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REVIEW ARTICLE

KNOWLEDGE, ATTITUDE, AND PRACTICE OF THE DEBRE MARKOS AND BURIE TOWN PUBLIC TOWARDS COVID-19

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ABSTRACT: Background: Coronavirus disease 2019 (COVID-19) is an infectious disease caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). This study aimed to assess the knowledge, practice, and attitude of the Debre Markos and Burie town public towards the COVID-19 disease. **Method**: We conducted a cross-sectional survey on 384 voluntary participants in Debre Markos and Burie town. The analysis was done by using SPPS software (version 20.0). The level of significance was set at a 95% confidence interval (P< 0.05). **Result**: Most of the participants respond that COVID-19 is a dangerous virus all over the globe. The main source of information to the disease is social-medias, internet, health education, and news from television and radios. Almost most of the participants respond that using a face mask, proper handwashing, and maintaining social distance are the main methods of COVID-19 disease prevention. **Conclusion**: In general most of the study participants were had good knowledge, a positive attitude, and better protective measures towards coronavirus disease 2019.

KEY WORD: COVID-19, KAPS, and Ethiopia

BACKGROUND:

Coronavirus disease 2019 (COVID-19) is a global health and societal emergency respiratory disease that is caused by severe acute respiratory syndrome a novel coronavirus 2 (SARS-CoV-2). The virus is characterized by sudden onset, fever, fatigue dry cough, myalgia, and dyspepsia [1,2]. This disease emerged in Wuhan, China, in December 2019, and spread quickly around the world [3,7]. Since the disease's rapidly spread worldwide, the World Health Organization (WHO) announced that the COVID-19 outbreak was a global public health pandemic, in January 2020 [4, 5]. This disease creates high pressure on global health care systems. The COVID-19 was identified as a novel and contagious primary atypical (viral) pneumonia reported to cause clusters of onset similar to severe acute respiratory syndrome coronavirus (SARS-CoV) and respiratory syndrome coronavirus (MERS-

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CoV)[8-9]. The commonest clinical features include fever, cough, acute respiratory distress syndrome, requiring intensive care unit (ICU) service, reduced or normal white blood cells, fatigue, and failure to resolve over 3 to 5 days of antibiotic treatment. Due to this fact, most of the health care systems around the world have struggled to meet these needs, as their ICU beds are limited [2, 5, 10]. It may get severe and life-threatening in people of older age and with comorbidities like cardiovascular disease, hypertension, diabetes, chronic respiratory disease, and cancer [12]

WHO reports that the best way to prevent and slow down the transmission of coronavirus is to be well informed about the virus, the disease it causes, and the mode of transmission, and suggests people wash hands with soap or use hand sanitizers frequently, avoid touching the face, mouth, nose, and eyes with unwashed or non-sanitized hands, maintaining social distance, and staying home to remain protected from the infection. Individuals should also practice respiratory etiquette such as coughing and sneezing into a flexed elbow, cover mouth and nose with tissue paper, and wearing masks to avoid spreading the virus [12]. Touching surfaces contaminated with the virus is also the main way of spread of the virus that may survive on surfaces for several hours and days. Still, now, there is no specific vaccine or medicinal treatment for COVID-19 [12,13].

WHO also reported that many businesses around the world, like food, agriculture, transportation, and health material supply chains, have been disrupted by COVID-19 [5, 6]. Also, the organization indicated that the shortage of personal protective equipment is one of the most urgent threats to the collective ability to save lives during the COVID-19 pandemic [5]. It has already affected millions of people, thousands of whom of peoples are dying every day creating panic and a global deadlock in all spheres of life. So this study aimed to assess the knowledge, attitude, and practice towards the novel coronavirus all over the world by referring to different studies done on the

assessment of the knowledge, practice, and attitude regarding this panic virus.

METHODS:

Study area and design

A cross-sectional study design was conducted from September 12 to October 19 to assess the Knowledge, Attitude, and Practice (KAP) of the Debre Markos and Burie city population towards COVID-19. Debre Markos city is located in northern parts of Ethiopia, East Gojjam, 185 km away from Addis Ababa, the capital city of Ethiopia; whereas Burie is located in northern parts of Ethiopia, West Gojjam, 262 km away from Addis Ababa, the capital city of Ethiopia.

Study participants

For the current study, all voluntary participants living in the Debre Markos and Burie City during the study period were invited to take part in the study.

Data collection procedure

A convenience sampling method was used for all participants who voluntarily participated in the study and was thus considered exempt from written informed consent. The data was collected by using a pre-tested structured questionnaire which is developed following through a review of works of literature from different sources. The questionnaire was developed by the author and consisted of two parts: social-demographic characteristics and KAP. Social-demographic characteristics variables included gender, age, marital status, education, occupation, source of information, and whether the participant had attended a health education activity. The KAP questions were developed based on information published by the WHO, the Ministry of Health (MOH) in Ethiopia, the Centre for Disease Prevention.

The KAP part included information related to knowledge regarding COVID-19, perceptions about

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the COVID-19, and attitude towards protective measures against COVID-19 of the participants. The questionnaire was first adapted in English and translates into Amharic by an expert, the native language in Ethiopia, and was translated back to English to see the consistency of the item.

Eligibility

Inclusion criteria

All voluntary participants aged >18 years who were living either in Debre Markos and Burie town during the study period.

Exclusion criteria

If they were below 18 years of age

Sampling

The sample size was determined based on the assumption that the probability of having good knowledge on and positive attitude towards preventive measures against COVID 19 was 50.0%, at a 95% confidence interval, limit of precision of 5%, with a design effect of 1.0; the calculated sample size was 384 participants.

Study variables

Dependent variables:

Knowledge, Attitude, Practice, and COVID-19.

Independent Variables:

Social-demographic characteristics and personal factors.

Data quality control:

The quality of the data was assured by using a validated and pretested questionnaire. Before the actual data collection, pre-testing was done on 5% of the total study subjects at the local level which was not included in the actual study, and based on the findings necessary amendments were made. Data

collectors are trained about the aim of the study and methods of data collection. The English version of the questionnaire was prepared. The supervisor and principal investigator made continuous follow-up and supervision for completeness and consistency of the data. During data collection, all three analytical phases were carefully considered.

Ethical Considerations

The study was conducted after ethical approval was obtained from the Research and Ethics Institutional Review Board of Debre Markos University College of Health Science, Department of Medical Laboratory Science. Informed written consent was also obtained from each study participant before the actual data collection. Participants were informed of the risks and benefits of the study, their right to withdraw anytime, how confidentiality is maintained using codes.

Data processing and Statistical analysis

Initially, data were entered, cleaned up, coded, and tested for normality, and data were analyzed using IBM SPSS software, version 21 software. Frequencies and descriptive statistics of the KAP of participants were calculated based on the finding in the collected data. A Chi-square test was utilized to compare categorical variables and ratios. Knowledge scores were compared across demographics using the independent samples t-test and one-way between-groups analysis of variance (ANOVA). Multiple regressions were used to identify factors associated with knowledge scores, considering the demographics as a set of independent variables. Ordinal logistic regression analysis was used to identify demographic variables (as a set) associated with attitudes. A p-value $\leq$ of .05 (two-tailed) for all tests was considered statistically significant.

RESULT

A total of 384 study participants at Debre Markos and Burie city administration considering the educational and work area variation were included in

this survey. The social- demographic characteristics of the studied participants indicated in table 1. From a total of 384 study participants, 48.4 % were females and the rest 51.6 % were males. The age of the study participants was ranged from 18 to 78 years (mean ± SD = 38.0 ± 12.3 years); of which; around half the study participants (48.96 %) aged 18 to 30 years, 24.74% aged between 30 to 40 years, 10.16 % were aged from 40 to 50 years, 5.47 % were aged from 50 to 60 years and the rest 10.68 % were aged 60 years and above.

In the current study, most of the participants (65.4 %) were from resided in urban areas and the rest 34.6 were from rural areas. Most of the study participants (55 %) were degree and above holders, 23 % were in high school & preparatory levels, and 12.5 % were below and grade 8th, and the rest 9.5 % were farmers (**Table 1**).

The study indicated that all of the study participants responded that they had heard about COVID-19 from different sources. The main sources of knowledge regarding COVID-19 for study participants were social media, through searching the internet, from television news and radio channels, from medical professional or health education programs, and friends (**Supplementary Table 1**).

Table 1. The Social-demographic characteristics findings of the participants, 2020 (n = 384)

Social-demographic		Absolute Number	Percentage
Sex	Male	186	48.4
	Female	198	51.6
Age	18 -30	188	48.96
	30 -40	95	24.74
	40 -50	39	10.16
	50 -60	21	5.47
	> 60	41	10.68
Resident	Rural	133	34.6
	Urban	251	65.4
Educational Level	Illiterate	37	9.64
	1 -8	48	12.4
	9 -12	88	23
	Degree & above	211	55
Occupation	Governmental	178	46.35
	NGO	34	8.85
	Private	172	44.79
Main Source of Knowledge to COVID-19	Social media	186	48.44
	TV/Radios	197	51.30
	Health professionals	163	42.45
	Newspapers	19	4.95
	By training	75	19.53
	Internet	149	38.80
	Friends / families	40	10.42

Illiterate includes both farmers and any others cannot read and write in the local language

Knowledge of study participants regarding COVID-19

In this study COVID-19, related knowledge of study participants was assessed by different categories. According to the current study finding, the prevalence of Good Knowledge was found to be nearly 86.3% (95%CI, 71.9–83.9). Out of a total of 384 study participants, 319 (83.1%) participants were correctly answered as COVID-19 is a viral infection, 366 (95.3%) responded the incubation period of COVID-19 infection is 2–14 days, 357 (92.97%) participants responded fever, cough, and shortness of breath as commonest symptoms of COVID-19 as clearly indicated in **Table 2**.

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Table 2. Knowledge about COVID-19 among the participants (n=384) for study participants

Knowledge assessing variables		Yes		No		Not sure	
		NO	%	NO	%	NO	%
Spread by	Droplets of affected person	368	95.83	12	3.13	4	1.04
	Surfaces touched by the affected person saliva or body fluids	356	92.71	13	3.39	15	3.91
	Touching materials (coins, goods e.t.c) contaminated with affected person	305	79.43	59	15.36	20	5.21
	Goods imported from epidemic areas	221	57.55	61	15.89	102	26.56
	Foods cooked by affected person	123	32.03	147	38.28	114	29.69
	From asymptomatic person	148	38.54	98	25.52	138	35.94
Most common symptoms	Fever	377	98.18	6	1.56	1	0.26
	Dry cough	312	81.25	60	15.63	12	3.13
	loss of speech or movement	199	51.82	100	26.04	85	22.14
	Difficulty in breathing	358	93.23	23	5.99	3	0.78
	chest pain or pressure	296	77.08	44	11.46	44	11.46
Less common symptoms:	Aches and pains	196	51.04	107	27.86	81	21.09
	Sore throat	202	52.61	103	26.82	79	20.57
	Diarrhea	89	23.18	205	53.39	260	67.71
	Conjunctivitis	67	17.45	147	38.28	170	44.27
	Headache	215	55.99	109	28.39	60	15.63
	Loss of taste or smell	151	39.32	171	44.53	62	16.15
	Rash on skin, or discoloration of fingers/toes	101	26.3	98	25.52	185	48.18
Basic methods of COVID-19 prevention mechanisms	Proper hand wash	369	96.09	8	2.08	7	1.82
	Maintaining an appropriate distance	297	77.34	100	26.04	5	1.3
	Stay at home	384	100	0	0	0	0
	Avoiding touching eyes, nose & mouth	374	97.4	5	1.3	5	1.3
	Putting on face-masks in public places	367	95.57	7	1.82	10	2.6
	Using sanitize r	384	100	0	0	0	0
Treatment Mechanisms of COVID-19	Stay at COVID center & get physicians help	355	92.45	28	7.29	11	2.86
	Taking antibiotics	284	73.96	55	14.32	45	11.72
	Taking local alcohol	153	39.83	151	38.32	80	20.83
	Taking traditional medicines	122	31.77	87	22.66	175	45.57
	Eating garlic, Damascus & ginger	208	54.17	34	8.85	142	39.98
	Religiously or Baptism	300	78.13	14	3.65	70	18.23
Total score	Minimum–maximum			23-Aug			
	Mean ± SD			17.89 ± 2.66			

From a total of 384 study participants, only 47% have thought that the disease is dangerous and life-threatening. 33.7% of the study participants have believed that infection with the COVID-19 virus is associated with stigma, and 21.7 % thought that the media coverage about COVID-19 disease is more exaggerated.

Factors affecting knowledge towards COVID-19

Both Bivariate and multivariable analyses were applied to assess the effect of dependent variables on knowledge towards COVID-19. After adjusting for confounder variables in the multivariate analyses, having degree & above, being health professional and from urban area were significantly associated with good knowledge towards COVID-19 (AOR: 3.35, 95% CI: 0.89 - 11.09, P-valve=0.007, AOR: 5.5, 95% CI: 0.54 - 18.09, P-valve=0.001 & AOR: 2.15, 95% CI: 0.14 - 8.2, P-valve=0.001, respectively) (**Table 5**).

Table 5. Association between different factors knowledge, attitude and practice towards COVID-19 of study participants

Parameters	Knowledge		Practice		Attitude	
	p value	AOR (95%CI)	p value	AOR (95%CI)	p value	AOR (95%CI)
Being health professional	0.001	5.5	0.001	4.5	0.001	2.8
		0.54 - 18.09		0.18 - 7.7		0.22 - 11.4
From Urban resident	0.001	2.15	0.001	3.1	0.004	1.8
		0.14 - 8.2		0.88- 3.67		0.52 - 12.3
Degree & above holders	0.007	3.35	0.003	1.9	0.001	2.8
		0.89 - 11.09		0.20- 5.2		0.82 - 7.2
Taking training	Not significant		0.004	1.7	Not significant	
				0.72 - 10.7		

According to the present study finding, results of knowledge assessment of the participants regarding ways of spread, most common symptoms, less common symptoms, and measures to prevent the

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spread of COVID-19 are clearly shown in Table 2. The total knowledge score ranged from 8 to 23, with a mean of 17.89 ± 2.66.

Attitude towards COVID-19

The attitude of the study participants towards the COVID–19 was measured by different questions using five criteria and by proving numerical value (1=Strong dis-agree, 2 = dis-agree, 3 = Neutral, 4 = Agree, and 5 = Strong agree) (Table 3). When we saw the findings regard to the attitude of the participants towards the preventive measures to limit the spread of COVID-19 almost most of the study participants have a positive view of all of the preventive mechanisms identified by WHO and CDC (**Table 3**). The finding regarding the attitude of the study participants indicated in **Table 3**.

Table 3 Attitude regarding COVID-19 assessing variable findings of the participants (n=384) for study participants

Attitude items	Yes		No		Not sure	
	No	%	No	%	No	%
I think that this disease is dangerous	312	81.25	40	10.42	32	8.33
Do you believe that COVID-19 is pandemic	376	97.92	2	0.52	6	1.56
I am concerned about the possibility that I or another family member can get infected with this virus	167	43.49	200	52.08	17	4.43
I think infection with the virus leads to stigma	123	32.03	199	51.82	62	16.15
I think the media coverage about this disease is exaggerated	143	37.24	190	49.48	42	10.94
I think this virus was initially designed as a biological weapon	187	48.7	150	39.06	47	12.24
I think the virus may be more dangerous for the elderly	298	77.6	70	18.23	16	4.17
I think the virus may be more dangerous for the adult stage	109	28.39	165	42.97	110	28.65

Factors affecting attitude towards COVID-19

The multivariate analyses finding indicated that, having degree & above, from urban area and being health professional were significantly associated with positive attitudes towards COVID-19 (AOR: 2.8, 95% CI: 0.82 - 7.2, P-valve=0.001, AOR: 1.8, 95% CI: 0.52 - 12.3, P-valve=0.004 & AOR: 2.8, 95% CI: 0.22 - 11.4, P-valve=0.001, respectively) (**Table 5**).

Participants' practices concerning COVID-19

The majority of the participants (78.13%) had visited a crowded place in recent days, 69.27% were washing their hands, 65.10% had wearing mask frequently, 81.25% had cover your mouth and nose with an elbow or tissue while coughing or sneezing and 63.80% were not touching your face, nose, or mouth with your unclean hands. On the other hand, only 25.52% appropriately maintain social distance, and 17.45% staying at home (**Table 4**).

Table 4 Practice regarding COVID-19 assessing variable findings of the participants (n=384) for study participants

Practice items	Yes		No		Not sure	
	No	%	No	%	No	%
Staying at home	67	17.45	213	55.47	104	27.08
Washing hands frequently	266	69.27	110	28.85	8	2.08
Wearing masks	250	65.10	50	13.02	84	21.86
Gone to any crowded place?	300	78.13	54	14.06	30	7.81
Do you touch your face, nose, or mouth with your unclean hands?	135	31.16	245	63.80	4	1.04
Do you cover your mouth and nose with an elbow or tissue while coughing or sneezing?	312	81.25	12	3.13	60	15.63
Maintain social distance (2 meter a way)	98	25.52	284	73.96	2	0.52

Factors affecting practice towards COVID-19

In this study variables like to have degree & above, taking training, being health professional and from urban area were significantly associated with positive attitudes towards COVID-19 (AOR: 1.9, 95% CI: 0.20- 5.2, P-valve=0.003, AOR: 1.7, 95% CI: 0.72 - 10.7, P-valve=0.004, AOR: 4.5, 95% CI: 0.18 - 7.7, P-valve=0.001 & AOR: 3.1, 95% CI: 0.88 - 13.67, P-valve=0.001, respectively) (**Table 5**).

DISCUSSION:

Ethiopia is one of the mainly affected countries in Africa by COVID-19 disease infection. As the Ethiopian health minister report on December 10, 2020; 97881 peoples are infected with COVID-19 disease infection; of which, 56,156 are relapsed from this disease, and 1503 are died by the pandemic virus. The Government of Ethiopia is doing multiple prevention mechanisms to contain the pandemic before it causes significant damage to the community even if it is impossible to stop the diseases as expected.

The current study revealed that almost 97.8% of the study participants heard about COVID-19 and 97.92% of them believe that COVID-19 is a global pandemic outbreak that affected almost all over the globe. As the current study found only 52 (13.54%) of the study participants had attended formal training, discussion, and lectures about COVID-19 with health professionals and any other trained professionals. Out of 384 study participants, only 76 (19.79%) were health professionals.

Knowledge, attitude, and practice of study participants towards COVID-19 disease

Depends on the current study finding, participants in our survey had good general knowledge about the disease, methods of spread, and prevention mechanisms of COVID-19 disease. Based on the information provided by the WHO, CDC, and the Ethiopian Ministry of Health (MOH) to the public,

we have divided the symptoms of the disease into the most common and less common ones and asked participants about

these symptoms. And the response indicated that for us, the study participants have a good level of knowledge about this point (**Table 1**).

The main source of information for the study participants regarding COVID-19 is news from televisions & radios (51.3%), social media (48.44%), health education by health professionals, or other trained personnel (42.45%), and searching the internet (38.8%). Additionally, sources like training (19.53%), information from friends & families (10.42%), and newspapers (4.95%) are also used as a source of information even if this accounts small percentage in our study finding. Out of different social media, Facebook is the main social media platform in the study area; which is used as the main source of information regarding COVID-19; which accounts for 80% out of other social media.

Most of the study participants responded that COVID-19 can be spread by droplets of the affected person (95.83%), surfaces touched by the affected person saliva or body fluids(92.71%), touching materials (coins, goods etc) contaminated with the affected person(79.43%) and goods imported from epidemic areas and not decontaminated (57.55%). Most of the participants also respond to fever (98.18), dry cough (81.25%), and loss of speech or movement 51.82%), difficulty in breathing (93.23%), and chest pain (77.08%) are the main symptoms of the disease. Nearly all of the study participants have responded that frequently washing hands (96.09%), using sanitizer (100%), and staying at home (100%) are the main means of COVID-19 prevention, and taking antibiotics(73.9%) can treat this disease (**Table 2**).

Both Bivariate and multivariable analyses were applied to assess the effect of dependent variables on knowledge, attitude, and practice towards COVID-19. After adjusting for confounder variables in the

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multivariate analyses different variables have shown significant association with the above three dependent variables.

According to the current study, participants having degree & above were have 3.35 more chance to good knowledge towards COVID-19 than the opposite once (AOR: 3.35, 95% CI: 0.89 - 11.09, P-valve=0.007), health professional was also 5.5 time more knowledgeable than that of non-professionals (AOR: 5.5, 95% CI: 0.54 - 18.09, P-valve=0.001), and those from the urban area had 2.15-time good knowledge towards COVID-19 than that of from rural resident (AOR: 2.15, 95% CI: 0.14 - 8.2, P-valve=0.001, respectively) (**Table 5**).

Also when we see the relation of different variables with an attitude of study participants towards COVID-19; those whose educational level is a degree & above were 2.8 times more knowledgeable than the reverse once(AOR: 2.8, 95% CI: 0.82 - 7.2, P-valve=0.001). Also participants from urban resident (AOR: 1.8, 95% CI: 0.52 - 12.3, P-valve=0.004) and health professional participants were significantly chance to have positive attitudes (AOR: 2.8, 95% CI: 0.22 - 11.4, P-valve=0.001) (**Table 5**).

Study participants who have degree & above (AOR: 1.9, 95% CI: 0.20- 5.2, P-valve=0.003, AOR: 1.7), taking training (95% CI: 0.72 - 10.7, P-valve=0.004), being health professional (AOR: 4.5, 95% CI: 0.18 - 7.7, P-valve=0.001) and from urban resident (AOR: 3.1, 95% CI: 0.88 - 13.67, P-valve=0.001, respectively) were more chance to have positive attitude towards COVID-19 (**Table 5**). The current study finding was in line with different studies done on the assessment of knowledge, attitude, and practice towards the pandemic in all KAPS findings[15-20].

RECOMMENDATIONS

In general, participating in our study were had good knowledge about COVID-19, a positive attitude towards using protective measures, and better practice towards appropriately using prevention mechanisms which is important to limit the spread of the disease. The main source of knowledge in the study area is social media platforms, internet, televisions, radios, families/friends, and trains by health professional's coordination with WHO, Ethiopia MOH, and CDC. However, knowledge was lower among participants from the rural resident, illiterate one, and among less-educated participants. Although the government has taken major steps to limit the spread of the disease, more effort using different tools is done on the transmission mechanism, prevention and practice to preventive mechanism to address full information to all.

Limitations of the Study

The study is only done in two city population

CONCLUSIONS :

Most of the study participants responded that the basic symptoms of COVID-19 infection are fever, dry cough, loss of speech or movement, difficulty in breathing, and chest pain or pressure. Almost all responded that washing hands frequently, using a face mask, and using sanitizer appropriately are the main prevention mechanisms of COVID-19 infection.

Abbreviations

COVID-19: Corona-virus disease 2019, KAP: knowledge, attitude and practice, MOH: minister of health, WHO: World Health Organization

Declarations

Ethics approval and consent to participate was taken from the study participants

This study was approved by the Ethics Committee of Debre Markos University, College of health science

Availability of data and materials

The data used for this study are available from the corresponding author.

Author Contributions

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