION AND RECOMMENDATION

8.1 Conclusion

Health centers did not have all the important inputs for referral especially they lack a focal person who is the responsible body for coordinating overall activities of the referral system, only half of them had a referral registry. Also, the referral paper sent to the hospital is poor in quality and hospitals sent feedback to health centers are very low and poor in quality. Besides, those patients are dissatisfied with the service of referral given. Generally, the quality of the referral system of health centers is poor.

8.2 Recommendation

8.2.1 Tigray Health Bureau

We recommend to, design mechanisms for coordination of referral activities within the region and feedback system

8.2.2. Hospitals

We recommend to Hospitals, to Ensures if feedbacks are sent back to referring health facility.

8.2.3 Health Centers

It will be helpful if Health centers select a focal person to coordinate, facilitate and communicate with hospitals to receive feedback for continuous learning

8.2.4 Health professionals

We recommend to the health professionals, to write the referral paper and feedback clearly if possible.

8.2.5. Researcher

We recommend for researchers to conduct on predictors of quality of referral system of health centers.

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10 Annex
Annex 1 Questionnaire

Addis Ababa University
Collage of health science
School of public health

English Consent Form

My name is _____, I am a health professional working at health center and now I am collecting data from our referred patients for the research being conducted to assess quality and associated factories of referral system, by Fre Gebremeskel who is the Master of Public Health student in Addis Ababa University. You are selected as one of the study subjects by chance. The investigator employed me for this data collection to maintain your data strictly confidentially, i.e. not to let others outside of this health center to access your name and other identifiers. We believe that the findings of this study will have paramount importance for the evaluation of the quality and associated factors of the referral system of health centers to work to improve it.

To achieve this purpose your genuine participation in filling the questioner with truth information is very important and you are highly encouraged to do so. I would like to assure you, your name will not be written on these form and all the information gathered will be kept strictly confidential .you have full right to refuse, to take part in, or to interrupt at any time. But the information that you give us is quite useful to bring change in the referral system of the health center. If you have any questions about this study you may ask me or the principal investigator.

Are you willing to let your information be utilized for this study? Yes No

1. If yes, proceed to the questioner
2. If no, thank the person and go to the next participant.

Telephone 09 24 86 27 58

Email fregerie143@gmail.com

1. Socio demography of patients

1.1 Age of the patient _____

1.2 Sex A. Female B. male

1.3 Marital status

A. Married B. never married C. divorced D. Widowed

1.4 Religion

A. Orthodox B. Muslim C. Catholic D. protestant E. other

1.5 Educational status _____

1.6 Occupation

A. Housewife B. student C. Government employee D. no job E. Retire
G. Farmer H. merchant

1.7 Residence A. Rural B. urban

1.8 Transport A. ambulance B. Private

2 questions related to the structural part

2.1 check if health centers have referral focal person

A Yes B. No

2.2 check if there referral registry book

1 Yes 2 No

3. Questioner to assess the process of referral system

3.1 Questions to assess the content of standard referral paper among health centers in eastern zone Tigray, northern Ethiopia 2018

Items t of referral paper	Yes	No
Name of health center		
Name of hospital		
MRN		
Age of patient		
Sex of a patient		
chief complaint		
duration of chief complaint		
physical examination		
diagnosis		
management		
Reason for referral		
Name of referring professional		
Date of referral		

Write yes in front of each item if it is written and clear to read and no if it is absent or difficult to read

3.2 Do you receive referral feedback?

1. Yes 2.no

If yes, assess component of the feedback letter

Assessment of Component of referral feedback

Component of referral feedback	Yes	no
Name Health center		
Diagnosis at the health center		
Action taken at the health center		
An investigation was done at the hospital		
Diagnosis of hospital		
Hospitals Plan of Management		
Appointment		
Recommendation		
Patient attending health professional		
Date		

Write yes in front of each item if it is written and clear to read and no if it is absent or difficult to read

4. Question related to satisfaction of patient

4.1 They referred me because they can't treat me at the health center

1 Strongly disagree 2 Disagree 3. Neutral 4. Agree
5 strongly agree

4.2 health professional in health centers call an ambulance if a client is very sick

1 Strongly disagree 2 Disagree 3. Neutral 4. Agree
5 strongly agree

4.3 Health professional in health centers ask patients to return to see how they are doing

1 Strongly disagree 2 Disagree 3. Neutral 4. Agree
5 strongly agree

4.4 When I'm sick I did not visit a traditional healer before I come to the health center

1 Strongly disagree 2 Disagree 3. Neutral 4. Agree
5 strongly agree

4.5 there was difficulty in the referral

1 Strongly disagree 2 Disagree 3. Neutral 4. Agree
5 strongly agree

4.6 I am satisfied with the overall referral service

1 Strongly disagree 2 Disagree 3. Neutral 4. Agree
5 strongly agree

4.7 health professionals told me about the referral in a way I can understand

1 Strongly disagree 2 Disagree 3. Neutral 4. Agree
5 strongly agree

4.8 health professional include me in deciding the patient about the reason for referral

1 Strongly disagree 2 Disagree 3. Neutral 4. Agree
Strongly agree

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ጥዕና ሳይነሳ ኮሌጅ
ናይ ማሕበረሰብ ጥዕና ትምህርት ቤት

ትግርኛን መጠየቅ ቅጥዒ

አብ መጽናዕት ፋቃደኛ ምኳኖም መጠየቅ ቅጥዒ

ሰመይ..... ይበሃል ። አብዝ ጥዕና ጣብያ እየ ዝሰርሕ ሐዝ ካብ ሪፈር ዝተብሃሉ ሰባት ሓበሬታ እናኣኩብኩ ይርከብ እዝ ሓበሬታ ከዓ ጽሬት ናይ ሪፈራል ኣሰራርሓ እና ምሰኡ ዝተሓሓዙ ነገራት ዝድህስስ ኮይኑ ብፋረ ገብረመስቀል ዝተብሃለት ናይ ሕ/ሰብ ጥዕና ሳይነሳ ካልኣይ ድግሪ ኣብ ኢ/አበባ ዩኒቨርሲቲ ዝካየድ ጽንዓት እዩ. ንሰካ/ንሰከ ኣብዝ ጽንዓት ንክትሳፍ/ፊ ተመሪጽኩ ኣለክ እት ኩሉ እትህብን ሓበሬታ ማንም ኣይረክቡን በዝ ከይትጠራጠር/ሪ ከምኡ እውን ስምካ /ክ ኣይጸሓፍን እት ውጽኢት ናይት መጽናዕት ከዓ ጽርየት ናይ ሪፈራል ኣሰራርሓ ንምፍላጥን እት ጸገም ፊልካ ፊልጥካ ንምስትክካል ይጠቅም.

እዝ ኣብ ላዕል ዝገለጸኹም ንክሳካዕ ናተካ/ክ ተሳትፎ ወሳን ኮይኑ እት ትክክለኛ ሓበሬታ ብግልጽ ክትህብን ብትሕትና እናሓተትኩ ሽም ከምዘይ ጸሓፍ እና እት ዝተረኽበ ሓበሬታ ብምሰጥር ከም ዝቅመጥ እና ናይ ምሰታፍኣብ ማእከል ኣቋርጽካ ናይ ምካድ እና ናይ ዘይምሰታፍ መሰልካ/ክ ዝተሓለወ ምኻኑ ክጠልጽ ይፈቱ ኮይኑ ግን እት ሓበሬታ ኣብ ሪፈራል ዓብይ ለውጥ ከምጽእ ዝኸእል እዩ. ዝኮነ ዓይነት ሕቶ እንተሃልዮ ምሕታት ይከኣል እዩ

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ንምቅጻል ፍቃደኛ ዲ.ኪ./ዲ.ካ

እወ

ኣይኮንኩን

- 1.እወ እንተኮይኑ ናብ ዝቅጽል ሕለፍ
 - 2.ኣይኮንን ኣመሰግንካ ናብ ዝቅጽል ሕለፍ
- ሓበሬታ ሰብሳብ ሰምን ፊርማን _____

1 ማሕበራዊ ኩነታ ዝምልከቱ ሕቶታት

1.1 ጻታ _____

1.2 ዕድመ _____

1.3 ኩነታት ሓዳር

ሀ.ዝተመርዓው ለ. ተመረዕያ/ ዩ ዘይፈልጥ/ ዘይትፈልጥ ሐ. ዝተፍትሐ/ት መ.ዝሞቶቶ/ታ ረ.ካልእ እንተሀልዮ

1.4 ሀይማኖት

ሀ.አርቶዶክስ ለ.ምስልም ሐ.ካቶሊክ መ.ፐርቲሲታንት ረ.ካልእ እንተሀልዮ

1.4 ደረጃ ት/ት _____

1.5 ዓይነት ሰራሕ

ሀ. መንግስት ሰራሕተኛ ለ.ተምሃሪ ሐ.ሓረስታይ መ.ነጋዳይ ረ.ሰራሕ ዘይብሉ ሰ.የቤት እመቤት

1.6 መንበሪ ቦታ

ሀ. ከተማ ለ.ገጠር

1.8 መጎዓዓዝ

ሀ.አምቡላንስ ለ. ናይ ግል

2 ናይ ሪፈራል ርኽዓት ዝምልከቱ ሕቶታት

2.1 ኣብ ጥዕና ታብያ ክሕከሙኒ ስለ ዘይከኣሉ ናብ ሆስፒታል ሪፈር ክግበር ክእለ

ሀ..ብጣዕም ኣይሰማዕማዕን ለ ኣይሰማዕማዕን .ሐ. ሓሳብ የብለይን መ. ይስመዕማዕ ረ ብጣዕም ኣሰማዕማዕ

2.2 ሰብ ብጣዕም ክሓምም ከሎ ናይ ጥዕና በዓል ሞያ ኣምቡላንስ ይጽውዕ እዮ

ሀ..ብጣዕም ኣይሰማዕማዕን ለ ኣይሰማዕማዕን .ሐ. ሓሳብ የብለይን መ. ይስመዕማዕ ረ ብጣዕም ኣሰማዕማዕ

2.3 ክሓምም ከለኩ ናብዝ ቅድም ምምጻእይ ነይ ባህላዊ ሕክምና ተጥቀም እዮ

ሀ..ብጣዕም ኣይሰማዕማዕን ለ ኣይሰማዕማዕን .ሐ. ሓሳብ የብለይን መ. ይስመዕማዕ ረ ብጣዕም ኣሰማዕማዕ

2.4 ናይ ጥዕና በዓል ሞያ ሕሙም ሞስተሓከመ ለውጥ ንምርኣይ ተመልሱ ንክመጽእ ይሓቱ እዮም

ሀ..ብጣዕም ኣይሰማዕማዕን ለ ኣይሰማዕማዕን .ሐ. ሓሳብ የብለይን መ. ይስመዕማዕ ረ ብጣዕም ኣሰማዕማዕ

2.5ብሓፈሳ ብናይ ጥዕና ጣብያ ርፈራል ረክዐ እዮ

ሀ..ብጣዕም ኣይሰማዕማዕን ለ ኣይሰማዕማዕን .ሐ. ሓሳብ የብለይን መ. ይስመዕማዕ ረ ብጣዕም ኣሰማዕማዕ

2.6 ኣብ ሪፈራል መንገዲ ዘጋጠሙ ጸገማት ነይሮም

ሀ..ብጣዕም ኣይሰማዕማዕን ለ ኣይሰማዕማዕን .ሐ. ሓሳብ የብለይን መ. ይስመዕማዕ ረ ብጣዕም ኣሰማዕማዕ

2.7 ብዛዕባ ሪፈራል ውሳኔ ክወስን ከሎ ንዐይ ኢማኪፍኒ እዮ

ሀ..ብጣዕም ኣይሰማዕማዕን ለ ኣይሰማዕማዕን .ሐ. ሓሳብ የብለይን መ. ይስመዕማዕ ረ ብጣዕም ይሰማዕማዕ

2.8 ብዛዕባ ሪፈራላይ ዘምልከት ናይ ጥዕና በዓል ሞያ ብዝርዲኡን ቋንቋ ገልጹላይ እዮ

ሀ..ብጣዕም ኣይሰማዕማዕን ለ ኣይሰማዕማዕን .ሐ. ሓሳብ የብለይን መ. ይስመዕማዕ ረ ብጣዕም ይሰማዕማዕ

Annex 2 Training manual

1. Training preparation activities

The data collector will be select from each health center with the following criteria

1 health professional with the qualification of health officer or nurse

2 1 yr. work experience with regardless of their sex

Training preparation activities

Task	Description
1	Finding and setting training room
2	Scheduling training session
3	Coordinating training tasks
4	Preparing, printing training material
5	Informing participant about the date, time and location detail

During training Introduction and warm-up

Before the training started it is important to introduce each other to let to introduce each other so that it will ease communication.

1. Introduce each other
2. Set ground rules
3. Their expectation after completing the training
4. Explain the aim of the training
5. Outlines what will be covered
6. Explain how long the training will take

2 Starting the Training Content

The content of the training includes the following among others:

1The background, objectives, and rationale of the research

2General overview of the methodological approach used for the study

3. Familiarization with the questioner

4The role and the procedure on how to conduct data collection

5 Feedback report from a participant

1. The Background, Objectives, and Rationale of the research. This session seeks to highlight to the participants the precipitate factor to conduct the research, the aim of

the research at the end and the reason why we need to carry out these research and highlight about quality of referral system how it looks like currently.

2. **General Overview of the Methodological Approach Used for the Study:** This section is critical and the slide content will detail the scientific approaches used for the study. It discusses the sampling procedure and the techniques used in selecting it from the population. This section will highlight the mode of data collection and how to use the questioners. In all, the content of this section helps to provide an objective basis for the use of the findings from this study to represent the entire population.
3. **Familiarization with the questioner:** This section simply projects the questioner to highlight the various sections and the kind of information it seeks to obtain. The hard copy of the questioner would have been given to the participants initially and the facilitator prepared various sections to explain what is required and the kind of information that each section seeks to elicit.
4. **Explaining the role and practicing:** This section discusses specific details about the data collector roles in the data collection and their supervisors. It will also seek to include the participants the best and most effective way of approaching their data collection, especially, how to approach a patient and how to keep confidentiality.
5. **A detailed review of the questioner:** This section will take a detailed step-by-step and section-by-section review of the questioner.
6. **Feedback:** any feedback will be received from the data collector.

Closing of the training by acknowledging the participant.

3 Training Methodology and Approaches

Multiple approaches will be used in the course of the training. Among the approaches the training will make use of the following:

1. Interactive plenary discussion/teachings
2. Group discussion

4 Tools and Equipment for Training

This training will make use of the following pieces of equipment:

1. LCD for powerpoint projection
2. Flip charts and markers
3. hard copies of the instrument and the training materials

5 Training Time Table and Agenda

Training time table and agenda will be set before the training and will be distributed to the trainee.