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Research Article

Prevention Practice and Associated Factors towards COVID-19 among Childbearing Age Women of Debre Tabor Town, Northwest Ethiopia: Community-based Cross-Sectional Study

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ABSTRACT

Background: Middle East Respiratory Syndrome a novel corona virus, Wuhan China have raised great public health concern globally. The virus is zoonotic which has a tendency to be transmitted between animal to human and human to human. The major route of transmission of COVID-19 is droplet and close contact. To date, no antiviral treatment or vaccine has been explicitly recommended for COVID-19. So, applying preventive measures to control COVID-19 infection is the most critical intervention. Therefore, the aim of this study was to asses practice of COVID-19 prevention and its associated factors.

Methods: This cross-sectional study was conducted from May 10 to June 25, 2020. A total of 660 women in Debre Tabor Town were included. The study participants were selected using simple random sampling technique. The collected data were checked for completeness. The data were entered and cleaned using Epi-Data version 4.2 then exported to SPSS version 23 for analysis. Crude odd ratio and probability value were identified for each independent variable and independent variables with probability value of less than 0.2 were entered into multivariable logistic regression. Statistically significant associated factors were identified based on probability value (p-value) less than 0.05 and adjusted odd ratio with 95% confidence interval.

Results: The prevalence of prevention practice of COVID-19 was 493 (74.7%) with a mean age of 31.3 (SD ± 6.241) years. Women attend higher education (AOR=2.3, CI=1.05-5.02), Husband attend secondary education (AOR=1.52, CI=1.3-2.88), had radio or television (AOR=0.55, CI=0.32-0.97), knowledge (AOR=1.68, CI=1.46-5.46) and didn't perceive COVID-19 is a result of ours sin (AOR=2.31, CI=1.76-4.95) are better practiced for preventive measures of COVID-19.

Conclusions: The prevalence of prevention practice of COVID-19 in the study area is low. Education, had radio or television, knowledge and perceived COVID-19 is a result of ours sin were significantly associated factors of prevention practice of COVID-19.

Keywords: Prevention; Practice; Associated factors; COVID-19

Abbreviations: AOR: Adjusted Odd Ratio; CI: Confidence Interval; RNA: Ribino Nucleic Acid; SPSS: Stastical Package for Social Science; WHO: World Health Organization

INTRODUCTION

Corona viruses are enveloped non-segmented positive sense RNA viruses belonging to the family Corona viridae and the order Nido virales and broadly distributed in humans and other mammals [1]. It is zoonotic viruses and have raised great public health concern globally [2]. The World Health Organization (WHO) declared the novel coronavirus "2019-nCoV" outbreak as a global public health emergency [3].

In December,2019, Wuhan, Hubei province, China, became the center of an outbreak of pneumonia of unknown cause,

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which raised intense attention not only within China but also internationally [4].

COVID-19 is spread due to close person-to-person contact *via* coughing or sneezing, similar to the transmission of influenza and other respiratory pathogens [5]. People with cardio-pulmonary complaints, weakened immune systems, infants and older adults are more prone to COVID-19. Symptoms of COVID-19 include sneezing, cough, sore throat, fever, headache and feeling of being unwell, which may appear in a few as 2 days, or as long as 14 days, after exposure to the virus [4,6].

The 2019-2020 corona viruses pandemic was confirmed to have spread to Africa on 14 February, 2020. The first confirmed case on the continent was in Egypt [7,8], and the first confirmed case in sub-Saharan Africa was in Nigeria [9].

Globally on June 28, there were 10, 097, 334 corona virus cases and 501, 585 deaths recorded, five million cases recovered and more than half million cases and 10,480 deaths in Africa and 5846 cases and 103 deaths in Ethiopia were reported [10].

Experts have worried about COVID spreading to Africa, because many of the healthcare systems on the continent are inadequate, having problems such as lack of equipment, lack of funding, insufficient training of healthcare workers, and inefficient data transmission [11,12].

COVID-19 will also greatly affect the economy and delay achieving development goals given that most countries in sub Saharan Africa depend on foreign aid [13]. With nearly broken public health systems, deprived public health sectors and a very small number of specialized hospitals, there is little capacity for tracing, testing, confirmation, isolation and treatment of those infected [14].

The WHO has developed standard recommendations for the reduction of exposure and transmission include: regular cleaning of hands; covering the mouth and nose with tissue while coughing and sneezing, then immediately throwing the tissue away and washing hands; avoiding close contact with infected persons; seeking medical care in case of fever and cough; sharing past travel history with healthcare providers; avoiding direct unprotected contact with live animals and surfaces in areas with current reported cases of novel corona virus infections; avoiding the consumption of raw or undercooked animal products; and handling raw meat, milk or animal organs with care to prevent cross-contamination [15,16].

According to currently available information regarding COVID-19, the WHO advises that essential precautions and actions should be implemented to minimize the risk of exportation or importation of the disease [17]. To date, no antiviral treatment or vaccine has been explicitly recommended for COVID-19. So, applying preventive measures to control COVID-19 infection is the most critical intervention. In the study area there is no study have been conducted on this issue.

The findings of this study will help programme managers, stakeholders and health service providers to design appropriate intervention to increase practice of prevention of COVID-19. Therefore, the aim of this study was to determine practice and associated factors towards prevention of COVID-19 among childbearing age in Debre Tabor Town, Northwest Ethiopia.

METHODOLOGY

Study design and setting

This cross- sectional study was conducted from May 10 to June 25, 2018 among childbearing age in the community of Debre Tabor Town. Debre Tabor is the capital city of South Gondar Administrative Zone of Amhara Region, Ethiopia. There were 14,614 childbearing age women in the community. The town has divided in to six small administrative units called kebeles. Women from in each kebeles were taken as study population.

Sample size determination and sampling procedures

Sample size was calculated using single population proportion formula and the required sample size for this study was determined using the following assumptions; desired precision (d)=4%, Confidence level=95% ($Z\alpha/2$=1.96 value) and 50% of the prevalence of prevention practice of COVID-19. Hence, the calculated sample size by considering 10% non- response rate was 660. To collect the data, initially the number of households with childbearing age women in each kebele was found from the kebele registration book. Then, the study households were selected through simple random sampling technique based on the proportion of the number of households in each kebeles and the first household was selected using lottery method. In cases where two or more eligible women were found in one household only one is interviewed by using lottery method.

Data collection instrument and procedures

Data collection tool comprised of structured questionnaires that were prepared after thorough literature review and the local situation of the study area and purpose of the study were considered to prepare the questionnaire. Questionnaires were prepared first in English then translated to Amharic which is the vernacular language of the respondents by language expert for ease of understanding of the respondents. Data were collected *via* face-to-face interview technique using structured questionnaires.

Twelve and two midwives who have BSc degree were selected and trained for data collection and supervision respectively. They had previous exposure in data collection. Data were collected on socio-demographic, knowledge, perception and practice of towards of COVID-19. Questionnaires were pretested on 33(5%) of women of Woreta Town in South Gondar Zone before final data were collected. The investigators and research assistants were involved to incorporate changes in questionnaires after pretest. To guarantee internal validity, only completed questionnaires were adopted.

Measurement

Face-to-face interview questionnaires were used as data collection tool. The knowledge of the respondents was assessed by using 12 questions and the correct responses of each respondent for all questions were added to decide whether the respondent was poor or good knowledge. Questionnaires related to perception contain 6 questions with answered yes or no. Practice of prevention of COVID-19 questionnaires also contains 8 questions with answered yes or no. Therefore, the mean value of each variable for each respondent and the overall mean were identified to determine knowledge, perception and practice of prevention of COVID-19.

Operational definitions

• **Good practice:** Those who were score at or above the mean value of practice measuring questions.

• **Poor practice:** Those who were score below the mean value of practice measuring questions.

• **Good knowledge:** Those who were score at or above the mean value of knowledge measuring questions.

• **Poor knowledge:** Those who were score below the mean value of knowledge measuring questions.

• **Positive perception:** Those who were score at or above the mean value of perception measuring questions.

• **Negative perception:** Those who were score below the mean value of perception measuring questions.

Statistical analysis

The collected data were checked for completeness. The data were entered and cleaned using Epi-Data version 4.2 then exported to SPSS version 23 for analysis. Descriptive analysis was employed to summarize the data. Crude Odd Ratio (OR) and probability value (P-value) were identified for each independent variable and all independent variables with probability value of less than 0.2 were entered into multivariables logistic regression. Statistically significant associated factors were identified based on probability value (P-value) less than 0.05 and Adjusted Odd Ratio (AOR) with 95% Confidence Interval (CI).

RESULTS

Socio-demographic characteristics

A total of 660 women participated in this study, yielding a response rate of 100%. The mean age of the respondents was 31.3 (SD ± 6.241) with a range of 15-49 years. Almost three-fourth of respondents were Orthodox (74.1%) and 107 (16.2%) of participants were Muslim. Among participants, 436 (66.1%) were married and 129 (19.5%) were single (Table 1).

Table 1: Socio-demographic characteristics of the participants (n=660) in Debre Tabor Town, Northwest, Ethiopia, 2020.

Variable	Frequency (n=660)	Percent (%)
Age		
<20 yrs	35	5.3
20-30 yrs	452	68.5
>35 yrs	173	26.2
Ethnicity		
Amhara	548	83
Oromo	90	13.6
Tigrie	8	1.2
Others	14	2.1
Religion		
Orthodox	489	74.1
Muslim	107	16.2
Protestant	37	5.6
Catholic	27	4.1
Education		
Unable to read and write	197	29.8
Able to read and write	305	46.2
Primary (1-8)	68	10.3
Secondary (9-12)	57	8.6
Higher education	33	5
Occupation		
Gov't employee	441	66.8
Non-Gov't		
employee	180	27.3
Student	19	2.9
Merchant	20	3
Marital status		
Single	129	19.5
Married	436	66.1
Divorced	6	0.9
Widowed	89	13.5
Husband education		
Unable to read and write	158	23.9
Able to read and write	126	19.1
Primary (1-8)	166	25.2
Secondary (9-12)	136	20.6
Higher education	74	11.2
Husband occupation		
Gov't employee	279	42.3
Their own business	138	20.9
Private worker	162	24.5
Daily laborer	81	12.3
Family size		
<four	261	39.5
>=four	399	60.5
Had radio and TV		
Yes	601	91.1
No	59	8.9

Note: Others (ethnicity)=Gurage, Kimant.

Knowledge about COVID-19

Half of the study participants (51.2%) had good knowledge about COVID-19. Regarding to clinical symptoms of COVID-19; three mostly mentioned by respondents were fever (27.4%), headache (21.4%) and dry cough (18.6%) respectively. Nearly, 90% of the respondents (88.2%) said that the main route of transmission was respiratory droplet and close contact (Table 2).

Table 2: Knowledge about COVID-19 among childbearing age in Debre Tabor Town, Northwest, Ethiopia, 2020.

Variable	Frequency (n=660)	Percent (%)
Do you have information (know) about COVID-19?		
Yes	660	100.0
No	0	0.00
If yes, Source of Information		
Mass media	130	19.7
Health professional	192	9.1
Social media	187	28.3
Others	151	22.9
What are causative agents of COVID-19?		
Virus	291	44.1
Bacteria	134	20.3
Protozoa	80	12.1
I don't know	155	23.5
What are the main routes of transmission for COVID-19?		
Close contact and respiratory droplet	582	88.2
Water	20	3.0
Food	19	2.9
I don't know	39	5.9

How long is Incubation period of COVID-19?		
2-14 days	406	61.5
3-7 days	95	14.4
>14 days	45	6.8
I don't know	114	17.3
Who are susceptible for COVID-19?		
Children and elderly	107	16.2
General population	343	52.0
Adult	55	8.3
People with pre-existing diseases	141	21.4
I don't know	14	2.1
What is the clinical Symptom of COVID-19?		
Fever	181	27.4
Dry cough	123	18.6
Headache	141	21.4
Stuff and runny nose	67	10.2
Difficulty of breathing	120	18.2
I don't know	28	4.2
Which measures taken after showing S/SX of COVID-19?		
Stay at home	269	40.8
Use facemask	206	31.4
Inform for health worker	141	21.4
Call to 8335	43	6.5
Who is more danger for death after confirmed COVID-19?		
Adults	18	2.7
Children	79	12.0
People with pre-existing disease	137	20.8
Age >60years	146	22.1
Pregnant mother	124	18.8
Smokers	117	17.7
I don't know	39	5.9
People with S/SX can transmit COVID-19?	59	59
Yes	163	24.7
No	237	35.9
I don't know	260	39.4
Mother with COVID-19 can transmit to fetus?	59	59
Yes	240	36.4
No	195	29.5
I don't know	225	34.1
Mother with COVID-19 can breastfeed?	59	59
Yes	206	31.2
No	220	33.3
I don't know	234	35.5
Overall knowledge	59	59
Poor knowledge	338	51.2
Good knowledge	322	48.8

Perception about COVID-19

More than half of the respondents (60.7%) had perceived that COVID -19 was as a result of ours sin. And also, more than three-fourth of the respondents (77.1%) had perceived that COVID-19 is occurs when the weather condition is cold. Likewise, nearly half of participants (47.9%) had negative perception; while 52.1% had positive perception towards prevention practice of COVID-19 (Table 3).

Table 3: Perception about COVID-19 among childbearing age in Debre Tabor Town, Northwest, Ethiopia, 2020.

Variables	Frequency (n=660)	Percent (%)
Did you believe that COVID-19 comes due to ours sin?		
Yes	402	60.9
No	258	39.1
Did you believe that COVID-19 is a disease of white?		
Yes	439	66.5
No	221	33.5
Did you believe that eating uncommon animals a cause of COVID-19?		
Yes	161	24.4
No	499	75.6
Did you believe that COVID-19 occurs when the weather is cold?		
Yes	399	60.5
No	261	39.5
Did you believe that COVID-19 attack only elderly?		
Yes	509	77.1
No	151	22.9
Did you believe that apply prevention measure antagonize to religious practice?		
Yes	142	21.5
No	518	78.5
Overall Perception		
Negative perception	256	38.8
Positive perception	404	61.2

Prevention practice of COVID-19

The overall all prevalence of prevention practice of COVID-19 among participants were 493 (74.7%) with 95% CI (71.2-78.3). One-thirds (30%) of the respondents had good COVID-19 preventive practice. About 66.5% of respondents reported that they were washing their hands with water and soap or use sanitizer's. Nearly three-forth (69.2%) respondents reported that they have avoided touching their eyes, nose, and mouth with unwashed hands. Only 68.8% of respondents reported that they practiced social distancing (Table 4).

Table 4: Prevention practice of COVID-19 among childbearing age in Debre Tabor Town, Northwest Ethiopia, 2020.

Variable	Frequency (n=660)	Percent (%)
Did you have practiced prevention of COVID-19 methods?		
Yes	493	74.7
No	167	25.3
Did you repeated hand wash with water and soap or use sanitizer?		
Yes	328	66.5
No	165	33.5
Avoid touching eye, nose and mouth with unwashed hands?		
Yes	341	69.2
No	152	30.8
Cover your mouse and nose when you are coughing and sneezing?		
Yes	365	74.0
No		165
Uses facemask when you are outside home?		
Yes	339	68.8
No	154	31.2

If yes; after using facemask where to avoid it?		
Anywhere		142
Garbage	351	71.2
Are stayed at home?		
Yes	376	76.3
No	117	23.7
Social distance		
Yes	351	71.2
No	142	28.8
Overall practice		
Poor	345	70.0
Good	148	30.0

Reasons for not practice of prevention of COVID-19

Major reasons for not practice of prevention of COVID-19 claimed by the study participants were 88 (52.7) of negligence, 33 (19.8%) of hopeless, 32 (19.2%) of believe in God and 14 (8.4%) of can't afford it.

Factors associated with prevention practice of COVID-19

Variables with P<0.2 in binary logistic regression model were entered in to multiple logistic regression. Those variables were marital status, education, occupation, family size, had a radio or television, knowledge, COVID-19 comes due to the results of sin, eating uncommon animals and cold weather condition.

In multiple logistic regression; education (maternal and husband), had radio or television, knowledge about COVID-19 and COVID-19 comes due to the result of ours sin were significantly associated with prevention practice of COVID-19.

The odds of practicing prevention of COVID-19 among maternal versus husband were 2.3 and 1.52 times higher among secondary and above education compared to those who are low grade and not attended formal education (AOR=2.30, 95% CI=1.05-5.02) and (AOR=1.52, 95% CI=1.30-2.88) respectively. Those individuals didn't' have radio or television was 44.9% lowering practice prevention of COVID-19 than those having radio or television (AOR=0.55, 95% CI=0.32-0.97). Respondents had good knowledge more likely practiced prevention of COVID-19 than those had poor knowledge (AOR=1.68, 95% CI=1.46-5.46). Those respondents didn't perceive COVID-19 comes due to the result ours sin more likely practice of prevention of COVID-19 than their counterparts (AOR=2.31, 95% CI=1.76-4.95) (Table 5).

Table 5: Multivariable logistics regression of factors associated with prevention practice of C0VID-19 among childbearing age (n=493) in Debre Tabor Town, Northwest Ethiopia, 2020.

Variable	Practice of COVID-19		Crude or (95% CI)	Adjusted or (95% CI)
	Poor	Good		
Maternal education				
Unable to read and write	136	61	1	
Able to read and write	198	107	1.2(0.82-1.76)	1.22(0.82-1.82)
Primary (1-8)	40	28	1.56(0.88-2.75)	1.43(0.79-2.61)
Secondary (9-12)	32	25	1.74(0.95-3.18)	1.68(0.89-3.15)
Higher education	16	17	2.36(1.12-4.99)	2.3(1.05-5.02)*
Husband education				
Unable to read and write	92	66	1	
Able to read and write	77	49	0.88(0.55-1.43)	0.83(0.51-1.37)
Primary (1-8)	112	54	0.67(0.42-1.05)	0.82(0.49-1.35)
Secondary (9-12)	102	34	1.93(2.28-4.76)	1.52(1.3-2.88)*
Higher education	39	35	1.25(0.71-2.17)	1.37(0.77-2.44)
Had radio or TV				
No	28	31	0.47(0.27-0.81)	0.55(0.31-0.97)*
Yes	394	207	1	
Knowledge				
Poor	225	113	1	
Good	197	125	1.26(3.12-4.57)	1.68(1.46-5.46)
COVID-19 due to ours sin?				
No	170	88	1.15(1.82-6.97)	2.31(1.76-4.95)**
Yes	252	150	1	

NOTE: *=P-value≤0.01, **=P-value≤0.001.

DISCUSSION

To the best of our understanding, this is the first study investigating prevention practice towards COVID-19 among childbearing age women in Ethiopia. This study was conducted to fill the gap in the literature and providing a reference on prevalence and prevention practice among childbearing age women. We found that almost one-thirds of the participant (30%) had good practice about COVID-19 prevention related issues. This finding was lower than the studies done a population-based survey and among health worker in Iran and Ethiopia respectively [18,19]. The underlying reason for these differences could be the period, study participants and place in which the studies were conducted.

This study showed that overall prevalence of prevention practice of COVID-19 in the study area were 493 (74.7%) with 95% of CI (71.2- 78.3%) which is lower than the study done a population-based survey in Iran [18,19]. The possible reason for this difference might be due to the shortage of infrastructure and inadequate trained provider show that the frontline prevention methods COVID-19. This suggests further implementation and encouragement from the government is required for the application of good practice towards COVID-19 and its prevention methods.

In addition to estimating the prevalence of preventive practice; this study was tried to determined factors associated with prevention practice of COVID-19. The finding of the current study revealed that respondents who were secondary and higher education had better practiced prevention practice of COVID-19 compared to low grades or non-attendant of formal education ((AOR=2.3, 95% CI=1.05-5.02) and (AOR=1.52, 95% CI=1.3-2.8)) respectively. The likely explanation could be increased levels of education are more aware of the importance of health education messages and act on them. In addition, a person with increased levels of education has high self-confidence and feels comfortable so it is easily accessing the information that regarding to COVID-19 [20-23].

CONCLUSION

In this study those individuals didn't' have radio or television was 44.9% lowering practice prevention of COVID-19 than compared to those having radio or television (AOR=0.55, 95% CI=0.32-0.97); which is supported by a study done in China, Saudi Arabia and Ethiopia. This is the reason due to there is no exposure to information since its global topic of discussion in the media and public that leads to less chance of aware of about COVID-19. Another reason could be the effort of government and media in providing information starting from the time of the outbreak so the person practicing well to prevent him from the diseases.

The finding of this study shows that respondents had good knowledge on COVID-19 had better practiced in prevention practice of COVID-19 compared to those had poor knowledge (AOR=1.68, 95% CI=1.46-5.46); which is supported by a study done in China, Iran and Ethiopia. These in fact that if an individual has general knowledge regarding COVID-19 it is better to practice or which, in turn their knowledge in to action would enhance their practice regarding to the prevention of COVID-19.

Respondents didn't perceive that COVID-19 comes from due to the result of ours sin had 2.31 times more likely practiced for preventive measures of COVID-19 compared to those perceived it (AOR=2.31, 95% CI=1.76-4.95). The reason of this might be the women think that the main prevention method of COVID 19 is praying to God rather than practicing WHO recommended preventive measures.

This study has some limitations. One of the limitations is bias occurred as a result of study design (cross-sectional) since the study took information at specified time-points and cause and effect association cannot be studied. The other limitation was lack of sufficient similar study; which limit comparison with other studies.

The prevalence of prevention practice of COVID-19 in the study area is low. Factors like education (maternal and husband), had radio or television, knowledge and perceived COVID-19 is a result of ours sin were significantly associated factors of prevention practice of COVID-19.

DECLARATION

Ethics approval and consent to participate

Ethical clearance was obtained from Institutional Review Committee of Debre Tabor University. Formal letter of cooperation was written for Debre Tabor Town administrative office. We stated for the participants that they had the right of unwilling to participate in the study and they had also the right to quit their participation at any stage without any restriction. Moreover, we informed the purpose, procedures, advantage and disadvantage of the study to the participants. Finally, written informed consent was obtained from a parents or guardian for participants under 18 years old.

Availability of data and materials

The datasets collected and analyzed for the current study is available from the corresponding author and can be obtained on a reasonable request.

Competing interests

The authors declare that they have no competing interests.

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