



Research



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Assessment of factors affecting practice towards COVID-19 among health care workers in health care facility of West Guji Zone, South Ethiopia, 2020

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Abstract

Introduction: health care workers are at greatest risk to being infected with COVID-19 in health care facilities. This study is focused on assessing the level of practice and factors affecting practice towards COVID-19 among health care workers in health care facility of West Guji zone, Oromia region, Ethiopia.

Methods: health facility based cross-sectional study design was carried out from December 1st to 30th 2020 among health care providers in West Guji zone. The simple random sampling technique was used in study and total sample size for this study

was 281. The data enter into Epi Data version 4.4.3.1 and SPSS Version 25 used for analysis. The descriptive statistics and logistic regression are needed. The cut point for statically significance settled at $p < 0.05$. **Results:** the response rate in this study was 97.8%. Of all study participants, 50.2%, 8.4%, and 6.5% had traveling history, chronic illnesses, and contact with COVID-19 confirmed cases. Too much working, lack of training, and shortage of protective equipment were reported by 54.5%, 50.9%, and 29.1% respectively. About 36.4% and 38.2% of health care providers had poor level of knowledge and prevention practice towards COVID-19. Working at hospital (AOR= 0.156, 95% CI=0.033-0.741), awareness of the action during suggestive symptoms and signs of COVID-19 developed (AOR= 0.038, 95% CI=0.002-0.817), hand washing (AOR= 0.043, 95% CI=0.008-0.238), not going to crowded place (AOR= 0.001, 95% CI=0.001-0.030), applying physical distance (AOR=0.091,95% CI=0.041-0.579) adherence to triage and isolation protocol (AOR=0.317,95%=0.039-0.577)and knowledge level of COVID-19 (AOR=2.378,95%CI=1.523-6.322) were factors significantly associated with prevention practice of COVID-19. **Conclusion:** in this study, the knowledge level and prevention practice gap was identified. Type of facility, awareness of the action during suggestive symptoms and signs of COVID-19 developed, hands washing to the standard, not going to crowded place, keeping physical distance, adherence to triage and isolation protocol and having good level of knowledge about COVID-19 were factors associated with good prevention practices. Adequate supply of personal protective materials; provision of continuous on-job training and guideline for prevention of COVID-19 must be given to all health care facilities.

Introduction

The severe acute respiratory syndrome corona virus-2 (SARS-CoV-2) causes mild to severe respiratory disease called COVID-19 disease that is mainly transmitted through respiratory droplets and contact of materials with causative agents [1-3]. The corona virus outbreak occurred several times in the world. However, the current

outbreak due to SARS-CoV-2 virus results several deaths across the globe and currently a public health issues for developed and developing countries [3, 4]. Health care workers are risk groups for COVID-19 disease in the health care facility than the general population because of their responsibility in response to the SARS-CoV-2 virus epidemic and they are front line people to contact patients [4-6]. According to Amnesty International and World Health Organization reports, the number of health care providers infected with SARS-CoV-2 virus and died due to COVID-19 disease is higher in European continent [7-9]. In African countries, the health care delivery system was below the standard even before the happening of COVID-19 outbreak. The deficiencies in the system can be explained in terms of inadequate health work forces, material resources, underfunded, and healthcare management information systems [8,10]. Even though it is the challenge, health workers should access with personal protective equipment such as masks, gloves, gowns, and other personal protective equipment (PPE) required to do their jobs safely and effectively. Lack of education in dealing with COVID-19 cases, high number of patients flow, longer period of working, and insufficient rest periods were some of the factors attributed to infections at health care facility [5,6,11] The protective materials needed to protect health care workers from COVID-19 outbreak vary based on the type of tasks to be performed, working environments, and risk to contact with suspected or confirmed cases. Health care providers who are in contact with confirmed cases, particularly physicians, nurses, allied health, and supportive staffs who providing services at all levels of health care delivery system should strictly apply standard precaution packages and be able to understand that personal protective equipment is essential strategies in prevention and control of COVID-19 disease [12-17]. It is important to identify the level of knowledge and practice regarding COVID-19 among health care workers. The aims of this study is to assess prevention practice towards COVID-19 and associated factors among health care workers in health facilities of West Guji zone which enables

to set future plan for intervention and provide information for all stakeholders who are able to give solution to the problem.

Method

Study area: the study was conducted in the selected health care facilities of West Guji zone, which is located in Southern Ethiopia, Oromia regional state. The zone was found at the southern direction from the capital city Addis Ababa. Based on the 2007 census conducted by the Central Statistical Agency of Ethiopia (CSA), there are 1,300,000 populations living in the West Guji zone that is 50.4% males and 49.6% females. There are 42 health facilities found in West Guji zone, in which three of them are hospitals that provide health care services to community of the zone and surrounding areas.

Study design: health facility-based cross-sectional study design was conducted among health care workers working in the selected health care facilities of West Guji zone. Study population: the study populations were health care workers currently working in the selected health care facilities in West Guji zone. Health care workers currently working in the selected health care facilities in West Guji zone that were available during the data collection period included in this study. Health care workers who were sick and unable to fill the questionnaires were excluded from this study.

Sample size determination: sample size was determined based on objectives. The first objective was to determine sample size using standard formula for single population proportion based on the following assumptions. $Z (\alpha/2) = 1.96$ (95% confidence level of the survey), 62% prevalence from the previous study [22], and 5% margin of error was used in this study to give sample size 362. The study population was less than 10,000 and correction formula needed. The sample size after adding 10% of non-respondents was 281 for objective one. For second objective sample size calculated by Epi Info using three independent

variables and the Epi Info output after adding 10% of non-respondents were less than the sample from objective one. Therefore, the final sample size for this study was that of the objective one, which is $n=281$. Simple random sampling technique was used to include study participants in the study.

Measurements: to measure the knowledge of health care workers, 16 questions were used. The correct answer was assigned 1 point and an incorrect answer was assigned 0 points. The total practice score ranged from 0 to 16. Health care workers who correctly answered 75% or more of the practice items were considered as having good knowledge and those scores less than < 75 categorized as poor knowledge towards Covid-19 [11]. To measure the prevention practices of health care workers, 11 questions were used. The correct answer was assigned 1 point and an incorrect answer was assigned 0 points. The total practice score ranged from 0 to 11. Health care workers who correctly answered 75% or more of the practice items were considered as having good prevention practice and those scores less than < 75 categorized as poor prevention practice towards COVID-19 [11].

Operational definition

Health care workers: HCWs are defined as all people engaged in activities whose primary intention is to improve health. In this study, health care workers includes; Medical Doctors, Nurses, Midwives, Health officers, Lab Technicians, and Pharmacists.

Good practice: in this study, health care workers who scored points greater than or equal to 75% out of 11 prevention practice assessing questions.

Poor practice: health care workers who scored points less than 75% out of 11 practice assessing questions.

The data collection tools and techniques: the data collection tools adapted by reviewing different relevant articles. The data were collected using self-administered questionnaire technique. The

questionnaire divided into five parts: part I: questions about socio-demographic factors, part II: personal and source of information assessing questions, part III: health facility related factors assessing questions, part IV: knowledge related questions and part V: practice assessing questions. It was prepared in English language and was reviewed by the language experts. Trained data collectors involved data collection and the data collection procedures were closely supervised.

Quality control: the quality of the data secured by standard, pre-tested questionnaires, proper data collection procedure, and reliability test. Before the actual data collection, pre-testing was done on 10% of the total study subjects in the Yabalo Hospital which was not included in the actual study and based on the findings, necessary amendments were made. The prevention practice assessing questions were tested statistically for internal consistency (reliability) using Cronbach's alpha test. The overall Cronbach's alpha value for the questionnaire to assess prevention practice towards COVID-19 was 0.754 which indicates that the items were somewhat inter-related.

Data processing and analysis: the data were checked for completeness; data were entered into Epi Data version 4.4.3.1 and exported to SPSS Version 25 for analysis. The results of descriptive statistics were summarized and presented by tables, charts, and graphs. Bivariate logistic regression analysis was done to check the association between dependent and independent variables. Then variables that had an association at $p < 0.25$ were entered in to multivariate logistic regression analysis. Statically significance was settled at $p < 0.05$ and 95% confidence intervals (CI).

Ethical clearance: it was taken from Bule Hara University, College of Health and Medical Science, Institutional Review Board (IRB). Permission letter was given to health care managers and written consent' taken from each participant by explaining the objective of the study before the data collection and voluntarily participation of the study

participates ensured in this study. The finding of the study was disseminated to all concerned bodies via presentation and publication. Therefore, in order for the participants to benefit from the study, the copy of the final report of the study was given to the two hospitals and eight health centers of the West Guji zone. Additionally, the study will be published on peer reviewed scientific journals and disseminated to different nationally and international stake holders.

Results

Socio-demographic variables of health care workers in West Guji zone, 2020: self-administered questionnaire were distributed to 281 healthcare workers. However, 275 of them responded the questionnaires. The response rate in this study was 97.8%. More than half of the study participants were males 61.8% and the mean age of the study subjects was 27.7 (+ 3.7). Majority of health care workers were nurses 38.45% and more than two-thirds of them were living in urban. Fifty-five point six percent (55.6%) of participants were married in terms of marital status and 61.1% were degree holders followed by diploma. Concerning their family size, majority 65.45% of them live with family members. Greater than two-thirds of health care workers 76.4% had work experience less than or equal to five years and 56.4 % works in the hospital (Table 1).

Personal and source of information of health care workers in West Guji zone, 2020: from all study participants, half 50.2% of them have travelled within the past two months. Ninety-one point six percent (91.6%) of HCWs were free from chronic illnesses. However, 8.4% of those who had chronic illnesses were at risk of poor outcome of COVID-19 disease. Only 6.5% of HCWs had contact with COVID-19 confirmed cases. All most all of the health care personnel were nonsmokers. However, 18.2% of them were alcohol drinkers. Regarding internet access, the majority of health professionals were used of Wifi and internet data. Eighty-one point eight percent (81.8%) of HCWs were used of TV or radio for further access to

information about COVID-19 and nearly half of them use social media sometimes, in addition to TV and radio for update themselves (Table 2).

Health facility related factors among health care workers in West Guji zone, 2020: of all respondents, more than half of HCWs reported there were adequate facemasks, sanitizers, disinfectants, and have a guideline in their working area. However, the number of participants that reported in adequacy of COVID-19 prevention materials in the health facility was not minimal. Greater (29.1%) proportion of health professionals report the shortage of personal protective equipment, which is the main factor that lowers the prevention practice of COVID-19. The mean working hours per week among HCWs in West Guji zone was 47 (+ 9). Training on infection prevention as well as COVID-19 prevention was the crucial step. Half (50.9%) of HCWs in West Guji zone did not get training on COVID-19 prevention in this year (Table 3).

COVID-19 knowledge of health care workers at West Guji zone, 2020: majority (96.4%) of health care workers were correctly differentiated the causative agent of COVID-19 disease and (38.9%) participants responded source of COVID -19 disease correctly. Ninety-five point three percent (95.3%) and 96.4% of HCWs were reported as respiratory droplets and contaminated objects were the main routes of COVID-19 transmission. More than half of the health professionals (65.5%) told that elderlies and patients with underlying chronic disease were the most risk groups of COVID-19 and (84.4%) of them agree that asymptomatic carriers can transmit the disease. All most all of HCWs agree on frequent hand washing 90.9%, maintaining social distance 97%, timely isolation of potentially risky cases 97%, and wearing facemask 93.5% were the important methods of tackling the spread of COVID-19 (Table 4). The 175 (63.6%) of health care providers had good level of knowledge about COVID-19 whereas 100 (36.4%) had poor knowledge level.

Prevention practice towards COVID-19 among HCWs at West Guji zone, 2020: in this study, 170 (61.8) of the health care workers had good prevention practice and 105 (38.2%) had poor prevention practice towards COVID-19. Nearly one-third of HCWs were inappropriately disposes used tissue paper and had never gone to crowded places. Greater than two-thirds of respondents were practicing social distance (77.5%), routinely disinfecting the working room (88.4%), and strictly applying triage and isolation of suspected COVID-19 cases 83.6% (Table 5).

Factors associated with prevention practice towards Covid-19 among health care workers in West Guji zone, 2020: factors associated with prevention practice toward COVID-19 disease were assessed using logistic regression model based on the conceptual framework. Both binary and multivariable logistic regression was done. Variables which reached P-value of less than 0.25 were considered as a candidate to multivariable logistic regression. Statistical significance was adjusted for multivariable logistic regression at P-value less than 0.05. Accordingly, the independent variables that had an association with the prevention practice of COVID-19 was: type of health facility, health care workers who were working at the hospital were 84.4% more likely to be protected from COVID-19 than those who works at health center. Study participants who had awareness about sign and symptoms of COVID-19 were 96% more likely protected from COVID-19. Study subjects who frequently wash their hands as per the recommended standard were 95.7% more likely exercised good practice to wards COVID-19. Additionally, limiting going to a crowded place, avoiding hand shaking, maintaining social distancing, and strictly following the triage protocol and isolation of suspected COVID-19 cases were factors significantly associated with good practice of COVID-19. Health care workers who had a good level of knowledge about COVID-19 were two times more likely applying the prevention practice COR: 2.378 95%, CI (1.523-6.322) than the counterpart (Table 6).

Discussion

This study focused on the factors affecting the prevention practice of SARS- CoV-2 virus among health care workers in West Guji zone. The health care providers were at greater risk of COVID-19 disease as compared to the general population because they were involved in direct client care at health care facilities (weather hospitals or health centers) [9,14,15]. The SARS- CoV-2 viruses need greater concern of infection prevention strategies to reduce its transmission and to overcome the infection of COVID-19 at the health care facilities [4,16]. The magnitude of health care workers having good prevention practice towards COVID-19 were 170 (61.8) in this study. The result is lower than studies done in Iran 71.3% and Greece 73.8% [18,19]. This magnitude is in line with cross-sectional study conducted in and in northern Ethiopia, Amara regional state (62%), Cameroon (60.8%), and Ethiopia (63.5%) [11,20,21]. However, this finding is also higher than cross-sectional study carried out at southern Ethiopia, Gamo zone 35.3% [22]. The observed difference might be due to the study setting, study population, study time, and awareness level of study participants regarding the implementation of COVID-19 prevention protocol. As this study, the percentages of HCWs who used PPE were 153 (55.6%). The result is comparable 56.8% with the similar study done at South Ethiopia gamo zone [22]. This may be happen due to the similarity in socio-demographics characteristics and geographical location. This finding was lower than studies conducted in China 98%, Cameroon 100%, and Ethiopia 67.3% [19,21,23]. The difference might be due to the study period, the method needed in data collection, types of tools used for data collection, and study setting difference. Alcohol based hand rub (ABHR)/ sanitizer, 70% alcohol, biohazard bag, 0.5% Chlorine Solution that required avoiding the infection of COVID-19 in the healthcare facility [16]. In this study, the implementation of correct hand washing as per recommended was 180 (65.5%). The result was in line with study carried out in southern Ethiopia, gamo zone 68.9% [22]. This finding lower than studies done in Cameroon (94.5%), among

residents of Ethiopia 84% [24], in northern Ethiopia Amara regional state 96.1% [11], and in Libya 97.8% [25]. The difference can be explained in terms of population size variation, time of study carried out, and methodology followed.

Maintaining physical distance is an important way of talking about spread of SARS- CoV-2 virus in the health care facilities. The numbers of health care workers keeping physical distance in this were 213 (77.5%). This is similar to the study conducted in Cameroon 83.8% [20]. However, higher than the survey carried out among residents of Ethiopia 61% [24]. This variation may be occurred due to study population, sample size, and study period that the sample size of the previous study was greater and this was done during the epidemic controlled. Health care workers must apply all appropriate measures to control the transmission of SARS- CoV-2 virus; needs safe work place and limiting going to crowd place [12]. According to this survey, the proportion of health care providers avoiding going to crowd places was 73 (26.6%). This finding is not in agreement with studies conducted in northern Ethiopia, Amara regional state 54%, Cameroon 96.4%, Ethiopia 40.2%, and Tigre region 49.8% [11,20,24,26]. The main reason for in agreement may be the difference in study population, study area coverage, and study time which the previous study done during an epidemic raised. During the time epidemic was raised, information related to COVID-19 virus was disseminated through social media as well as mass media and different stake holders participated in awareness creation concerning COVID-19 virus prevention. The result of the present study shows that, the magnitude of health care workers who have chronic illness, the use of substance like smoking, and drinking alcohols were 8.4%, 1.1%, and 18.2% respectively. This finding is lower than finding from previous study done in Amara region, northern Ethiopia which the percentage of health care providers having chronic illness, smoking, and drinking alcohol was 15%, 12%, and 45% respectively [11]. The difference may be due to study area, sample size, method of the data collection and study period. Thus, the previous

study area involves a wider coverage area and the sample size was larger than this study. Previous study used on line data collection technique and it was done during lock-down period.

According to the present study, the magnitude of health care providers that had good level of knowledge about COVID-19 was 63.6%. This result is a comparable with cross-sectional study done in North West Ethiopia 64.1% and Southern India 63.49% [27,28]. The finding was lower than studies conducted in northern Ethiopia, Amara region 70%, Ethiopia 88.2%, Libya 89.3%, Egypt 80.4%, South East Nigeria 88.59%, Nigeria during outbreak 88.75%, North central Nigeria 99.5%, Nepal 76%, and a systematic review in Iran 72.2% [11,21,25,29-34]. This finding is higher than studies carried out in Greece 55% and South Africa 24% [19,35]. The variation may be due to study setting, study population size, the study period, and the knowledge score cut point difference. Factors associated with good practice of COVID-19 prevention were assessed by binary and multivariable logistic regression models. Accordingly, the independent variables that had an association with the prevention practice of COVID-19 were: type of working facility, awareness of the measures on what should be done if they develop symptoms and signs suggestive of COVID-19 virus, frequently washing hand as per recommended standard, limiting going to crowded place, avoiding hand shaking, maintaining social distancing and strictly following triage protocol and isolation of suspected COVID-19 cases. Health care workers at the hospital were 84.4% times more likely protected from COVID-19 than those work at in the health center. This result is supported by a study done in northern Ethiopia, Amara region that HCWs from health centers were 60% times less likely to have good COVID-19 prevention practice [11]. This is due to the fact that working in hospital allows access to update information about COVID-19 as compared to the health center. In the present study, health care providers who have a good level of knowledge about COVID-19 were two times more likely applying prevention practice COR: 2.378 95%, CI (1.523-6.322) than HCWs that had

poor level of knowledge. This result is in agreement with the study conducted in North Ethiopia, Amara regional state, Greece, and Nepal [11,19,33]. This can be explained due to the fact that having adequate knowledge of COVID-19 supports prevention practices. The limitation of this study is from the design, cross-sectional study design was used in this survey that catches data at a single point of a given time and may not be accurate as time progresses. Observational check lists were appropriate ways of assessing practice. However, in this study, practice was assessed by self-administrated questionnaires.

Conclusion

In this study, the knowledge level and prevention practice gap were identified in study area which indicates needs of training; in way that health care workers protect themselves and the others from SARS- CoV-2 virus. Shortage of personal protective equipment was the main factor affecting prevention practice from SARS- CoV-2 virus. Thus, all health care facilities ensure continuous and adequate supply of personal protective materials. Type of facility, awareness of the action during suggestive symptoms and signs of COVID-19 developed, hand washing to the standard, not going to crowded place, keeping physical distance, adherence to triage and isolation protocol, and having good level of knowledge about COVID-19 were factors associated with good prevention practice. Therefore, all health care workers should implement COVID-19 prevention protocol.

What is known about this topic

- *SARS- CoV-2 virus is causative agent of COVID-19 disease, which was becoming a global public health issues and result several health, psychosocial, and economic problems;*
- *Health care workers were front line in COVID-19 outbreaks response and they were risk group to the disease;*
- *The COVID-19 disease was highly contagious and health care setting was favorable place for its transmission.*

What this study adds

- This study identifies the level of knowledge and practice gap among health care workers in the study area;
- Shortage of COVID-19 protective equipment and improper implementation of COVID-19 protocol was identified in this study;
- This study put base line for future plan of intervention and gives information to all concerned bodies that are able to provide solution to the problem.

Competing interests

The authors declare no competing interests.

Authors' contributions

Shiferaw Gelchu Adola conceived and designed the study, analyzed the data, and wrote the manuscript. Girish Degavi, Sarah Ezhil Kelna Edwin, Takala Utura, Udessa Gemedo, Pandiarajan Kasimayan participated in writing of the manuscript draft, advising the whole research paper and also were involved in the interpretation of the data and contributed to manuscript preparation. All authors have read and approved the final version of the manuscript.

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Tables and figures

Table 1: socio-demographic variables of health care workers study done in the West Guji zone, 2020

Table 2: personal and source of information of health care workers in the West Guji zone, 2020

Table 3: health facility related factors among health care workers in the West Guji zone, 2020

Table 4: knowledge of health care workers about Covid-19virus s in the West Guji zone, 2020

Table 5: practice of health care workers towards COVID-19 virus in the West Guji zone, 2020

Table 6: factors associated with prevention practice towards COVID-19 among health care workers in the West Guji zone, 2020

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Table 1: socio-demographic variables of health care workers study done in the West Guji zone, 2020

| Variables | Category | Frequency(N) | Percent (%) |
|---------------------------------|-------------------------|--------------|-------------|
| Sex | Female | 170 | 61.8 |
| | Male | 105 | 38.2 |
| Age | <25 | 100 | 36.36 |
| | 25-35 | 167 | 60.7 |
| | >35 | 8 | 2.9 |
| Profession | Physician | 25 | 9.05 |
| | Nurse | 103 | 37.45 |
| | Health officer | 27 | 9.8 |
| | Midwifery | 45 | 16.4 |
| | Laboratory | 38 | 13.8 |
| | Pharmacist | 37 | 13.5 |
| | | | |
| Residence | Rural | 68 | 24.7 |
| | Urban | 207 | 75.3 |
| Marital Status | Single | 122 | 44.4 |
| | Married | 153 | 55.6 |
| Education level | Diploma | 80 | 29.1 |
| | Degree | 168 | 61.1 |
| | Master degree and above | 27 | 9.8 |
| Type of health facility | Health center | 120 | 43.6 |
| | Hospital | 155 | 56.4 |
| Number of family members | ≤ 4 | 180 | 65.45 |
| | >4 | 95 | 34.54 |
| Service Year | ≤ 5 years | 210 | 76.4 |
| | >5 years | 65 | 23.6 |

Table 2: personal and source of information of health care workers in the West Guji zone, 2020
personal and source of information of health care workers in the West Guji zone (N=275)

| Variables | Category | Frequency(N) | Percent (%) |
|--|--------------|--------------|-------------|
| Do you have travel history within two months | Yes | 138 | 50.2 |
| | No | 137 | 49.8 |
| Do you have chronic illnesses (DM, kidney disease, heart diseases, hypertension?) | Yes | 23 | 8.4 |
| | No | 252 | 91.6 |
| Do you have close contact with confirmed cases | Yes | 18 | 6.5 |
| | No | 257 | 93.5 |
| Do you smoke cigarette in any amount | Yes | 3 | 1.1 |
| | No | 272 | 98.9 |
| Do you take alcohol in any amount | Yes | 50 | 18.2 |
| | No | 225 | 81.8 |
| Do you have internet access (wifi or mobile data) | Yes | 228 | 82.9 |
| | No | 47 | 17.1 |
| Do you have TV and/ or radio | Yes | 225 | 81.8 |
| | No | 50 | 18.2 |
| Do you use consultation of seniors for COIVID-19 virus diagnosis and further update | Always | 35 | 12.7 |
| | Occasionally | 182 | 66.2 |
| | Never | 58 | 21.1 |
| Do you use social media for information access about COVID-19 | Always | 127 | 46.1 |
| | Occasionally | 133 | 48.4 |
| | Never | 15 | 5.5 |

Table 3: health facility related factors among health care workers in the West Guji zone, 2020

| Variables | Category | Frequency(N) | Percent (%) |
|--|--------------------------------------|--------------|-------------|
| Do you have adequate facemask in your facility | Yes | 177 | 64.4 |
| | No | 98 | 35.6 |
| Do you have adequate hand rub sanitizer in your facility | Yes | 175 | 63.6 |
| | No | 100 | 36.4 |
| Do you have adequate disinfectant in your facility | Yes | 170 | 61.8 |
| | No | 105 | 38.2 |
| Do you have infection prevention guideline/manual in your working area | Yes | 168 | 61.1 |
| | No | 107 | 38.9 |
| Which of the following lower your prevention practice of COVID-19 virus infection? | Shortage of protective equipment | 80 | 29.1 |
| | High work load for long periods | 42 | 15.3 |
| | Negligence from my friends/staff | 55 | 20 |
| | Poor quality of protective equipment | 40 | 14.5 |
| | Discomfort while wearing PPE | 40 | 14.5 |
| | More than two answers | 18 | 6.6 |
| Total working hours/week | ≤40 | 125 | 45.5 |
| | >40 | 150 | 54.5 |
| Did you get training on infection prevention practices in this year | Yes | 135 | 49.1 |
| | No | 140 | 50.9 |

Table 4: knowledge of health care workers about Covid-19virus s in the West Guji zone, 2020

| Variables | Category | Frequency(N) | Percent (%) |
|--|---------------|--------------|-------------|
| Respiratory droplets during coughing, sneezing from an infected person and close contact with infected person are main transmission routes of COVID-19 | True | 262 | 95.3 |
| | False | 5 | 1.8 |
| | I do not know | 8 | 2.9 |
| Contaminated objects and surfaces can transmit COVID-19 | True | 265 | 96.4 |
| | False | 3 | 1.1 |
| | I do not know | 7 | 2.5 |
| Do you think asymptomatic carriers in subclinical stage can spread the disease? | Yes | 232 | 84.4 |
| | No | 13 | 4.7 |
| | I don't know | 30 | 10.9 |
| There is currently no effective treatment or vaccine for COVID-19, but early symptomatic and supportive treatment can help most patients recover from the infection | True | 245 | 89.1 |
| | False | 8 | 2.9 |
| | I do not know | 22 | 8 |
| Frequent hand washing with water, soap and alcohol-based hand rub sanitizer prevent COVID-19 infection. | True | 250 | 90.9 |
| | False | 25 | 9.1 |
| Keeping social distance as per the standard prevent COVID-19 virus infection. | True | 267 | 97 |
| | False | 8 | 3 |
| Timely isolation of potentially risky/or confirmed people is important to prevention COVID-19 virus infection | True | 267 | 97 |
| | False | 8 | 3 |
| Wearing facemask or shields is important to prevent acquiring COVID-19 virus infection | True | 257 | 93.5 |
| | False | 18 | 6.5 |
| Do you know how to use and dispose personal protective equipment? | Yes | 253 | 92 |
| | No | 22 | 8 |
| Polymerase chain reaction (PCR) is a diagnostic tool to COVID-19 virus infection | True | 198 | 72 |
| | False | 25 | 9.1 |
| | I don't know | 52 | 18.9 |
| I know the measures what should do if you develop symptoms and signs suggestive of COVID-19? | Yes | 248 | 90.2 |
| | No | 27 | 9.8 |

Table 5: practice of health care workers towards COVID-19 virus in the West Guji zone, 2020

| Variables | Category | Frequency(N) | Percent (%) |
|---|--------------|--------------|-------------|
| Do you cover your mouth and nose with elbow or tissue or handkerchief? | Yes | 248 | 90.2 |
| | No | 27 | 9.8 |
| Do you throw the tissue you use safely in a dustbin? | Yes | 202 | 73.5 |
| | No | 73 | 26.5 |
| Do you use frequent hand washing with water and soap /or alcohol-based hand rub sterilizer as per recommended? | Always | 180 | 65.5 |
| | Occasionally | 95 | 34.5 |
| Do you routinely wear a facemask or shields at work and outside working places | Always | 153 | 55.6 |
| | Occasionally | 117 | 42.6 |
| | Never | 5 | 1.8 |
| Do you wear gloves when you were engaged in patient management | Always | 153 | 55.6 |
| | Occasionally | 117 | 42.6 |
| | Never | 5 | 1.8 |
| Do not go to the crowded places | Always | 73 | 26.6 |
| | Occasionally | 172 | 62.5 |
| | Never | 30 | 10.9 |
| Do not practice hand shaking or shoulder kissing | Always | 112 | 40.7 |
| | Occasionally | 118 | 42.9 |
| | Never | 45 | 16.4 |
| Do you avoid touching your eyes, nose or mouth as far as you can? | Always | 130 | 47.3 |
| | Occasionally | 127 | 46.2 |
| | Never | 18 | 6.5 |
| Are you practicing social distancing recommended by the WHO and CDC (2 meters)? | Yes | 213 | 77.5 |
| | No | 62 | 22.5 |
| I routinely disinfect of tables, surfaces and working room before and after managing patients | True | 243 | 88.4 |
| | False | 32 | 11.6 |
| I have strictly followed a protocol for triage and isolation of suspected COVID-19 cases in my workplace? | True | 230 | 83.6 |
| | False | 45 | 16.4 |

Table 6: factors associated with prevention practice towards COVID-19 among health care workers in the West Guji zone, 2020

| Variables | Level practice | | COR With 95% CI | AOR With 95% CI | P values |
|---|----------------|------|----------------------|--------------------|----------|
| | Good | Poor | | | |
| Type of health facility | | | | | |
| Health center | 90 | 30 | 1 | 1 | |
| Hospital | 80 | 75 | 0.356(0.156-0.809) | 0.156(0.033-0.741) | 0.017* |
| Polymerase chain reaction (PCR) is a diagnostic tool to COVID-19 virus infection | | | | | |
| Yes | 135 | 62 | 0.285(0.105-0.775) | 1.051(0.035-1.437) | 0.116 |
| No | 35 | 43 | 1 | 1 | |
| I know the measures what should do if you develop symptoms and signs suggestive of COVID-19? | | | | | |
| Yes | 165 | 82 | 0.111(0.023-0.544) | 0.038(0.002-0.817) | 0.037* |
| No | 5 | 23 | 1 | 1 | |
| Do you throw the tissue you use safely in a dustbin? | | | | | |
| Yes | 138 | 65 | 0.384(0.161-0.915) | 0.281(0.054-1.457) | 0.131 |
| No | 32 | 40 | 1 | 1 | |
| Do you use frequent hand washing with water and soap/or alcohol-based hand rub sterilizer as per recommended? | | | | | |
| Always | 143 | 38 | 0.107(0.043-0.264) | 0.043(0.008-0.238) | 0.000* |
| Semi times | 27 | 67 | 1 | 1 | |
| Do not go to the crowded places | | | | | |
| Always | 67 | 5 | 0.007(0.001-0.082) | 0.001(0.001-0.026) | 0.000* |
| Occasional | 100 | 72 | 0.066(0.008-0.539) | 0.009(0.012-0.149) | 0.001* |
| Never | 3 | 28 | 1 | 1 | |
| Do not practice hand shaking or shoulder kissing | | | | | |
| Always | 110 | 3 | 0.001(0.00001-0.047) | 0.001(0.001-0.030) | 0.000* |
| Occasional | 52 | 65 | 0.045(0.063-0.971) | 0.207(0.038-1.116) | 0.067 |
| Never | 3 | 37 | 1 | 1 | |
| Are you practicing social distancing recommended by the WHO and CDC (2 meters)? | | | | | |
| Yes | 155 | 58 | 0.117(0.042-0.330) | 0.091(0.041-0.579) | 0.031* |
| No | 15 | 47 | 1 | 1 | |
| I have strictly followed a protocol for triage and isolation of suspected COVID-19 cases in my workplace? | | | | | |
| Yes | 153 | 77 | 0.323(0.114-0.916) | 0.317(0.039-2.577) | 0.282* |
| No | 17 | 28 | 1 | 1 | |
| Knowledge level of health care workers | | | | | |
| Good | 105 | 70 | 4.08(3.602-10.810) | 2.378(1.523-6.322) | 0.011* |
| Poor | 65 | 35 | 1 | 1 | |

Key: COR- crude odds ratio, AOR- adjusted odds ratio, * -Significant at P value <0.05