

Research Article

Practice and Associated Factors among Adult Residents towards Traditional Eye Medicine in Gondar City, North West Ethiopia

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Received 24 July 2019; Revised 12 October 2019; Accepted 16 January 2020; Published 17 February 2020

Academic Editor: Jennifer L. Freeman

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Traditional medicines are commonly used in Africa. About 13.2–82.3% of the population use traditional eye medicine. The aim of this study was to assess practice and associated factors among adult residents towards traditional eye medicine in Gondar city, North West Ethiopia. *Methods.* A community-based cross-sectional study was conducted on 600 participants by using a pretested structured questionnaire. Data were analyzed using Statistical Package for Social Sciences (SPSS) version 20 computer software. Association and strength between dependent and independent variables were determined using odds ratio with a 95% confidence interval. *Results.* A total of 600 respondents participated in the study with a 95% response rate. From the total study participants, 73 (12.2%) (95% CI: 10–15%) had used traditional eye medicine in the past two years. Variables such as being unmarried (AOR = 0.48 (95% CI: 0.17–0.83)), being illiterate (AOR = 5.40 (95% CI: 5.3–12.3)), living in traditional healers available area (AOR = 2.84 (95% CI: 1.44–7.56)), poor access to modern eye care services (AOR = 2.11 (95% CI: 1.06–4.19)), and positive family history of traditional eye medicine use (AOR = 4.00 (95% CI: 1.84–8.67)) were significantly associated with traditional eye medicine practice. *Conclusion.* The proportion of traditional eye medicine practice was low in the past two years in Gondar city, Ethiopia, as compared to most African and Asian studies like south East Nigeria and Nepal, respectively. This may be due to the presence of tertiary eye care centers in the city that lets the residents prefer modern eye medicines over traditional eye medicines. Positive family history of traditional eye medicine use, being unmarried, being illiterate, poor access to modern eye care service, and availability of traditional healers had a significant association with the practice of traditional eye medicine. Community awareness about traditional eye medicine use is important to reduce the risk of complications even if the proportion is low.

1. Introduction

World Health Organization defines traditional medicines as the sum total of all knowledge and practices whether explicable or inexplicable used in diagnosis, prevention, and elimination of physical, mental, or social imbalance [1].

Traditional eye medicines are a form of biologically based therapies or practices that are instilled or applied to the eye or administered orally to achieve a desired ocular therapeutic effect. Traditional eye medicines are crude or partially processed organic (plant and animal products) or inorganic (chemical substances) agents [2]. The most common types of traditional eye medicines used by

traditional eye medicine practitioners (TEMPs) are plant extracts, commercial chemicals, and fluids from various sources [1, 2].

Traditional eye medicine is common in Africa. It is believed to be an alternative health care and used in the developing world. It is a more widely available and affordable alternative to pharmaceutical drugs. In Africa, between 13.2 and 82.3% of the population utilizes traditional eye medicine [3–6].

Traditional eye medicine has been used in Ethiopia [7, 8]. However, studies done on practice of traditional eye medicine are limited and less generalizable to different parts of Ethiopia. Therefore, studying practice and associated factors

among adult residents towards traditional eye medicine in Gondar city can provide important information for stakeholders to take appropriate measures regarding the quality and safety of the practices.

2. Methods

A community-based cross-sectional study was conducted in Gondar city, North West Ethiopia. Gondar city is located 727 km from Addis Ababa, the capital city of Ethiopia, and 182 km from Bahir Dar, the capital city of Amhara National Regional State. According to the 2007 national central statistical agency report, the population size of Gondar city is 351,675, and the city is subdivided into 24 localities (Kebeles), which hold approximately 53,725 households and 112,800 adult population. There is only one public tertiary eye care center that provides different specialty eye care services and three private eye care specialty clinics in the city.

The study was conducted from April 25 to May 15, 2017. Adults with age ≥ 18 years living in Gondar city were the source population. Individuals who were unable to respond to an interview due to either serious illness or mental problem and those who resided less than 6 months in the study area were excluded.

The sample size was determined by using open Epi computer software for a single population. By considering the proportion of the population ($P = 50\%$), a design effect of 1.5, and 10% for the nonresponse rate, the final sample size was 633. A multistage random sampling technique was used to select the samples from homogenous kebeles as illustrated below (Figure 1).

2.1. Operational Definitions

2.1.1. Traditional Eye Medicine Practice. The respondent was said to have traditional eye medicine practice when he/she had used traditional eye medicine at least once in the past 2 years for the specific ocular problem.

2.1.2. Availability of Traditional Healer. When respondents report that they know a functional traditional healer anywhere in Gondar city.

2.1.3. Health Insurance. When an individual has an annual payment agreement with the government, the government covers the annual health cost of an individual.

Data were collected through face-to-face interview with a pretested structured questionnaire. To assure data quality pretest (5% of the sample size) was done outside the study area. The reliability of the questionnaire was tested using Cronbach's alpha, and the result was 0.80. In addition, data clean up (checking for data completeness, outliers, and missing values) and supervision were done.

Data from the entire questionnaire were coded and entered into Epi info (Epidemiological information) version 3.5.1. Statistical package for social science (SPSS version 20) software was used for data cleaning and analysis. Frequency and cross-tabulations were performed for descriptive

analysis. The bivariable analysis was used to measure the strength of association using odds ratio. Variables with a P value of less than or equal to 0.2 in the bivariable logistic regression were entered into multiple logistic regression, and a P value of <0.05 was used to determine the statistically significant association. Model fitness was checked using Hosmer and Lemeshow goodness of fit, and the result was 0.985. Predictor variables were checked for multicollinearity, and the variable inflation factor (VIF) value was less than 10 for each variable.

3. Results

3.1. Sociodemographic Characteristics of Study Participants.

A total of 600 respondents participated in the study with a 95% response rate. The median age of participants was 30 (16 IQR) with a range of 18–88 years. Among them, 354 (59%) were females, 539 (89.8%) were Christian in religion, and 426 (71%) had income ≥ 1328 Ethiopian birr (Table 1).

3.2. Practice of Traditional Eye Medicine. Seventy-three (12.2%) (95% CI: 10–15%) study participants had used traditional eye medicine in the past two years. Among those who had used traditional eye medicine, the majority were found above the age of 40 years (Table 2).

Respondents mentioned that cultural beliefs were the main reason (48.9%) for traditional eye medicine use (Figure 2).

From a total of 600 study participants, 542 (90.3%) were familiar with some types of traditional eye medicines (Figure 3).

3.3. Factors Associated with Practice of Traditional Eye Medicine.

The result of this study shows that the likelihood of traditional eye medicine practice was reduced by 52% (AOR = 0.48 (95% CI: 0.17–0.83)) in unmarried study participants compared to married study participants. Illiterates were 5.40 times (AOR = 5.40 (95% CI: 5.3–12.3)) more likely to use traditional eye medicine than those who attended college and above educational level. Study participants who live in traditional healers available area were 2.84 times (AOR = 2.84 (95% CI: 1.44–7.56)) more likely to use traditional eye medicine than those who live in an area where traditional healers do not live. Study participants, who had poor access to modern eye care services, were 2.11 times (AOR = 2.11 (95% CI: 1.06–4.19)) more likely to use traditional eye medicine than those who had good access of modern eye care service. Study participants, who had a positive family history of traditional eye medicine use, were 4.00 times (AOR = 4.00 (95% CI: 1.84–8.67)) more likely to use traditional eye medicine than those who did not have a family history of traditional eye medicine use (Table 3).

4. Discussion

The proportion of traditional eye medicine practice in this study was 12.2% (95% CI: 10–15%). This is a low proportion as compared to many African and Asian studies as well as

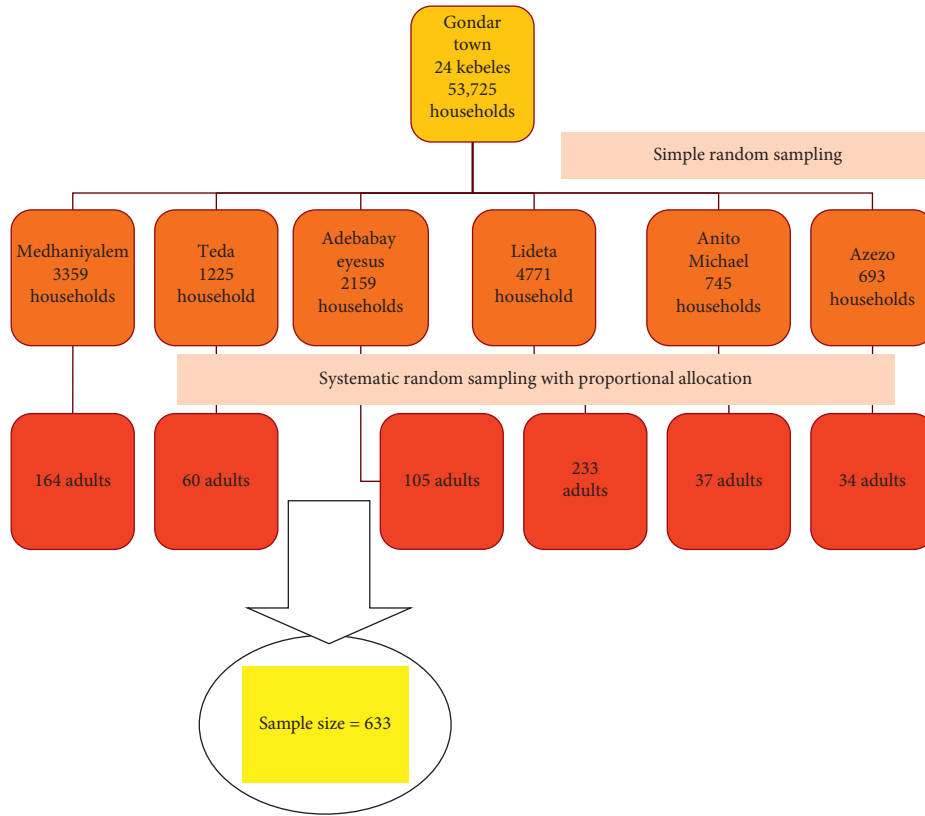


FIGURE 1: Multistage sampling which illustrates the sampling procedure to draw the study samples from source population.

TABLE 1: Sociodemographic characteristics of study participants towards practice of traditional eye medicine among adult residents in Gondar city, North West Ethiopia, 2017 ($n = 600$, $n =$ study participants).

Variables	Category	Frequency	Percent (%)
Age (in years)	18–24	150	25
	25–30	181	30.2
	31–40	140	23.3
	41–88	129	21.5
Sex	Male	246	41
	Female	354	59
Educational status	Illiterate	69	11.6
	Read and write	99	16.6
	Primary school	89	14.6
	Secondary school	131	21.8
	College and above	212	35.4
Marital status	Married	307	51.1
	Unmarried	293	48.9
Religion	Christian	539	89.8
	Muslim	61	10.2
Occupation	House wife	109	18.2
	Student	97	16.5
	Merchant	115	19.5
	Employed	203	33.8
	Other	76	12.6
Income	High income	426	71
	Low income	174	29
Community leadership role	Yes	115	19.5
	No	485	80.5

Income categories: income is categorized using world economic and financial surveys, October 2016 (individuals with 1328 Ethiopian birr per month and above income said to have high income and below this low income).

TABLE 2: Distribution of traditional eye medicine use in study participants among adult residents in Gondar city, North West Ethiopia, 2017.

Variables	Category	Traditional eye medicine practice (n (%))	
		Yes (total = 73)	No (total = 527)
Age (in a year)	18–24	11 (15%)	139 (26.4%)
	25–30	16 (21.9%)	165 (31.3%)
	30–40	20 (27.5%)	120 (22.8%)
	41–88	26 (35.6%)	103 (19.5%)
Sex	Male	36 (49.3%)	210 (39.8%)
	Female	37 (50.7%)	317 (60.2%)
Marital status	Married	48 (65.8%)	259 (49.1%)
	Unmarried	25 (34.2%)	268 (50.9%)
Educational status	Illiterate	18 (24.7%)	51 (9.7%)
	Read and write	19 (26%)	80 (15.2%)
	Primary school	10 (13.7%)	79 (15%)
	Secondary school	12 (16.4%)	119 (22.6%)
	College and above	14 (19.2%)	198 (37.6%)
Religion	Christian	57 (78.1%)	482 (91.5%)
	Muslim	16 (22.9)	45 (8.5%)
Occupation	House wife	14 (19.2%)	95 (15.6%)
	Student	15 (20.5%)	82 (18%)
	Merchant	13 (17.8%)	102 (19.4%)
	Employed	14 (19.2%)	189 (35.9%)
	Others	17 (23.3%)	59 (11.2%)
Income	High income	43 (58.9%)	383 (72.7%)
	Low income	30 (41.1%)	144 (27.3%)
Community leadership role	Yes	21 (28.8%)	94 (17.8%)
	No	52 (71.2%)	433 (82.2%)

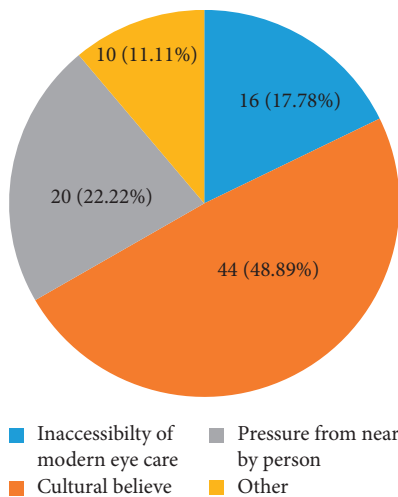


FIGURE 2: Pie chart that shows reasons for study participants to use traditional eye medicine among adult residents in Gondar city, North West Ethiopia, 2017.

studies done in North West and Western parts of Ethiopia, which showed that 70.9% [7] and 94.22% [9] of the people, respectively, rely on traditional medicine. Since traditional eye medicine is a part of the overall practice, it has a high chance to be practiced and the low proportion might be due to the presence of tertiary eye care centers in the city that lets the residents prefer modern eye medicines over traditional eye medicines. This result is consistent with studies done in Brazil (14.4%) [10] and Niger city Nigeria (13.2%) [11].

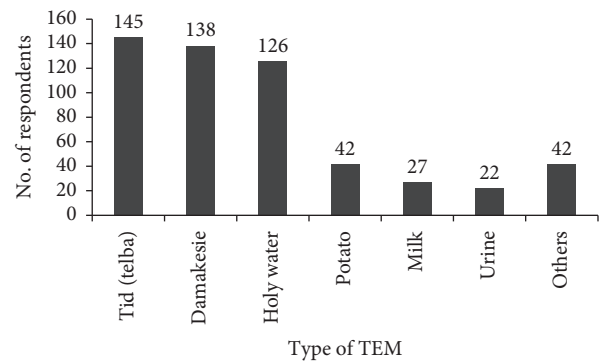


FIGURE 3: Bar graph that shows types of traditional eye medicine most commonly known by study participants among adult residents in Gondar city, North West Ethiopia, 2017.

However, it is lower than studies in Nepal (57%) [12], south east Nigeria (82.3 %) [13], Zimbabwe (61.5%) [14], and Malawi (28.7%) [15]. This variation might be accounted for the difference in the study setting and target population. Studies in Zimbabwe, south east Nigeria, and Nepal are hospital-based, which includes only diseased individuals. But, our study was community-based. The second reason could be a result of cultural variation among nationalities. In addition, our study area was urban and did not include rural communities.

The likelihood of traditional eye medicine practice was lower by 52% in unmarried study participants compared to married study participants. Studies done in Nigeria [11],

TABLE 3: Factors associated with traditional eye medicine practice in study participants among adult residents in Gondar city, North West Ethiopia, 2017 ($n = 73$, $n =$ number of traditional eye medicine users in the past 2 years).

Variables	Category	Traditional eye medicine practice		COR (95%)	AOR (95%)
		Yes	No		
Age (in year)	18–24	11	139	1.00	
	25–30	16	165	1.23 (0.55–2.73)	
	31–40	20	120	2.11 (0.97–4.57)	
	41–88	26	103	3.19 (1.51–6.75)	
Sex	Male	36	210	1.00	
	Female	37	317	0.68 (0.42–1.11)	
Marital status	Married	48	259	1.00	1.00
	Unmarried	25	268	0.50 (0.30–0.84)	0.48 (0.17–0.83)*
Educational status	Illiterate	18	51	4.99 (2.33–10.71)	5.40 (5.30–12.3)**
	Read and write	19	80	3.36 (1.61–7.02)	3.30 (1.60–10.8)**
	Primary school	10	79	1.79 (0.76–4.20)	1.97 (1.02–8.30)*
	Secondary school	12	119	1.43 (0.64–3.19)	1.41 (0.47–4.26)
	College and above	14	198	1.00	1.00
Religion	Christian	57	482	0.33 (0.18–0.63)	
	Muslim	16	45	1.00	
Occupation	Student	15	82	1.00	
	House wife	14	95	0.81 (0.37–1.77)	
	Merchant	13	102	0.7 (0.31–1.55)	
	Employed	14	189	0.41 (0.19–0.88)	
	Others	17	59	1.58 (0.73–3.40)	
Income	High	43	383	1.00	
	Low	30	144	1.86 (1.12–3.07)	
Community leadership role	Yes	21	94	1.00	
	No	52	433	1.86 (1.07–3.26)	
Awareness of traditional eye medicine side effect	Yes	22	180	1.00	
	No	51	347	1.20 (0.71–2.05)	
Availability of traditional healer	Yes	43	100	6.12 (3.66–10.24)	2.84 (1.44–7.56)**
	No	30	427	1.00	1.00
Health insurance	Yes	15	101	1.00	
	No	58	426	0.92 (0.50–1.68)	
A family history of traditional eye medicine use	Yes	28	98	7.04 (4.1811.84)	3.99 (1.84–8.67)**
	No	45	429	1.00	1.00
Accessibility of modern eye care service	Yes	33	167	1.00	1.00
	No	40	360	2.61 (1.59–4.29)	2.11 (1.06–4.19)**

* = P value < 0.05; ** = P value < 0.01.

Zimbabwe [14], and Uganda [16] support this result. The absence of income-related constraints because of taking care of the family and children and sufficient time to visit eye care providing centers could be the possible reasons.

Study participants, who were illiterate, were 5.4 times, able to read and write were 3.30 times, and those, who complete primary school, were 1.97 times more likely to practice traditional eye medicine compared to those who attended college and above. A study from Malawi agrees with this result [15]. The reason for these high odds might be due to knowledge and attitude differences at different literacy levels towards traditional eye medicine use. Besides, financial issues could contribute towards traditional eye medicine use, because most of the individuals below college-level educational status have less chance for employment and low payment in employment that could lead to more favor towards traditional eye medicine.

Study participants, who live in a traditional healer available area, were 2.84 times more likely to use traditional eye medicine compared to those who live in an area

where traditional healer does not exist. This is in agreement with the Indian study [3]. They might use traditional healers as an alternative means to seek eye care service. They could also trust in diagnosing and treating quality of traditional healers, besides their short waiting time and cheap service [9, 17].

Study subjects who had poor access to modern eye care service were 2 times more likely to use traditional eye medicine compared to those who had good access to modern eye care service. It is supported by Nigeria [11], Zimbabwe [14], and Ivory Coast [18] studies. In Africa, there is, on average, one ophthalmologist per one million populations. There are relatively few eye care trained professionals. Eye medicines are often not available in health facilities and are expensive in private pharmacies. Because of this traditional eye medicine use is a common practice in Africa [4–6].

Study participants, who had a positive family history of traditional eye medicine use, were 4 times more likely to practice traditional eye medicine compared to those who did

not have a family history of traditional eye medicine use. This is in line with studies in India [3] and Malawi [15]. Traditional eye medicine use might be taken as a trend and pass from parents to children to treat abnormal eye condition, and the family member might bind to a certain belief towards traditional eye medicine.

5. Conclusion

The proportion of traditional eye medicine practice was low in the past two years in Gondar city, Ethiopia, as compared to most African and Asian studies like south East Nigeria [13] and Nepal [12], respectively. Besides in studies done in North West and Western part of Ethiopia like Merawi town (70.9%) [7] and Burka Jato kebele (94.22%) [9] of the people are still utilizing traditional medicine, respectively, and the low proportion might be due to the presence of tertiary eye care centers in the city that lets the residents prefer modern eye medicines over traditional eye medicines in the past two years. Being unmarried, educational status less than secondary school, availability of traditional healer, poor access to modern eye care service, and positive family history of traditional eye medicine use had a significant association with traditional eye medicine practice. Community awareness about traditional eye medicine use is important to reduce the risk of complications even if the proportion is low. Moreover, the country's minister of health and the traditional healers should work together to modernize the practice and prevent unwanted outcomes.

Data Availability

The data set on which the conclusion is made is available on request from Minychil Bantihun munaw/minychilmedban@gmail.com.

Ethical Approval

Ethical clearance was obtained from the University of Gondar College of medicine and health sciences, school of medicine ethical review committee, and support letter was obtained from local kebele administrators. The household head saw and read it during data collection.

Consent

Verbal informed consent was obtained from all study participants. Participation in the study was voluntary. The participants were requested to give verbal consent with a detailed explanation of the study.

Conflicts of Interest

All the authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Acknowledgments

The authors would like to acknowledge Gondar city administration office and all study participants for their cooperation and willingness.

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