



**Research Article**

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## Assessment of Traditional Medicine Utilization in Harar Town, Eastern Ethiopia

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### ABSTRACT

Traditional medicine (TM) has been part of man's survival for long time. Harar is an ancient trade route and has a close proximity to the red sea. The use of TM is common and the majority of its habitants use TM. This study was conducted to assess why Harar households continued to prefer and depend on the utilization of TM as part of their healthcare system. Community based cross sectional study was conducted to select head of 423 households. Data was collected using face to face interview with a semi structured questionnaires and descriptive statistics including mean, standard deviations, frequencies and percentages were performed to examine the outcomes and associated factors. The result shown that 60.50% of the households preferred to use TM as their primary health care services and used TM for curative of ailments because TM had minimal side effects compared to modern medications. Socio demographic factors had no significant association to TM use; however, other associated factors had strong association with TM use. Personal experience such as minimal side effect of TM, attitudes towards TM use such as cost effectiveness, effective for specific diseases and quality service such as ready availability of TM had strong association to TM utilization. It was concluded that TM is still continued to play a significant role in healthcare of many households of Harar town because TM is dependable, affordable, safe and cost effective.

**Keywords:** Traditional Medicine, Households, Harar town, Ethiopia.

### INTRODUCTION

The use of traditional medicine (TM) was as old as the history of mankind. It was the only choice for man to combat illnesses until the arrival of conventional or western medicine (WM). Without doubt, TM is the only choice and continued to be the best alternative healthcare system for many communities around the globe because of its remarkable and inherent qualities, readily availability and cost effectiveness [1, 2].

Many people around the globe particularly those in the old world and Latin America, preferred to use TM to fulfill their primary healthcare (PHC) need. In developed countries TM is considered as complementary and alternative medicine (CAM) and used by sizable number of population. Several reports have shown that 42% of Americans, 48% of Australians, 49% of French and 70% of Canadians use TM as part of their healthcare needs. Moreover, among the developing countries, 40% of Chinese, 70% of Indians, 71% of Chileans, and 40% of Colombians use TM as part of their healthcare needs. The acceptance and popularity of TM around the world is not surprising to anyone because TM and CAM are attracting more and more attention within the context of health care provision and health sector reform [3, 4].

However, enough emphasis was not paid to systematically collect, identify and test medicinal plants in many of the developing countries despite the availability of knowledge about medicinal plants in the hands of traditional healers (THs). Because of this huge neglect, knowledge about THs is either lost or passed from generation to generation through word of mouth. Therefore, it is imperative that knowledge about medicinal plants is systematically gathered and documented for use in the next generations [5, 6].

Africa is one of the continents in which TM is highly practiced. Many Africans people depended on the use of TM and THs services to get both preventative and curative services. Various studies have shown that 90% of Ethiopians, 70% Beninese, 70% Rwandese, 60% Tanzanians and 60% Ugandans use TM for primary healthcare [1].

In Ethiopia, public and livestock health services have been scanty or limited and these important sectors have no alternative than heavily relying on THs for their primary healthcare services [7].

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The knowledge on Ethiopian TM was mainly orally based and the information on healing practice was traced back to medico-religious texts which was widely perceived and embedded in beliefs, and practices primarily passed down by healers from generation to generation, often with considerable secrecy. Therefore, the majority of Ethiopians heavily relied for centuries on a system of traditional or indigenous health care knowledge for various physical and mental disorders which often linked to its multi-ethnic and cultural diversity coupled with the diversity of the physical environment which fosters an array of unique flora [8].

The Ethiopian modern health care services and service providing institutions are not only insufficient, but also inaccessible and unaffordable to the majority of the population. Even, in urban centres, where the concentration of modern health care services and modern medicines are relatively high and most rural and urban populations do not able to cover the cost of western medication [9].

THs and their services have a remarkable contribution as alternative for health care service of urban and rural inhabitants. But it is hardly possible to find how much would be the share of traditional clinics in support of the public health system in urban areas where modern health practices are located [9].

It is widely accepted that the practice of TM is mainly based on conventional use and personal experience. The value of TM has not been fully tested by using modern scientific means such as by conducting clinical trials of herbal medicine according to western pharmaceutical clinical standards. There are also questions regarding dosage specifications, efficacy, safety, proper packaging, hygiene and

cost of production by the elites in the health care team who continues to prescribe only conventional medicines in hospitals and clinics [10, 11].

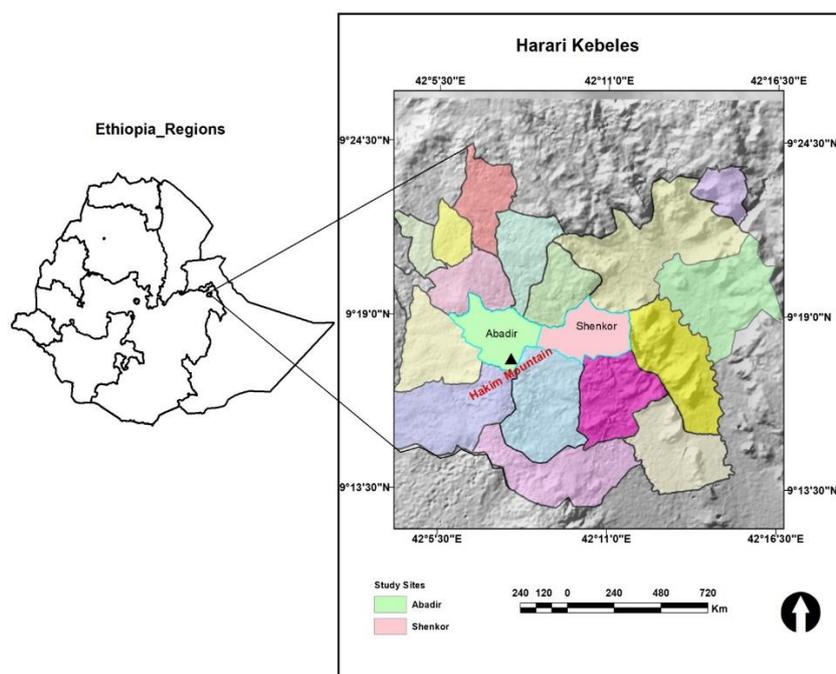
Harar was an important and historical trade route located in the eastern escarpment of Ethiopian plateau. The majority of the population are Muslims. They shared many of their cultural and traditional herbal medicines with neighbouring countries. The knowledge and utilization of TM is the rich cultural practice of the people Harar and they have mostly depended on TM for long time as part of their healthcare system.

However, there is no enough study carried out in Harar and the surrounding areas on the extent of TM use by the people. Therefore, the main objective of this study is to assess why the households of Harar continued to use TM as part of their healthcare system in spite of the availability of modern medicine in the area. The study also aimed to identify ways of TM utilization which would be used as base line data for the future researchers in the area.

## MATERIALS AND METHODS

### Study area

Harar town is located 526 km east of the capital city of Ethiopia, Addis Ababa. It is located between 9° 11'49" N, 9° 24' 42" N latitude, 42°3' 30' E, and 42° 16'24' E longitude and the elevation ranges from 1300 to 2200 meters above sea level (Figure 1). The climatic condition of Harar town is one of the most pleasant in the country. The weather condition is warm and mild, and lies between 17.1°C to 25.2°C throughout the year. The coolest season (18.7°C) is between June and September. The average annual rainfall is between 750 and 1,000 mm.



**Figure 1:** Map showing study locations of Abadir and Shonkor districts of Harar town, eastern Ethiopia

According to figures from the Central Statistical Agency (CSA) of Ethiopia, the 1994 population estimate of Harar was 60,000 males and 62,000 females for the total population estimate of 122,000 [12].

### Sampling and study populations

The study was designed to collect data from a community based cross sectional study. The study was conducted from June 1 to September 20, 2017. The impact of age, sex, educational status, family size,

monthly income, cultural belief, personal experience and quality of service on the utilization of TM were considered in this study. The study population was all the head of households in the districts of Abadir and Shonkor of Harar town, eastern Ethiopia.

### Inclusion and exclusion criteria

All head of households in selected districts of Abadir and Shonkor of Harar town willing to participate in the study were considered as

included and those households closed or where family members of the households were absent excluded from the study.

### Sample size and sampling technique

The sample size is calculated by using a single population proportion calculation formula considering the following assumptions: Since the level of traditional medicine utilization in the Harar town was not clearly known, a 50% level of utilization was used for calculation of sample size.

### Sample size determination

The sample size was determined considering the following assumptions: since the level of TM utilization in the Harar town was not clearly known, a 50% level of utilization was used for calculation of sample size.

$$n_i = \frac{(z\alpha/2)^2 pq}{D^2} = \frac{(1.96)^2 (0.5)(0.5)}{(0.5)^2} = \frac{(3.84)(0.25)}{0.25} = \underline{384} \text{ samples}$$

$n_i$  = Sample size from finite population.

$Z\alpha/2$  = the standard score corresponding to 95% confidence level = 1.96.

$d$  = the proportion of sampling error between the sample and the population = 0.05.

$P$  = prevalence of intension course.

To reduce the problem associated in non response in sampling for this project, a 10% non response rate was added to the calculated sample size of 384 and the final sample size became 423. Simple random sampling techniques were used to assess households from the prepared data frame in two woredas until the required sample size of 423 was reached proportionally based on the woredas household level. Selected study subjects who refused to participate in the study were considered as non-respondent.

### Data collection instrument and techniques

After identifying the study participants, verbal consents were obtained by explaining the participants about the aim of the study. Then, face to face interviews were made using pre-tested structured questionnaires which had both open and closed questions to assess traditional medicinal utilization and associated factors in selected areas of the town. The questionnaires were prepared in English language translated to Amharic and Afan - Oromo.

### Data quality control

Trained data supervisor and data collectors were employed to ensure

data quality through data collection, coding, entry and analysis. Data was pre-tested using 5% (households) of the sample size of the study. The completeness, accuracy and clarity of collected data were checked by the investigators before the next data collection was made.

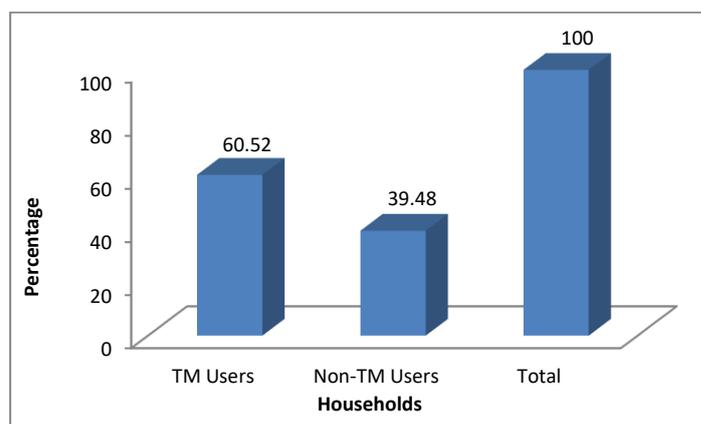
### Data processing and analysis

The data was arranged and analyzed using a soft ware compatible with windows and made available through Haramaya University, Department of Statistics. The results were presented as frequencies and percentages of households used in the study. Descriptive statistics including mean, standard deviations, frequencies and percentages were used to conduct multivariate analyses of adjusted odds ratio (AOR) and cumulative odds ratio (COR) at 95% confidence interval (CI) to see the existence of associations between socio demographic and other associated variables and TM and non TM users.

## RESULTS

### Distribution of traditional medicine utilization

From 423 total households, 256 (60.52%) said that they preferred to use TM as primary medications whereas 167 (39.48%) said that they preferred to use other means of medications which could include conventional medicines (Figure 2).



**Figure 2:** TM and Non TM users of households in Harar town, eastern Ethiopia

### Common type of home remedies used by traditional medicine users

Among commonly used homemade remedies of TM, Nech shinkurt (*Allium sativum*) (69.53%) was highly favoured by the households followed by Dama kese (*Ocimum lamiifolium*) (60.53%). The least favoured home remedy was Kemzera (*Apium graveolens*) which was only 37.50% (Table 1).

**Table 1:** Home grown remedies used by households in Harar town, eastern Ethiopia.

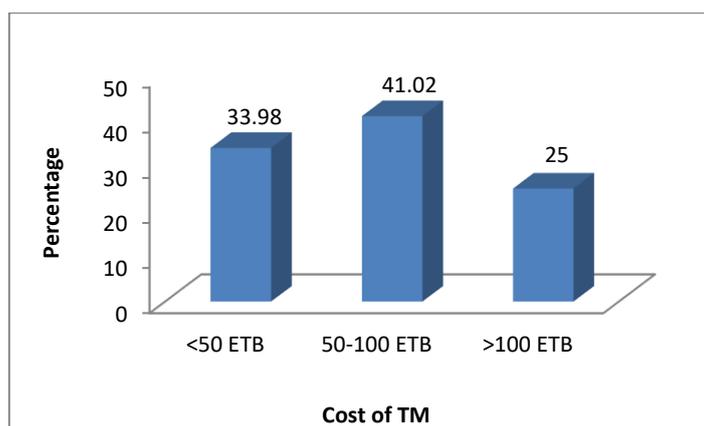
No	Home remedies				Use			
	Old voucher #	New voucher #	Local name	Scientific name	Family name	Method of utilization	Frequency	Percentage
1	019544	HUHE0000015416	Tenadam	<i>Ruta chalepensis</i>	Rutaceae	Fresh cut dip into drinks	135	52.73
2	*AHU191	-	Nech Shinkurt	<i>Allium sativum</i>	Alliaceae	Crush and cook with foods	178	69.53
3	005224	HUHE0000012793	Moringa	<i>Moringa stenopetala</i>	Moringaceae	Cook as vegetable	136	53.12
4	021426	HUHE0000008298	Dama Kese	<i>Ocimum lamiifolium</i>	Lamiaceae	Crush, pulverize and inhale	155	60.55
5	*AHU193	-	Zingibil	<i>Zingiber officinale</i>	Zingiberaceae	Crush, powder and add to foods or drinks	134	52.34
6	016297	HUHE0000006573	Feto	<i>Lepidium sativum</i>	Brassicaceae	Crush, squeez and inhale	123	48.05

7	001777	HUHE0000004081	Kebericho	<i>Echinops kebericho</i>	Asteraceae	Smoke for fumigation	137	53..52
8	005278	HUHE0000013124	Nech bahir zaf	<i>Eucalyptus globulus</i>	Myrtaceae	boil and inhale	127	49.61
9	011388	HUHE0000006445	Senafitch	<i>Brassica nigra</i>	Brassicaceae	Powder made into paste to serve with food	110	42.96
10	003328	HUHE0000008264	Besobila	<i>Ocimum basilicum</i>	Lamiaceae	powder used as spice	129	50.39
11	*AHU213	-	Nana	<i>Mentha spicata</i>	Lamiaceae	Fresh cut deep into hot drinks	98	38.28
12	*AHU217	-	Tosegn	<i>Thymus schimperi</i>	Lamiaceae	Fresh cut deep into hot drinks	125	48.82
13	017282	HUHE0000014855	Tikur azmud	<i>Nigella sativa</i>	Ranunculaceae	Powder used as spice	131	51.17
14	022453	HUHE0000001287	Qunda barbare	<i>Shinus molle</i>	Anacardiaceae	Powder added to foods	110	42.96
15	*AHU211	-	Abish	<i>Trigonella foenum-graceum</i>	Fabaceae	Powder cooked with foods	139	54.29
16	*AHU198	-	Qarafa	<i>Cinnamomum zelanicum</i>	Lauraceae	Powder used as spice	105	41.01
17	016486	HUHE0000018966	Dimbelal	<i>Coriandrum sativum</i>	Apiaceae	Powder added to foods	102	39.84
18	009546	HUHE0000024887	Irate	<i>Aloe megalacantha</i>	Aloaceae	Sap smeared on wound, or taken by mouth for internal ailments	115	44.92
19	019804	HUHE0000018710	Kemzera	<i>Apium graveolens</i>	Umbeliferae	Shredded and cooked with foods	96	37.50

\*= field voucher #, Percentage calculated by taking frequency divided by the total TM users (256) and multiplied by 100.

### Cost of traditional medication

Among TM users of 256 households, 105 (41.02%) said that they paid between 50 and 100 ETB per visit to the THs. The rest, 87 (33.98%), said that they paid less than 50 ETB per visit while 64 (25%) of the respondents said that they paid greater than 100 ETB per visit (Figure 3).



Note: ETB is Ethiopian Birr and equivalent to 0.273 US Dollar

Figure 3: Perception of the cost of TM use in districts of Harar town, eastern Ethiopia.

### Purpose of traditional medicine utilization

Among TM users, 131(51.17%) households said that they used TM for curative of specific ailments, whereas 103(40.23%) were preferred to use TM for its lack of side effects. The majority of households, 119 (46.48%), preferred to use leaves as herbal medications. 191 (74.60%) of the households trusted TM use because of minimal side effects (102(39.84%)) and cost effectiveness (104(40.63%)) of TM use (Table 2).

### Traditional medicine use for acute and chronic diseases

The majority of the households 131 (51.17%) from Abadir and Shonkor of Harar town used TM for curative purposes because they believed

that TM had minimum side effects and 119 (46.48%) of the households preferred to use leaves as source of TM. The majority of respondents (58.53%), preferred to use TM for chronic diseases and the rest (41.47%) preferred to use TM for acute diseases (Table 3).

Table 2: Preference for TM use in Harar town, eastern Ethiopia

Variables	Categories	Frequency	Percentage	
Households' preference to use TM for	Curative	131	51.17	
	Preventive	76	29.69	
	Diagnostic	49	19.14	
Households' preference for TM because TM had	No side effects	103	40.23	
	Neutral	62	24.22	
	Safe and effective	67	26.17	
Households' preference for	Cheaper and easily available	24	9.38	
	Leaves	119	46.48	
	Roots	64	25.00	
	Stem	47	18.36	
Households' trust for TM	Fruits	26	10.16	
	Good	191	74.60	
	No	40	15.63	
Households' choice for TM because of	Do not know	35	13.67	
	Good taste	42	16.41	
	Minimal side effect	102	39.84	
	Better efficacy	52	20.31	
	Cultural belief	60	23.44	
	Households' attitude towards TM	Convenient to use	65	25.39
		Cost effective	104	40.63
Effective for specific disease		32	12.50	
Quick recovery and satisfaction		21	8.20	
Accepted by the community	34	13.28		

Note: Data expressed as percentage by taking frequency divided by the total TM users (256) and multiplied by 100, TM = Traditional Medicine, THs = Traditional Healers.

**Table 3:** TM use for chronic and acute diseases in Harar town, eastern Ethiopia

Chronic diseases			
	Diabetes	53	7.48%
	Hypertension	54	7.62%
	Haemorrhoids	59	8.32%
	Cancer	42	5.92%
	Arthritis	47	6.63%
	Skin disease	66	9.31%
	Renal disease	19	2.68%
	Hepatic disease	31	4.37%
	Asthma	44	6.21%
Total		415	58.53%
Acute diseases			
	Malaria	62	8.74%
	Allergies	54	7.62%
	common cold	37	5.22%
	Fever	66	9.31%
	Diarrhea	41	5.78%
	Vomiting	34	4.80%
Total		294	41.47%

**Association of socio demographic variables to traditional medicine use**

Multivariable analysis of socio demographic variables such as age, sex, educational status, family size and monthly income had no associations

to TM use ( $p \leq 0.05$ ) (Table 4). Personal experience such as minimal side effect, attitudes towards TM use such as cost effectiveness of TM use and Effective of TM use for specific disease and quality of service such as readily available of TM had relations to TM use ( $p \leq 0.05$ ) (Table 5).

**Table 4:** Multivariable analyses of socio demographic variables versus TM and Non TM users in Harar town, eastern Ethiopia

Variables	Categories	TM Users	%	Non TM users	%	AOR (95% CI)	p-value
Age	<30 year	12	21.82	43	78.18	0.67 (0.42 - 1.12)	0.617
	31- 40year	103	66.45	52	33.55		
	41-50 year	75	68.18	35	31.82		
	>50 year	66	64.08	37	35.92		
Sex	Female	107	74.31	37	25.69	1.09 (0.69 - 1.73)	0.871
	Male	149	53.41	130	46.59		
Educational status	Literate	138	54.02	77	45.98	0.65 (0.42 - 1.02)	0.219
	Illiterate	118	56.73	90	43.27		
Family Size	less than 4	135	56.49	104	43.51	0.95 (0.62 - 1.05)	0.570
	Greater than 4	121	65.76	63	34.24		
Monthly income	Below 1000 ETB	36	73.47	13	26.53	1.17 (0.75- 1.83)	0.453
	Above 1000 ETB	123	32.89	251	67.11		

AOR = adjusted odds ratio at 95% confidence interval (CI), Not significant at  $P \leq 0.05$ , ETB = Ethiopian Birr.

**Table 5:** Multivariable analysis of associations between other variables versus TM and Non TM users in Harar town, eastern Ethiopia

Variables	Categories	TM users	Non TM users	COR (95% CI)	AOR (95% CI)	p-value
Cultural belief	Had good knowledge	198 (46.81%)	72 (17.02%)	1	1	
	Had no reason	58 (13.71%)	95 (22.46%)	2.18 (1.15 - 5.67)	2.76 (1.11 - 6.40)	0.972
Personal experience	Good taste	66 (15.60%)	64 (15.13%)	0.67 (0.27 - 1.66)	0.68(0.25 - 1.87)	0.738
	Minimal side effect	103 (24.35%)	17 (4.02%)	2.28 (1.06- 4.89)	2.97 (1.42 - 6.18)	0.014 *
	Better efficacy	87 (20.57 %)	86 (20.33%)	1	1	
Attitude towards TM	Convenient to use	42 (9.93%)	46 (10.87%)	1	1	
	Cost effective	72 (17.02%)	32 (7.57%)	2.43 (1.23 - 4.80)	2.48 (1.21 - 5.08)	0.072*
	Effective for specific disease	95 (22.46%)	54 (12.77%)	2.18 (1.14 - 4.98)	2.33 (1.32 - 5.05)	0.028 *

	Quick recovery and satisfaction	47 (11.11%)	35 (8.27%)	1.7 (0.46 - 5.52)	0.97 (0.26 - 3.66)	0.865
Quality service	Spend less time	107 (25.30%)	58 (13.71%)	1	1	
	Better attention to treatment	83 (19.62%)	55 (13.00%)	0.82 (0.43 - 1.57)	1.01 (0.47 - 2.16)	0.952
	Readily available	66 (15.60%)	54 (12.77%)	0.65 (0.42 - 1.02)	1.83 (1.80 - 12.84)	0.034 *

COR = cumulative odds ratio at 95% confidence interval (CI), Significant at  $P \leq 0.05$ , ETB = Ethiopian Birr.

## DISCUSSIONS

The prevalence of TM usage in this study was found to be 60.52% which was higher than the previous studied value of 56.20%. This difference could be attributed to small sample size covering smaller areas of the town.

The study found that TM users were generally tended to be older than 30 years (13%), illiterates (13%), and males 279 (65.98%). These findings were in agreement with other studies done in Merawi town, Northwest Ethiopia where older age groups with lower school education had higher prevalence of using TM as traditional remedies for treating ailments. However, this study found that males had higher TM use than the study done in Merawi town of northwest Ethiopia [13].

This study showed that TM was first choice for 256 (60.52%) patients of chronic and acute diseases. Respondents said that they used TM for skin disease, haemorrhoids, liver diseases, cancer and malaria, fever, diarrheal and visited THs at least once in their life time. This finding was in agreement with the previous study done in Harar town on homemade TM users [14].

The result of this study showed the large family size was one of the factors affecting the utilization of TM status. It could be argued that respondents did not get enough time for proper illness care could have increased the risk factor of health related problems. Several reports had shown that large family sizes contributed to overcrowding which produced inadequate spacing for the family and consequently a cause for health problems where results showed that above 4 family size accounts 121 (65.76%) from 184 total respondents [15].

This study showed that about 59% of the respondents visited THs for chronic diseases and about 41% for acute diseases and these findings were in line with a similar study done among hypertensives in South Africa where the study established, frequency of use of TM was indicator of heavy dependence on herbal medicine for treatment, general well-being and maintenance of health. The result of this study agreed that the most common diseases that elicited the use of traditional medicine were chronic diseases (55.4%) [16].

In regard to the quality of service offered by the THs, 66 (25.78%) of the respondents considered TM was readily available while 83 (32.4%) believed that TM had better attention for treatment. The significant relationship between the availability of the herbalist and the preferred source of healthcare was clearly shown in this study ( $p = 0.034$ ).

In addition, 107 (41.80%) of the respondents preferred TM because they spent less time before being served as the TM users never had long waiting compared to conventional medicine. Others, 60 (35.9%) preferred herbal medicine because they received better attention from the herbalists as compared to the conventional doctors. Similar study done in Germany observed that patients preferred herbal medicine because conventional doctors did not take them seriously [17].

This study showed that low price of the TM was a predictor for TM use by the respondents. From the total participants 72 (17.02%) perceived TM was cheap. This finding was higher than the research finding done in Dembia district, Ethiopia, where (15.8%) of respondents accepted

TM was cheaper in price [18]. This could be because currently the cost of modern medicine was increasing and as a result, the cost of TM could be considered as cheap relatively. On the contrary, the result obtained in this study was found to be lower than similar study done in Ghana where 58.6% of the traditional healthcare users perceived that their service was cheaper [19]. The difference observed between the participants of Ghana and Ethiopia could be attributed to the socio-economic and market situations existing in the two countries.

Adjusting for other factors, many households in this study believed that TM was 2.48 times cheaper than conventional medicine and they were more likely to use TM [AOR=2.48 ( $P \leq 0.072$ ), 95% C.I. (1.21-5.08)] for their sicknesses than those households who did not notice that TM was cheap. The finding of this study was higher than the study finding done in Kenya found that respondents who recognized TM was cheap enough were 1.8 times more likely to practice TM [20]. This difference could be due to the variation in sample size as well as the geographical variations.

The use of TM was highly related with the effectiveness of TM in the treatment of the households' illnesses. It was found out that 95 (22.46%) of the households believed that TM was effective when they properly selected for their illnesses. In this regard, households who believed in the effectiveness of TM would be 2.33 times more inclined to use TM [AOR= 2.33 ( $P \leq 0.028$ ), 95% C.I. (1.32-5.05)] for their family than those who did not perceived as effective. This result was in line with the study done in the Calabrian where the effectiveness of CAM was highly favoured by the study subjects [21]. On the other hand, this was lower when compared to a study done in Addis Ababa, where 57.2% of patients visited traditional healer due to its efficacy [22]. The difference stemmed most likely from the use of methodological differences because participants were asked about TM practices for their illness in this study, whereas in a study done in Addis Ababa, participants were asked about their TM experience for themselves.

## CONCLUSION

TM is still continued to play a significant role in healthcare of many households of Harar town. More than 60% of the households in Harar town used TM as part of their healthcare system because it was dependable, affordable, safe and cost effective. Multivariable analysis of socio demographic variables such as age, sex, educational status, family size and monthly income had no significant relationship with TM users. However, other variables such as cultural beliefs, personal experience, attitudes towards TM and quality of service had significant relationship with TM users.

## Conflict of Interest

The authors declare that they do not have conflicting interests

## Acknowledgements

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## Authors Contributions

Both authors NB and AG, designed the study, collected and analyzed the data. NB wrote the manuscript. Both authors read and submitted the manuscript.

## REFERENCES

1. Tabuti JR, Dhillion SS, Lye KA. Traditional medicine in Bulamogi County, Uganda: its practitioners, users and viability, *Journal of Ethnopharmacology*, 2003;85(1):119-29.
2. Lemonnier L, Zhou GB, Prasher B, Mitali M, Chen Z, Brahmachari SK, *et al*. Traditional Knowledge-based Medicine: A Review of History, Principles, and Relevance in the Present Context of P4 Systems Medicine. *Progress in preventive medicine*, 2017;2(7):e0011.
3. Mallik BK, Panda T, Padhy RN. Traditional herbal practices by the ethnic people of Kalahandi district of Odisha, India, *Asian Pacific Journal of Tropical Biomedicine* 2012; S988-94.
4. Ekor M. The growing use of herbal medicines: issues relating to adverse reactions and challenges in monitoring safety, *Review Article. Frontiers in Pharmacology*, 2014; 4:177:1-10.
5. Yirga G. Assessment of traditional medicinal plants in Endrta District, South- Eastern Tigray, Northern Ethiopia, *African Journal of Plant Science*, 2010; 4(7):255-60.
6. Chama E. The study on medicinal plants and their uses to treat human ailments in Damot-Gale district, Wolaita Zone, South Ethiopia, *International Journal of African and Asian Studies*, 2017;30:88-96.
7. Gedif T, Hahn HJ. The use of medicinal plants in self-care in rural central Ethiopia, *Journal of Ethnopharmacology*, 2008; 87:155-61.
8. Giday G, Teklehaymanot T, Animut A, Mekonnen Y. Medicinal plants of the Shinasha, Agew-awi and Amhara peoples in northwest Ethiopia. *Journal of Ethnopharmacology*, 2007;110:516-25.
9. Kibebew F. The status of availability of data of oral and written knowledge and traditional health care in Ethiopia. In: Zewdu M and Demissie A, Eds., *Conservation and sustainable use of medicinal plants in Ethiopia*, Institute of Biodiversity Conservation and Research, Addis Ababa, 2001;107-19.
10. Gakunga NJ, Mugisha K, Owiny D, Waako P. Effects of crude aqueous leaf extracts of *Citropsis articulata* and *Mystroxyloaethiopicum* on sex hormone levels in male albino rats, *International Journal of Pharmaceutical Science Invention*, 2014; 3(1):5-17.
11. Yuan H, Ma Q, Ye L, Piao G. The traditional medicine and modern medicine from natural products, a review, *Molecule*, 2016; 21(559):1-18.
12. Central Statistics Authority (CSA). *Population and housing census of Ethiopia*, Addis Ababa, Ethiopia, 2005.
13. Samuel MW, Leul LA, Belayneh WT, Laychiluh BM. Knowledge, attitude, and utilization of traditional medicine among the communities of Merawi town, northwest Ethiopia: A cross-sectional study. *Evidence-Based Complementary and Alternative Medicine*, 2015;2015:1-7.
14. Fewtrell L, Kaufmann RB, Kay D, Enanoria W, Haller L, Colford JM. Water sanitation and hygiene interventions to reduce diarrhoea in less developed countries: a systematic review and meta-analysis. *Lancet Infect Dis*. 2005;5(1):42-52.
15. Daly M, Tai CJ, Deng CY, Chien LY. Factors associated with utilization of traditional Chinese medicine by white collar foreign workers living in Taiwan. *BMC Health Services Research*. 2009;9(1):10.
16. Hughes GD, Aboyade OM, Clark BL, Puoane TR. The prevalence of traditional herbal medicine use among hypertensives living in South African communities, *BMC Complementary and Alternative Medicine*, 2013;3(1):38.
17. Ondicho JM, Ochora J, Matu E, Mutai J. Factors associated with use of herbal medicine among the residents of Gucha sub-county, *The African Journal of Health Sciences*. 2015;28(3):275-293.
18. Muthuswamy R, Tadesse H, Tujuba R. A cross-sectional study on the perceptions and practices of modern and traditional health practitioners about traditional medicine in Dembia district, north western Ethiopia, *Pharmacogn Mag*. 2010;6(21):19-25.
19. Gyasi RM, Mensah CM, Adjei PW, Agyemang S. Public perceptions of the role of traditional medicine in the health care delivery system in Ghana, *Global Journal of Health Science*. 2011;3(2):40.
20. Githinji FN. *Utilisation of herbal products and concomitant use with conventional medicine in Githunguri Division, Kiambu County, Kenya*, Thesis, The school of Public Health of Kenyatta University, Kenya, 2014.
21. Dolceamore TR, Altomare F, Zurlo F, Miniero R. Use of alternative-complementary-medicine (CAM) in Calabrian children, *Italian journal of pediatrics*, 2012;38(1):1-6.

22. Birhan W, Giday M, Teklehaymanot T. The contribution of traditional healers' clinics to public health care system in Addis Ababa, Ethiopia: a cross-sectional study, *J Ethnobiol Ethnomed*. 2011; 1:7:39.

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