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Research Article

Knowledge, Attitude and Practice towards Prevention of COVID-19 in Jigjiga Town, Ethiopia: A Cross-Sectional Study

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Abstract

Introduction

COVID-19 is a respiratory infectious disease caused by the most recently discovered novel coronavirus. The first confirmed case in Ethiopia was recorded on 13th of March 2020 and on 26th of April in Somali region of Ethiopia. The objective of this study is to assess the level of knowledge, attitude, and preventive practices and their associated factors in Jigjiga town of Ethiopia.

Methods

A community based cross-sectional survey was conducted in Jigjiga town from 22nd -30th April 2020. Data was cleaned and exported to SPSS version 20 and Initial analysis were done using a chi-squared testing followed by bivariate and multivariate analysis and the level of statistical significance at p value of 0.05.

Result

A total of 606 respondents representing households participated in this study. The mean knowledge score was 9.6 (SD: 2.9, range: 3-18) translating to an average correct rate of 53%. Only 31.8% had a positive/correct attitude and the rest 68.2% had an incorrect attitude about COVID-19.

As for preventive practices, 41.7% of respondents reported washing hands with soap and water, 70% avoided going to crowded places, 75.6% stopped handshaking and 57.9% covered their mouth/nose when coughing/sneezing. Factors such as residence,

education, number rooms, Knowledge score and attitude score have shown significant association with the preventive practices assessed.

Conclusion

The knowledge, attitude and practice level towards COVID-19 is not optimum at household level in Jigjiga town. More community engagement targeting households is necessary to achieve an optimal behavioral change.

Keywords: Knowledge, Attitude, practice, COVID-19, Jigjiga, Ethiopia

1. Introduction

Coronaviruses are a large family of viruses which may cause illness in animals or humans. In humans, several coronaviruses are known to cause respiratory infections ranging from common cold to more severe diseases such as Middle East Respiratory Syndrome (MERS) and Severe Acute Respiratory Syndrome (SARS). Corona virus disease 2019 (abbreviated as COVID-19) is a respiratory infectious disease caused by the most recently discovered novel coronavirus. This new virus and the disease were unknown before the outbreak began in December 2019 in the city of Wuhan, China [1].

Fever, tiredness and dry cough are the most common symptoms of COVID-19. Around 1 out of every 6 people who gets COVID-19 becomes seriously ill and develops difficulty breathing. Older people, and those with underlying medical problems like high blood pressure, heart problems or diabetes, are more likely to develop serious illness [1, 2]. The trend of case fatality rate (CFR) reported for COVID-19 has been typical for other emerging infectious diseases. The CFR was reported to be 15% (six of 41 patients) in the initial period [3], but this estimate was calculated from a small cohort of hospitalized patients. Subsequently, with more data emerging, the CFR decreased to between 4·3% and 11·0%, [2, 4] and later to 3.4% [5]. The rate reported outside China in February 2020 was even lower (0·4%; two of 464) [6]. A major challenge with accurate calculation of the CFR is the denominator: the number of people who are infected with the virus. Asymptomatic cases of COVID-19, patients with mild symptoms, or individuals who are misdiagnosed could be left out of the denominator, leading to its underestimation and overestimation of the CFR [7, 8].

Globally, as of 6th of August 2020, a total of 19, 131,120 confirmed cases and 714,873 deaths were reported with a CFR of 3.74%. The confirmed cases in Africa have exceeded one million (1,022,084) and deaths reached 22, 491 with an average CFR of 2.2% [9]. In Ethiopia, the first case was imported on 13th March 2020 and up until 7th of August 2020, a total of 21,452 confirmed cases, 9415 recoveries and 380 deaths (CFR of 1.77%) was reported. The outbreak then spread to sub-national regions including Amhara, Oromia, Diredawa although the epicenter remains Addis-Ababa—the capital of Ethiopia [10]. Countries in the WHO African region have been observed to have a lower risk of exposure which – varies across countries—than the rest parts of the world. Only 22% of the population of the continent is predicted to be affected coupled with widespread community transmission and fewer cases and deaths compared to other countries which is related to differences in personal vulnerabilities [11] and the combined effects of having a youthful population and favorable weather which appears compelling [12].

As part of preparedness and response for any public health emergency, a multi-faceted approach is necessary for containment. A major lesson drawn from the major public health events that happened in the 21st century – including outbreaks of the SARS, MERS, influenza A(H1N1), and Ebola virus disease – is that Risk Communication and Community Engagement (RCCE) is part and parcel to success of preparedness and responses to health emergencies [13].

Every public health emergency comes with a new communication challenges and can benefit from lessons learned previously. The COVID-19 outbreak challenges public health systems and their ability to effectively communicate with their populations. Failure to communicate well leads to a loss of trust and reputation, economic impacts, and − in the worst case – loss of lives [13-15]. Along with increased fear about COVID-19, there is an unprecedented level of misconceptions and excessive misinformation (termed as Info-demics) circulating among the public faster than the pandemic itself that hinders adopting preventive behaviors. This contributes to negative effects including stigmatization and discrimination of people from areas affected by the outbreak [14, 15].

Community need to adhere and strictly comply to public health measures and practices given by health authorities which is affected largely by the KAP of people towards COVID-19 in accordance with KAP theory [16, 17]. Lessons learned from the SARS outbreak in 2003 suggest that knowledge and attitudes towards infectious diseases are associated with level of panic & emotion among the population, which can further complicate attempts to prevent the spread of the disease [18].

In a recent KAP study on COVID-19 in China, the COVID-19 knowledge score was significantly associated with a lower likelihood of negative attitudes and preventive practices towards COVID-2019 [19]. To better inform the COVID-19 response and get better containment efforts, it was necessary to conduct KAP assessment to demonstrate the level of knowledge, attitude and preventive practices being undertaken by residents of Jigjiga town as well as factors affecting adoption of preventive practices so that well informed strategy for risk communication and community engagement would be crafted.

2. Materials and Methods

2.1 Study area and period

The study was conducted in Jigjiga town—the capital of Somali region of Ethiopia—which is epicenter of COVID pandemic in the region between 22nd -30th April 2020. It consists of 20 urban and 9 peri-urban kebeles (lowest administrative unit in Ethiopia).

2.2 Study design

A community based cross-sectional survey in Jigjiga town.

2.3 Source population

The source population was all people residing in Jigjiga town.

2.4 Study Population

Were heads of households in 606 households randomly selected in Jigjiga.

2.5 Sample size determination

The sample size was calculated assuming COVID-19 knowledge level of 50% in the population at 95% confidence interval (since no study was done in Ethiopia at that time), a precision of 5% and a design effect of 1.5 using Dobson's formula to give a

minimum sample size of 576. Setting non-response rate at 5% gave the minimum sample size to be n=606 households.

2.6 Sampling procedure

A two-stage sampling procedure was applied to select clusters/kebeles and households respectively as depicted in Figure1.

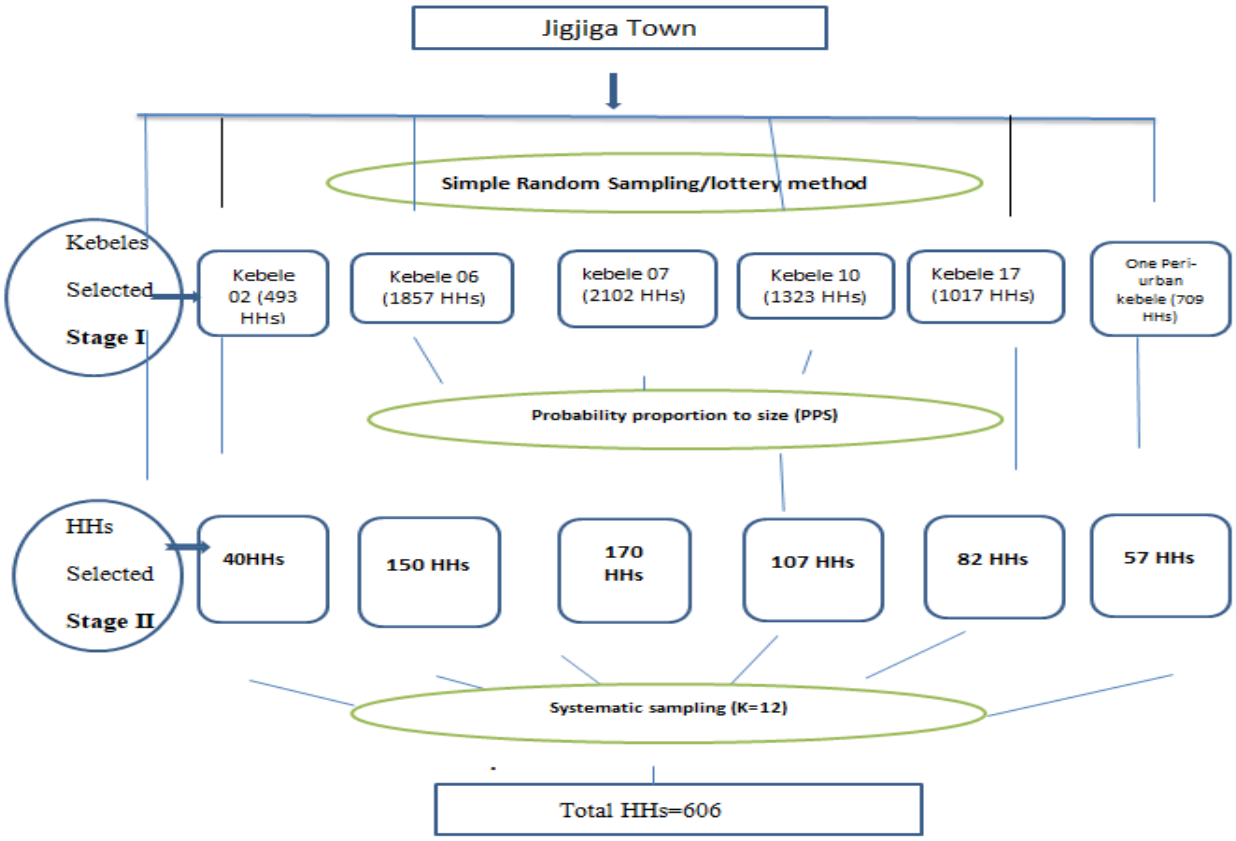

Figure1: Schematic presentation of sampling procedure

2.7 Data instrument and measurement

Adopted and structured questionnaire was used to collect data from respondents [13,20]. The questionnaire was adapted from various literature with some modification in line with the objectives of this study and to suit the local context. The questionnaire was first prepared in English, translated into Somali language, and then back translated to English to maintain consistency and pretested.

The data collectors (trained health professionals) administered the questionnaire through face-to-face interview after obtaining verbal consent from the households and maintaining use of personal protective equipment (face mask) and hand sanitizer. If a household head was absent, any member older than 18 years was replaced. If a compound had more than one household, a lottery method was applied to select only one household.

2.8 Method of data analysis

The data was exported to excel for clean-up and again exported to SPSS version 20 for further analysis. Knowledge was assessed using 12 questions related to COVID-19. Each answer was graded from 0 (incorrect answers) to 1 (correct answers). The

maximum score a respondent could obtain was 18 and the minimum was 0. Based on the scores, 0-9 were classified as "poor knowledge", scores of 10-13 were classified as "moderate knowledge" and scores of 14-18 were classified as "good knowledge".

Attitudes towards COVID-19 were assessed using ten questions, each having three options (Agree, neutral/don't know, and disagree). 'Don't know' option was regarded as an incorrect response. Each answer was graded from 0 (incorrect answers) to 1 (correct answers). Any score below the median (correctly answered less than or equal to 5 questions) was labelled as having negative attitude and any score more than the median was labeled as positive attitude. Finally, Preventive practice was assessed using four yes/no questions a) washing hands with soap & water, b) going to crowded places, c) covering mouth/nose when sneezing/coughing and d) shaking hands in the weeks before the survey.

Initial analysis was a chi-squared testing followed by bivariate and multivariate analysis. Odds ratio (OR) with confidence intervals and p-values were calculated and tests of association for categorical variables were made. A logistic regression test to control confounding variables and identify associated factors was carried out. The output of the analysis was presented with odds ratio and the respective 95% confidence intervals and a P-value < 0.05 considered as statistically significant.

2.9 Data quality assurance

Data quality was assured through training of data collectors, questionnaire pretesting and continuous supervision during data collection. The completed questionnaires were checked each day for completeness, errors and consistency by supervisors and principal investigators and regular feedback to enumerators.

2.10 Study variables

Dependent variable

- Knowledge, Attitude, Practice towards COVID-19 prevention

Independent variables

- Socio-demographic variables**:** - Age, educational status, religion, income, marital status, ethnicity, occupation.
- Other factors**:** - Water availability, source of water, household size, number of rooms, ventilation etc.

3. Ethical Clearance

Ethical clearance was granted by research committee of Jigjiga University College of medicine and health sciences in a letter referenced as: JJU/IHREC/031/2020. During data collection, oral consent was secured from each household head without which the study could not proceed. Data collectors maintained physical distancing and other preventive measures during data collection. During data entry and analysis, person identifying variables were omitted.

4. Result

Table 1 show the socio-demographic profile of 606 respondents who participated in this study. The average age was 33.6 years with (standard deviation [SD] of 11.3, range of 18-73). Majority of the respondents (90.6%) lived in Jigjiga town, 9.4% were residents of a peri-urban kebele and close to half (48.3%) could not read or write while 20% have attended college level & above.

Table1: Socio-demographic characteristics of the respondents

Characteristics	Frequency	%
Age		
< 19	33	5.4
20-29	214	35.3
30-39	194	32
40-49	98	16.2
50-59	44	7.3
≥60	23	3.8
Kebele		
10	107	17.7
17	82	13.5
2	40	6.6
26 (peri-urban)	57	9.4
6	150	24.8
7	170	28.1
Marital status		
Single	43	7.1
Married	419	69.1
Divorced/widowed	144	23.8
Religion		
Islam	530	87.5
Christian	76	12.5
Ethnicity		
Somali	501	82.7
Amhara	74	12.2
Oromo	16	2.6
Others	15	2.5
Educational status		
Cannot read and write	293	48.3
Primary level	80	13.2
Secondary level	112	18.5
College and above	121	20
Occupation		
Housewife	264	43.6
Government employee	53	8.7

Daily laborer	89	14.7
Merchant	20	3.3
Private employee	59	9.7
Street vendor	27	4.5
other	94	15.5
Source of water		
Birka*	70	11.6
Donkey-cart (Biyole)	190	31.4
Piped water in the dwelling	113	18.6
Public tap (standpipe)	233	38.4
Water consumption per day in litters?		
20L (1 Jerrican)	39	6.4
40L (2 Jerican)	53	8.7
60L (3 Jerican)	121	20
> 60L	393	64.9
Monthly income		
≤ 499	19	3.1
500- 2000	101	16.7
2001- 3501	139	22.9
≥3502	347	57.3
Number of rooms		
One	144	23.8
Two	161	26.6
Three or more	301	49.7
Household size		
One	26	4.3
Two	47	7.8
Three	56	9.2
Four	62	10.2
Five	70	11.6
Six	77	12.7
seven	68	11.2
Eight	68	11.2
Nine or more	132	21.8

As shown in Table 2, the knowledge of the respondents on COVID-19, the mean knowledge score was 9.6 (SD: 2.9, range: 3-18) translating to an average correct rate of 53% (9.6/18*100) that ranged from 16.7-100%. About 55.2% of the participants scored below the median and were categorized as having a low knowledge score, while 36.3% and 11.4% were categorized as having moderate and high knowledge score respectively. In terms of source of information, most participants heard of COVID-19 from Television/radio (69.6%) followed by social media (17.5%) and the least sources of information were religious leaders (1.5%) and town criers (0.8%).

Fever, cough, and shortness of breath were most cited symptoms of COVID-19 by 411(68%), 446 (74%) and 135 (22%) of the respondents respectively. A higher proportion of respondents (98.8%) knew that COVID-19 is transmitted from person-to-person. Majority 495 (81.7%) of the respondents mentioned that older people aged 65 years and above & People of any age with underlying medical problems are at higher risk for suffering from COVID-19. Three-hundred forty-one (56.3%) knew that frequent handwashing with soap & water is a way of preventing COVID-19 and only 33 (5.4%) knew that cleaning frequently touched surfaces and objects is among the preventive ways too.

Table 2: Frequency distribution of knowledge towards COVID-19 in Jigjiga town, April 2020 (n=606)

Variable (n=606)	Frequency (%)	
	Correct (%)	Incorrect (%)
Have you ever heard of corona virus disease?	606 (100%)	0.00%
Knowledge about symptoms of COVID-19?		
Fever	411 (68%)	195 (32%)
cough	446 (74%)	160 (26%)
Shortness of breath	135 (22%)	471 (78%)
knowledge about ways of transmission?		
Is it transmitted from person to person?	599 (98.8%)	7 (1.2%)
Droplet from infected person via sneezing, coughing	379 (62.5%)	227 (37.5%)
Direct contact with infected people like shaking hands	430 (71%)	176 (29%)
Touching contaminated object/surfaces then touching eyes, nose, mouth	59 (9.7%)	547 (90.3%)
Knowledge about who is at higher risk for COVID-19?		
Older people aged 65 years and above & People of any age with underlying medical problems like Hypertension, DM, cancer, rental failure.	495 (81.7%)	111 (18.3%)
Knowledge about ways of prevention		
Avoiding close contact with an infected person	164 (27%)	442 (72.9%)
Avoiding overcrowded areas	224 (37%)	382 (63%)
Staying at home when sick	223 (36.8%)	383 (63.2%)
Frequent handwashing with soap & water	341 (56.3%)	265 (43.7%)
Cleaning frequently touched surfaces and objects.	33 (5.4%)	573 (94.6%)
Knowledge on what to do if someone gets sick?		

Isolate him/herself from other people at home or at work	191 (31.5%)	415 (68.5%)
Seek medical help from the nearest health facility	367 (60.6%)	239 (39.4%)
Call the hot-line telephone to get guidance	153 (25.2%)	453 (74.8%)
Go to a traditional healer	558 (92.1%)	48 (7.9%)
Quartiles of correct answers (of 18 items)		
Quartile1(0 -25%)	1--4	
Quartile2 [25-50%]	5--9	52.30%
Quartile3 [50-75%]	10--13	36.30%
Quartile4 [75-100%]	>=14	11.40%
Seek medical help from the nearest health facility	367 (60.6%)	239 (39.4%)
Call the hot-line telephone to get guidance	153 (25.2%)	453 (74.8%)
Go to a traditional healer	558 (92.1%)	48 (7.9%)
Quartiles of correct answers (of 18 items)		
Quartile1(0 -25%)	1--4	
Quartile2 [25-50%]	5--9	0.523
Quartile3 [50-75%]	10--13	0.363
Quartile4 [75-100%]	>=14	0.114

Table 3 shows the attitude of the respondents; majority (74.4%) believed that everyone in the community regardless of their status can acquire COVID-19. However, only 116(19.1%) believed that COVID-19 was not caused by a punishment from God and a little more than half (54.8%) have had a correct attitude that COVID-19 cannot be transmitted by the bite of mosquito. On scoring for attitude, only 31.8% were identified as having positive attitude and the rest 68.2% were labeled as having negative attitude towards COVID-19.

Table 3: Frequency distribution of Attitude towards COVID-19 in Jigjiga town, April 2020 (n=606)

Attitude	Frequency (%)		
	Correct (%)	Incorrect (%)	Neutral (Don't know) (%)
Do you think the cause of corona virus disease is a punishment from God?	116(19.1)	469(77.4)	21(3.5)
Do you think that everybody in the community (irrespective of their religion, social status etc.) can acquire corona virus disease?	451(74.4)	100(16.5)	55(9.1)
Do you think eating garlic can help prevent infection with corona virus disease?	127(21)	377(62.2)	102(16.8)
Do you think Corona virus affects only older people but not younger people?	455(75.1)	103(17)	48(7.9)

Do you think most people can overcome if they contract from Corona virus disease?	447(73.8)	84(13.9))	75(12.4)
One can get infected by eating certain foods like eggs, chicken and meat.	209(34.5)	249(41.1)	148(24.4)
The corona virus cannot survive in high temperature areas.	243 (40.1)	195 (32.2)	168 (27.7)
Taking hot bath can prevent from getting infected	246 (40.6)	162 (26.7)	198 (32.7)
The corona virus can be transmitted through mosquito.	332 (54.8)	205 (33.8)	69 (11.4)
Everyone should wear a mask	156 (25.7)	421 (69.5)	29 (4.8)

With regards to preventive practices, 255 (41.7%) respondents reported washing hands with soap and water and 424 (70%) avoided going to crowded places in the week preceding the study. Three out of every four respondent (75.6%) stopped handshaking and 57.9% covered their mouth/nose when coughed/sneezed. Preventive practices have shown variations across different socio-demographic and household factors after running multi-variate logistic regression to control confounding (Table4).

Table 4: Factors associated with COVID-19 preventive practice in Jigjiga town, April 2020 (n = 606)

	Covered mouth when coughing/sneezing		**Wash hands with water and soap**	
	COR (95% CI)	AOR (95% CI)	COR (95% CI)	AOR (95% CI)
Kebele				
2	1	1	1	1
6	1.26(0.55, 2.85)	1.75 (0.57,5.35)	3.06 (1.32,7.08)	2.70 (0.92, 7.92)
7	1.13(0.61, 2.08)	0.46 (0.16, 1.31)	2.60 (1.13,5.99)	3.68 (1.25, 10.85)
10	0.42(0.23, 0.78)	0.31 (0.12,0.82)	4.560 (1.92,10.81)	3.23 (1.18, 8.80)
17	0.33(0.16, 0.64)	0.22 (0.08, 0.58)	8.15 (3.31,20.06)	8.72 (3.16, 24.11)
26 (Peri-urban)	0.41(0.21. 0.83)	0.74 (0.12,4.55)	0.07 (0.01, 0.59)	0.16 (0.01, 2.13)
Age				
< 19	1		1	
20-29	1.76(0.73, 4.27)		1.05(.49, 2.23)	
30-39	2.77(1.15, 6.71)		1.22(.57, 2.60)	
40-49	4.75(1.88,11.98)		1.15(.52, 2.58)	
50-59	4.88(1.75,13.63)		0.97(0.38, 2.44)	
≥60	8.49(2.51,28.72)		0.82(0.27, 2.48)	
Region				
Islam	1.06(.65, 1.73)		1.379(.85,2.23)	
Christian	1		1	
Educational status				
Cannot read and write	1	1	1	
Primary level	0.14(.08, .24)	0.29(0.14, 0.65)	3.24(2.09, 5.04)	
Secondary level	0.12((.06, .23)	0.21(0.10, 0.44)	1.63(.98,2.69)	
College and above	0.38(0.24, 0.60)	0.53(0.27, 1.03)	1.28(.821,2.02)	

Source of water				
Birka	1			
Donkey-cart (Biyole)	0.93(0.54, 1.61		4.72(2.21,10.06)	
Piped water in the dwelling	0.43(0.23, 0.81)		4.65(2.10,10.29)	
Public tap (standpipe)	0.78(0.46, 1.33)		7.19(3.41,15.17)	
Occupation				
Housewife	0.86(0.36, 2.05)		0.78(0.32,1.92)	
Government employee	0.076(0.02, 0.27)		2.80(1.07,7.31)	
Daily laborer	0.93(0.42, 2.05)		1.17(0.52,2.66)	
Merchant	0.93(0.29, 2.95)		0.91(0.27,3.05)	
Private employee	0.43(0.18, 1.04)		0.68(0.27,1.68)	0.32(0.11, 0.94)
Street vendor	0.55(0.22,1.38)		3.58(1.38,9.28)	
Other	1		1	
Monthly income				
≤ 499	1		1	
500- 2000	2.21(.78, 6.27)		0 .79(0.27, 2.29)	
2001- 3501	1.376((.49, 3.84)		1.46(.52,4.07)	
≥3502	1.54(.57, 4.14)		1.94(.72,5.23)	
Number of rooms				
One	1			
Two	0.74(0.47, 1.16)	0.68(0.37,1.25)	2.52(1.46,4.36)	2.27(1.21,4.27)
Three or more	0.43(0.29, 0.65)	0.38(0.21, 0.72)	6.94(4.23,11.38)	6.47(3.50,11.97)
Knowledge score				
Low	1	1	1	
Moderate	1.81(1.28,2.57)	0.78(0.41,1.53)	0.35(0.45,0.51)	
High	0.09(0.032,.252)	0.08(0.02,0.28)	0.88(0.53,1.49)	
Attitude score				
Poor Attitude	1	1	1	
Good Attitude	0.21(0.14, 0.32)	0.44(0.26,0.72)	2.42(1.71, 3.44)	1.64(1.04,2.56)

4.1 Covered mouth when coughing/sneezing

Significant association was observed between covering mouth/nose during coughing/sneezing and residence, education, number of rooms, knowledge score and attitude score. Respondents residing in kebele #06 of the town had more odds (AOR=1.75(0.57,5.35)) to cover their mouth/nose when coughing/sneezing as compared to the rest of kebele residents. Respondents with a formal education, living more than two rooms (0.68(0.37,1.25)), having had moderate & high knowledge score (AOR=0.78(0.41,1.53)), and having a good attitude score (AOR=0.44(0.26,0.72)) had less odds to cover their mouth/nose when coughed/sneezed.

4.2 Washing hands with water and soap:

People residing in Kebele #17 of the town—had more odds (8.72) to wash hands with soap & water (AOR=8.72 (3.16, 24.11)) while residents of the semi-urban kebele/area (AOR=0.16 (0.01, 2.13)) and respondents who were 'private employees' were

found to have less odds (AOR=0.32 (0.11, 0.94)) of washing hands with soap and water. Living more than two rooms and having a good attitude score (AOR=1.64 (1.04,2.56)) were also found to have significant association with hand washing.

4.3 Going to crowded places:

Residents of semi-urban (kebele #26) were 3.94 times more likely to go to crowded places compared to the residents of main town and showed significant association (AOR=3.94(1.59, 9.77)). Occupation wise, housewives were found to have independent association with going to crowded places as compared to other types of occupations (AOR=1.12(0.43,2.90)) unlike all other occupation types listed in this study.

4.4 Shaking hands:

Hand shaking was significantly associated with the number of rooms**,** whereby respondents having two or more rooms in their houses were twice more likely to shake hands when met with people/friends (AOR=2.14(1.15, 3.96)).

5. Discussion

This study found out a mean knowledge score of 9.6 (SD: 2.9, range: 3-18) which translates to an average correct rate of 53%. Furthermore, 55.2% of the participants had a low/poor knowledge score, while 36.3% and 11.4% were categorized as having moderate and high knowledge score respectively. This finding of low mean knowledge score is comparable with a study in Bangladesh (54.87%) [21] but less than a similar studies in Ethiopia [22], Tanzania (84.4%) [23], Paraguay (62%) [24], Malaysia (80.5%) [25], Saudi-Arabia (81.64%) [26] and that of china whose mean knowledge score was 90% correct rate[19]. This low average knowledge score in our study could possibly be related to the very characteristics of the sample where 48.3% of the respondents could not read or write and obviously there is a positive association between knowledge level and educational background. On the other hand, knowledge of fever (68%) and cough (74%) as symptoms of COVID-19 was high, however, difficulty of breathing was only mentioned by 22% of respondents even though this is a sign of very severe infection. This goes in tandem with a study in Kenya which has reported a lower knowledge (42%) for difficulty of breathing as a symptom of COVID-19 [27].

The study also found that only 31.8% had positive/correct attitude about COVID-19 compared to a study in Iran which reported a higher attitude score of 90% which much higher than our study [28]. Only 116 (19.1%) believed that COVID-19 was not caused by a punishment from God and 40.6% indicated taking hot bath could prevent from contracting COVID-19. Similar finding is reported from a study in Syria [29]. Despite differences in the methodology of attitude assessment, however, the poor attitude scores in our study could likely be due to the lower level of knowledge score reported.

As for preventive practices, 41.7% of respondents reported hand washing practice with soap & water weeks preceding the survey which is much lower compared to other studies in Ethiopia (73.38%, 98.4%,) [29, 30] Philippines [30], Saudi Arabia 73.08% [26], and Syria [29]. Hand washing practice was significantly associated with residence, occupation, number of rooms for living and having good attitude score. In line with that, respondents living more than two rooms and with a good attitude score were more likely to have practiced hand

washing. Similarly, the odds of hand washing practice were higher in the main town as compared to the semi-urban area and private employees. This might be related to the poor access of semi-urban households and private employees to water as the commonest sources of water reported in this study was public tap and donkey cart.

The practice of avoiding crowded places in the weeks preceding the survey was relatively high (70%) in our study which is higher than what is reported by studies in Ethiopia [31] and Philippines [30]. It is however lower than studies done Tanzania (77%) [23] KSA (88%) [26] and Paraguay (88.35%) [24]. Factors that affected practice for going to crowded places were residence and occupation. Occupation wise, housewives tended to go to overcrowded areas as compared to other types of occupations. This could possibly be that housewives mostly go out to shopping markets (vegetable & meat markets) which tend to overcrowd. Similarly, the commonest source of water found in this study was a shared public tab which poses a risk for overcrowding (e.g. when queuing and collecting) and isolation (e.g. the need to leave the house to collect water).

Our study also revealed that avoidance of handshaking practice was 75.6% which is higher than the findings in studies in Ethiopia (65.96%) [31], Philippines (62.9%) [30] and Syria (73%) [29] and Saudi Arabia (88%) [26]. Handshaking practice was significantly associated with the number of rooms a household possessed, consequently, respondents having two or more rooms in their houses had more odds to have engaged handshaking whenever they met with people/friends compared to households with a single room. Possible explanation could be that more rooms might mean having an extended family and might have been influenced by local cultural practices of interaction and visiting. The mean number of rooms in this study was 2.9 and the mean household size was 6.2 which is a little higher than the average urban residents of Ethiopia with 2.5 rooms and five family members [32].

There is some notable variation between the level of knowledge on preventive/transmission ways of COVID-19 and adopting some positive practices. For instance, knowledge on frequent handwashing as a preventive method for COVID-19 was 56.3% but its practice was 41.7%. This could suggest that while knowledge is necessary for adopting a practice, it is not sufficient factor because of other enabling factors needed to be in place for a practice to prevail which is similar to the findings in studies in Ethiopia and Philippines [22, 30]. Conversely, the practice of avoiding crowded places and avoidance of handshaking was higher than its corresponding level of knowledge, this could have been due to the enforcement of public wide measures by the government like avoidance of overcrowded areas, cessation of handshaking and closure of congregation places such as mosques during the study period

We interviewed heads of households and/or any member 18 years and older who was present. This limits our understanding of different members of the household. The other limitation was that we relied mostly on self-reported, instead of observed practices except hand washing and we were unable to verify whether this measure was affected by social desirability bias. As the cases of the pandemic increased, public health messaging has likewise intensified since the survey was conducted, thus, the results of this study may not necessarily reflect current KAP towards COVID-19.

6. Conclusion

The Knowledge, Attitude and Practice level of COVID-19 was not optimum at household level. Preventive practices like avoidance of overcrowding and handshaking were relatively good owing to the public wide messaging and enforcement measures by the government. However, hand washing practice as a prime preventive method for COVID-19 was low and was affected by residence, occupation, number of rooms for living and having a good attitude score. Having a good knowledge score alone was not enough to lead to a practice but required other enabling factors for an optimum behavior change to materialize. This implies that much is needed to intensify community engagement and addressing other enabling factors to achieve behavior change at household level.

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Authors' contributions

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Competing interests

The authors declare no competing interest.

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