

**Knowledge toward COVID-19 Pandemic during Panic Period Among
Communities of Arsi Zone, Southeast Ethiopia**

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Abstract

Introduction: The world faces the greatest socio-economic shock in a generation, coming at a time of acute inequality, ecological fragility and growing distrust within and amongst societies due to Corona virus disease 19, which has health as well as humanitarian and development crisis that is threatening to leave deep social, economic and political scars for years to come, particularly in countries found in fragility, poverty and conflict.

Objectives: The overall objective of this study was to assess level of knowledge and factors associated toward COVID 19 among residents in Arsi Zone, South East Ethiopia.

Methods: A community based cross-sectional study was conducted among 423 study participants' selected using systematic random sampling method. Data entry and cleaning was done using Epi Info version 3.5.4 and exported to SPSS version 22 for analysis. Descriptive statistics was used to depict frequency, mean and percentages of the characteristics. Logistic regression

was run to see significant predictors of knowledge and 95% CI at p-value <0.05 were used declare significant association.

Results: About 54.1% of the respondents had good knowledge about COVID 19. Being government employee AOR 3.37 95% CI (1.16, 9.79) and income > 2000 birr AOR 2.8 95% CI (1.33, 5.90) were significantly associated with having good knowledge about COVID 19.

Conclusions: Low socio-economic status was more likely to be related with low earning which might limit access to information regarding COVID 19. Hence, targeting information dissemination about COVID 19 to low income societies might improve the level of knowledge about COVID 19.

Key words: Knowledge, COVID 19, Arsi Zone, Oromia, Ethiopia

Introduction

Coronaviruses are a large family of viruses with some causing less-severe disease, such as the common cold, and others more severe disease such as Middle East Respiratory Syndrome (MERS) and Severe Acute Respiratory Syndrome (SARS) (WHO, 2020). Coronavirus disease 19 (COVID-19) is a new disease, distinct from other diseases caused by coronaviruses, such as SARS in 2002 and MERS in 2012. The virus spreads rapidly, and outbreaks can grow at an exponential rate. COVID-19 is a zoonotic virus and from phylogenetics analyses undertaken, bats are appeared to be the reservoir of COVID-19 virus, but the intermediate host(s) has not yet been identified (IFRC, UNICEF, WHO, 2020).

Several known coronaviruses are circulating in animals that have not yet infected humans (WHO, 2020). At present, there is no therapeutics or vaccines proven to treat or prevent COVID-19, although national governments, World Health Organization (WHO) and partners are working

urgently to coordinate the rapid development of medical countermeasures (Bao-Liang Zhong, et al., 2020).

A cluster of pneumonia cases, which later confirmed to be COVID 19, had been reported to WHO on December 31/2019 from China and more than 2,248,863 cases, 154,145 deaths had been so far reported from 213 countries, areas and territories (WHO, 2019).

In Africa, the number of COVID-19 cases and impacted countries has been increasing steadily .The experience in countries outside Africa is that, after initial cases are diagnosed, community transmission occurs rapidly. Hence, immediate implementation of individual social distancing and plan to implement community social distancing are of paramount importance in containing the disease (Africa CDC and AU , 2020).

Current evidence suggests that the virus that causes COVID-19 is transmitted between people through close contact and droplets. People most at risk of acquiring the disease are those who are in contact with or care for patients with COVID-19. This inevitably places health care workers (HCWs) and those in close contact with the patient at high risk of infection (WHO, 2020).

According to data from countries affected early with the pandemic, 40% of cases experienced mild disease, 40% experienced moderate disease including pneumonia, 15% of cases experienced severe disease, and 5% of cases were critical, while in hospitalized cases, severe illness was reported in 15% of cases, and death occurred in 12% of these cases, with higher case fatality rates in older adults in EU/EEA countries (ECDC, 2020; IFRC, UNICEF, WHO, (2020).)

Year 2020 marked the beginning of a decade of action towards the Sustainable Development Goals (SDGs) but with the COVID-19 pandemic,

but the world faces the greatest socio-economic shock in a generation, coming at a time of acute inequality, ecological fragility and growing distrust within and amongst societies. This pandemic is not just a health crisis it is also a humanitarian and development crisis that is threatening to leave deep social, economic and political scars for years to come, particularly in countries already weighed down by fragility, poverty and conflict. Daily lives have been profoundly changed, economies have fallen into recession, and many of the traditional social, economic, and public health safety nets that many people rely on in times of hardship have been put under unprecedented strain (UNDP,2020).

Implementing personal hygiene and public health behaviors are necessary to curb the spread of coronavirus, such as handwashing and social distancing, will be challenging if not impossible in many settings. Without sustained bans on large gatherings (including specific cultural and faith practices such as mass prayer gatherings, large weddings and funerals), these may create super-spreading events that accelerate transmission (Ioannidis J. Ioannidis P., 2019).

A study among Chinese residents of a relatively high level of socioeconomic status, in particular women, indicates that they have good knowledge, during the rapid rise period of the COVID-19 outbreak (UNICEF, WHO, 2020; Africa CDC and AU ,2020).

The Ethiopian Federal Ministry of Health (FMoH) and Ethiopian Public Health Institute (EPHI) have launched its COVID-19 Taskforce to implement initial prevention and mitigation measures at a national, regional and zonal level. The Taskforce is collaborating with all stakeholders including Ministry of Science and Higher Education (MoSHE) to rapidly gather information which will have impact on the implementation of ongoing

preventive aspects of COVID-19. This will inform the development and planning of behavior change campaigns, COVID-19 tracking, and other interventions as needed throughout the pandemic (FMoH, EPHI ,2020). Hence, an assessment of the population knowledge about the disease is of paramount importance in containing this pandemic at an earlier stage. The overall objective of this study was to assess level of knowledge toward COVID 19 among residents in Arsi Zone during COVID-19 panic period.

Materials and Methods

Study Area and Period

The study was conducted in Arsi Zone Oromiya region, Ethiopia from April-May,2020. The zone shares boundaries with East Showa, West Harerge, Bale zones, and West Arsi . Administratively, the zone is divided into 26 districts and 2 administrative towns (Assela and Bokoji). The area of the zone is 23,679.7km². Based on 2007 Housing and population census, the total population of Arsi is projected to be 3,280,667 million in 2016, of which 90% of the population is estimated to be rural residents. The average altitude ranges from 1700 to 4000 meters above sea level. The average temperature varies from 10 to 24⁰C. Muslim and orthodox Christians are the two predominant religions in the district. Agriculture is the main economic source of the population. Barley, Wheat, Teff, sorghum and onion, are the major agricultural products produced in the area.

Study Design: A community-based cross-sectional study

Population

Target population: all population living in Arsi zone

Source Population: All adult population residing in selected woredas' of Arsi Zone was included

Study population: Adult individuals living in selected kebeles.

Study subject: Those individuals selected from household members for interview.

Inclusion and exclusion criteria

Inclusion criteria: Both genders age above 18, residing in the study area for more than 6 months and give their voluntary consent to participate will be included in the study

Exclusion: Intellectual disability and those households approached for interview after 2 times visit.

Sample size determination

The sample size is calculated using single population formula, considering the following assumptions;

P=the estimated proportion of level of knowledge in the community assumed to be 50%, since the disease is new, the study is not yet conducted in the area well in the country.

D=margin of error 5%

Z=the desired confidence level 95% CI

Q=1-P

And Considering 10% of non-response rate the final sample will be **423**.

Sampling Procedure

The level of knowledge health problem (health conditions) varies among populations due to different factors, like geographical variations between urban and rural, highland and lowland, level of education, access to information and other factors Then, considering this condition the selected population should be drawn adequately from rural and urban.

From 26 districts and 2 town administrations of Arsi zone, a total of 8 districts were selected randomly. In the second stage, kebeles were selected

randomly and in the third stage, households were selected using Systematic random sampling. Sample size was allocated to each selected district, kebeles, using Probability Proportional to size (PPS).

Study Variables

Dependent variables: Knowledge toward COVID-19

Independent variables: Socio-demographic characteristics and specific characteristics of knowledge about COVID-19.

Data collection procedures

Tools (Questionnaires): The questionnaires were developed based on previously conducted researches and WHO standard questions for the assessment of COVID-19 and related studies with Corona Virus. It includes socio-demographic characteristics of the participants, while others was on the topics, knowledge on toward Corona Virus. The tools were already validated by previous study conducted in china.

Data collectors: Fifteen data collectors of health professionals with background of Health Officer, nurse, midwifery, laboratory, Pharmacy, Anesthesia and environmental health and majority of them were master holder and staffs of Arsi University College of Health Science were participated to collect the data..

Quality Assurance

Two days of training was given for data collectors on filing of the questionnaire, to avoid inter observer variation and to increase validity (to avoid non-sampling and none sampling errors). The questionnaires were prepared in English and translated into Afan Oromo language and Amharic. Pretest was done on similar population who were not part of the actual

sample and amendment was made. Supervisors did strict supervision during fieldwork.

Data processing and analysis

Data was entered into computer using Epi Info version 3.5.4 and exported to SPSS 22.0 (IBM Corporation, Chicago, Illinois) for further analysis. Descriptive statistics was used to present data as proportions, means (median) plus standard deviation and percentages. Chi-square tests was used to assess relationships between categorical variables. Logistic regression analysis was employed to assess associated factors with knowledge toward COVID-19. A 95% CI and P-value ≤ 0.05 was considered for significant association.

Ethical considerations

The study protocol was approved by Research ethical review members of College of Health science, Arsi University. Purposes and objectives of the study was explained in detail to all the participants and verbal consent was taken. Identity of the respondents was confidential to ensure privacy and for encouraging accurate responses for the questions.

Results

A total of 423 respondents have participated in the study. The mean age of the participants was 39.04 ± 14.35 standard deviation. Two hundred forty males (56.7%) and 183 (43.3%) were participated in the study. Three hundred twenty three 76.4% of the participants were married, while 153 (36.2%) were having primary level of education and 224 (53%) of them were farmers.

One hundred seventy one (40.4%) of the participants were from Urban and the median income of the respondents was 1600 birr with a Range of 29800 birr. (Table 1).

Table 1: Socio-demographic characteristics of study participants about COVID 19 in Arsi Zone, April 2020

Variables (Characteristics)		Frequency	Percentages
Age(in years)	<21	19	4.5
	21-30	132	31.2
	31-40	121	28.6
	41-50	69	16.3
	51-60	45	10.6
	>60	37	8.7
Sex	Male	240	56.7
	Female	183	43.3
Marital status	Single	60	14.2
	Married	323	76.4
	Divorced	20	4.7
	Widowed	20	4.7
Education	Illiterate	96	22.7
	Primary	153	36.2
	High school	109	25.8
	College and above	65	15.4
Religion	Orthodox	208	49.2
	Muslim	174	40.1
	Protestantand Others	41	9.7
Occupation	Farmer	224	53
	Merchant	75	17.7
	Employee	52	12.3
	Housewife	40	9.5
	Student	18	4.3
	Others	14	3.3
Residence	Urban	171	40.4
	Rural	252	59.6
Family size	1-3	113	26.7
	4-6	209	49.4
	7-9	73	17.3
	>9	28	6.6

Monthly income (n = 403)	0-1000	146	36.2
	1001-2000	107	26.6
	2001-3000	48	11.9
	3001-4000	31	7.7
	>4000	71	17.6

Knowledge Related to COVID among residents

As per the standard tool adopted from WHO forty four items were used. All the respondents have heard about COVID 19 where the main sources from where they have heard about COVID 19 was TV 62.9%, Radio 60.8%, health professionals 26.7%, Family 16.5% and social media 14.7%. Concerning their knowledge on COVID-19 contagiousness, about 96% of the respondents said that it is contagious and 4% it is not contagious. Nearly two-third(64.5%) of the respondents said that COVID-19 affect population group age above 60 years old. More than 12% of the respondents perceive that COVID-19 does not affect all racial and ethnic groups. There was knowledge gap on the causative agent of COVID19,only 69.3% of the study participants know that the disease is caused by Viruses. About 409(96.7%) of the respondent correctly reported that COVID-19 spreads most commonly via respiratory droplets (coughing, sneezing, talking) of infected individuals. With the concept that COVID-19 transmitted directly through contact with infected individuals (handshaking, hugging, kissing) and COVID-19 transmitted directly through the consumption of contaminated dairy and raw meat, 418(98.8%) and 349(82.5) reported correctly, respectively (Table 2).

Table 2: Knowledge regarding COVID 19 among residents in Arsi Zone, April 2020

Variables (Characteristics)		Frequ ency	Perce ntage
Heard about CIVID-19 from	TV	266	62.9
	Radio	257	60.8
	Family	70	16.5
	Friends	92	21.7
	Social media	62	14.7
	Health professional	113	26.7
	Others	10	2.4
	COVID-19 is a contagious	Yes	406
No		17	4
COVID 19 is dangerous in	<15 years	13	3.1
	15-30	9	2.1
	31-50	5	1.2
	>50	273	64.5
	All age groups	123	29.1
High risk of infection & death	Pregnant	119	28.1
	Diabetic patient	201	47.5
	Kidney disease	153	36
	Cancer	99	23.4
	Chronic respiratory disease	199	47
	Elderly	253	59.8
	Weakened immune	148	35
	Others	59	13.9
COVID 19 affects all racial and ethnic groups	Yes	371	87.7
	No	52	12.3
Cause of COVID-19?	Bacteria	70	16.5
	Virus	293	69.3
	Others	60	14.2
COVID-19 spreads most commonly via respiratory droplets (coughing, sneezing, talking) of infected individuals.	Yes	409	96.7
	No	14	3.3
COVID-19 transmitted directly through contact with infected individuals (handshaking, hugging, kissing)	Yes	418	98.8
	No	5	1.2
COVID-19 transmitted directly through the consumption of contaminated dairy and raw mea	yes	349	82.5
	No	74	17.5

About three fourth of the respondents answered that people without symptoms can transmit COVID-19 and 88.9% of the community reported that COVID 19 can transmitted directly through contact with contaminated surfaces.

Majority, (93.9%) of the respondents know common symptoms of COVID-19. The most commonly cited COVID-19 symptoms were cough (83.2%), fever (76.6%) and headache (56.3%). Over three fourth of the respondents were reported that the possibility of recovery from COVID-19 after infection. About half (51.1%) of the study population that ordinary residents can wear general medical masks to prevent COVID 19 virus. For the question, it is not necessary for children and young adults to take measures to prevent the infection by COVID-19 virus, 56.6% of the respondents did not agree with the idea (Table3)

Table 3: Knowledge regarding COVID 19 among residents in Arsi Zone, April 2020. Continued

Variables (Characteristics)	Frequency	Percentage
People without symptoms can transmit COVID-19		
Yes	320	75.7
No	103	24.3
COVID 19 can transmitted directly through contact with contaminated surfaces		
Yes	376	88.9
No	47	11.1
Know common symptoms of Covid-19		
Yes	397	93.9
No	26	6.1
Common COVID 19 symptoms (>1answer possible)		
Headache	238	56.3
Fever	324	76.6
Cough	352	83.2
Sorethorat	132	31.2

	Flue	91	21.5
	Muscle pain	81	19.1
	Others	34	8
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Its possible to recover from COVID 19			
	Yes	324	76.6
	No	99	23.4
<hr/>			
Prevalence of COVID-19 disease is increasing in Ethiopia			
	Yes	330	78
	No	93	22
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Know how to prevent oneself from COVID-19			
	yes	408	96.5
	No	15	3.5
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Someone can prevent himself/herself from COVID 19 by			
	Handwash	387	91.5
	Homestay	237	56
	Mask	130	30.7
	Socialdistance	240	56.7
	Others	79	18.7
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Ordinary residents can wear general medical masks to prevent COVID 19 virus.			
	Yes	216	51.1
	No	207	48.9
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It is not necessary for children and young adults to take measures to prevent the infection by COVID-19 virus.			
	Yes	192	45.4
	NO	231	56.6

For the question with multiple responses, what to do when suspecting infection with COVID-19. Majority (77.8%) of the respondents recommended going to visit health facility and few (6.1%) said measure fever. On the fatality of the disease, 94.6% said COVID-19 is fatal and 69.5% of the respondents responded that for COVID-19 there is no effective treatment. About 390(92.2%) of the population believe that individuals should avoid going to crowded places (train station, markets, religious places, picnic, wedding, 'tasker', 'idir' and avoid taking public

transportations) and 57.2% of the respondents did not agree on eating garlic, lemon and drinking 'Katikala' can lower chances of getting infected with the corona virus.

On the idea that isolation and treatment of infected people are effective ways to reduce the spread of the virus, only 5.4% do not believe. People who have contact with someone infected with the COVID-19 virus should be immediately isolated for 14 days, this assumptions was supported by 383(90.5) of the study populations (table4).

Table 4: Knowledge regarding COVID 19 among residents in Arsi Zone, April 2020.

Variables (Characteristics)	Frequency	Percentage
What to do when suspecting infection with COVID-19 (>1 answer possible)		
Measure fever	26	6.1
Visit Health facility	329	77.8
Avoid unnecessary activity	91	21.5
Avoid contact with individuals	159	37.6
Other	35	8.3
COVID-19 is fatal		
Yes	400	94.6
No	23	5.4
There is no effective cure/treatment/ for COVID-2019		
Yes	294	69.5
No	129	30.5
COVID-19 vaccine is available in markets		
Yes	145	34.5
No	278	65.7
Individuals should avoid going to crowded places (train station, markets, religious places, picnic, wedding, 'tasker', 'idir' and avoid taking public transportations)		
Yes	390	92.2
No	33	7.8
Eating garlic, lemon and drinking 'Katikala' can lower chances of getting infected with the corona virus		
Yes	181	42.8
No	243	57.2

Isolation and treatment of infected people are effective ways to reduce the spread of the virus.			
Yes	400	94.6	
No	23	5.4	
People who have contact with someone infected with the COVID-19 virus should be immediately isolated for 14 days.			
Yes	383	90.5	
No	40	9.5	

The sum of correct answers for knowledge assessment items were computed and those who scored greater than the mean value were categorized as having good knowledge and those who scored less than the mean value were categorized as having poor knowledge. Accordingly, the overall mean knowledge score of the respondents was computed and forty-three questions were computed to calculate mean knowledge score and 229(54.1%) 95% CI 49.3-58.9% of the respondents have good knowledge (Table 2-4 above).

Factors Affecting knowledge toward COVID-19 pandemic among respondents in Arsi Zone, Ethiopia, April 2020.

Nine socio-demographic characteristics were included in the logistic regression in both bivariate and Multivariate analysis regardless of the p-value considerations as displayed in table 5 below. Religion, occupation status and household monthly income were independently associated with knowledge score. Educational status of the study participants was associated in bivariate analysis but confounded in multivariate analysis. As the level education increases, the likely to have good knowledge about COVID-19 increases.

Those study participants who were attended secondary school were more than 2 times more likely to be knowledgeable compared to illiterates and attended primary education(COR=2.15,95%CI=1.23,3.76) and respondents

who joined college or University were 3.66 time knowledgeable compared to Illiterate and attended primary education(COR= 3.66, 95%CI=1.86,7.20).

The odds of having good knowledge were high among employed participants compared to farmers and others AOR=3.37,95%CI=1.16, 9.79). In addition, study participants from better household income were more likely to have good knowledge compared to individuals who ear low income monthly.

Table 5: Multivariate analysis of knowledge score and socio-demographic characteristics towards COVID 19 among residents in Arsi Zone, April 2020, Asella

Variables	Characteristics	Good Knowledge (n%)	Poor Knowledge (n%)	COR 95% CI	AOR 95% CI
Sex	Male	139(57.9)	101(42.1)	1	1
	Female	90(49.2)	93(50.8)	0.70(0.48,1.04)	0.95(0.60, 1.55)
Age group	<= 20	9(47.4)	10(52.6)	0.95(0.31,2.88)	0.4(0.10, 1.62)
	21-30	74(56.1)	58(43.9)	1.35(0.65,2.80)	0.64(0.40, 1.71)
	31-40	66(54.5)	55(45.5)	1.27(0.61,2.65)	0.85(0.33, 2.14)
	41-50	35(50.7)	34(49.3)	1.10(0.49,2.42)	0.74(0.30, 1.90)
	51-60	27(60)	18(40)	1.58(0.66,3.81)	1.01(0.40, 2.99)
Marital status	>60	18(48.6)	19(51.4)	1	1
	Single	32(53.3%)	28(46.7%)	1	1
	Married	180(55.7%)	143(44.3%)	1.1(0.63,1.91)	1.33(0.61, 2.91)
Educational status	Others	17(42.5%)	23(57.5%)	0.65(0.30,1.45)	1.13(0.40, 3.40)
	Illiterate	40(41.7%)	56(58.3%)	1	1
	Primary	76(49.7%)	77(50.3%)	1.38(0.83,2.31)	1.36(0.73, 2.55)
	High school	66(60.6%)	43(39.4%)	2.15(1.23, 3.76)*	2.13(0.99, 4.57)
	College & above	47(73.3%)	18(27.7%)	3.66(1.86,7.20)*	1.78(0.67, 4.73)
Religion	Orthodox	124(59.6%)	84(40.4%)	0.611(0.3, 1.26)	0.62(0.27, 1.40)
	Muslim	76(43.7%)	98(56.3%)	0.32(0.15, 0.67)*	0.4(0.17, 0.90)*
	Protestant	29(70.7%)	12(29.3%)	1	1
Occupation	Farmer	113(50.4%)	111(49.6%)	1	1
	Merchant	40(53.3%)	35(46.7%)	1.12(0.70, 1.90)	0.884(0.42, 1.86)

Employee	43(82.7%)	9(17.3%)	4.7(2.2, 10.10)*	3.37(1.16, 9.79)*
Housewife	15(37.5%)	25(62.5%)	0.6(0.30, 1.20)	0.90(0.37, 2.10)
Student	10(55.6%)	8(44.4%)	1.23(0.50, 3.23)	1.48(0.41, 5.37)
Others	8(57.1%)	6(42.9%)	1.31(0.44, 3.90)	1.57(0.45, 5.57)
Residence				
Urban	100(58.5%)	71(41.5%)	1	1
Rural	129(52.1%)	123(48.8%)	0.75(0.50, 1.10)	1.32(0.78, 2.41)
Family Size				
1-3	66(58.4%)	47(41.6%)	1	1
4-6	113(54.1%)	96(45.9%)	0.84(0.53, 1.33)	0.74(0.43, 1.30)
7-9	36(49.3%)	37(50.7%)	0.69(0.38, 1.25)	0.71(0.34, 1.50)
>9	14(50%)	14(50%)	0.71(0.31, 1.63)	0.60(0.21, 1.70)
Income				
<=1000	58(39.7%)	88(60.3%)	1	1
1001-2000	56(52.3%)	51(47.7%)	1.67(1.01, 2.76)	1.60(0.93, 2.76)
2001-3000	32(66.7%)	16(33.3%)	3.03(1.53, 6.02)*	2.8(1.33, 5.90)*
3001-4000	22(71%)	9(29%)	3.71(1.60, 8.62)*	2.99(1.20, 7.45)*
>4000	50(70.4%)	21(29.6%)	3.61(1.97, 6.64)*	2.81(1.43, 5.53)*

Discussion

COVID 19 is spreading rapidly across the whole world, in Africa and increasing exponentially in our country Ethiopia. As far as the knowledge of the researchers is concerned, this is the first population based study regarding knowledge towards COVID 19 in Ethiopia and Arsi Zone. The level of good knowledge, 54.1%, among the study participants was considerably low as compared to other studies from China and Iran which was 90% and 85% respectively (IFRC, UNICEF, WHO, 2020; Amirhossein Erfani, et al., 2020). The difference could be due to difference in method used for the study (Chinese study is online based and most study participants were educated, hence the probability of accessing information regarding COVID 19 is high) and difference in population characteristics and sample size used.

The most widely cited sources of information about COVID 19 among the study population were Television and radio as compared to Social media, scientific articles and journals among study participants in Iran and three African countries (Amirhossein Erfani, et al., 2020; UNICEF, WHO, 2020). The difference might be related to level of education and accessibility and availability of different sources of information across different parts of the world. Other difference could be, the studies conducted in three African countries were an online-based study where most respondents have access to information about COVID 19 through online messaging applications. In rural parts, where the primary sources might be sometimes inaccessible, health professionals have to provide health information dissemination. Precaution for children and young adults has to be emphasized, as higher proportion of the respondents believe children and young adults don't need necessary measure for the infection.

The use of herbal medicines and eating ginger, and consumption of fruits like lemon and drinking katikala to boost immunity against the disease has no proven medical benefit for the pandemic, hence communities has to be aware about strict medical advice when they feel sick to visit health institutions and to limit the intake of local alcohol like katikala, that might have adverse medical outcome(IFRC, UNICEF, WHO, 2020).. Awareness creation campaign has to reach rural areas particularly farmers and housewives. Emphasis has to be given in areas where there is consumption of raw meat as significant numbers of respondents believe that they will not be infected by consumption of raw meat.

Predictors of good level of knowledge in this study were being government employee and obtaining average income of birr 2000 and above. Similar result was observed from a study conducted in China (IFRC, UNICEF, WHO, 2020). The similarity might be related to the higher the level of education the more likely to have good knowledge and the higher the level of education the more likely to access information regarding the disease.

Though the study has good implications in providing baseline information in future to strengthened the health system in strengthening responses to outbreaks; with its strengths in utilizing probability sampling (systematic random sampling) and somewhat validated tools by WHO and other study in china it has its own limitations; one of the limitations of this stud was the possibility of participants giving socially desirable responses. As this study used self-reported data, it is possible that participants may have answered questions positively based on what they perceive to be expected of them.

Conclusions and Recommendations

The study reflected that knowledge toward COVID-19 risk factors and prevention mechanisim at early panic period was in adequate only, 54% of

the respondents had good knowledge. Radio and television were the major source of information about COVID-19 pandemic. House income and educational status were strong predictors toward knowledge score.

It is recommended that strong and up to date source of information through the primary sources like Television and Radio has to be strengthened. It is also recommended to increase the household income through different strategy, though it is not achieved within short period of time.

Declarations

Ethics Approval and Consent to participate

The ethical clearance letter was obtained from Research and Ethics Committee of Arsi University College of Health Science. Additionally letter of support was written to respective Woredas' to get the consent of collecting information. An informed verbal consent obtained from each respondent after providing sufficient information about the purpose of study and their right to participate, refusal of participation or to jump some questions not comfortable to answer. Name of respondents' was not written on the questionnaires to secure confidentiality.

Competing interests

The author declares that they have no competing interest.

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