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A cross-sectional analysis of health-care workers' awareness and readiness to handle COVID-19 in public health facilities in the Oromia Region's west Guji district, southern Ethiopia. 2020.

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Abstract

Background

Corona virus outbreak, according to the World Health Organization is a dangerous disease. Health professionals are at a higher risk of contracting COVID-19, based on their experience with extreme acute respiratory syndrome (SARS) in 2003 and SARS-CoV-2 is a virus that causes SARS. As a result, it has been proposed that a periodic broad-scale assessment of health-care workers' skills and preparedness for the current COVID-19 pandemic is important.

Objectives

To evaluate the skills and preparedness of health care workers at public health facilities in the west Guji region for the management of the Corona Virus (COVID - 19), 2020.

Methods

A institutional-based cross-sectional study was conducted from November to December, 2020. West Guji zone public health facilities were included. The front-runners with the most experience were drawn from their departments in proportion. Epi Data was used to enter data from a self-administered questionnaire, which was then analyzed using SPSS software. Both descriptive and inferential statistics are discussed, as well as bivariable and multivariable regression analysis presented.

Results

420 health care staffs involved in the study. The majority (253, 60.2%) of the health care staffs were female. Of the total, 151 (36.0%) subjects were nurses, followed by midwife (123, 29.3%), doctors (93, 22.1%), medical laboratory (23, 5.5%) and pharmacists (30, 7.1%). Of these, education of the health care staffs, majority (240, 57.1%) of the degree, diploma (167,39.8%) and master and above(13,3.1%).health care workers working in hospital(240,57.1%),health centre(167,39.8%)and health post(13,3.1%). 360(85.7%) of the staffs had good knowledge regarding management of covid19. 60(14.3%) of the health care staffs had poor knowledge regarding management of covid19. There is association between age, gender with knowledge on health care workers management towards COVID-19 and there is no association is found between Sex, marital status, occupation, work experience, and hospital type are all variables to consider. There is a link between age, gender, marital status, hospital form, and work experience, but no link exists between profession and education.

Conclusion:

The Present study showed that health care staffs in west Guji zone, Ethiopia, previously recognized significant idea but had a clear understanding of the COVID-19 pandemic. There were some requirement in younger age groups, staff nurses and female staffs. Fifty percentages of the participants mention poor awareness of their hospitals point to the need for more universal solidarity, in particular relating to the scarcity of consumables and shortage of equipment.

Keywords: Knowledge, Preparedness, Health care staffs, COVID-19, Public Health Facilities

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Introduction:

Human infections with zoonotic corona viruses, such as Severe Acute Respiratory Syndrome, a novel corona virus disease (COVID-19), have increased rapidly around the world since it was first detected in December 2019 in Wuhan, China has caused widespread public health concern around the world.[1] viral infections are the most common chronic infectious diseases, and they are a major cause of biological, clinical, and socioeconomic problems around the world. During their respective times, Corona virus infections became a growing global health issue. COVID-19 is a virus that infects people and transmits eagerly through individual-to-individual contact, most likely through a respiratory droplet; causes serious respiratory illness in around 2% of infected people; and disease transmitted through infection has less symptoms.[2] COVID-19 would most likely spread rapidly in communities and hospitals, causing serious disease and death, due to the lack of a specific vaccine or treatment to avoid the disease. Despite the low case-to-fatality ratio, a large portion of Africa's population may be infected this year, resulting in a large number of deaths, especially among the elderly and those with underlying illnesses.[3]

Globally, more than 5.1 million persons infected worldwide and have resulted in more than 293,000 deaths. In Africa confirmed cases 90,000 and has resulted in more than 3095 deaths. According to the ministry of health Ethiopia confirmed cases 731 and has resulted in 6 deaths.[4] corona virus will possible cause prevalent disease and fatality in Africa. This will result in early and ongoing introduction of contaminated people from areas with corona virus communication. Africa's baseline fault is also elevated, given its moderately delicate health systems pandemic of vaccine-preventable and other infectious diseases, a lack of adequate water, sanitation, and sanitation facilities, population mobility, and a vulnerability to social and political unrest during times of emergency.[5]

Recognize the content of employee education and training and make arrangements for it. Infection prevention protocols must be adhered to and implemented by health care personnel who have been properly educated. If appropriate, a member of the health-care team or a community-based health-care provider with expertise in infection-prevention and-control education should train health-care workers. Non-clinical workers should be educated at a minimum in respiratory and hand hygiene, including cough etiquette, the proper use of alcohol-based hand sanitizers and hand washing with soap and water, and the use of regular facemasks and social distancing. Workers should be skilled in respiratory and hand hygiene, as well as proper donning (putting on) and doffing (taking off) of personal protective equipment (PPE), such as long-sleeved isolation gowns, gloves, and eye protection (goggles or removable face shield); disposal of PPE; and prevention of contamination of clothes, skin, and atmosphere during the doff. Hospital personnel should be medically cleared, fit checked, and qualified in the appropriate usage and safety requirements for N95 respirator masks.[6]

Ethiopia, as one of the countries with a shortage of qualified human and material resources, is likely to be the most vulnerable to the global COVID-19 pandemic. Allocating limited resources to the prevention of disease transmission and the introduction of a standardized, evidence-based prevention and treatment protocol at all levels of the health-care system. Priority will be given to those who are most infected in order to treat and contain the infection in that area so that it does not spread to other parts of the world. The Ministry of Health has prioritized the creation of a

national COVID-19 prevention and treatment guideline in order to standardize all preventive and treatment activities in Ethiopia.[7]

Methodology:

Study area and period

A study was carried out in the West Guji zone of Ethiopia's Oromia regional state in the south. This zone is situated south of Addis Ababa, Ethiopia's capital city, and is 470-570 kilometers from the country's center. Ethiopia's Central Statistics Agency (CSA) conducted a national census in 2007 and found that there are 2.5 million populations live in the two Zones in which 1.56 million (50.4%) males and 0.94 million (49.6%) were females.

There are three hospitals found in the one zone. However, three of them providing service to the community currently. These are Bule Hora general hospital, Karcha hospital, Malka soda hospital and health centres.

The total frontline healthcare workers to COVID-19 who are working in three hospitals, 387 in which 69, 287 and 40 physicians, staff nurses , laboratory technician, midwife, pharmacist respectively.

Research design: A facility-based cross-sectional study was conducted among COVID-19-infected frontier health care workers who work in hospitals in the west Guji and southern Oromia zones.

Population

Source population: The population source was all Health care workers currently working in the west Guji zone.

The study population consisted of all front-line health-care staff who are currently employed in hospitals in the west Guji region and are accessible during the data collection era.

Inclusion Criteria: All health care staffs in the west Guji zone hospitals.

Exclusion Criteria: Health-care staffs who were on annual holidays, sick leave, or delivery leave, were not exposed to COVID-19 on the front lines, and did not volunteer to participate in this report in this study.

Sample Size calculation

The sample size is determined using a standard formula for single population proportions, and the test estimates are calculated by looking at the 95 percent confidence intervals with a margin of error of 5%. There have been no previous studies in the study field. We used a p value of 50%. With a 10% non-response rate, the minimum sample size for this study was 420.

Results

Socio-demographic characteristics of participants

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420 staffs interviewed making the response rate to be 100%.The socio-demographic characteristic of the respondents. More than 60.2 percent of the respondents were in the Female staffs and male staffs were 39.8%.Age group of the staffs 34.5% staffs age group between 20-25 years,31.0 % were 26-30 years,17.6% were 36-40 years and16.9% were 31-35 years. Marital status of staffs 72.4 % of staffs were married, 23.6% were single and 4% were widowed. Profession of the staffs 36.0% were staff nurse, 29.3%were midwifery, 22.1%were medical doctor and7.1% were pharmacist and 5.5% were medical laboratory. Education of the staffs 57.1% were degree programme, 39.8% were diploma and 3.1% were master and above.57.1% staffs were working in general hospital, 39.8% were health centre and 3.1% were health post. Work experience of the staffs 42.6% were 4 years and above, 27.4% were 3-4 years, 15%were 2-3 years and15% were 1-2 years.(**Table1**).

Assess knowledge of management towards COVID-19

420 staffs interviewed making the response rate to be 100%. Assess knowledge of management towards COVID-19 respondents is presented in **Table 2:** Patient with fever must wear medical surgical masks with Mean 1.75 and Standard deviation of 0.432. Similarly most common symptoms of covid19 with Mean 1.80 Standard deviation 0.404. Specimen for detecting covid19 obtained from nasopharyngeal with Mean1.82 and Standard deviation 0.383. Health care staffs manages the COVID 19 confirmed patient with Mean1.82 and Standard deviation 0.383 and Manage covid19 confirmed patient with spo2 is maintained above 93% with Mean1.82 and Standard deviation 0.383.prevent covid19 complications among confirmed cases with Mean1.80and Standard deviation 0.404. Confirmed covid19 cases quarantined for 14 days with Mean1.82and Standard deviation 0.385, Confirmed cases arrange bed spacing 1.2 meter with Mean1.82and Standard deviation 0.385, Confirmed Critical cases initiation of antiviral treatment with Mean1.82and Standard deviation 0.385 and Management of covid19 symptoms use of antipyretics and antibiotics with Mean1.77and Standard deviation 0.420 (**Table2**).

Preparedness to COVID 19 among Health Workers

420 staffs interviewed making the response rate to be 100%. Assess knowledge of management towards COVID-19 respondents. Health care staffs participated in a Training course for outbreak management with Mean 1.75 and Standard deviation of 0.434. Similarly protocol for Triage and isolation of suspected cases with Mean 1.75 Standard deviation 0.434. Availability of isolation room with Mean1.64 and Standard deviation 0.482. Prepared to manage the COVID-19 outbreak with Mean1.68 and Standard deviation 0.468 and Hospital prepared for the covid-19 outbreak with Mean1.64 and Standard deviation 0.482. Prepared to properly use PPE with Mean1.82and Standard deviation 0.385. Isolation procedure with Mean1.82and Standard deviation 0.385, Report a potential covid19 cases with Mean1.82and Standard deviation 0.385, signs of the COVID-19 infection with Mean1.76 and Standard deviation 0.428 and safety precautions taken for aerosol transmission in patient with covid-19 with Mean1.80and Standard deviation 0.404(**Table 3)**

Assess knowledge of management towards COVID-19

The overall evaluation of health-care personnel's awareness of covid19 management. According to the pie map, 60 (14.3 percent) of health-care employees had poor knowledge of how to handle covid19, while 360 (85.7 percent) of workers had Good knowledge of how to manage covid19. (**Figure 1)**

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Assess Preparedness to COVID 19 among Health Workers

The overall assessment of the preparedness of health care staffs regarding preparedness to covid19. Described in the Bar chart 18(4.3%) of the staffs had poor preparedness regarding management of covid19 and 402(95.7%) of the staffs had good knowledge regarding preparedness of covid19. (**Figure 2**)

Factors relevant to health-care workers' management skills in the COVID-19 period, 2020

One of the considerations used to determine health-care workers' awareness of COVID-19 is their management. The level of health care workers' management against covid19 had a statistically significant relationship with their age and education status.

The analysis of the study shown that health workers Age 2.401(AOR 2.4, 95%CI :(1.212-4.756) times more likely to have satisfactory knowledge on covid19 management as compared to those who had age 26-30 years.

And health workers who had education master and above 3.528(AOR3.5, 95%CI (1.438-8.651) times more likely to have satisfactory knowledge on covid19 management as compare to those who had diploma and degree. Otherwise in this study, no association is found between sex, marital status, occupation, work experience, and hospital type.(**Table:4**)

Factors that affect a health worker's level of preparedness, 2020

Among factors associated with assess the knowledge of health care workers regarding preparedness of covid19. Health-care workers' age, gender, marital status, and work experience had a statistically significant association with the level of health workers preparedness of covid19.

The analysis of the study shown that health workers Gender (female staff) 0.161(AOR 0.161, 95%CI:(0.051-0.509) a hundred times more probable to have satisfactory knowledge on covid19 preparedness as compared to those male staffs. Age 1.252(AOR1.25295% CI:(0.770-2.036) times more likely to have satisfactory knowledge on covid19 preparedness as compared to those 36 to 40 years.

And health workers who had marital status, single 4.300(AOR4.300, 95%CI (1.314-14.071) times more likely to have satisfactory knowledge on covid19 preparedness as compare to those who married and widow. Type of hospital General Hospital 57.1(AOR57.1,95%CI(0.432-0.780) times more likely to have satisfactory knowledge on covid19 preparedness as compare to those who working in health post and health centre. work experience 0.558(AOR0.55,95%CI(0.349-0.890) times more likely to have satisfactory knowledge on covid19 preparedness as compare to those who having work experience 1-2 years. Otherwise in this study, no association is found between profession and education. (**Table: 5**)

Discussion:

The research study clearly showed that More than half of health care workers (57.2 percent) worked in a hospital environment, according to the survey. Fifty-two percent of health-care practitioners were aware of COVID-19 and 72 percent were taking effective steps to combat it. Furthermore, the results are consistent with a study conducted among employees in Bayelsa State, Nigeria, at the Niger Delta University Teaching Hospital COVID-19 was well-understood by up to 90% of them in terms of prevention and control measures. Around 90% of them practiced good hand hygiene, with a smaller proportion (51.6%) wearing face masks and avoiding crowds. (58.1 percent).[8]

A study was conducted to assess the combined level of knowledge, attitude, and practice of Ethiopian health professionals regarding COVID-19. COVID-19 has an overall approximate good level of understanding, positive attitude, and poor practice of 79.4 percent. percent (95 percent CI: 73.5 percent -85.2 percent; I2 = 96 percent), 73.7 percent (95 percent CI: 63.09 percent -84.4 percent; I2 = 98.3 percent), and 73.7 percent (95 percent CI: 63.09 percent -84.4 percent; I2 = 98.3 percent), respectively.[9] A research conducted in Ethiopia, on the other hand, found that In particular, The study included 273 health practitioners. The average (SD) age of the participants was 31.03 5.11. Two-thirds (61.5%) and one-fourth (26%) of participants went to second-year and medical school, respectively..[10]

In Aksum, Ethiopia, a study was conducted to look into pharmacy preparedness and response to prevent and control corona virus disease. COVID-19 must be tracked and stopped, good preparedness steps were taken. Preparing alcohol-based hand rub, distributing finished sanitizers and alcohol, and urging clients to maintain physical distance were among the most valuable pieces of advice provided.[11] In the year 2020, another study will be performed in the Governmental Hospitals of the South Gondar Zone. Three hospitals had an inadequate amount of COVID-19 preparation (73-145 points), while the other four had an excessive level of COVID-19 preparation (72 points). In addition, there was no laboratory testing procedure or treatment center for the COVID-19 virus in any of the hospitals.[12]

In Yemen, a study was conducted to evaluate healthcare workers' expertise, preparedness, and therapy activities about COVID-19. When compared to the nurse group alone, the health care staffs displayed a correlation that is statistically important with better information, P0.001. Males outperformed females in terms of preparedness. With a p0.001 difference.[13] Another research in Pakistan looked at the extent of preparedness of physician working in different hospitals to fight the Corona Virus Disease in 2019. (COVID-19). Only 35.3 percent of those polled said they had received personal protective equipment (PPE) training, while 28.95 percent said they were being checked. 43.4 percent of doctors said they didn't have a proper triage scheme in place for suspicious patients, and 98.3 percent were worried.[14]

Conclusions

This study found that health-care workers were well-informed about the COVID-19 pandemic. Despite high feedback from the Ministry of Health and the WHO in Ethiopia, there is still a need for more information among junior health care workers, and other health care staffs must all be represented and included in trainings. The health-care workers' readiness for COVID-19 was promising in many ways, including their understanding of symptoms, diagnostic procedures, and how to treat patients. Around half of the employees thought their organization was prepared,

with instructions, particular areas, and equipment and consumables. Due to a global shortage of infection control supplies, hospitals must be prepared.

Abbreviations

WHO-World health organization
COVID-19-Corona Virus 2019
SARS-Severe Acute Respiratory Syndrome
CSA- Central Statistical Agency of Ethiopia
PPE-Personal Protective Equipment
CI-Confidence Interval
SD-Standard deviation
AOR-Adjusted Odd Ratio

Data Availability

On request, the corresponding author may provide the data used and evaluated in this study.

Ethical clearance and Permission from Respondent

Bule Hora University's College of Health and Medical Sciences' ethics committee gave their approval. A formal letter from Bule Hora University's college of health and Medical science was sent to all concerned bodies in order to obtain their cooperation. To obtain the necessary data and consent for publication, each participant gave their oral informed consent.

Conflict of Interest

On the publication of this research paper, there is no conflict of interest.

Contributions of the Authors

All authors contributed to the work described, whether it was in the conception, study design, execution, data collection, analysis, and interpretation, or all of these areas.; contributed to the article's drafting, revision, or critical review; approved the final version to be published; agreed on the journal to which the article was submitted; and acknowledge that you will be held accountable for all aspects of the job.

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Table. 1: Socio-Demographic characteristics of the participants (N=420)

Characteristics	Gender	Frequency	Percent
Gender	Male	167	39.8
	Female	253	60.2
	Total	**420**	**100.0**
Age	20-25	145	34.5
	26-30	130	31.0
	31-35	71	16.9
	36-40	74	17.6
	Total	**420**	**100.0**
Marital status	single	99	23.6
	married	304	72.4
	widowed	17	4.0
	Total	**420**	**100.0**
Profession	Nursing	151	36.0

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	Medical doctor	93	22.1
	Midwifery	123	29.3
	Medical laboratory	23	5.5
	pharmacist	30	7.1
	Total	**420**	**100.0**
Education	Diploma	167	39.8
	Degree	240	57.1
	Master and above	13	3.1
	Total	420	100.0
Type of hospital	Health centre	167	39.8
	General hospital	240	57.1
	Health post	13	3.1
	Total	**420**	**100.0**
Work experience	1-2 years	63	15.0
	2-3 years	63	15.0
	3-4 years	115	27.4
	4 years and above	179	42.6
	Total	**420**	**100.0**

Table: 2 Assess knowledge of health care staffs regarding management towards COVID-19. (N=420)

S.No	Knowledge-Related Statements	Mean	Std. Dev.
1	**Patients with fevers must wear medical -surgical masks**	1.75	0.432
2	Symptoms of Covid 19	1.80	0.404
3	Specimen for detecting covid19	1.82	0.383
4	Health care professional manages the COVID 19 confirmed patient	1.82	0.383
5	Manage covid19 confirmed patient with spo2	1.82	0.383
6	Prevent covid19 complications	1.80	0.404
7	Confirmed covid19 cases quarantined for 14 days	1.82	0.385
8	Confirmed cases arrange bed spacing 1.2 meter	1.82	0.385

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9	Critical cases initiation of antiviral treatment	1.82	0.385
10	Management of covid19 symptoms use of antipyretics	1.77	0.420

Table: 3: Preparedness to COVID 19 among Health Workers (N=420)

S.No	Preparedness -Related Statements	Mean	SD
1	Training course for outbreak management	1.75	0.434
2	Triage and isolation of suspected cases	1.75	0.434
3	Availability of isolation room	1.64	0.482
4	Prepared to manage the COVID-19 outbreak	1.68	0.468
5	Hospital prepared for the covid-19 outbreak	1.64	0.482
6	prepared to properly use PPE	1.82	0.385
7	Isolation procedure	1.82	0.385
8	Report a potential covid19 cases	1.82	0.385
9	signs of the COVID-19 infection	1.76	0.428
10	safety precautions taken for aerosol transmission in patient with covid-19	1.80	0.404

Fig 1: Assess knowledge of management towards COVID-19

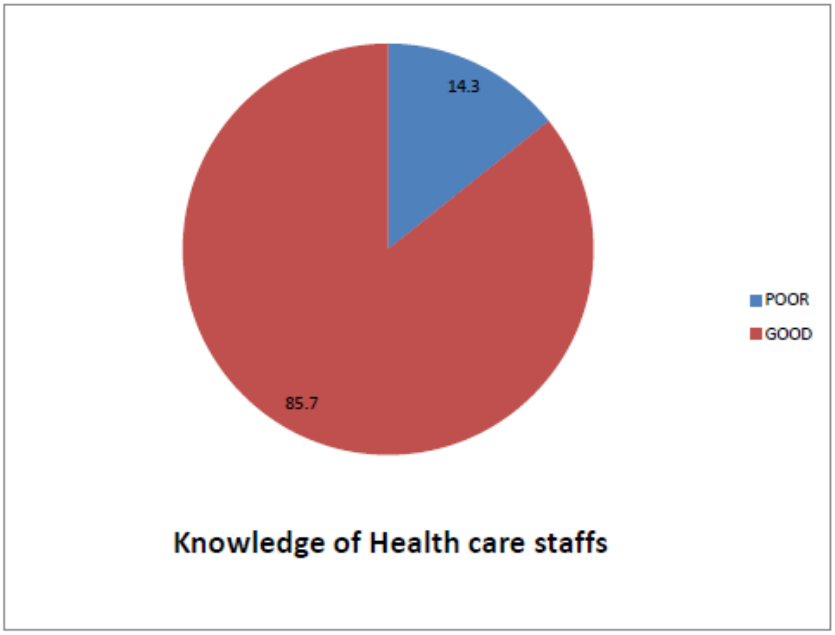

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Fig:2 Assess Preparedness to COVID 19 among Health Workers

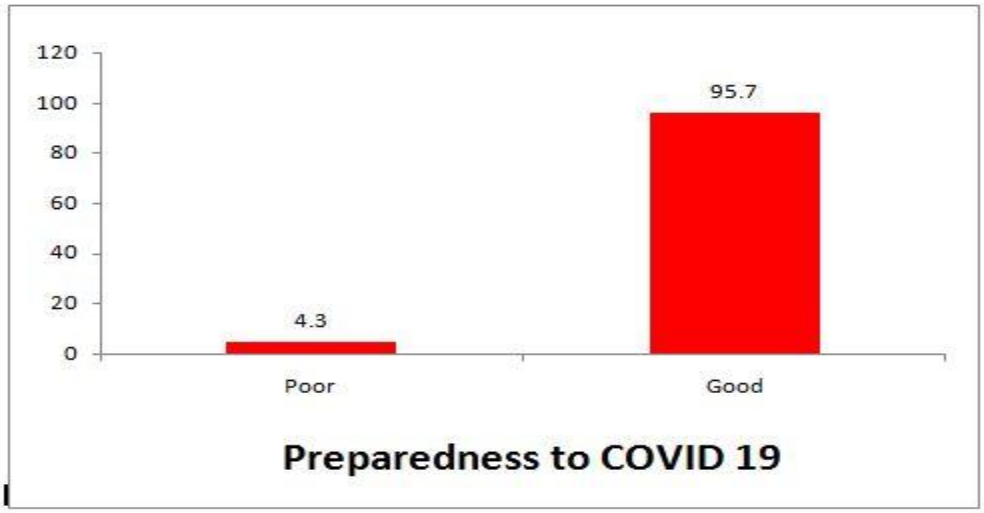

Table 4: Bivariable and Multivariable regression analysis of factors associated with assess knowledge of health care workers management towards COVID-19, 2020.

Sl.No.	Gender	CHR(95%CL)	AHR(95%CL)
Gender	Male	1	1
	Female	1.380(0.776-2.456)	
Age	20-25	2.365(1.206-4.641)	2.401(1.212-4.756)*
	26-30	6.452(2.698-15.429)	7.080(2.944-17.029)
	31-35	3.332(1.370-8.102)	3.528(1.438-8.651)*
	36-40	1	1
Marital status	single	1	1
	married	1.523(0.837-2.772)	
Profession	Nursing	4.057(1.130-14.566)	
	Medical doctor	1.241(0.474-3.247)	
	Midwifery	0.342(0.139-0.840)	
	Medical laboratory	4.136(0.482-35.533	
	pharmacist	1	1
Education	Diploma	1	1

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	Degree	0.680(0.382-1.212)	2.324(1.321-3.456)*
	Master and above	2197.5(0.000)	3.528(1.438-8.651)*
Type of hospital	Health centre	0.528(0.213-1.342)	
	General hospital	1.0455(0.321-2.432)	
	Health post	1	1
Work experience	1-2 years	0.683(0.328-1.424)	
	2-3 years	1.066(0.471-2.410)	
	3-4 years	1.679(0.798-3.534)	
	4 years and above	1	1

Table 5: Bivariable and Multivariable regression analysis of Factors associated with Preparedness of COVID 19 among Health Workers, 2020.

Sl.No.	Gender	COR(95%CI)	AOR(95%CI)
Gender	Male	1	1
	Female	5.696(1.841-17.621)	0.161(0.051-0.509)*
Age	20-25	2.808(0.936-8.422)	1.252(0.770-2.036)*
	26-30	5.131(1.317-19.989)	
	31-35	8.485(1.033-69.697)	
	36-40	1	1
Marital status	single	0.197(0.026-1.508)	4.300(1.314-14.071)*
	married	0.077(0.007-0.897)	
	widow	1	1
Profession	Nursing	0.410(0.042-3.995)	
	Medical doctor	0.061(0.008-0.475)	
	Midwifery	0.342(0.139-0.840)	
	Medical laboratory	4.136(0.482-35.533	
	pharmacist	1	1
Education	Diploma	1	1

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	Degree	0.680(0.382-1.212)	
	Master and above	2197.5(0.000)	
Type of hospital	Health centre	5.399(1.745-16.707)	39.8(1.765-12.634)*
	General hospital	240	57.1(0.432-0.780)
	Health post	1	1
Work experience	1-2 years	0.172(0.055-0.536)	0.558(0.349-0.890)*
	2-3 years	1.066(0.471-2.410)	
	3-4 years	0.797(0.210-3.034)	
	4 years and above	1	1

Abbreviations: CI, confidence interval; ***P-Value<0.05**