Original article

Ethnomedicinal uses of plants among the Somali ethnic group, Jigjiga Woreda, Somali Regional State, Eastern Ethiopia

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Abstract

Introduction: In Ethiopia, most people are dependent on traditional medicine (TM), mainly of plant origin for human and animal health problems**.** The practice of herbal medicine varies widely, in keeping with the societal and cultural heritage of different countries. The heritage has not been well documented in the developing countries including Ethiopia and this is even more so in the emerging regions of the country. The objective of this study was to document medicinal plant knowledge of the people and identifying factors determining the use of medicinal plants in Jigjiga Woreda, Somali Regional State, eastern Ethiopia.

Methods: A cross-sectional study was conducted in five kebeles from where ethno-medicinal information was collected using semi-structured questionnaire. The questionnaire was administered to 800 heads of households. Data were entered and analyzed using Statistical Packages for Social Sciences version 20. Multivariable logistic regression was performed to show possible associations between the dependent and independent variable and statistical significance was set at $p < 0.05$.

Results: The study documented an overall prevalence of 40% to use of herbal medicine during one month recall period. A total of 45 medicinal plant species were collected and botanically identified. The study found that leaves are the most frequently utilized plant part (30.5%), followed by roots (23.0%). The reasons for preference of herbal drugs were related to lower price, efficacy and geographic accessibility as compared to modern medicine. Age, gender, educational status and occupation were identified as important determinants for the use of herbal medicine.

Conclusion: This ethno-medicinal study showed that community in Jigjiga Woreda relies on traditional medicinal plant species to treat a wide spectrum of human ailments. It is therefore suggested that more in depth studies be condicted to explore the potential of traditional medicine in the region to preserve this indigenous knowledge. [*Ethiop. J. Health Dev.* 2017;31(3):188-199]

Key words: Ethnomedicine, Jigjiga Woreda, Medicinal plants, Somali ethnic group

Introduction

In Ethiopia, traditional mechanisms of dealing with illness have been there for centuries. The practice of traditional medicine (TM) to a large extent focuses on the use of herbs, spiritual healing, bone-setting, and minor surgical procedures. The practice of TM varies in its form, procedure, and content according to local customs (1). More than 95% of traditional medical preparations in Ethiopia are of plant origin (2). Plant-based TM plays a key role in the development and advancement of modern medicine by serving as a starting point for the development of novelties in drug discovery (3). In spite of increase in the health service coverage of the country, studies have reported that still traditional medicine plays important role in healthcare in Ethiopia (4, 5). Nevertheless, the loss of valuable medicinal plants due to lack of documentation, underreporting, agricultural expansion and deforestation, is widely reported by different researchers in Ethiopia (6-10). Available evidences suggest that studies on medicinal plants in Ethiopia have concentrated in the south, southwest, central, north and north-western parts of the country (4, 5, 11-36). There is little data available in the literature that assess the resource potential, indigenous knowledge and preferences of use of medicinal plant species in eastern Ethiopia (37-39), and none of them are from the present study area.

Documentation of knowledge of medicinal plants is of great value to facilitate discovery of new sources of drugs and promote sustainable use of natural resources. Similarly, the knowledge of factors involved in the selection of treatment options at household (HH) level is important for health service planning and to incorporating herbal medicine in a country's health care delivery system (32). Thus, this study was carried out to document traditional medicinal plant knowledge of the people and factors determining the use of medicinal plants in Jigjiga Woreda, Somali Regional State, Eastern Ethiopia.

Methods

Study area: Somali Regional State is one of the nine Federal States of Ethiopia located in the eastern part of the country with an estimated area of 279,252 km^2. According to the 2007 population and housing census of Ethiopia, the total population of Somali Region was

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4,445,219 which gives a population density of 15.9 /km^2 (40). Based on this census, Jigjiga Woreda has a total population of 277,560; of those 125,876 (45.35%) are urban inhabitants, and 6,956 (2.51%) are pastoralists and the rest are engaged in crop farming, trade and non-farm related jobs. The woreda is primarily inhabited by the Geri tribe and small numbers of the Bartire (Yabaree) tribe. At the time of the survey, the Somali Region had 10 hospitals, 131 health centers and 950 health posts, of which 2 hospitals, 5 health centers and 26 health posts are located in Jigjiga Woreda (41).

Sampling and data collection procedures: Among the forty-six kebeles (the smallest administrative units) found in Jigjiga Wereda, 36 are rural and 10 are urban. After stratifying the kebeles into rural and urban, four rural kebeles and one urban kebele were selected based on probability proportional to population size. The kebeles selected were Ellebahay, Dudehidi, Hadew, Qordehaere and Kebele 08.The number of house hold (HHs) heads included from each selected kebele was again determined based on the probability proportional to size and identified using systematic random sampling techniques where every fifth HH was taken until the required size was met in each kebele. The field work was carried out between January and March 2014. Data on medicinal plant use and preparation of plant specimens were collected. For each plant local Somali vernacular name, its uses or effects, the part(s) of the plant used, place of collection, its preparation and administration process were collected. At the end of the interviews, specimens of plants mentioned for medicinal uses were collected along with its specifications (vernacular names and the plant part used were recorded). Botanically identified plant specimens were stored at the National Herbarium, Addis Ababa University for further ethno pharmacological study.

***Sample size determination*:** The minimum number of sample required for this study was determined by using single population proportion formula considering the following assumption

$$n_i = \frac{(Z\alpha/2)^2\, p\,(1-p)}{d^2}$$

Where

n_i = minimum sample size required for the study

Z = standard normal distribution (Z=1.96) with confidence interval of 95% and $\alpha = 0.05$

P = the prevalence of TM use in Jigjiga Woreda, P = 50 % (0.5) will be used since there is no any prior study.

D = Absolute precision or tolerable margin of error (d) = 5% = 0.05

$$n_i = \frac{(Z\alpha/2)^2\, p\,(1-p)}{d^2} = \frac{(1.96)^2 \times 0.5(1-0.5)}{(0.05)^2} = 384$$

To correct for the design effect "n" was multiplied by the number of stages, 2. Nx2 =768

Considering 10% non-response rate, the final sample size was =845. Ten data collectors and one supervisor, who are health science students with knowledge of the local language, were employed and given training for five days on the data collection instruments.

Inclusion criteria: Household heads who were aged 18 or older, lived in the selected kebele for at least six months prior to the data collection, and gave informed consent were included in the study.

Data collection instruments: A pre-tested, semi-structured questionnaire was used for the data collection. The questionnaire was prepared in English and translated into the local language (Somali). The questionnaire contained information on demographic characteristics, history of illness in the family in the one month preceding the interview date, action(s) taken, reasons for the choice of herbal medicine as the first line of action and medicinal plants used.

Ethical clearance: The Institutional Ethical Review Board of the School of Pharmacy of Addis Ababa University cleared and approved to conduct the survey. Discussions about the aim and purpose of the survey were held with Jigjiga Woreda Health Office and local community leaders, who were asked for their cooperation. Oral consent was obtained from study participants for conducting interviews as well as taking their pictures for possible publication.

Data entry and analysis: Statistical Packages for Social Sciences (SPSS) version 20 was used for data entry and analysis of the data. Any logical and consistency errors identified during data entry were corrected after revision of the original completed questionnaire. Multivariable logistic regression was performed to show possible associations between the dependent (health- seeking behavior) and independent variables (age, gender, residence, household size of educational status and occupational status) and Statistical significance was set at $p < 0.05$.

Results

Use of medicinal plants: A total of 45 medicinal plant species with reported medicinal values were collected and botanically identified during the course of this study (Table 1). The identified plants fall under 28 plant families with the largest number in the Solonaceae, followed by Euphorbiaceae and Asteraceae. According to the respondents, the most frequently utilized plant parts were leaves (30.5%), followed by root (23%), seeds (18%), and stems (7.5%). Plant parts such as fruits, rhizomes, flowers and bark are seldom used (Table 1).

Table 1: **Plants used in the treatment of human disorders in Jigjiga Woreda, March 2014**

Scientific name (Collection number)	Family	Vernacular name	Sign and symptoms (number of responses)	Part used	Method of preparation and administration
Acokanthera schimperi (A.DC.) Schweinf (AI-41)	Apocynaceae	Qarari	*Shuban* **(1)**	Seed	Ground, dispersed in water and drunk
Allium sativum L. (AI-15)	Alliaceae	Toon	*Qufac* **(13),** *Duray* **(5)** *Il shaydaan* **(2)** *Wadna xanuun* **(1)** *Feex* **(1)** *Laab wareen* **(1)** *Xumad* **(1)** *Ilka xanuun* **(1)** *Xanuun kaste* **(1)**	Bulb	Crushed, mixed with tea and drunk Ground, mixed with milk and sugar, boiled and drunk Chewed
Aloe megalacantha Baker (AI-33)	Aloaceae	Dacar	*Indha xanuun* **(17)** *Wadna xanuun* **(2)** *Calool ingeeg* **(3)**	Leaf	Pulverized in water and applied on the affected area
			Infekshinka hunguriga **(2)** *Indha xanuun* **(1)** *Laqanyo* **(1)** *Matag* **(1)**	Latex	Dissolved in water and drunk
Alternanthera pungens Kunth. (AI-5)	Amaranthaceae	Gucundho	*Barar* **(3)** *Kaadiolol* **(2)**	Whole part	Crushed, boiled with water and applied on the affected area
Amaranthus caudatus L. (AI-22)	Amaranthaceae	Milaxbuur	*Xanuun kaneefta* **(2)** *Qixdheer* **(1)** *Barar* **(1)**	Leaf	Pounded and eaten with food Crushed in boiled water sugar added, and drunk
Azadirachta indica A. Juss. (AI-8)	Meliaceae	Geed hindi	*Dhabar xanuun* **(1)** *Ilka xanuun* **(5)** *Calool guruuruc* **(2)**	Leaf	Boiled and decoction drunk
Brassica oleracea L. (AI-13)	Brassicaceae	Sagaxoor	*Xanuun kaneefta* **(2)** *Qix dheer* **(1)** *Barar* **(1)**	Leaf	Crushed and eaten with food or boiled with sugar and drunk
Capsicum annuum L. (AI-9)	Solanaceae	Filfil	*Kabiibeyso* **(1)**	Seed	Chewed and placed on tooth
Carica papaya L. (AI-14)	Caricaceae	Papyee	*Dirxiga mindhiqirka* **(1)**	Seed	Pounded, dispersed in water and drunk
Casimiroa edulis La Llave (AI-43)	Rutaceae	Canbe	*Cagaarshow/joonis***(1)**	Leaf	Boiled and decoction drunk with sugar

Citrus limon (L.) Burm.f. AI-11	Rutaceae	Lendenan	*Shuban* **(1)**	Fruit	Squeezed and the juice drunk
Coffea arabica L. (AI-40)	Rubiaceae	Quid	*Shuban* **(1)** *Dhiig laaan* **(1)**	Seed	Pounded, boiled for three hours and drunk
Combretum molle R. Br. Ex. G. Don (AI-24)	Combretaceae	Woob	*Faalid* **(1)** *Beer xanuun* **(5)**	Root	Crushed, mixed with oil and applied to the affected area
			Barar **(1)**	Bark	Pounded, dispersed in water and drunk
				Latex	Boiled and decoction drunk
Coriandurm sativum L. (AI-6)	Apiaceae	Qorjeen	*Dhabar xanuun* **(15)** *Roomatism* **(8)**	Seed	Crushed, mixed with honey or sugar and drunk or eaten with food
Croton macrostachyus Del. (AI-37)	Euphorbiaceae	Mekenisa	*Beer xanuun* **(2)**	Bark	Pounded, mixed with water and drunk
Euphorbia polyacantha Boiss. (AI-18)	Euphorbiaceae	Waantays	*Gaaska* **(2)**	Leaf	Crushed, dispersed in water and drunk
Euphorbia tirucalli L. (AI-12)	Euphorbiaceae	Iin	*Feex* **(1)**	Latex	Dissolved in water, sugar added and drunk
Jasminum grandiflorum L. subsp. *floribundum* (R.Br.ex Fresen.) P.S.Green (AI-35)	Oleaceae	Qajajuli	*Boog* **(1)**	Root	Pounded and placed on wound
Lepidium sativum L. (AI-20)	Brassicaceae	Shunfax	*Qufac* **(11)** *Dhabar xanuun* **(7)** *Laab wareen* **(9)** *Cudurka qaaxada* **(6)** *Ilka xanuun* **(2)** *Shuban* **(2)** *Indha xanuun* **(1)** *Xanuun kaste* **(1)**	Seed	Fresh seeds swallowed
Lippia adoensis Hochst. ex Walp. (AI-42)	Verbenaceae	Sokay	*Jiljilee ccaruurta iyo hooyada uurkaleh* **(1)** *Sanboor* **(4)**	Leaf	Crushed, boiled in water with sugar and drunk
Melia azedarach L. (AI-19)	Meliaceae	Geed kinin	*Ilka xanuun* **(1)**	Leaf	Pounded and pressed on tooth

Moringa stenopetala (Bak. F.) Cuf. (AI-3)	Moringaceae	Moringa	*Xanuunka Macaan* **(1)** *Dhiig kar* **(1)** *Dhiig laaan* **(1)** *Loo isticmaalo qurxinta Jidhka* **(1)**	Leaf	Ground, dispersed in tea and drunk
Nicotiana glauca R.Grah. (AI-45)	Solanaceae	Booc	*Infekshinka maqaarka* **(1)**	Leaf	Squeezed between palms, the fluid mixed with oil and applied on the affected area
Ocimum lamiifolium Hochst. ex Benth. (AI-34)	Lamiaceae	Demakesae	*Qufac* **(1)**	Leaf	Crushed, squeezed, and a teaspoon full drunk with tea or coffee
Olea europaea L. subsp. *cuspidate* (WalL.exG.Don) Cif (AI-16)	Oleaceae	Ejersa	*Finanka* **(1)** *Barse* **(1)**	Root	Pounded, mixed with oil and applied on the affected area
Osyris quadripartite Decn. (AI-25)	Santalaceae	Wato	*Duumad* (*Kaneeco*) **(1)**	Leaf	Macerated for 24 h and the reddish macerate drunk
Parthenium hysterophorus L. (AI-1)	Asteraceae	Kalignoole	*Dhiig bax* **(18)** *Teetano* **(1)** *Dhabar xanuun* **(1)** *Ilka xanuun* **(1)**	Leaf Root	Pounded and placed on wound Chewed and pressed on tooth
Prunus persica (L.) Batsch (AI-38)	Rosaceae	Kuki	*Beer xanuun* **(1)**	Leaf	Steeped in cold water and infusion drunk
Psidium guajava L. (AI-36)	Myrtaceae	Saytuun	*Shuban* **(1)** *Matag* **(1)**	Leaf	Crushed in water and drunk with sugar
Punica granatum L. (AI-27)	Lythraceae	Ruman	*Il shaydaan* **(2)**	Leaf/ Seed	Crushed leaves and seeds mixed with milk and drunk
Rhamnus prinoides L'Herit. (AI-44)	Rhamnaceae	Gesho	*Calool ingeeg* **(1)**	Leaf	Pulverized in cold water and drunk
Ricinus communis L. (AI-4)	Euphorbiaceae	Qobo	*Calool ingeeg* **(1)**	Root	Pounded, added to tea and drunk
Ruta chalepensis L. (AI-23)	Rutaceae	Taltan	*Il shaydaan* **(3)**	Leaf	Boiled and decoction drunk

Schinus molle L. (AI-26)	Anacardiaceae	Mirmir	*Dirxi* **(3)** *Gooriyaan* **(1)** *Dirxi noocbalaaran* **(1)** *Ilka xanuun* **(1)**	Leaf	Crushed, dispersed in water and drunk or powder pressed on tooth
Senna italica Mill. (AI-21)	Fabaceae	Jaleelo	*Calool ingeeg* **(1)**	Leaf	Pounded, mixed with water and drunk
Solanecio angulatus (Vahl) C, Jeffrey (AI-32)	Asteraceae	Hadus	*Duaray* **(1)** *Xubno xanuun* **(1)** *Xumad* **(1)**	Leaf	Crushed, mixed with water and sugar and drunk
Solanum giganteum Jacq. (AI-29)	Solanaceae	Kariir	*Dhiigbax* **(1)**	Leaf	Crushed and applied on the wound
Solanum incanum L. (AI-28)	Solanaceae	Kariir	*Dhiigbax* **(2)**	Leaf	Pounded and applied on wound
Solanum jubae Bitter (AI-30)	Solanaceae	Kariir	*Dhiigbax* **(1)**	Leaf Root Bark	Mixed, ground and applied on wound
Sphaeranthus suaveolens (Forssk.) DC. (AI-31)	Asteraceae	Rashaid	*Maskax xanuun* **(1)**	Leaf Flower	Ground, mixed with water, oil and honey, and applied to the head
Vernonia amygdalina Del. (AI-39)	Asteraceae	Girawae	*Dirxiga mindhiqirka* **(1)** *Barar* **(1)** *Il shaydaan* **(1)**	Leaf	Ground, dispersed in water and drunk
Viscum tuberculatum A. Rich. (AI-7)	Viscaceae	Dhigri	*Shuban* **(10)** *Laqanyo* **(8)** *Xumad* **(4)** *Madax xanuun* **(2)**	Root	Pounded, boiled and decoction drunk
Withania somnifera (L.) Dunal (AI-17)	Solanaceae	Kariir	*Dhiigbax* **(1)**	Leaf	Powdered and placed on wound
Zingiber officinale Roscoe (AI-10)	Zingiberaceae	Singibill	*Qufac* **(4)** *Duaray* **(4)** *Qumanlqanjiroxanuun* **(1)** *Infekshinka hunguriga* **(1)**	Bulb	Crushed and decoction drunk with sugar or powder drunk with tea
Ziziphus mauritiana Lam. (AI-2)	Rhamnaceae	Kasil	*Nadaafada wajiga iyo daawaynta finanka wajiga* **(1)**	Leaf	Pounded, stood in cold water and applied on the face

Collection and storage of plant medicines: The major proportion of plants collected by HHs is from wild sources (70%); only 20% is cultivated and the remaining 10% is from both sources. Most of the respondents stored herbal formulations in plastic bags, tin containers, bottles and paper bags. Route of administration.

The most widely used route of administration was found to be oral (66.8%), followed by topical application (19.5%), oral and topical (3.6%), and as eye drops (2.2%). Lack of precision with doses has been noted where 70% reported to approximate while (19.8%), use cups, (6%) tea spoons and (3%) hands.

Perceived illness and health-seeking behavior: The proportion of respondents with perceived illness during one month recall period preceding the interview date was 251(31.3%). Females 127 (50.5%) had more morbidity than males 124 (49.4%) and those aged between 15- 65 had more frequent morbidity 101 (40.2%), but the age group of greater than 65 had less morbidity 5 (1.9%) than the other age groups.

In response to perceived illness episodes, a large proportion 241 (96.0%) of those who reported illness took action against their illness. While 134 (53.3%) of them went to health institutions, 85 (33.8%) visited local healers, 14 (5.5%) used homemade herbal remedies, while 10 (4.0%) took no action (Table 2). Therefore, 40% of the respondents in this study reported to use traditional medicine during the recall period. Most (62.7%) of the urban residents visited health facility while 28.9% of them consulted local traditional healers. In rural setting however large proportion (45.1%) of patient consulted local traditional healers while 36.5% of them visited health facility (Table 2).

Table 2: **Types of action taken by those with perceived illness during the one month recall period (N = 251), in Jigjiga Woreda, March, 2014**

Factor	Consulted healers N (%)	Went to health facility N (%)	Used homemade remedies N (%)	No action taken N (%)	Both healers And health Facilities N (%)	Total
Gender						
Male	48 (38.7)	62 (50)	7 (5.6)	4 (3.2)	3 (2.4)	124 (49.4)
Female	38 (30)	72 (56.6)	7 (5.5)	6 (4.7)	4 (3.0)	127 (50.5)
Age						
<5	18 (23.0)	48 (61.5)	6 (7.6)	5(3.8)	1(1.2)	78 (31.0)
5-15	27 (40.2)	32 (47.7)	5 (7.4)	2 (2.9)	1(1.4)	67 (26.6)
15-65	41(40.5)	53 (52.4)	4 (3.9)	3 (2.9)	0	101 (40.2)
>65	2 (40)	2 (40)	1(20)	0	0	5 (1.9)
Residence						
Urban	49 (28.9)	106 (62.7)	6 (3.5)	5 (3.5)	3 (1.7)	169 (67.4)
Rural	37 (45.1)	30 (36.5)	8 (9.7)	5 (6.0)	4 (4.8)	82 (32.6)
Total	86 (34.2)	133 (53)	14 (5.5)	10 (4.0)	8 (3.0)	251 (100)

Result from multivariate logistic regression shows that males were found to use modern health institution (AOR=1.55; 95%CI [0.89-2.70]) as compared to women although the association was not statistically significant. As age increases however, the probability of using modern health institutions decreases (AOR=0.73; 95% CI [0.35-1.54]); (AOR=0.23; 95%CI [0.07-0.71]). Residence showed a statistically significant association with the use of modern health institutions, where urban residents were found to use modern health institution more than twice as compared to rural residents (AOR=2.80; 95%CI [1.54-5.09]) (Table 3).

Table 3: **Factors affecting patterns of health- seeking behavior among household respondents in Jigjiga Woreda, during the one month recall period [March 2014 (N = 251, 95% Confidence interval)].**

	Traditional medicine	Modern health institution	Crude odds ratio	Adjusted odds ratio
Gender				
Male	55	62	1.00	1.00
Female	45	72	1.14 [0.84-2.38]	1.55 [0.89-2.70]
Age				
6 months-25	66	110	1.00	1.00
25-45	20	19	0.60 [0.29-1.21]	0.73 [0.35-1.54]
Greater than 65	14	5	0.21 [0.07-0.62]*	0.23 [0.07-0.71]*
Residence				
Rural	45	29	1.00	1.00
Urban	55	105	2.89 [1.64-5.08]*	2.80 [1.54-5.09]*

*** Statistically significant**

Factors associate*d *with health-seeking behavior: Preference of healthcare was assessed by asking about usual health-seeking practices during illness. As shown in Table 4, 684 (85.5%) of the respondents preferred to go to health institutions, 99 (12.3%) preferred healers, and 17 (2.2%) preferred to use homemade herbal remedies. More females (13.6%) preferred visiting THs than males (10.0%).

Reasons for preference of TM shows that low price 75 (65.5%), effectiveness 25 (21.5%) and access 15 (13.0%) were the major reasons for preference of traditional medicine. Age groups greater than 65 years preferred to use TM as compared to respondents with the age group 18-25 years (AOR = 3.473; 95%CI [1.188-10.155]). The influence of education on treatment preference was analyzed and it was found that non literates tended to use TM more than literates and the relationship was statistically significant, (AOR = 2.337; 95% CI [1.438-3.798]). Residence of respondents did not show a significant association with the preferences of TM use, (AOR=0.85; 95% CI [0.48-1.49]). Use of TM was viewed negatively more among housewives and merchants than agro-pastoralists (AOR =0.42; 95%CI [0.222-0.789]) and (AOR = 0.220; 95%CI [0.06-0.72 (Table 3).

Table 4: **Factors affecting patterns of health- seeking behavior among household respondents in Jigjiga Woreda, March 2014 (N = 800, 95% Confidence interval).**

	Traditional medicine	Modern health institution	Crude odds ratio	Adjusted odds ratio
Gender				
Female	80	431	1.30 [0.85-1.99]	*1.76 [1.07-2.92]
Male	36	253	1.00	1.00
Residence				
Rural	58	281	1.43 [0.967-2.128]	0.85 [0.48-1.49]
Urban	58	403	1.00	1.00
Age				
18-25	8	89	1.00	1.00
26-45	75	414	2.01 [0.93-4.32]	1.83 [0.82-4.05]
46-65	23	149	1.71 [0.73-4.00]	1.579 [0.65-3.82]
>65	10	32	*3.47 [1.26-9.58]	*3.47 [1.18-10.15]
Household size				
1-4	19	133	1.00	1.00
5-8	73	394	1.29 [0.75-2.22]	1.090 [0.61-1.93]
>8	24	157	1.07 [0.56-2.03]	0.876 [0.44-1.73]
Educational status				
Literate	24	272	1.00	1.00
Non- literate	92	410	*2.54 [1.58-4.08]	*2.33 [1.43-3.79]
Occupation				
Agro-pastoralist	45	177	1.00	1.00
Housewife	47	311	*0.59 [0.38-0.93]	*0.41 [0.22-0.78]
Jobless	8	53	0.59 [0.26-1.33]	0.45 [0.19-1.08]
Merchant	4	63	*0.25 [0.08-0.72]	*0.22 [0.06-0.72]
Government employee	1	19	0.20 [0.02-1.58]	0.24 [0.02-2.04]
Others*	11	61	0.70 [0.34-1.45]	0.70 [0.28-1.73]
Total	116 (14.5%)	684 (85.5%)		

* Statistically significant; ** Butchers, wood collectors, shoe makers

Discussion

The present study revealed that the overall proportion of reported illness episodes among the Somali ethnic group in Jigjiga Woreda during the one month recall period was 31.3%. Although different studies documented variations in prevalence of illness episodes during the recall periods, most study documented widespread use of TM under illness circumstances (4, 33, 34). A study conducted in Addis Ababa found 37% of study participants use herbal medicine (33), and studies carried out in other parts of Ethiopia such as Wombera District of Benishangul-Gumuz Region reported 41.6% (4) of respondents preferred traditional medicine. In the current study, 40.0% of participants reported to use traditional medicine. Studies conducted in Butajira and among the Berta ethnic group found 12.5% and 4.6% use of traditional medicine in four weeks and two weeks recall period, respectively (5, 34). This might be due to differences in the literacy status and health service coverage between the regions (40, 41). Reasons given for preferring herbal drugs were lower price, better efficacy and inaccessibility to modern medicine. The study also showed that more females (13.0%) prefer visiting THs than males (10.0%). Similar findings were reported in earlier works carried out in other parts of Ethiopia (5, 34, 35).

In this study, the preference of TM by housewives and merchants was negatively associated, (AOR = 0 .42; 95% CI [0.22- 0.79]), AOR= 0.22; 95% CI [0.06-0.72]), respectively) as compared to the use by agro-pastoralists. As agro-pastoralists spend most of their time in the field, they may have better knowledge about TM and herbs than people in other sectors (42). The study also showed that people older than 65 years and illiterate preferred TM significantly more than younger age groups. A similar finding was reported in different parts of the country where illiterates and older residents were significantly more likely to use herbal medicine than literate and younger people (33, 34, 36, 37, 39). Other studies indicated that younger generation are less knowledgeable about TM and tend to underestimate traditional values (39, 43, 44). In contrast to the above findings, a study conducted in Suriname found that age and educational status were not the predictors of herbal medicine use (45).

According to the findings of the present study, leaves are the most frequently utilized plant part (30.5%), followed by roots (23.0%) which is similar to previous studies conducted in other parts of the country (6, 37, 39, 47,48). However, in some other studies, roots have

been reported to be the most extensively used part of medicinal plant (4, 8, 26, 34, 49, 50). It is well known that herbal preparations that involve roots, rhizomes, bulbs, barks, stems or whole parts have effects on the survival of the mother plant (51). The possible destruction of medicinal plants due to collection for medicinal purposes is minimal since leaves were the leading plant part used in the area. However, since most of the medicinal plants reported are obtained from the wild (70.0%) this can pose threat to biodiversity. The study showed that there is lack of precision in the determination of doses of medicaments used, which is consistent with other works conducted in different parts of the country (34, 37, 39, 50). The real drawback in TM mostly arises from lack of precision in dosage (51).

Conclusion:

This ethnomedicinal study showed that rural and urban communities in Jigjiga Woreda still rely on medicinal plants to treat a wide spectrum of human ailments. A total of 45 medicinal plant species along with their uses have been reported**,** and the majority of them are harvested from the wild. The study found that leaves are the most frequently utilized plant part, followed by roots. The reasons for preferring herbal drugs were lower price, efficacy and geographic inaccessibility to modern medicine. Age, gender, educational status and occupation are important factors that determine the use of TM in the study area. Many young people, males, literate and occupations other than agro-pastoralists were found to have less preference for the use of TM for their illness. It is, therefore, suggested that other studies need to be conducted to explore the potential of the different Woredas and zones of the region to preserve this indigenous knowledge of TMs by proper documentation, identification of plant species, herbal preparation and dosage forms used.

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Author Disclosure Statement

The authors declare that they have no competing financial interests.

Authors' contributions

AI coordinated data collection; performed data entry and analysis; wrote the draftmanuscript.TG, KA and TGM initiated the idea; involved in the design of the study; developed data collection instruments and corrected the manuscript. All the authors have read and approved the final manuscript.

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