Evaluation of community knowledge and attitude toward COVID-19: The case of Hawassa city, Sidama, Ethiopia

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Scope Statement

The paper is about community awareness and attitude on covid-19 which is very significant in public health.

Conflict of interest statement

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest

CRediT Author Statement

Birhanu Betela Warssamo: Conceptualization, Data curation, Formal Analysis, Investigation, Methodology, Software, Supervision, Validation, Visualization, Writing – original draft.

Keywords

knowledge, Attitude, COVID-19, Community, hawassa city, Ethiopia

Abstract

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Background: Scientific information on the knowledge and attitude at community level on COVID-19 pandemic is a vital step for effective controlling measures. This study was aimed to investigate the level of knowledge and attitude of Hawassa city residents toward COVID-19 and interaction among knowledge and attitude on COVID-19.A community based cross-sectional study with stratified random sampling was used from June 2020 to August 2020. Five hundred and eighty-seven residents were selected for the study which was aimed to evaluate their knowledge and attitude on COVID-19 using a standardized structured questionnaire. Data were collected using face-to-face interview with strictly follow WHO and the ministry of health Ethiopia guidelines for Covid-19 prevention. Attitude and knowledge were categorised based on the mean score value. Descriptive statistics and two independent multiple logistic regressions were applied to identify possible determinants of knowledge and attitude using SPSS version 20 set at 95% CI with p-value < 0.05 considered statistically significant.Results: 61.7% of the participants were knowledgeable about the virus and 65.9% had a positive attitude towards COVID-19. Educational level with categories second degree and above (AOR= 29.709, 95% CI= 1.239 -712.55), first degree (AOR= 3.476, 95% CI= 3.278 -22.02), certificate/diploma (AOR= 1.062-18.24, 95% CI= 1.062 -18.24), and grade 12 completed (AOR= 1.903, 95% CI=2.12 -6.809), employment status of respondents who were self-employed (AOR=9.545, 95% CI=1.165 -78.173), and employed respondents (AOR= 10.053, 95% CI= 1.783 -56.673), reading interest with categories always (AOR= 34.45,, sometimes (AOR= 17.24, 95% CI=17.213 -1661.966), habit of using social media with categories always (AOR=38.708, 95% CI= 5.086 -294.610), and sometimes (AOR= 3.432, were the significant explanatory variables that were correlated with knowledge of the respondents.Although the knowledge and attitude of respondents toward COVID-19 was positive, there is a need to use more effective strategies to improve knowledge and attitude toward COVID-19 and knowledge rising on preventive behaviours among the community was mandatory.to attain better results. Educational level, use of social media and reading habit of the respondents appears to play significant role in determining their level of knowledge and attitude toward COVID-19.

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Evaluation of community knowledge and attitude toward COVID-19: The case of Hawassa city, Sidama, Ethiopia

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Abstract

Background: Scientific information on the knowledge and attitude at community level on COVID-19 pandemic is a vital step for effective controlling measures. This study was aimed to investigate the level of knowledge and attitude of Hawassa city residents toward COVID-19 and interaction among knowledge and attitude on COVID-19.

Methods: A community based cross-sectional study with stratified random sampling was used from June 2020 to August 2020. Five hundred and eighty-seven residents were selected for the study which was aimed to evaluate their knowledge and attitude on COVID-19 using a standardized structured questionnaire. Data were collected using face-to-face interview with strictly follow WHO and the ministry of health Ethiopia guidelines for Covid-19 prevention. Attitude and knowledge were categorised based on the mean score value. Descriptive statistics and two independent multiple logistic regressions were applied to identify possible determinants of knowledge and attitude using SPSS version 20 set at 95% CI with p-value < 0.05 considered statistically significant.

Results: 61.7% of the participants were knowledgeable about the virus and 65.9% had a positive attitude towards COVID-19. Educational level with categories second degree and above (AOR= 29.709, 95% CI= 1.239 – 712.55), first degree (AOR= 3.476, 95% CI= 3.278 – 22.02), certificate/diploma (AOR= 1.062-18.24, 95% CI= 1.062 – 18.24), and grade 12 completed (AOR= 1.903, 95% CI=2.12 – 6.809), employment status of respondents who were self-employed (AOR=9.545, 95% CI=1.165 – 78.173), and employed respondents (AOR= 10.053, 95% CI= 1.783 – 56.673), reading interest with categories always (AOR= 34.45, 95% CI=26.608– 4462.226), sometimes (AOR= 17.24, 95% CI=17.213 – 1661.966), habit of using social media with categories always (AOR=38.708, 95% CI= 5.086 – 294.610), and sometimes (AOR= 3.432, 95% CI=3.504 – 23.378) were the significant explanatory variables that were correlated with knowledge of the respondents.

Conclusion: Although the knowledge and attitude of respondents toward COVID-19 was positive, there is a need to use more effective strategies to improve knowledge and attitude toward COVID-19 and knowledge rising on preventive behaviours among the community was mandatory.to attain better results. Educational level, use of social media and reading habit of the respondents appears to play significant role in determining their level of knowledge and attitude toward COVID-19.

Keywords: knowledge, Attitude, COVID-19, Community, Hawassa city, Ethiopia

Introduction

SARS-CoV-2 is a family of viruses that can cause illnesses such as the common cold, camel flu, and SARS. In 2019, a new coronavirus (SARS-CoV-2) was identified as the cause of the COVID-19 disease outbreak that originated in Wuhan, China and expanded across China and other countries. Most people contaminated by the COVID-19 virus will experience light to mild respiratory sickness and get better without needing special treatment. Adults and those with underlying medical problems like chest pains, diabetes, long-term respiratory disease, and cancer are more likely to experience severe sickness [1].

The virus that causes COVID-19 is one of a huge family of single-stranded ribonucleic acid viruses which cause sickness starting as a viral rhinitis to SARS [2]. Signs as well as indicators of COVID-19 may come into view two to 14 days after infection. General signs and symptoms can include fever, cough, tiredness, shortness of breath or difficulty breathing, muscle aches, headache, chest pain, loose stools, pink eye (conjunctivitis), runny nose and sore throat [3]. The aged and patients with coexisting or co-occurring conditions are more susceptible to be infected and are in addition more prone to severe problems, which may be related with adult respiratory distress syndrome and hypercytokinemia [4].

Till the time of this study being conducted, from June 2020 to August 2020, there was no confirmed cure or vaccine obtained for COVID-19. Infection control measures such as washing hands with soap, keeping distance and wearing a mask are the main interventions to reduce the spread of the virus in the community [5]. Public knowledge of the virus plays an excellent role in limiting the spread of the virus. Vaccine or medicine development is expected to take number of days or years, and thus administration of the pandemic depends first and foremost on communities' adherence to the optional measures in use [6].

Experts believe that the virus that causes COVID-19 spreads mainly from individual to individual via droplets, and from an infected person [7]. Adults and sick persons with pre-existing diseases (such as congenital heart disease, respiratory tract anomaly, abnormal hemoglobin level, high blood pressure, obesity, heart disease, and lung disease) are identified as possibly having risk of harsh malady and death [8, 9]. Till the time of this study, scientists have not obtained an antitoxin healing drug or immunization for COVID-19 [2]. The World Health Organization (WHO) suggests the elimination of person-to-person transference via avoiding close contact with others, wearing a mask, allowing rooms to circulate air, keeping away from traffic, washing hands, and coughing into a bent elbow or tissue [1].

Knowledge about the infection plays a fundamental role in limiting the expansion of disease to the community. Organization of the disaster depends mainly on people's adherence to the optional measures taken. These measures are largely affected by knowledge, attitude, and practice (KAP) of the public [6]. Measuring communities' knowledge and attitude are vital in recognizing gaps and supporting ongoing prevention efforts. To the author's knowledge, there was limited studies

that has been done to investigate COVID-19 knowledge and attitude and associated factors among the general population of the Hawassa city, Sidama, Ethiopia. Thus, this study was aimed to investigate knowledge and attitude of residents on COVID-19.

Methods and materials

Study design

Community- based cross-sectional study was conducted.

Data gathering and quality control

The information was gathered using a pretested standardized questionnaire from June 2020 to August 2020. Data were collected using face-to-face interview with strictly follow WHO and the ministry of health Ethiopia guidelines for Covid-19 prevention. After checking the validity of the questionnaire using 10% of the sample size which were not included in the analysis later, the survey was settled. The questionnaire was translated to local languages (Sidamic and Amharic) and during data collection, information were checked for completeness each day by supervisors and investigators. Data were used to assess internal consistency and reliability using Cronbach's alpha.

Sampling design

The sampling technique used for this study was stratified sampling method. Strata used were sub-cities of Hawassa city, Sidama region administrations.

Target population

The target populations were residents of Hawassa city, Sidama, Ethiopia aged 18 years or older, who understood the content of the questionnaire and agreed to participate in the study. Participation in the study was on a voluntary basis, and informed written consent was given to the participants.

Sample size determination

Simple random sampling method was used using the formula [11].

$$n = \frac{\sum_{i=1}^{k} \frac{N_i^2 p(1-p)}{W_i}}{\frac{N^2 d^2}{Z_{\frac{\alpha}{2}}} + Np(1-p)}$$

where n = the required total sample size, N = the total number of households (targeted residents) in Hawassa city, Z = the inverse of the standard normal cumulative distribution that corresponds to the 5% level of confidence (Z = 1.96), k = the total number of sub-cities (strata) in Hawassa city administration (k = 7), N_i = the number of households in each sub-city (for i = 1, 2, 3, 4, 5, 6, 7), W_i = the estimated proportion of N_i to N (sub-city households to total number of households in Hawassa city), p = the probability of knowledge and attitude on COVID-19, and d = the level of precision (sampling error). Using proportional allocation, the subsample size from each sub-city is given below (Table 1).

Table 1 Sample size by sub-cities

i	Sub-cities	Total number of households in each sub-city (N_i)	W_i	n_i
1	Addis Ketema	2,321	0.092	54
2	BahilAdarash	1,387	0.055	32
3	Hayik Dar	1,924	0.076	45
4	MehalKetema	1,726	0.069	40
5	Menaheriya	4,235	0.169	99
6	Misrak	1,492	0.059	34
7	Tabour	12,099	0.480	283
Total		25,184	1	587

The probability of success was 0.5 which was determined via pilot study. The level of precision preferred for this study was 4%. The desired sample size from the target population was 587.

Data processing and analysis

Data want to SPSS version 20 for cleaning and analysis. Data were presented using both descriptive and inferential statistics. Variables with P-value less than 0.05 in the bivariate analysis were included in multivariate analysis. Multivariate logistic regressions analyses were employed at a 95% confidence interval to determine the presence of an association between independent variables with knowledge and attitude. P-value < 0.05 at 95% CI was taken statistically significant. The Kaiser-Meyer-Oklkin (KMO) measure was issued to check the validity of the items and should be more than 0.6. Cronbach's α was determined to check internal consistency.

Ethics Approval and Consent to Participants

Ethical clearance (DRBH/125/2020) was obtained from the Department Review Board of Hawassa University. The reason and significance of the study were explained and informed written consent was obtained from the respondents before conducting the study. All of the data collectors were strictly follow WHO and the ministry of health Ethiopia guidelines for Covid-19 prevention.

Results

Socio-demographic characteristics of the study participants

A total of 587 study participants with 100% response rate completed the questionnaire. There were 315 (53.7%) male participants. 12.1% of the study participants were illiterate in education, and 11.6% of them had a second degree and above (Table 2).

Table 2 Socio-demographic characteristics of the study participants in Hawassa city, Sidama region, Ethiopia, 2021 (*n=587*)

Variables	Frequency(N=587)	Percentage (%)
Age in years		
18–28	75	12.8
28–38	285	48.6
38–48	123	21
Above 48	104	17.7
Gender		
Male	315	53.7
Female	272	46.3
Marital status		
Single	213	36.3
Married	258	44
Divorced	116	19.8
Educational level		
Illiterate	71	12.1
Up to and 12 completed	99	16.9
Certificate/diploma	158	26.9
Degree	191	32.5
M.Sc. and above	68	11.6
Employment status		
Unemployed	154	26.2
Employed	292	49.7
Self-employed	141	24.0
Monthly income in birr		
Under 1000	116	19.8
1000–3000	131	22.3
3001–6000	207	35.3
Above 6000	133	22.7
Accommodation		
Living alone	181	30.8
Not living alone	406	69.2
Total family size		
1–4	182	31
5–8	268	45.7
Above8	137	23.3
Reading habit		
Rarely	183	31.2
Sometimes	167	28.4
Always	237	40.4
Use of media		
Rarely	103	17.5
Sometimes	183	31.2
Always	301	51.3

Respondents' knowledge regarding COVID-19

The Cronbach's α for the scales knowledge were 0.770 indicating that the questionnaires were reliable. Furthermore, the KMO values were 0.759, which shows that the criteria of validity are met. All the items in knowledge satisfied standard loading value >0.40. The average COVID-19 knowledge score was 15.425 (SD = 3.12, min = 0, max = 25). Although all the participants in the city, 100%, heard about COVID-19, only about 61.7% of the respondents were aware about the disease, and the remaining 38.3% were not aware. About 56.4% of the respondents were aware that the disease is viral, and 59.6% were informed with the intention that children and youngster should take actions to prevent the infection by the COVID-19. 20.3% of the study participants believe that children are not at greater risk for COVID-19 than adults (Table 3).

Table 3 Participants' knowledge about COVID-19 in Hawassa city, Sidama Ethiopia, 2020 *(n=587)*

Items related to knowledge (Cronbach's α = 0.770; KMO= 0.759***)			Standard loading
Statement	**Frequency**	**Percentage (%)**	
COVID-19 is a viral disease.			0.938
No	113	19.3	
Yes	331	56.4	
Not sure	143	24.4	
Children and youngsters should not take actions to prevent the infection by the COVID-19.			0.891
No	350	59.6	
Yes	168	28.6	
Not sure	69	11.8	
To prevent the contamination by COVID-19, everyone ought to avoid densely packed places, for example train stations and public transportation.			0.962
No	0	0	
Yes	551	93.9	
Not sure	36	6.1	
Successful measures of decreasing the spread ofCOVID-19 are via isolation and care of individuals who are contaminated by COVID-19.			0.861
No	124	21.1	
Yes	337	64.2	
Not sure	86	14.7	
Individuals who contact persons infected withCOVID-19should isolate separately. Generally, the isolation time is 14 days.			0.900
No	24	4.1	
Yes	460	78.4	
Not sure	103	17.5	
Common cold, stuffy nose, runny nose, and sneezing are uncommon in individuals infected by COVID-19.			0.845
No	220	37.5	
Yes	22	3.7	
Not sure	345	58.8	
Currently there is no successful cure for COVID-19, but timely advice and helpful action can assist most victims to get better from the disease.			0.927

No	87	14.8	
Yes	466	79.4	
Not sure	34	5.8	
The elderly and persons with underlying chronic diseases are at risk of rigorous infection and death.			0.803
No	146	24.9	
Yes	306	52.1	
Not sure	135	23	
COVID-19 can be transferred by eating or touching wild animals.			0.748
No	121	20.6	
Yes	268	45.7	
Not sure	198	33.7	
Individuals who are infected by COVID-19 cannot contaminate others while fever is not there.			0.874
No	467	79.6	
Yes	79	13.5	
Not sure	41	7	
Hygienic standard hand wash and using facemasks are primary prevention methods of COVID-19 spread.			0.977
No	36	6.1	
Yes	526	89.6	
Not sure	25	4.3	
COVID-19 can be transferred to individuals who touch other individuals infected by the virus and then touch their own face.			0.928
No	0	0	
Yes	562	95.7	
Not sure	25	4.3	
An individual can be infected by COVID-19 via insect bite.			0.777
No	74	12.6	
Yes	211	35.9	
Not sure	302	51.4	
An individual can be infected by COVID-19 via water and meals.			0.666
No	294	50.1	
Yes	163	27.8	
Not sure	130	22.1	
An individual can be infected by COVID-19 via matters infected by coronavirus.			0.745
No	185	31.5	
Yes	312	53.2	
Not sure	90	15.3	
Hand cleaning, covering the nose and mouth while coughing, and keeping away from ill contacts can help with the avoidance of COVID-19 spread.			0.800
No	108	18.4	
Yes	479	81.6	
Not sure	0	0	
COVID-19 can be transferred from creature to individual.			0.891
No	134	22.8	
Yes	314	53.5	
Not sure	139	23.7	
COVID-19 produce pneumonia, respiratory difficulty, and death.			0.959
No	95	16.2	
Yes	378	64.4	
Not sure	114	19.4	

COVID-19 is spread via air and making contact with fecal-oral routes.			0.754
No	75	12.8	
Yes	285	48.6	
Not sure	227	38.7	
COVID-19 can be transferred from individual to individual via a short distance.			0.878
No	92	15.7	
Yes	462	78.7	
Not sure	33	5.6	
COVID-19 can be spread by contact with a surface contaminated by the virus and touching the mouth, nose and eyes.			0.835
No	0	0	
Yes	511	87.1	
Not sure	76	12.9	
All individuals with COVID-19 do not have dangerous cases. Only elderly adults with lifelong sickness tend to have harsh cases.			0.834
No	271	46.2	
Yes	112	19.1	
Not sure	204	34.8	
Pregnant women are more at risk of contamination than non-*pregnant women.*			0.965
No	314	53.5	
Yes	126	21.5	
Not sure	147	25	
Children are not at greater risk for COVID-19 than adults.			0.898
No	302	51.4	
Yes	119	20.3	
Not sure	166	28.3	

*** significant at p<0.001

Respondents' attitude toward COVID-19

The average attitude score for COVID-19 was 63.2 (st.dev = 4.6, min = 19, max = 76). The Cronbach's α for the scales attitude were 0.802 indicating that the questionnaires were reliable. Furthermore, the KMO values were 0.753, which shows that the criteria of validity are met. All the items in attitude satisfied standard loading value >0.40. Overall 65.9% of the study participants had scored attitude score greater than the mean attitude score (63.2) and had a positive attitude towards COVID-19. 77% of the study participants were agreed to take a vaccine for COVID-19 when available, and 79 (13.5%) were agreed to welcome friends and family with a handshake. 312 (53.2%) were agreed washing hand was the necessary action to prevent the infection and 340 (57.9%) were agreed, sidestep from the individuals was the best way to prevent the disease. 396 (67.5%) were agreed to clear their hands frequently and for sufficient period of time to prevent the infection and 368 (62.7%) of them were agreed to wear a facemask to prevent from the infection (Table 4).

Table 4 Participants' attitude on COVID-19 in Hawassa city, Sidama Ethiopia, 2020 *(n=587)*

Items related to attitude (Cronbach's α=0.802; KMO= 0.753***)			Standard loading
Statement	**Frequency**	**Percentage (%)**	
When I get together with friends and family, I will always welcome them with a handshake.			0.568
Strongly disagree	251	42.8	
Disagree	256	43.6	
Agree	79	13.5	
Strongly agree	1	0.2	
When I get together with friends and family, I will always welcome them with a hug.			0.569
Strongly disagree	138	23.5	
Disagree	230	39.2	
Agree	217	37	
Strongly agree	2	0.3	
I clean my hands frequently and for a sufficient period of time.			0.617
Strongly disagree	5	0.9	
Disagree	50	8.5	
Agree	396	67.5	
Strongly agree	136	23.2	
I regularly wear a facemask to defend myself from the danger of virus.			0.796
Strongly disagree	0	0	
Disagree	19	3.2	
Agree	368	62.7	
Strongly agree	200	34.1	
If I see an individual contaminated with the infection, I will tell the public health service.			0.722
Strongly disagree	0	0	
Disagree	97	16.5	
Agree	230	39.2	
Strongly agree	260	44.3	
If I feel any of the indications linked with the infection, I will tell the public health service.			0.803
Strongly disagree	1	0.2	
Disagree	118	20.1	
Agree	230	39.2	
Strongly agree	238	40.5	
If I touch an individual contaminated with the disease, I consent to be isolated at home, for a definite period of time until it is confirmed that I am free from the sickness.			0.853
Strongly disagree	0	0	
Disagree	136	23.2	
Agree	209	35.6	
Strongly agree	242	41.2	
If I touch an individual contaminated with the disease, I consent to be isolated at quarantine facility for a certain period of time until it is confirmed that I am completely free from the sickness.			0.829
Strongly disagree	0	0	
Disagree	107	18.2	
Agree	274	46.7	
Strongly agree	206	35.1	

If I am requested to be isolated for some period of time, I believe that my wage should be carried on in this period.			0.677
Strongly disagree	8	1.4	
Disagree	152	25.9	
Agree	171	29.1	
Strongly agree	256	43.6	
If an immunization is obtainable for the infection, I am ready to get it.			0.752
Strongly disagree	17	2.9	
Disagree	118	20.1	
Agree	205	34.9	
Strongly agree	247	42.1	
I regularly track updates about the spread of the infection in my country.			0.64
Strongly disagree	0	0	
Disagree	21	3.6	
Agree	213	36.3	
Strongly agree	353	60.1	
I regularly track updates about the spread of the infection globally.			0.782
Strongly disagree	0	0	
Disagree	29	4.9	
Agree	306	52.1	
Strongly agree	252	42.9	
If a talk about the infection is prepared around me, I will be there.			0.720
Strongly disagree	2	0.3	
Disagree	90	15.3	
Agree	242	41.2	
Strongly agree	253	43.1	
If brochures are distributed that contains facts about COVID-19, I am ready to read them and follow the teachings introduced in them.			0.751
Strongly disagree	0	0	
Disagree	63	10.7	
Agree	327	55.7	
Strongly agree	197	33.6	
If defensive measures and tools are obtainable at a reasonable cost, I will purchase them.			0.739
Strongly disagree	1	0.2	
Disagree	17	2.9	
Agree	313	53.3	
Strongly agree	256	43.6	
It is necessary to sidestep from others, to evade the spread of COVID-19.			0.710
Strongly disagree	0	0	
Disagree	29	4.9	
Agree	340	57.9	
Strongly agree	218	37.1	
Hand washing is necessary to defend myself from COVID-19.			0.894
Strongly disagree	0	0	
Disagree	21	3.6	
Agree	312	53.2	
Strongly agree	254	43.3	
To defend myself from COVID-19 contact, I should stay at home.			0.666
Strongly disagree	0	0	
Disagree	98	16.7	
Agree	316	53.8	
Strongly agree	173	29.5	
COVID-19 will finally be effectively managed.			0.635

			55	9.4	
Strongly disagree			55	9.4	
Disagree			166	28.3	
Agree			233	39.7	
Strongly agree			133	22.7	

*** significant at p<0.001

Variables that were identified significant in univaritate analysis was included in the multivariate analysis and resulted in Table 5. Indicated, Educational level with categories second degree and above (AOR= 29.709, 95% CI= 1.239 – 12.55), first degree (AOR= 3.476, 95% CI= 3.278 – 22.02), certificate/diploma (AOR= 3.37, 95% CI= 1.062 – 18.24), and grade 12 completed (AOR= 1.903, 95% CI= 2.12 – 6.809) were the significant variables that were correlated with knowledge of the respondents. Age of the respondents with categories above 50 (AOR= 1.545, 95% CI= 2.513 – 4.658), 40-50 (AOR= 1.542, 95% CI= 1.847 – 2.809), 29-39 (AOR= 0.849, 95% CI= 2.518 – 1.394), were the significant variables that correlated with attitude.

Table 5 Association of explanatory variables with knowledge and attitude of residents at Hawassa city at Sidama region, Ethiopia, 2020 *(n=587)*

Variable	Categories	**Knowledge** **AOR (CI: 95%)**	**Attitude** **AOR (CI: 95%)**
Age in years	18–28	1	1
	29–39	0.993(0.271 –3.630)	0.849(2.518–1.394) *
	40–50	1.035(0.125– 8.548)	1.542(1.847–2.809) *
	Above 50	1.331(0.038–2.895)	1.545(2.513–4.658) *
Gender	Male	1	1
	Female	0.927(0.330 –2.61)	0.774(0.506–1.185)
Marital status	Single	1	1
	Married	2.501(0.714–8.754)	2.690(1.127–6.234) *
	Divorced		3.700(0.844–2.745) *
Educational level	Illiterate	1	1
	Up to and 12 com	1.903(2.12–6.809) *	1.188(0.707–1.997)
	Certificate/diploma	3.37(1.062–18.24) *	2.769(1.448–5.155) *
	Degree	3.476(3.278–22.02) *	3.875(0.232– 6.275) *
	M.Sc. and above	29.709(1.239–12.55) *	3.997(1.008–5.274)
Employment status	Unemployed	1	1
	Employed	10.053(1.783–56.673) *	0.607(0.232–1.591)
	Self-employed	9.545(1.165–78.173) *	0.981(0.368–2.619)
Monthly income in birr	Under 1000	1	1
	1000-3000	0.109(0.225–5.460)	2.282(1.009–5.163) *
	3001-6000	0.466(0.142–4.134)	2.690(1.127–6.423) *
	Above 6000	1.763(0.183–11.662)	3.811(1.452–9.943) *
Accommodation	Living alone	1	1
	Not living alone	0.847(0.128–5.602)	1.472(0.822–2.635)
Total family size	1-4	1	1
	5-8	0.666(0.081–5.498)	1.622(1.879–2.993) *

	Above8	0.988(0.139–7.009)	2.158(1.128–4.129) *
Reading habit	Rarely	1	1
	Sometimes	17.24(17.213–1661.966) *	2.512(0.319–0.822) *
	Always	34.45(26.608–4462.226) *	5.625(0.057–0.833) *
Use of social media	Rarely	1	1
	Sometimes	3.432(3.504–23.378) *	2.367(0.235–0.573) *
	Always	38.708(5.086–294.610) *	3.891(0.144–5.681)

* significant

Limitations

The data existing in this study are self-reported and somewhat dependent on the respondents' honesty and recall ability; thus, they may be subject to recall unfairness. Future research might employ administrative data to address this issue. Regardless of these limitations, the study findings provide valuable information about the knowledge and attitude of residents.

Discussion

COVID-19 is a rising communicable disease that poses a considerable risk to community health. Knowing the serious pressures imposed by COVID-19 and the unavailability of a COVID-19 vaccine, precautionary measures play an important part in reducing infection rates and monitoring the outbreak of the infection. This shows the need of public adherence to defensive and control methods, which is affected by their knowledge and attitude. Therefore, this research is designed to evaluate the knowledge and attitude of the Hawasssa city residents toward COVID-19.

Our results show that a great number of study participants, 61.7%, were well-informed about COVID-19. The high rate of correct responses to knowledge-related questions among respondents may be because of the delivery of the questionnaire in the duration of COVID-19 outbreak. In that time, individuals may have gained some information about the virus through television and social media. This result is in line with other studies that have been done on Saudi Arabian residents that revealed satisfactory levels of knowledge toward COVID-19 [12, 13]. Another research that has been done in Iran indicated that 56.5% of participants had satisfactory knowledge regarding COVID-19 [14]. Our study result was much lower than that reported in the Chinese general population where 90% of participants had satisfactory knowledge toward COVID-19 [6] and in United States where 80% of participants had sufficient knowledge toward COVID-19 [15].

Our results indicate assurance in terms of the knowledge of participants toward the symptoms, transmission and preventive measures of COVID-19. This was important in the current situation when no vaccine is available. When questions were asked regarding the spread of COVID-19 via insect bite and symptoms like common cold, stuffy nose, runny nose, and sneezing, 35.9% and 37.5% of respondents, respectively, were unable to recognize the correct answer. Regardless of the provision of easily available sources by the National Research Institute of Health of Ethiopia and WHO healthcare authorities, these results show an knowledge gap among participants [10]. In

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our setting, education and training, mainly on symptoms, prevention and transmission, were vital in improving the knowledge of participants about COVID-19.

Our results showed a positive attitude among participants regarding COVID-19. A probable reason is that good knowledge about COVID-19 among participants may be guide to a positive attitude. This is improved by a high association between knowledge and attitude of the respondents (chi-square = 22.644, P = 0.00), which was statistically significant. This result is in line with the study [10, 16] that more than 60% of respondents have a positive attitude toward COVID-19. In our study, attitude did not differ significantly (P > 0.05) with gender, marital status, employment status, and accommodation. These results are in line with a study done in United States[15] that indicated that attitude regarding COVID-19 was not associated with marital status (P = 0.151), gender (P = 0.129), and employment status (P = 0.453) but found a significant association between attitude and occupation.

Logistic analysis showed that female respondents were 1.927 times less likely to be aware of COVID-19 than male respondents (AOR: 0.927, 95% CI: 0.033–2.610, P = 0.886). But the difference was not significant. Pearson's correlation tests revealed significant positive linear correlations between knowledge and attitude (r = 0.78, P = 0.003), which was significant. This correlation may be explained by reasoned action theory. The theory states that a person's intention to undertake a specific behavior is a function of their attitude toward that behavior [17]. Most of the participants in our study, 64.4%, were aware of the symptoms, and 79.4% knew that there is no successful cure for COVID-19 as of the date of this study. Viral contaminations have been recognized to be highly infectious among people in close contact [18]. But, just about 21.3% of the respondents were unaware that COVID-19 could transfer from individual to individual via a short distance. It was also evident that of the current general population, 48.6% had less knowledge that children are not at less risk for COVID-19 than adults. According to the WHO, all persons are susceptible to COVID-19 [14]. These findings highlight the need to continue to encourage and emphasize maintaining social distancing and creating knowledge. The study recommends that health ministries should provide an ample training program, targeting younger age group, women, and lower income group to promote all precautionary and defensive measures of COVID-19, to achieve balance in terms of knowledge about COVID-19.

Some of the significant factors that are associated with knowledge of the participants were educational level, employment status, reading habit and uses of social media. This finding is supported by other studies that identified employed persons, those with higher income level, and more educated respondents are more knowledgeable about the emerging communicable diseases [12, 19]. Approximately 62.4% of the study participants agreed that the virus can be successfully controlled. This finding is consistent with a recent study conducted in China, where the majority of participants were convinced that the disease is curable and that their country will combat the disease [6].

Women were significantly more likely to have knowledge and optimistic attitudes toward COVID-19. These findings are consistent with other studies showing that, in response to SARS and MERS, men were significantly less likely take preventive and protective measures than women [20]. Almost 90.7%, 96.8%, and 86.4% of the participants believe that cleaning hands, regularly wearing a facemask, and avoiding shaking hands are methods to control the spread of the infection, respectively. Respondents had good knowledge and a positive attitude, as a result of Ethiopian health authorities providing education and outreach materials to boost public understating of the infection. Finally, the study findings may be useful to inform policymakers and healthcare professionals on further public health interventions, knowledge raising, policies, and health education programs. Our findings also suggest that COVID-19 knowledge may increase significantly if health education programs are specifically targeted at women, youngsters, and those with low income, less education, less reading habit and less interest to follow social media.

Conclusion

Our results indicate that Hawassa city residents, especially men, older persons, the educated, readers of newspaper and followers of mass media like television and radio, have good knowledge and positive attitude toward COVID-19. Although the general knowledge and attitude of respondents toward COVID-19 was positive, there is a need to use more effective strategies to improve knowledge and attitude toward COVID-19 and knowledge creation on preventive behaviours among the community is highly recommended.to attain better results. Educational level, use of social media and reading habit of the respondents appears to play significant role in determining their level of knowledge and attitude toward COVID-19. The results of this study suggest that more emphasis should be placed on less educated persons, lower income persons, women and younger persons. The results may assist policymakers recognize the target populations for COVID-19 prevention.

Data Sharing Statement

The data of the research are obtainable from the author up on reasonable request.

Ethics Approval and Consent to Participate

Printed informed permission was acquired from the research participants. The study was accepted by the department review board (DRB) of the Hawassa University Department of Applied Statistics (Ref.No. Stat/058/12). Names of the ethical committee included Ambachew Mesanew (ambamisa@gmail.com), Addisu Teka (addisuteka24@gmail.com) and Hiwot Abel (hiwilove2006@gmail.com)

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