Knowledge, Attitude and Associated Factors towards COVID-19 among Healthcare Providers at Wolaita Sodo University Teaching Referral Hospital, Southern Ethiopia, 2020

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Abstract

Healthcare providers are involved in caring for and treating patients with highly transmittable diseases. Coronavirus-2019 has posed serious health risks to healthcare providers because of their repeated exposure to many infections. The aim of this study was to assess the knowledge, attitude, and associated factors towards COVID-19 among h healthcare providers at Wolaita Sodo Teaching Referral Hospital, Southern Ethiopia, 2020.Institution based cross-sectional study was conducted using 326 healthcare providers for the assessment of the knowledge, attitude and associated factors towards COVID-19 from August 30, 2020 to September 01, 2020, at Wolaita Sodo University Teaching Referral Hospital. A pretest and structured self-administered questionnaire were used to collect the data from the participants. A simple random sampling method was employed. Data were entered, coded, and analyzed using SPSS version 25 and the binary and multivariate logistic regression models were used to identify factors associated with the knowledge and attitude of healthcare providers towards COVID-19. The statistically significant association at $P < 0.05$ was employed for the comparisons. The results for the overall knowledge of the healthcare providers towards the novel Coronavirus (COVID-19) was good (68.1%) and the overall attitude of health care providers was also positive (74.8). Experience>= 10 years (AOR=0.23; 95% CI=0.13, 0.79. P-value=0.01), Midwives qualification (AOR=0.39, 95% CI=0.10, 0.83, P-value=0.02), and positive attitude (AOR: 0.19; 95% CI=0.10, 0.36) were statistically associated with knowledge whereas experience >=10 years (AOR=2.1 95% CI=1.29, 2.10. P-value=0.01), laboratory profession (AOR=0.80; 95% CI=0.01, 0.47), P-value=0.02), and good knowledge (AOR=0.29; 95% CI=0.11, 0.46, P-value=0.0001) were statistically associated with attitude of the health care providers. This study showed that healthcare providers had good knowledge and attitude regarding COVID-19. Thus, promoting awareness through mass media and creating public health education

is an important approach to address the reduction to the transmission of COVID-19 Pandemic in Ethiopia.

Keywords: Knowledge, Attitude, COVID-19, Ethiopia

Introduction

On 31st December 2019, the first unknown disease was found in the state of Wuhan and the government of China immediately reported to the World Health Organization (WHO) (Huang et al., 2020). WHO stated that Coronavirus Disease of 2019 (COVID-19) has been a global pandemic disease on 11th March 2020. Its spread has continued and 41,053,557 confirmed cases and 1,129,775 deaths of COVID-19 were registered (WHO, 2020). The official press release for the first individual detected for COVID-19 was March 13, 2020, in which there were 90,490 confirmed cases and 1,371 deaths (Worldomete, 2020). Coronavirus Pandemic of 2019 was a newly emerging respiratory disease that was enveloped viruses containing a non-segmented positive-sense caused by a strain of ribonucleic acid (RNA) virus that has not been detected in the history of mankind (Masters,2019).

Ethiopia is a poor country found in the Sub-Saharan Africa and has tried to solve many challenges of its people. Recently, there is a surge of COVID-19 epidemic in the world in general and Ethiopia in particular (FMOH, 2020). As a result, the administration of Wolaita Sodo University has been indefatigably working to prevent it before its dissemination across the population of Wolaita Sodo. To control the epidemic of the pandemic, it is significant to take appropriate public health measures, such as wearing face mask (surgical or procedure mask), using gloves, keeping hand hygiene, restricting movement to densely populated area, maintaining spatial separation and wearing eye protective materials (goggles or face shields) (WHO, 2020).

Healthcare Professionals (HCPs) are directly involved in caring for and treating patients suffering from COVID-19 which is highly communicable and deadly disease. It is the cause of serious health problems to the HCP due to their frequent exposure to infected individuals (Gan et al., 2020). So, updating the knowledge of HCPs is important to protect them from being infected by the transmission of the virus. Moreover, the World Health Organization has issued many guidelines and started online certificate courses to make them cognizant of the prevention and control of COVID-19 (Bhagavathula et al., 2020).

It has been well known that the transmission of the virus among HCPs is associated with overcrowding, lack of isolated treatment room, and environmental contamination and the listed causes of transmission are related to many HCPs who have not had awareness about COVID-19 (Wu and McGoogan, 2019). Absence of Knowledge of a pandemic infection may directly influence HCPs' attitudes to increase the risk of pandemic (McEachan et al., 2016).

The study suggests that lack of awareness and negative attitude among HCPs on the pandemic lead to delayed diagnoses, spread of the disease, and improper infection control practices. After the occurrence of the COVID-19 pandemic in the world, a lot of HCPs have been infected, mainly in China (WHO, 2020). Implementation related to increasing the knowledge of HCPs that are dealing with suspected or confirmed COVID-19 can significantly limit the spread of the outbreak (Memish, 2013).

Therefore, this study was aimed at assessing the knowledge, attitude, and associated factors toward COVID-19 among HCPs during the COVID-19 outbreak at Wolaita Sodo University referral hospital, Southern Ethiopia, 2020

Methods and materials

Study setting and period

A Hospital-based cross-sectional study was conducted at Woliata Sodo University Teaching Referral Hospital (WSUTRH), which is found in Woliata Sodo Zone, Southwest Ethiopia is located 332km far away from the capital city of Ethiopia, Addis Ababa. An approximate total area of Wolaita Zone is 4471.3 square kilometers and, its topography lies on an elevation ranging from 1200 to 2950 meters above sea level. The total population of the Zone is estimated to 1721339 with a density of 385 inhabitants per square kilometer (CSA, 2007). According to the hospital report, there are 760 active healthcare workers working in the hospital. The hospital has provided health science and medical students with teaching and clinical practice services.

Study design

The institution-based cross-sectional study was carried out at Wolaita Sodo University Teaching Referral Hospital.

Source and study populations

For both, the source and study populations were all HCPs who were working at Wolaita Sodo University Teaching Referral Hospital in the year 2020.

Sample size determination and sampling procedure

The sample size was computed with the single proportion formula using the following assumptions: 73.8% prevalence on knowledge, attitude and associated factors among HCPs during COVID-19 pandemic which happened to Northwest Ethiopia (Kassie et al., 2020). The confidence interval (CI) is 95%, Z is 1.96, and margin of error is 5% and non-response rate is 10%. Finally, 326 was the final sample size considered in the current study. At Wolaita Sodo University Teaching Referral Hospital, 760 HCPs have treated patients and the participants of the study were selected using simple random sampling technique on the basis of the documented book in which all the hospital staffs have been registered.

Eligibility criteria

Inclusion criteria

All HCPs at WSUTRH were research participants of this study.

Exclusion criteria

HCPs who were Positive for COVID

Study variables

Dependent variable: knowledge (good/poor), and attitude (positive/negative)

Independent variables: socio-demographic characteristics (age, religion, sex, and marital status), qualification, experience and workload.

Operational definitions

Healthcare workers (HCWs): These are professionals who have primary contacts with patients. Nurses, midwives, physician, public health officers, laboratory technician, pharmacist and anesthesia are categorized under HCWs

Good knowledge: Respondents who have median scores in response to the questions that they were asked are considered to have good knowledge.

Poor knowledge: Respondents who scored below the median were considered to have poor knowledge.

Positive attitude: HCPs who responded above the median score were considered to have a positive attitude

Negative attitude: HCPs who responded below the median score were considered to have a negative attitude.

Data collection tools: pretested and structured self-administered questionnaire were used to collect the data from the participants. The questionnaire was developed from the previous literature (Erfani et al., 2020; Venkata et al., 2020; Olum et al., 2019).

Data collection procedures

The questionnaire was first prepared in English language and then translated into Amharic and then the translation was checked by English language experts for consistency. Four data collectors and two supervisors participated in the course of data collection. The questions were classified into socio-demographic characteristics, information source, knowledge, attitude towards COVID-19. The validity of the questionnaire was assessed through pretesting with 5% of HCPs at Christian Hospital. During the data collection, no personal identifiers were collected and necessary COID-19 preventive measures were applied in the entire process. The completeness and accuracy of the collected data were checked daily (Belayne, 2020).

Data quality control

Data collectors and supervisors were trained for one day before and after the pretest on the content of the questionnaire, the purpose of the study, and how to approach and maintain the confidentiality of the interviewees. During data collection, the questionnaire was daily checked for consistency and completeness by supervisors and principal investigators to maintain the quality of data.

Data processing and analyses

Having checked the completeness of data, we entered it into Epi-Data 3.1 Version manager statistical software then exported it to SPSS Version 25 for cleaning and analyses. Knowledge related questionnaire had sixteen questions and each question contained three responses: 'Yes' and 'No' dichotomized to good and poor knowledge. Then all knowledge scores were computed. Those

respondents who responded above the median score were considered to have good knowledge, whereas, those who scored below the median value were labeled to have poor knowledge. The attitudinal questionnaire included 8 questions about COVID-19. Attitude related questions were contained yes or no responses. The scores of the questionnaire were computed and HCPs who responded above the median score were considered to have a positive attitude, whereas those who scored below the median value labeled as a negative attitude. In addition, bivariate and multivariate logistic regressions were used to identify association between independent and dependent variables. Variables whose p-value is less than 0.05 were considered to have associations.

Ethical consideration

A letter of ethical approval was obtained from Wolaita Sodo University Research and Review Approval Committee. Then the letter written to Wolaita Sodo University Referral Hospital was used to inform the participants about the purposes and deliverables of the research being undertaken. Each participant consented to be participant in the research and their confidentiality was kept by informing the participants not to write their names on the questionnaire.

Results

Socio-demographic characteristics of participants

A total of 326 (100%) individuals participated in the study. Regarding socio-demographic characteristics, most respondents were from 18 to 30 years of age. The minimum and maximum ages of the participants were 18 and 65, respectively and the mean age of the study population was 28.21 (SD±5.26). Most respondents196 (60.1%), were females and 163 (50%) were protestant. Concerning marital status, most participants, 191 (58.6%) got married and in terms of their experiences, 131 (40.2%) of the study participants had 5-9 years of experience Most workers, i.e. 138 (42.3%) were Nurses in their profession. Among the participants, 217 (66.6%) were frontline HCPs and 244 (74.8%) also worked more than or equal to 8 hours per day (Table1).

Table1. Socio-demographic characteristics of HCPs towards COVID-19 at Wolaita Sodo University Teaching Referral Hospital

Variables	Frequency (n)	Percent (%)
Ages		
18-30	135	41.4
31-40	94	28.8
>=41	97	29.8
Sex		
Males	130	39.9
Females	196	60.1
Religions		
Protestant	163	50
Orthodox	85	26.1
Muslim	60	18.4
Catholic	18	5.5
Marital status		
Single	110	33.7
Married	191	58.6
Divorced	13	4
Windowed	12	3.7
Years of experience		
<5	113	34.7
5-9	131	40.2
>=10	82	25.2
Qualifications		
Physicians	67	20.6
Nurses	138	42.3
Midwives	56	17.2
Lab technicians	46	14.1
Pharmacists	11	3.4
Others*	8	2.5
Health workers		
Frontline health worker	217	66.6
None frontline health worker	109	34.4
Overworked status in hours		
<8	82	25.2
>=8	244	74.8

Others* Anesthetists, Optometrists and Psychiatrists

Information sources for COVID-19

Of the 326 participants, 138 (42.3%) of the participants got the most common sources of information through social media. 118 (36.2%) of the research participants could get information through television and the rest participants 36(11.0%) had information access via the hospital website/the website of the Ministry of Health. Furthermore, 26 (8.0%) of HCPs, reported that they obtained information from friends and relatives (Figure 1).
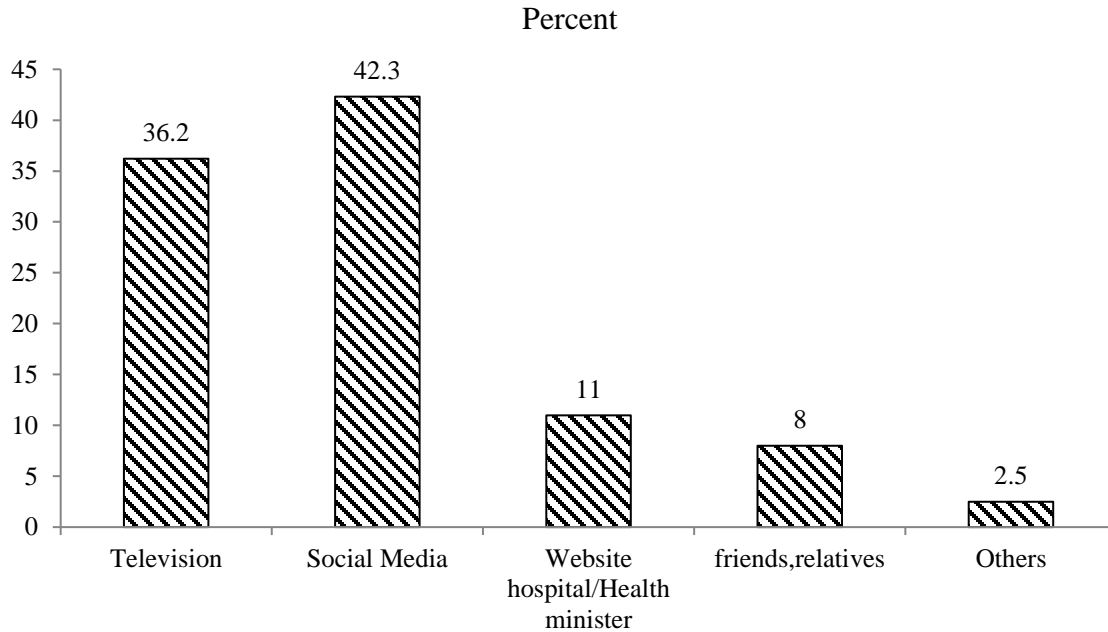
Percent

Figure 1. HCPs information sources for COVID-19 at Wolaita Sodo University Teaching Referral Hospital

Knowledge of health providers towards COVID-19

This study revealed that 222 (68.1%) and 104 (31.9%) of participants had good and poor knowledge, respectively about COVID-19 (Figure 2).
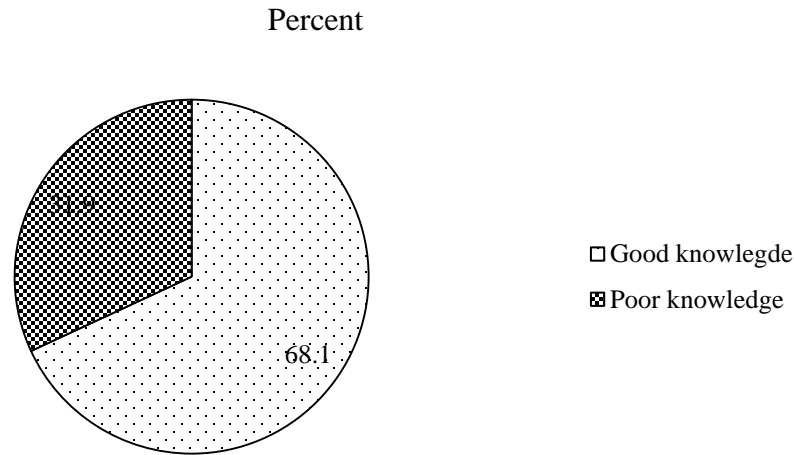
Percent

Figure 2. Knowledge towards COVID-19 among HCPs at Wolaita Sodo University Teaching Referral Hospital

Attitude of health providers towards COVID-19

274(74.8%) and 82 (25.2%) of participants were found to have positive and negative attitude, respectively towards COVID-19 (Figure 3).
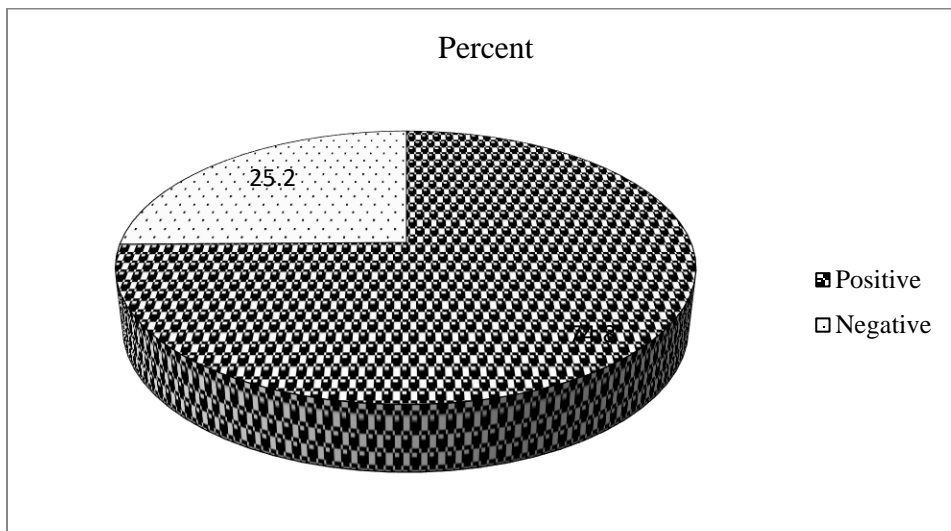

Figure 3. Attitude towards COVID-19 among HCPs at Wolaita Sodo University Teaching Referral Hospital

Factors associated with knowledge

The following variables were statistically associated with bivariate logistic regression model, years of experience, professional qualification, source of information, whether frontline or not, and attitude. HCPs who were experienced more or equal to ten years were seventy-seven times less likely knowledgeable than those who were experienced less than five years (AOR=0.23; 95%CI=0.13,0.79 and P-value=0.01).HCPs who were midwives were sixty one times less likely knowledgeable than Physicians (AOR=0.39; 95%CI=0.10, 0.83, P-value=0.02) concerning COVID-19.The odds of having a poor attitude towards COVID-19 were eighty-one percent less than HCPs having a positive attitude (AOR: 0.19; 95% CI (0.10, 0.36) (Table 2).

Factors Associated with Attitude towards COVID-19

The following variables were associated with bivariate logistic regression; ages; experiences, qualifications, sources of information, and knowledge.

 HCPs who had ten years or more experiences had twice more likely positive attitude than those who were experienced less than five years(AOR=2.1; 95%CI=1.29,2.10.P-value=0.01) Laboratory professionals; on the other hand, had twenty percent times less likely positive attitude than that of physicians (AOR=0.80; 95% CI=0.01, 0.47; P-value=0.02).

HCPs who had poor knowledge were seventy-one times less likely than those who had good knowledge (AOR=0.29; 95%CI=0.11, 0.46; P-value=0.0001) (Table3).

Table 2. Factors associated with knowledge on COVID-19 among HCPs at Wolaita Sodo University Teaching Referral Hospital

Variables	Knowledge about COVID-19		COR	P-value	AOR	P-value
	Poor	Good				
Experiences in years						
<5	41(39.4)	72(32.4)	1			
5-9	54(51.9)	77(34.7)	0.43(0.73,2.06	0.43	1.27(0.69,2.36)	0.45
>=10	9(8.7)	73(34.9)	0.22(0.19,0.48)	0.0001	0.32(0.13,0.79)	0.01*
Qualifications						
Physicians	32(30.8)	35(18.5)	1	1	1	
Nurses	46(44.2)	92(41.2)	0.53(0.30,0.99)	0.47	0.56(0.29,1.10)	0.09
Midwives	8(7.7)	48(21.6)	0.18(0.08,0.44)	0.0001	0.39(0.10,0.83)	0.02*
Lab technicians	8(7.7)	38(17.1)	0.23(0.09,0.47)	0.001	0.37(0.13,1.02)	0.055
Pharmacists	5(4.8)	6(2.7)	0.91(0.25,3.28)	0.89	0.79(0.15,3.21)	0.65
Others	5(4.8)	3(1.4)	1.82(0.40,8.25)	0.44	2.69(0.59(13.49)	0.26
Sources of information						
Television	30(28.8)	88(39.6)	1	1	1	
Social media	49(47.1)	89(40.1)	1.61(0.94,2.78)	0.08	1.78(0.94,3.39)	0.07
Websites of the hospital	13(12.5)	23(10.4)	1.66(0.75,3.68)	0.21	2.27(0.88,5.84)	0.09
Friends	6(5.8)	20(9.00)	0.88(0.32,2.48)	0.80	0.93(0.29,3.01	0.90
Others	6(5.8)	2(0.9)	8.80(1.69,45.96)	0.01	4.82(0.78,29.19	0.09
Health workers						
Frontline health workers	59(56.7)	150(71.2)	0.53(0.33,0.86)	0.01	0.63(0.35,1.12)	0.12
Not frontline health workers	45(43.3)	64(28.8)	1		1	
Attitude						
Negative	51(49.0)	31(14.0)	0.17(0.19,0.29)	0.0001	0.19(0.10,036)	0.0001*
Positive	53(51.0)	191(86.0)	1		1	

*p-value <0.05

Table 3. Factors associated with attitude on COVID-19 among HCPs at Wolaita Sodo University Teaching Referral Hospital

Variables	Attitude towards COVID19		COR(95% CI)	p-value	AOR(95%CI)	P-value
	Negative	Positive				
Ages in years						
18-30	48(58.5)	87(35.7)	1			
31-40	14(17.1)	80(32.8)	0.31(0.16,0.16)	0.001	0.57(0.21,1.50)	0.26
>=41	20(24.4)	77(31.6)	0.47(0.26,0.86)	0.01	1.09(0.41,2.86)	0.87
Experiences in years						
<5	31(37.8)	82(33.6)	1	1		1
5-9	40(48.8)	91(37.3)	1.16(0.67,2.02)	0.69	1.97(0.51,1.99)	1.96
>=10	11(13.4)	71(29.1)	0.41(0.19,0.87)	0.02	2.1 (1.29.20.2)	0.025*
Qualifications						
Physicians	24(29.3)	43(17.6)	1	1		1
Nurses	42(51.2)	96(39.6)	0.79(0.42,1.45)	0.44	1.04(0.53,2.19)	0.89
Midwives	6(7.3)	50(20.5)	0.21(0.08,0.58)	0.02	0.35(0.19,1.27)	0.11
Lab technicians	2(2.4)	44(18.0)	0.08(0.01,0.37)	0.001	0.8(0.01,0.47)	0.02*
Pharmacist	6(7.3)	5(2.0)	2.15(0.69,7.89)	0.24	1.83(0.40,8.35)	0.44
Others	2(2.4)	6(2.5)	0.69(0.11,3.29)	0.55	0.88(0.13,6.10)	0.98
Sources of information						
Television	31(37.8)	87(35.7)	1	1	1	1
Social media	32(39.0)	103(46.4)	0.85(0.48,1.59)	0.57	0.68(0.35,1.32)	0.26
Websites of hospital/ Ministry of Health	5(6.1)	31(12.7)	0.46(0.16,1.27)	0.13	0.40(0.12,1.39)	0.13
Friends and relatives	9(11.0)	17(7.0)	1.49(0.60,3.68)	0.49	3.45(1.98,12.85)	0.05
Others	5(6.1)	3(1.2)	4.77(1.06,20.73)	0.04	2.46(0.55,12.44)	0.31
Knowledge						
Poor	31(37.8)	191(78.3)	0.17(0.19,0.39)	0.0001	0.29(0.11,0.46)	0.0001*
Good	51(62.2)	53(21.7)	1	1	1	1

*P-value <0.05

Discussions

Coronavirus (COVID-19) is a global public health concern and the most current topic of discussion across every facet of life, especially among healthcare workers and patients. This study assessed the knowledge and attitude of healthcare workers towards COVID-19 pandemic at Wolaita Sodo University Teaching Referral Hospital in Southern Ethiopia. Our participants were physicians, nurses, midwives, medical laboratory technicians, pharmacists, optometrists, and other professionals.

This study shows that 68.1% of the HCPs had good knowledge of COVID-19 pandemic. The findings of this study were lower than the study conducted in Northwest Ethiopia, i.e. 73.8% (Kassie et al., 2020) which was lowers than the online cross-sectional study conducted in Ethiopia, i.e. 78.8% (Bekele et al., 2021). The possible differences may be caused due to study time difference since this study was conducted after six months of the previous studies.

Regarding age, 135 (42.3%) of the participants were 18-30 years which were under age group; 94 (28.8%) of participants were 31-40 years age group, and the rest 97 (29.8%) which was greater than equal to 41 years old (Venkata et al, 2020). The finding was similar to the study conducted in South India. The reason may be the similarity of the participants' characteristics in educational and socioeconomically status.

The most common sources of information, i.e. 138(42.3%), for the participants were Social Media which was followed by Television 118 (36.2%) and the third source of information was Hospital Websites/ the websites of the Ministry of Education, which was 36(11.0%). There were 26 (8.0%) health care providers who reported that they obtained different pieces of information from friends and relatives (Olman et al., 2020).

This finding was consistent with the study conducted by Addis Zemen District Hospital. Northwest Ethiopia scored 66.1% (Yonas et al., 2020). The possible similarity may be due to the fact that both studies were conducted at the hospitals in which similar participants were involved. Again the finding of this study revealed that it was lower than the study, i.e. 88.4% conducted in China (Chen et al., 2020). The difference might be due to the study time difference and country economic level. As China has developed in information dissemination of our country and another reason could be the efforts of China's government in providing information through media during the outbreak of COVID-19.

The study showed that the majority (68.1%) of participants had good knowledge about the COVID-19 pandemic. This finding is consistent with the finding (69.2%) of the research carried out at Patan Hospital, Nepal (Samita et al., 2020). These similar results of knowledge on COVID-19 among healthcare providers were because of the exposures that the participants had from different mass media and social media. This study also found a high prevalence (74.8%) of a positive attitude among healthcare providers but the finding of the study was less than that of the cross-sectional study conducted in Malaysia, 83.1% (Azlan et al.,2020).

The study revealed that 74.8% of the health care providers had a positive attitude towards COVID-19. This finding is higher than 65.5% (20) of the finding of the cross-sectional study conducted in the two Pakistan University Teaching Referral Hospitals and the participants (Salman et al.,2020), had a positive attitude towards the disease. The difference might be due to differences in the previous research that was conducted among students and employees of two higher education institutions in Lahore, Pakistan, namely the University of Lahore and the Gulab Devi Educational Complex This research finding on Knowledge, attitude and associated factors among health care providers during COVID-19 pandemic was 74.8% which was almost similar to a population based survey conducted in Iran, and the finding , i.e. 71.5% (Erfani et al.,2020) shows that the participants had positive attitude.

There was no statistically significant difference in the level of knowledge about COVID-19 among health care workers in our study with regard to their qualifications. This finding was consistent with the study conducted in Uganda (Olum et al., 2020). The similarity happened because of the fact that there were similar qualifications in both developing countries.

Those health care providers who had ten years or more experience were seventy-seven times less likely knowledgeable than those who had less than five years' experience (AOR=0.23; 95% CI=0.13,0.79.P-value=0.01), and this was different to the study conducted in Northwest Ethiopia (Kassie et al.,2020). The reason behind the difference was that the majority of the participants, i.e. 131 (40.2%) at Wolaita Sodo University Teaching Referral Hospital had five to nine years' experience, whereas in the previous study many of the respondents had less than five years' experience (53.9%).

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Conclusion

This study showed that health care providers had good knowledge and attitudes regarding COVID-19. The experience of a healthcare provider, qualification, and positive attitude associated with the knowledge of the healthcare providers towards COVID-19. Thus, promoting awareness through mass media and create public health education is an important approach to address the reduction to the transmission of COVID-19 Pandemic in Ethiopia.

List of abbreviations

COVID-19: Coronavirus Disease-2019, HCPs: Healthcare Providers, WSUTRH: Wolaita Sodo University Teaching Referral Hospital.

Ethics approval and consent to participant

Ethical approval was obtained from Wolaita Sodo University

Availability of data and materials

The data that support the findings of this study are available, but some restrictions may be applied to the availability of the data as there are some sensitive issues. However, data are available from the corresponding authors upon reasonable request.

Competing interests

The authors declare that they have no competing interests.

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Authors' contributions

KA and NA were involved in the conception, design, analysis, interpretation, report, manuscript writing, and report writing. GA, and KP were also involved in the design, analysis, and interpretation of the data. All authors read and approved the final manuscript.

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