

Cost of treatment among self-referred outpatients in referral hospitals compared to primary health care facilities in East Wollega, western Ethiopia: A comparative cross-sectional study

Edosa Tesfaye Geta, Yibeltal Siraneh Belete, Elias Ali Yesuf

Department of Health Economics, Management and Policy, Faculty of Public Health, Institute of Health, Jimma University, Ethiopia

Abstract

Patient self-referral is a condition when patients refer themselves to higher level health facilities without having to see anyone else first. Despite the expansion in the number of health facilities, it has been seen when patients routinely accessed referral hospitals without a formal referral. The study aims to evaluate cost of treatment among self-referred outpatients at referral hospitals compared to primary health care facilities. Comparative cross-sectional study design was used and the required sample size for the study was determined by using formula of double populations mean comparison cost of treatment for diseases leading to outpatient visits. A total of 794 participants (397 from referral hospital and 397 from primary health facilities) were included in the study. Data was collected using face-to-face interview from December 1 to 30, 2017. Data entry and analysis were made using SPSS version 20. Descriptive statistics and independent samples t-test were performed. A total of 783 outpatients responded to the interview of the study and 391 of them were from referral hospital and 392 from primary health facilities. The mean of outpatient visit cost per visit for the treatment of diseases leading to outpatient visits was significantly higher at referral hospitals compared to primary health facilities [95% CI=6.13 (5.07-7.18)] USD. The mean cost of outpatient visits for the treatment of all type of diseases leading to outpatient visits was significantly higher at referral hospitals and at least two times of primary level health facilities. Health care providers should create awareness in the community about referral linkages to inform patients and their families the additional costs they incur when

they bypass the proximal primary health facilities.

Introduction

Patient self-referral is a condition when patients refer themselves to higher level health facilities without having to see anyone else first or without being told to refer themselves by another health professional.¹ The linkage between primary health care services and first referral units upwards is very important in providing health care for the people of any country.²

An effective referral system ensures a close relationship between all levels of the health system and helps to ensure patients receive the best possible health care closest to their home. It also assists in making cost-effective use of health facilities.³

Ethiopia has successfully implemented its strategy of expanding and rehabilitating primary health care facilities to make health services closer to the community, easily accessible and to ensure further decentralization efforts have been done. However, the health care utilization at nearest primary health care facilities is still low.⁴ Referral flows should be understood because of their efficiency and effectiveness implications. Referral functions are usually invoked to justify the privileged resource allocations of higher health facilities.⁵

According to the study conducted in South Africa, more than 50% of the patients seen at referral health facilities outpatient departments could have been managed at the primary level health facilities. Primary health care provision by hospitals is uneconomical as treatment cost per illness is much more expensive.⁶

In spite of primary health care elements providing essential care and prevention resources for rural populations in Ethiopia, patients often access secondary levels of care without first using primary health care provided by health primary level health facilities.⁷

The study conducted at general hospital in western Ethiopia revealed that 74.9% patients did not first contact nearest health facilities.⁸ Primary medical care at hospital outpatient visit is more expensive because of higher overhead costs and use of expensive investigations and treatments when compared to primary health care facilities,⁹ and the fundamental message of referral system is still unchanged.¹⁰

Little is known about cost of outpatient self-referral for the treatments of diseases leading to outpatient visits in Ethiopia. So, the costs that the outpatients incur due to self-referral to secondary health care facili-

Correspondence: Edosa Tesfaye Geta, Department of Health Economics, Management, and Policy, Faculty of Public Health, Institute of Health, Jimma University, Jimma, Ethiopia.
Tel.: +251917838107
E-mail: edotesfa@yahoo.com

Key words: Self-referral, Outpatient Visit, Referral hospital, Health Care Utilization.

Acknowledgements: the authors are grateful to the study participants and their special thanks go to Jimma University for its financial support of the study.

Contributions: the authors contributed equally.

Conflict of interest: the authors declare no potential conflict of interest.

Funding: none.

Received for publication: 17 January 2019.

Revision received: 16 April 2019.

Accepted for publication: 3 May 2019.

This work is licensed under a Creative Commons Attribution NonCommercial 4.0 License (CC BY-NC 4.0).

©Copyright E.T. Geta et al., 2019
Licensee PAGEPress, Italy
Journal of Public Health in Africa 2019; 10:1024
doi:10.4081/jphia.2019.1024

ties for the treatments of diseases leading to outpatient visits should be evaluated.

Materials and Methods

Study area and period

This study was conducted from December 01 to 30, 2017 in East Wollega zone of Oromia National Regional state, Ethiopia. The zone has two referral public hospitals, three public primary hospitals, 60 public health centers, 298 health posts, 1 Regional laboratory, 1 Blood Bank, 1 NGO Health center, 217 private clinics, 45 drug stores and 22 drug vendors.

Data was collected from 7 public health facilities outpatients (1 referral hospital and 6 primary level health care facilities). From both level of health facilities, 794 study participants were included. For comparison purpose equal number of study participants was included in the study which was 397 participants from referral hospitals and 397 participants from primary level health care facilities.

Study design

A comparative cross-sectional study design was used to analyze cost of self-referral among outpatients for the treatments of diseases leading to outpatient visits with patients' perspective at referral hospitals compared to primary level health care facilities.

Costing Method: The bottom up costing approach cost measurement was used at patient level in order to calculate the cost of outpatient visits for the treatment of diseases leading to outpatient visits to aggregate unit costs of outpatient visits.¹¹

To analyze cost for the treatments of diseases leading to outpatient visits with respect to patients' perspective and the indirect costs that were estimated were earnings lost because of travel, health facility stays and for those due to absences from their work because of outpatient illness. Time foregone and productive time lost was converted into indirect cost based on the daily wage rate and then multiplied by the number of working days lost. The daily wage rate was estimated by dividing the monthly income by 30 days for both patients and caregivers. All costs included in the analysis were measured in terms of local currency, Ethiopian birr (ETB) and were converted to US dollar during analysis. The 2017 currency exchange rate at month of December was 1USD=27.49 ETB.¹²

Study participants

All patients who visited outpatient departments of health care facilities found in East Wollega were source population. All patients who visited outpatient departments of the selected study health care facilities found in East Wollega during the study period were considered as study population. A patient who visited the selected health care facilities outpatient departments found in East Wollega for treatment of diseases leading to outpatient visits was the study unit. All patients visited the outpatient departments of the study health facilities willing to participate in this study were included in the study. Patients whose age was less than 15 year their caregivers were interviewed. Patients with serious physical, mental problems and emergency cases were excluded from the final interview of the study. Patients whose age was less than 15 year and without caregiver were excluded. The outpatients that were not self-referred were excluded from the study at referral hospitals.

Sample size and sampling procedures

The required sample size for the study was determined by using formula of double populations mean comparison in order to compare the mean cost of treatment for diseases leading to outpatient visits at referral and primary level health facilities.¹³

From previous study in Ethiopia

showed that the mean cost and standard deviation of outpatient diarrhea treatment was 3.89 USD and 6.13 USD respectively at health centers and 5.66 USD and 5.99 USD respectively at public hospitals.¹⁴ Using the following assumptions: power of 80% and two-sided alpha error set at 0.05, 95% Confidence level, the estimated variance of treatment cost of diarrhea at referral hospitals and health centers ($\sigma=6$), mean of treatment cost of diarrhea at referral hospitals ($\mu_1=5.99$ USD) and mean of treatment cost of diarrhea at primary health facilities ($\mu_2=3.89$ USD) and design effect ($D=2$).

Using the formula:

$$n = D \times 2(Z\alpha/2 + Z\beta)^2 \times \sigma^2 / (\mu_1 - \mu_2)^2 = 4(1.96 + 0.84)^2 \times (6)^2 / (3.89 - 5.66)^2 = 361.$$

So, $n_1 = 361$ and $n_2 = 361$. Substituting the above values and adding a 10% of non-response rate gives a sample size of $n_1 = 397$ and $n_2 = 397$ study participants in each group and 794 for both study groups.

Data was collected from outpatients of 7 public health facilities which were 1 referral hospital, 2 primary hospitals and 4 health centers. Simple random sampling was used to select primary level health care facilities. Nekemte referral hospital was selected purposely because the other referral hospital in the study area (Wollega university referral hospital) was less than one year since it was established and became

Table 1. Socio-demographic characteristics of patients visited outpatient departments of health facilities in East Wollega, Oromia National Regional State, Ethiopia 2017.

Socio-demographic characteristics		Nekemte referral hospital; N=391 (%)	Primary health facilities; N=392 (%)	Total (N=783)
Sex	Male	172 (44.0)	199 (50.8)	371
	Female	219 (56.0)	193 (49.2)	412
Residence place	Urban	237 (60.6)	168 (42.9)	405
	Rural	154 (39.4)	224 (57.1)	378
Marital Status	Single	160 (40.9)	210 (53.6)	370
	Married	231 (59.1)	180 (45.9)	411
	Divorced	0	2 (0.5)	2
Religion of respondents	Orthodox	117 (29.9)	167 (42.6)	284
	Muslim	53 (13.6)	46 (11.7)	99
	Protestant	219 (56.0)	179 (45.7)	398
	Others	2 (0.5)	0	2
Ethnicity of respondents	Oromo	363 (92.8)	370 (94.4)	733
	Amhara	28 (7.2)	22 (5.6)	50
Educational status	Illiterate	135 (34.5)	149 (38.1)	284
	Read and Write	15 (3.80)	61 (15.6)	76
	1 st cycle (grade 1-4)	47 (12.0)	42 (10.7)	89
	2 nd cycle (grade 5-8)	60 (15.3)	46 (11.7)	106
	Grade (grade 9-12)	56 (14.3)	53 (13.5)	109
	Diploma	50 (12.8)	21 (5.4)	71
	Degree and above	28 (7.2)	20 (5.1)	48
Employment status	Employed	88 (22.5)	107 (27.3)	195
	Unemployed	303 (77.5)	285 (72.7)	588

functional during the study period.

Sample size was allocated proportionately according to outpatient load of the health facilities in the year 2016. Finally, 794 participants were selected by using systematic sampling method. The interval of the respondents for the interview was determined by dividing the daily average total number of outpatient flow of participants planned to be interviewed daily from each study facilities. Therefore, every Kth from Nekemte referral hospital (180/24=7th), Gida primary hospital (61/8=7th), Arjo primary hospital (34/7=5th), Nunu health center (21/4=5th), Getema health center (10/3=3rd), Kiremu health center (13/4=4th) and Ano health center (19/4=4th). Simple random sampling technique was employed to select the first participant from registration books at triage room of the study facilities. For diseases leading to outpatient department visits consecutive sampling was used. Sample size was allocated proportionately to each disease according to their proportion in the study area.

Data collection tool and method

The structured questionnaire was developed in English after reviewing relevant literature,^{15,16} and the questionnaire was translated into local language, Afan Oromo which was used for final interview. Seven data collectors and two supervisors were assigned for data collection. All supervisors

and data collectors had BSc degree and experience of data collection. These data collectors and supervisors were trained before the pre-test and actual data collection started. The questionnaires were pre-tested using 40 (5%) of sample size at Wollega University referral hospital and to ensure that whether it is clear or not for respondents. Data was collected by face-to-face interview using structured questionnaire. Patients who completed their outpatient visits and return to leave the study health facilities and willing to participate in this study were interviewed (exit interview).

Study variables: Outpatient self-referral costs, socio-demographic characteristics, level of health facilities and type of diseases leading to outpatient visits.

Data management and analysis

The completed questionnaires were checked for completeness, consistency and coded by the principal investigator and supervisors. After completeness of each questionnaires checked, data entry and analysis were made using SPSS software version 20.

Descriptive statistics was performed for all study variables. Finally, costs of treatments for diseases leading to outpatient visits at referral hospitals were compared with that of primary level health facilities using independent samples t test, declaring the level of significance of cost difference at $P < 0.05$.

Ethical consideration

Official letter for ethical clearance was obtained from Institutional Review Board of Jimma University, Institute of Health. Formal letter of permission was taken from East Wollega Zonal health department and given to the study health facility to obtain consent and required information from all subjects and also confidentiality was maintained.

Results

Socio-demographic characteristics of the participants

A total of 794 of outpatients were included in the study and 397 of them from Nekemte referral hospital and 397 of them from primary health facilities. From 794 outpatients included in the study; 783 of them responded to the interview making 98.6% of response rate. Majority of the patients visited outpatient departments of referral hospital 237(60.6%) were from urban area whereas at primary level health facilities majority of them 224(57.1%) were from rural area (Table 1).

The mean age of participants from referral hospital was 28.5 (± 17.5) year whereas 23.9 (± 16.4) year at primary level health facilities. The mean monthly income of participants at referral hospital and primary level health facilities were 85.22 (± 67.48) USD and 82.19 (± 69.76) USD

Table 2. Costs categories for treatment of diseases leading to outpatient visits based on the level of health facilities in USD, at East Wollega, Oromia National Regional State, Ethiopia, 2017.

Type of diseases leading to outpatient visits	Health facilities level	N.	Costs Category			
			Average Non-medical costs Transportation Mean (SD)	Other costs Mean (SD)	Average Medical costs Mean (SD)	Total cost Mean (SD)
Pneumonia	Nekemte RH	67	3.38 (3.57)	3.05 (4.40)	4.95 (2.43)	11.38 (7.98)
	Primary HF	81	1.16 (1.54)	1.62 (2.73)	2.51 (1.50)	5.29 (4.54)
Acute Febrile Illness	Nekemte RH	73	3.57 (4.72)	2.41 (3.71)	3.91 (2.47)	9.89 (8.28)
	Primary HF	66	1.83 (4.10)	1.39 (1.81)	2.71 (1.48)	5.93 (4.99)
Upper Respiratory Infection	Nekemte RH	40	3.24 (4.04)	3.68 (4.15)	6.27 (3.09)	13.19 (8.37)
	Primary HF	35	0.78 (1.09)	1.35 (1.83)	2.83 (2.59)	4.96 (4.42)
Diarrhea (Non- bloody)	Nekemte RH	35	5.55 (6.03)	2.44 (5.65)	3.63 (1.87)	11.62 (9.93)
	Primary HF	35	1.78 (2.06)	1.72 (2.33)	2.28 (1.47)	5.78 (4.37)
Dyspepsia	Nekemte RH	44	4.10 (5.59)	4.25 (7.05)	4.89 (3.07)	13.24 (11.26)
	Primary HF	35	2.57 (3.26)	2.23 (1.82)	3.11 (1.89)	7.91 (4.82)
Musculoskeletal & connective tissues	Nekemte RH	34	3.27 (2.94)	5.51 (6.98)	5.97 (3.02)	14.75 (10.62)
	Primary HF	38	1.55 (1.70)	1.55 (1.85)	2.58 (1.51)	5.68 (4.30)
Helminthiasis	Nekemte RH	36	3.58 (4.91)	2.17 (3.27)	3.34 (1.48)	9.09 (8.44)
	Primary HF	34	1.03 (1.14)	2.04 (4.33)	1.59 (1.01)	4.66 (4.52)
Infection of Skin & subcutaneous tissue	Nekemte RH	28	4.57 (3.55)	2.18 (3.12)	5.63 (3.29)	12.38 (6.53)
	Primary HF	42	2.47 (3.49)	2.07 (3.32)	2.33 (1.89)	6.87 (6.87)
Urinary Tract Infection	Nekemte RH	34	4.54 (4.17)	3.03 (3.91)	5.93 (3.17)	13.50 (8.02)
	Primary HF	26	1.60 (1.78)	1.88 (1.39)	3.25 (2.06)	6.73 (4.04)

1USD=27.49 ETB (Ethiopian birr) at December 2017, other costs = (accommodation + food + indirect) costs, HF=Health facility, RH=Referral Hospital, USD=US dollar, SD=Standard Deviation.

respectively. The average house hold family size were 4 (± 2.1) and 4.8 (± 2.6) at referral hospital and primary level health facilities respectively.

Cost of treatment for diseases leading to outpatient visits

The total average costs of treatment for diseases leading to outpatient visits at referral hospitals and primary health facilities were 11.98 USD and 5.86 USD respectively. The treatment cost for each of diseases leading to outpatient visits was also evaluated (Table 2).

According to the study findings, cost of treatment for diseases leading to outpatient visits at referral hospitals was significantly higher than that of primary level health facilities by 6.13 [95% CI = (5.07-7.18)] USD (Table 3).

The average non-medical and medical costs for the treatment of diseases leading to outpatient visits were significantly higher at referral hospitals than that of primary level health facilities. This depicts that those patients visited outpatient departments of referral health facilities for the treatments of diseases leading outpatient visits incurred

on average 3.76 [95% CI = (2.84-4.67)] USD and 2.37 [95% CI = (2.04-2.70)] USD higher non-medical and medical costs respectively when compared to those patients visited the outpatient departments of primary level health care facilities.

The average transportation cost patients incurred during outpatient visit at referral hospitals and primary health facilities were 3.87 USD and 1.62 USD respectively. There was a significant transportation mean cost difference at referral and primary health facilities [95% CI = 2.23 (1.79-2.82)] USD. This indicates that those patients visited outpatient departments of referral hospital incurred on average 2.23 USD additional transportation cost for the treatment of diseases leading to outpatient visits when compared to primary health facilities

The average time lost during the facility stay to obtain health care services at referral and primary health facilities were 3.26 hours and 1.94 hours respectively. The average total time lost during transportation and health facility stay at referral and primary health facilities were 6.64 hours and 4.84 hours respectively.

The mean time lost difference during

health facilities stay was significantly higher at referral hospitals compared to primary health facilities [95% CI = 1.31 (1.07-1.56)] hours. But, there was no a significant transportation time lost difference from home to health facility and from the facility to home travels at both level of health facilities. Despite of this, there was a significant mean time lost difference to visit outpatient department of referral hospitals compared to primary health facilities for treatment of diseases leading to outpatients visits [95% CI = 1.80 (0.62-2.99)] hours. The average income lost due to productivity time loss of both patients and caregivers visited referral hospitals and primary health facilities were 2.81 USD and 1.68 USD respectively. The patients visited outpatient departments of referral hospitals lost significantly higher income than those patients visited primary health facilities [95% CI = 1.13 (0.59-1.66)] USD. Not only this, they also incurred higher accommodation average cost and food to visit outpatient departments of referral hospital than primary health facilities which were 4.93 USD and 1.75 USD respectively and there was a significant difference [95% CI = 3.18 (2.49-3.87)] USD.

Table 3. Mean cost difference for treatments of diseases leading to outpatient visits based on health facilities level in East Wollega, Oromia National Regional State, Ethiopia, 2017.

Type of diseases leading to outpatient visits	Cost Categories	Mean Cost Difference in USD (95% CI)
Pneumonia	Total non-Medical cost	3.65(1.91-5.38)***
	Total Medical cost	2.43(1.79-3.08)***
	Total costs	6.08(4.02-8.15)***
Acute Febrile Illnesses	Total non-Medical cost	2.75(0.60-4.91)**
	Total Medical cost	1.21(0.51-1.90)***
	Total cost	3.96(1.51-6.41)**
Acute Upper Respiratory Tract Infection	Total non-Medical cost	4.79(2.19-7.39)***
	Total Medical cost	3.44(2.11-4.77)***
	Total cost	8.23(5.08-11.38)***
Diarrhea (Non-bloody)	Total non-Medical cost	4.49(0.99-7.99)**
	Total Medical cost	1.35(0.54-2.16)***
	Total cost	5.84(2.18-9.50)**
Dyspepsia	Total non-Medical cost	3.55(-0.71-7.81)**
	Total Medical cost	1.78(0.60-2.96)**
	Total cost	5.33(0.63-10.03)*
Musculoskeletal system and connective tissues Infection	Total non-Medical cost	5.68(2.61-8.75)**
	Total Medical cost	3.39(2.28-4.50)**
	Total cost	9.07(5.33-12.8)***
Helminthiasis	Total non-Medical cost	2.68(-0.48-5.8)*
	Total Medical cost	1.75(1.14-2.36)***
	Total cost	4.43(1.01-7.86)**
Skin and Subcutaneous tissue infection	Total non-Medical cost	2.21(-0.60-5.02)**
	Total Medical cost	3.29(2.06-4.53)***
	Total cost	5.50(1.99-9.02)**
Urinary Tract Infection	Total non-Medical cost	4.08(1.19-6.97)***
	Total Medical cost	2.69(1.25-4.12)***
	Total cost	6.77(3.32-10.21)**
Total Nonmedical cost	-	3.76(2.84-4.67)***
Total Medical cost	-	2.37(2.04-2.70)***
Total cost per patient outpatient visit	-	6.13(5.07-7.18)***

1USD=27.49 ETB (Ethiopian birr) at December 2017, CI=Confidence interval, USD=US dollar, *P-value <0.05, **P-value <0.01, ***P-value <0.001.

Discussion

In this study, the cost of treatment of diseases leading to outpatient visits per patient was significantly higher at referral hospitals than that of primary health facilities by 6.13 USD. The average medical costs at referral hospitals outpatient visit was at least two times of primary health facilities and the average cost difference was 2.37 USD. The average cost difference varies depend on type of illness for which the patients visited the outpatient departments of both level of health facilities.

Also, the study conducted in South Africa revealed that the treatment cost per illness is much more expensive at referral health facilities than at primary health facilities outpatient visit⁶. In addition to this in many European countries the costs of illnesses at referral health facilities are higher than the costs of primary level health care facilities that is reasoned out as because of the evidence that health care providers induced demand for costly and sometimes unnecessary procedures and investigations at higher referral hospitals.^{9,17} The study conducted in Chad also revealed that bypassing patients spend on average more than 2.3 times on medical services including tests and prescription drugs costs than do patients who use health centers closer to their home.¹⁸

This average medical cost difference might be due to costly prescription of drugs and investigations at higher referral hospitals and fee for health services may varies from health facility to health facility because of each health facilities has its own strategy of revenue collection. To increase their revenue these health facilities might impose some additional costs on actual costs according to their health facilities level and higher-level hospitals have higher overhead costs than lower level health facilities.

According the findings of the study, the average cost of pneumonia treatment at referral hospital per visit was estimated to be 11.37 USD and at primary health facilities 5.23 USD, whereas the illness cost for treatment of diarrhea was estimated to be 11.62 USD at referral hospital and 5.79 USD at primary level health care facilities.

This finding is consistent with the study finding conducted in Ethiopia on average cost of treatment of episode of pneumonia at hospital was 12.08 USD and diarrhea was 5.66 USD whereas at health centers the average treatment cost of pneumonia was 4.06 USD and diarrhea was 3.89 USD.¹⁴ The study finding conducted in America also revealed that the primary level care facilities had 25% lower expenditures for

ambulatory care and primary level health facilities deliver effective health care that returns significant health care savings, even as they serve patients with high health care needs.¹⁹

This significance average cost difference might be due to the patients incur additional transportation costs since they travel a long distance to visit referral health facilities and they may stay for more than a day, so there is the probability of renting hotel and incur extra food costs. Not only this, but also during their long stay on travel and in the facilities they may loss long productivity time with their caregivers. But to compare other outpatient illnesses treatment costs (acute febrile illness, acute upper respiratory infection, dyspepsia, musculoskeletal system and connective tissues, helminthiasis, infection of skin and subcutaneous tissue and urinary tract infection) at both level of health facilities, similar studies were not available.

In both primary and secondary level health care facilities the average total non-medical cost was higher than the average total medical cost. The average non-medical cost of outpatient visits per patient at referral hospitals was significantly higher than that of primary level health facilities by 3.76 USD. According to the report on non-medical costs to patients and their families; transportation and food were among the largest out-of-pocket expenses and distance to treatment was associated with increased costs. In addition, the report showed that non-medical costs can be substantial in relation to weekly income for a significant number of patients seeking for health care.²⁰

The outpatient visits total average cost at referral hospitals was two times of outpatient visit cost of primary level health facilities (11.96 USD at referral hospitals and 5.86 USD at primary health facilities). The average non-medical cost at referral hospitals was 2.15 times that of primary level health facilities (7.08 USD at referral hospitals and 3.33 USD at primary health facilities).

Similarly, the study conducted in Ethiopia revealed that the costs to receive health services through clinical specialist outreach that nearest to patients' home as compared patient's referral to central referral health facilities for similar health care services are provided explained that more than 50% reduction of direct non-medical cost when patients receive clinical specialist services at outreach hospitals as compared to that at central referral hospitals.²¹

There was significant average transportation cost difference to visit referral and primary level health facilities outpatient

departments. The study showed that if patients visited primary health facilities for the treatment of diseases leading to outpatient visits in average they would save 2.25 USD per patient visit transportation cost.

The study conducted in Zambia again revealed that among patients presenting level 2 and 3 health facilities many of them experienced an additional financial burden in transportation expenses and at these facilities, over 30% of patients reported incurring a transport-related expense prior to receiving health care.²²

In both referral and primary health facilities the average time lost during transportation was higher than the time lost during health facility stay. But there was no significant difference of time lost from home to health facility and back from health facility to home travel. This might be due to almost half of patients visited primary health facilities transportation mode was on foot 146 (42.6%) whereas only 31 (7.9%) patients travelled on foot to visit referral hospital.

In contrast to this, the study conducted in Zambia only 25% of patients indicated travelling for a longer amount of time to reach a level two or three hospital than the time they spent waiting for care.²² Again the study conducted in Sri Lanka revealed that transportation cost and incidental cost, mostly on food, was indirectly related to the distance traveled to reach the health facility and the time spent on the visit.²³ This difference might be due to the variation of health facilities distribution in these countries.

The cost findings in the study could be underestimated for the reason of the income loss of unemployed patients and caregivers due to productivity time lost was not included in cost estimation and excluded from the both alternatives (referral and primary health facilities).

Conclusions

When outpatients self-refer to referral health facilities for the treatments of diseases leading to outpatient departments visits, the patients incur at least two times of medical and non-medical additional costs per patient outpatient visit compared to primary health facilities. Overall, referral hospitals outpatient visits experience significant total higher cost for the treatments of diseases leading to outpatient departments visits than primary health facilities. So visiting outpatient department of primary level health facilities was cost saving approach for the treatment of diseases leading to outpatient departments visits. This means if a patient visited outpatient department of pri-

mary health facilities for the treatments of diseases leading to outpatient departments visits, the patient would reduce the outpatient visit cost by half.

The health care providers should create awareness in the community to visit the proximal health facilities when they sick for their any health problems and about referral linkages of health facilities to inform the patients and their families the additional costs they incur when they bypass the proximal health facilities to visit higher level health facilities for the treatments of diseases leading to outpatient departments visits. Further study research may be useful in the future to evaluate the costs of outpatient self-referral with the perspective of health care system.

References

1. Henery J. Focus on health care disparities key facts. Kaiser Fam Foundat 2012;2-3.
2. Syed M, Bushra B, Iqbal A, et al. Bangladesh Health system Review. Health systems in Transitions. WHO 2015;5:142-52.
3. Macintyre K, Megan L, David R, et al. Barriers to Referral in Swaziland: Perceptions from providers and Clients of System under Stress. World and medical and health policy. PSO 2011. Manuscript 1183; 24-26.
4. Ethiopian Federal Ministry Of Health. Health Sector Transformation plan/HSTP2015/2016-2020/. Addis Ababa, Ethiopia. 2015; 41-43.
5. World Health Organization. Studying the healthcare network and analyzing disrupting health sector. WHO/HAC/MAN/ 2008;8:281-289.
6. Mojaki ME, Basu D, Letskokgohka ME, Govender M. Referral steps in district health system are side-stepped. Scientific letters. SAMJ 2011;101:109.
7. Abraham O, Linnander E, Mohammed H, et al. A Patient-Centered Understanding of the Referral System in Ethiopian Primary Health Care Unit. PloS ONE 2015;10:1-10.
8. Wolkite O, Waju B, Gebeyehu T. Magnitude and Determinants of Self-Referral of Patients at a General Hospital, Western Ethiopia. Sci J Clin Med 2015;4:86-92.
9. Zeynep O, Florence J, Engin Y. Impact of Health Care System on Socio-economic Inequalities in Doctor Use for the European Union Working Group on Socio-economic Inequalities in Health. JEL Classification 2008;11-14.
10. Stewart G. The Increasing Importance of Physician to Physician Referrals. Health Care Success 2014.
11. Abhijit P. Health Economic Evaluation-Methods Techniques. IOSR Journal of Economics and Finance (IOSR-JEF). 2016;7:1-9.
12. National Bank of Ethiopia. Quarterly Bulletin Third Quarter 2016/17 Fiscal Year Series 2017;3:45-50.
13. Karimollah H. Sample size determination in epidemiological studies. Caspian J Intern Med 2011;2:289-98.
14. Memirie ST, Metaferia ZS, Norheim OF, et al. Household expenditures on pneumonia and diarrhea treatment in Ethiopia: a facility-based study. BMJ Global Health 2017;1:5-7.
15. WHO. The Tool to Estimate Patients' Costs. KNCV Tuberculosis Foundation, WHO and the Japan Anti-Tuberculosis Association. 2008; 1-83. Available at: www.tbcta.org.
16. Sally T, Sarah W. An annotated cost questionnaire for completion by patients. HERU Discussion Paper 2011;3:13-25.
17. Yaffee A, Whiteside L, Oteng R, et al. Bypassing proximal health care facilities for acute care: a survey of patients in a Ghanaian Accident and Emergency Centre. Trop Med Int Health 2012;17:777-81.
18. Bernand G, Waly W. Bypassing health providers. The quest for better price and quality in Chad. Soc Sci Med 2011;9-16.
19. Richard P. Cost savings approach associated with the use of community health centers. J Ambulatory Care Manag 2012;35:50-9.
20. Peter S, Allan L, Harold A, et al. Nonmedical Costs to Patients and Their Families Associated with Outpatient Chemotherapy. Nonmedical Costs 1984;53:2389-91.
21. Kifle Y, Nigatu T. Cost-effectiveness analysis of clinical specialist outreach as compared to referral system in Ethiopia. An economic evaluation. Cost Effect Res Alloc 2010;8:4-6.
22. IHME. Health service provision in Zambia assessing facility capacity, costs of care and patient perspectives. Institute for Health Metrics and Evaluation. Seattle, WA, IHME. 2014; 22-48.
23. Weerasinghe MC, Fernando DN. Access to care in a Plural health system. Concerns for policy Reformism. J Coll Comm Physicians Sri Lanka 2009;14:39-45.