



Anxiety and Stress due to COVID-19 Pandemic and Associated Factors Among Healthcare Workers in West Guji Zone Southern Ethiopia

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Abstract

Background The COVID-19 pandemic caused a dramatic loss of life around the world and has caused mental and social problems that affect every country in the world. Healthcare workers involved in providing care are at high risk of developing mental health problems as they face heavy workloads, life-and-death decisions, and the risk of infection is high. This study aimed to assess the prevalence of COVID-19-related anxiety and stress and their associated factors among healthcare workers in Southern Ethiopia.

Methods A cross-sectional survey was conducted in public health facility located in the West Guji district. A simple random sampling technique was used to select 283 study participants. Descriptive, binary, and multiple logistic regression statistics were used. Odds ratios adjusted with 95% CI were used, and statistical significance was declared with a *p*-value of < 0.05.

Results A total of 275 participants were included, with a response rate of 97.2%. The prevalence of anxiety and stress were 25.5% and 9.1%, respectively. Factors associated with anxiety symptoms were age, psychoactive drug use, alcohol use, and monthly income, and stress symptoms were alcohol use, medical illness, and knowledge of healthcare workers due to COVID-19 pandemic.

Conclusion The prevalence of anxiety and stress among healthcare workers due to COVID-19 were an average compared with studies in low-income and high-income countries. Health institutions must focus on the well-being of healthcare workers during the fighting for COVID-19 and comprehensive psychological assistance to support the mental well-being of healthcare workers by giving different training.

Keywords Anxiety · Stress · Healthcare workers · Associated factors · COVID-19

Background

The COVID-19 pandemic caused a dramatic loss of life around the world and has caused mental and social problems that affect every country in the world (1). Public health actions like social distancing, isolation, and quarantine are necessary to reduce the spread of COVID-19, and anyone can fear the life-threatening consequences of the new virus

and can experience mental stress, anxiety, loneliness, and depression (2).

This new virus is seriously harming the world's most developed countries and is becoming a major threat to low- and middle-income countries. In particular, the African continent is the population most vulnerable to infectious diseases (3) and the effects of the pandemic might be unknown in low-income countries due to poor reporting and reduced testing. Ethiopia, one of the countries with limited human and material resources, is expected to be the most affected by the global COVID-19 pandemic (4) putting pressure on the provision of essential services to countries and causing serious public health problems (5).

A study conducted in China shows that healthcare workers may experience complex emotional reactions, psychological distress, and mental health problems that could affect care, cognitive functioning, and clinical decision-making (6). During the pandemic, Chinese health

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workers reported high rates of depression (50%), anxiety (45%), and insomnia (34%); in Canada, 47% of healthcare workers reported the need for psychological support and in Pakistan, 42% of health workers reported having moderate psychological symptoms, and 26% said they had severe psychological distress (7).

The effects of COVID-19 on the psychological and emotional aspects of healthcare workers may potentially aggravate previous psychiatric conditions or may precipitate its symptomatology (8). The risk of COVID-19 infection to healthcare workers in developing countries is high, due to a lack of biosecurity measures, inadequate staffing, or the inability to implement basic self-care, especially among people with disabilities (9). In Ethiopia, WHO reports that the prevalence of depression symptoms has tripled compared to pre-pandemic estimates and that certain population groups are at higher risk of COVID-related psychological distress. Frontline healthcare workers face difficult tasks, and life-and-death decisions, and the risk of infection is particularly high (10).

Healthcare workers who are directly involved in the diagnosis, treatment, and care of patients with COVID-19 are at high risk of developing mental health symptoms (11). While other population has the option to stay at home, healthcare workers are at the forefront of the fight against the COVID-19 pandemic. Thus, thousands of healthcare workers are infected with COVID-19 around the world as they provide clinical services to COVID-19 patients and the condition is worse in developing countries (12).

Different studies identified that lack of personal protective equipment (PPE), being female, contact with many COVID patients, low self-efficacy, and working in private health facilities were factors associated with COVID-19-related anxiety (13), and age, marital status, religion, occupation, family size, history of medical illness, ever cigarette smoking, current cigarette smoking, ever chat chewing, and current chat chewing are factors associated with COVID-19-related stress (14).

Healthcare workers involved in providing front-line care during COVID-19 pandemic are at increased risk of developing mental health problems, and improving psychological resilience and strengthening the capabilities of the healthcare system are essential. The prevalence of anxiety, stress, and associated factors due to the COVID-19 pandemic is not known in this particular study area. This would be helpful to know to address this issue in terms of policies and practices within healthcare settings. Therefore, the objective of this study was to assess the prevalence of anxiety, stress, and associated factors due to the COVID-19 pandemic among healthcare workers in public health facilities in the western Guji region.

Methods

Study Design and Setting

A cross-sectional survey was administered in healthcare facilities in West Guji Zone, Oromia Region. West Guji Zone is one of among 20 zones in the Oromia Region. Bule Hora town is a capital city of the West Guji Zone which is located 467 km from Addis Ababa to the south direction at 5°35' N latitude and 38°15'E longitude. There are 196 kebeles (a small administrative unit) in the zone, including 166 rural and 30 urban sub-administrative structures. The zone has an estimated population of 1,389,821 of which 708,809 are females and 681,012 are males. There is a general hospital, 2 primary hospitals, 42 health centers, 166 health centers, 860 health workers, and 478 health workers in the West Guji district. The study was conducted from June 10 to July 10, 2020.

Study Participants and Sampling

All healthcare workers were eligible and asked to participate, except for those who were newly hired in the last six months. The sample size was determined using a single population formula by considering 50% of the magnitude of anxiety and stress in the study population (because there was no previous study conducted in the study area), 95% confidence interval, and 5% margin of error. Among the three public hospitals and 42 health centers, all hospitals were selected purposefully and 15 were selected using simple random sampling. Hospitals selected for the study were Kerca and Melka Soda primary hospitals, and Bule hora general hospital which have 72, 59, and 183 healthcare workers respectively. Health centers selected for this study were Robi Magada, Garba, Ela Farda, Eguu Abbay, G/Soke, Ela Diimaa, Corso Golija, Tore, Mexari, Dangoo, Guwanguwa, Buqqiisa, Fincawa, Afalata, and Hidha Korma which have a total of 323 healthcare workers (HCWs). From hospitals and health centers, 208 and 214 healthcare workers (HCW) were selected respectively by proportional allocation to sample size. Finally, 283 study participants were selected by using a simple random sampling technique from available healthcare workers.

Study Variables

Dependent variable: anxiety, and stress-related to COVID-19.

Independent variables.

- Socio-demographic factors: sex, age, marital status, level of education, income, residence, family size, profession
- Knowledge factors: knowledge of COVID-19, COVID-19-related training, previous experience in outbreak management, and work experience
- Chronic conditions: self-reported previous history of psychological distress, parental history of psychological distress, and medical comorbidities
- Behavioral factors: appropriate PPE, smoking, alcohol, exercise habits, and travel history in the last 2 weeks.

Measurement Tools

Anxiety is a feeling characterized by physical changes such as tension, anxious thoughts, and high blood pressure (30). The anxiety symptoms rating scale used is as follows:

- 0 Did not apply to me at all
- 1 Applied to me to some degree or some of the time
- 2 Applied to me to a considerable degree or a good part of the time
- 3 Applied to me very much or most of the time

The absence of anxiety symptoms was coded as zero (0), and the presence of anxiety symptoms was coded as 1 by using the Depression, Anxiety and stress scale-21 (DASS-21), anxiety subscale (11). The responses of HCWs who had anxiety symptoms are added together and categorized (mild, moderate, severe, and extremely severe) as the presence of symptoms. The Cronbach's alpha for anxiety was 0.89.

Stress is a state of mental or emotional strain or tension resulting from adverse or demanding circumstances (30). The stress symptom rating scale used is as follows:

- 0 Did not apply to me at all
- 1 Applied to me to some degree or some of the time
- 2 Applied to me to a considerable degree or a good part of the time
- 3 Applied to me very much or most of the time

The absence of stress symptoms was coded as 0, and the presence of stress symptoms was coded as 1 by using the Depression, Anxiety and stress scale-21 (DASS-21), stress subscale (11). The responses of HCWs who had stress symptoms are added together and categorized (mild, moderate, severe, and extremely severe) as the presence of symptoms. The Cronbach's alpha for stress was 0.96.

Knowledge scores: The level of knowledge was assessed by twelve components of knowledge-related questions, which were calculated by assigning 1 point to each correct

answer, and 0 points to an incorrect/unknown answer. The total knowledge score ranged from 0 to 12, with higher scores indicating good knowledge; if they respond to at least 6 items/components of knowledge-related questions and if their response was below 6 items, they had poor knowledge of coronavirus (26).

Data Collection Tool and Procedure

Data Collection Instruments

The data was collected by using a pretested structured self-administered questionnaire with data collector guidance. The questionnaire was first prepared in English, then translated into Afaan Oromoo, then translated back into English by fluent speakers to verify its consistency (29). The questions which assess the magnitude of COVID-19-related anxiety, stress, and its associated factors among healthcare workers were adopted from similar previous studies (5, 6, and 11). This tool contains socio-demographic characteristics, knowledge about COVID-19 preventive measures, chronic medical conditions, history of psychological distress, and behavioral factors (Supplementary File). The adopted questionnaires were modified and contextualized to fit the local situation and the research objective.

Data Collection Procedure

Data were collected by fifteen nurses and five supervising nurses. Two days of training were given to data collectors and supervisors on the objective of the study, how to maintain the confidentiality of respondents by the principal investigator. Overall supervision was provided by the principal investigator and coinvestigators. The selected participants were informed about the importance of the study by the data collectors. Finally, data were collected after obtaining written consent from the study participants.

Data Quality Control

To ensure the quality of data, 1 week before data collection, 5% of the sample pretest was performed at the Yabelo General Hospital to verify whether the questionnaire was valid and consistent. An additional adjustment was made based on the result of the pretest. The Cronbach's alpha was also done for anxiety and stress questionnaires, and the results were more than 0.8 for both. The supervision of the data collectors during the data collection period was done daily, and data was cleared and checked every day for completeness and accuracy before processing and analysis.

Data Processing and Analysis

Data were encoded, entered, and cleaned using Epi-DATA version 3.1 and exported into SPSS version 25.0 for analysis. Descriptive statistics such as frequency, percentage, mean, and standard deviation were used to describe the characteristics of study participants. A logistic regression analysis was used to examine the relationship between anxiety and stress and each independent variable of socio-demographic factors, knowledge-related factors, chronic conditions, and behavioral factors. The values of the variables that showed statistical significance during the bivariate analysis were considered at $P < 0.25$. Multivariate logistic regression was used to assess multicollinearity among independent variables and between dependent and independent variables. Adjusted numerator ratios (AOR) with 95% CI were estimated to assess the strength of associations, and statistical significance was set at $P < 0.05$. Hosmer and Lemeshow tests were performed to verify the fit of the model.

Results

Socio-demographic Characteristics of the Respondents

Out of 283 eligible healthcare workers, 275 (97.2%) respondents opted to participate in this study. Nearly two-thirds, 173 (62.9%) were male respondents. The mean age of respondents was 29.83 ± 4.79 (range: 20–56 years). The majority of the respondents were between 25–29 and 30–34 years old, which accounts for 44.4% and 36.4%, respectively. More than two-thirds of respondents, 201 (73.1%) lived in urban areas, and more than half, 153 (55.6%) were married. Nearly two-thirds, 191 (69.5%) of respondents were Oromo in ethnicity. One hundred and twenty-seven (46.2%) of the interviewees were protestant, 167 (60.7%) had a degree, and approximately 98 (35.6%) were nurses by profession. The family size of health workers ranged from 1 to 12, and the minimum monthly income was 2000 Ethiopian birr (Table 1).

Knowledge of Healthcare Workers About COVID-19

The majority of healthcare workers 159 (57.80%) had 2–4 (± 4.15) years of healthcare experience. Nearly two-thirds of health workers 177 (64.4%) had training on COVID-19, and around one-third, 78 (28.4%) had experience with outbreak management. Out of study participants, 84.7% (233) of healthcare workers had good knowledge of COVID-19 and the mean knowledge score was 9.90 ± 2.42 points out of 12 points. The majority of healthcare workers (260/94.5%)

responded correctly to questions asking about the main clinical symptoms of COVID-19. About two-thirds (176/64%) of respondents answered correctly questions asking about the transmission of the COVID-19 virus.

Chronic and Behavioral Factors

Regarding the psychological distress of healthcare workers, 38 (13.8%) had a previous history and 18 (6.5%) had a parental history of psychological distress. Out of study participants, 45 (16.4%) of healthcare workers reported ever having any medical illness. The medical illnesses were diabetes mellitus 24 (8.7%), chronic hypertension 22 (8%), asthmatic disease seven (2.5%), chronic bronchitis six (2.2%), renal disease six (2.2%), and anemia six (2.2%). This study revealed that 183 (66.5%) practiced personal protective equipment. 91 (33.1%) of healthcare workers had a travel history for the past 2 weeks before the survey. Five (1.8%) of them had ever smoked tobacco/cigarettes. Concerning alcohol use, 74 (26.9%) drank alcohol once or twice per week 40 (14.5%) one to three per month 35 (12.7%), occasionally four (1.5%), and every day two (0.7%). 14 (5.1%) used psychoactive drugs.

The Prevalence of Anxiety and Stress Among Healthcare Workers (Fig. 1)

Factors Associated with Anxiety of Healthcare Workers

The factors associated with anxiety identified by logistic regression were considered for the candidate of multiple logistic regressions. The variables associated with anxiety due to COVID-19 were the age of healthcare workers, monthly income, alcohol use, and medical illness (Table 2). Healthcare workers aged 20–24 years were five times more likely to report anxiety symptoms (OR = 5.39, 95% CI, 1.35–21.54), compared to those aged 35 and above. Healthcare workers who used alcohol were more than three times more likely to report anxiety symptoms (OR = 3.85, 95% CI, 1.94–7.65) compared with none alcohol users. Healthcare workers who had medical illnesses are 8.74 times more likely to report anxiety symptoms (OR = 8.74, 95% CI, 3.61–21.18) when compared with healthcare workers free from medical illness.

The monthly income of healthcare workers was strongly and positively associated with anxiety due to COVID-19. Those who earned an income of 4000 Ethiopian birrs per month were 12.56 times more likely to report anxiety symptoms (OR = 12.58, 95% CI, 2.13–74.38) when compared with healthcare workers, who earned 8000 Ethiopian birrs per month or more. Those who earned a monthly salary of 4000 to 8000 Ethiopian birrs were 6.26 times more likely to report anxiety symptoms (OR = 6.26, 95% CI,

Table 1 Socio-demographic characteristics of healthcare workers in West Guji Zone public health facilities, Southern Ethiopia, 2020

S. no	Socio-demographic characteristics	N	%	
0	Age of respondents	20–24	22	8.0
		25–29	122	44.4
		30–34	100	36.4
		35–39	27	9.8
		≥ 40	4	1.5
1	Marital status	Married	153	55.6
		Single	106	38.5
		Divorced	13	4.7
		Widowed	3	1.1
2	Ethnicity	Oromo	191	69.5
		Amhara	55	20.0
		Burji	7	2.5
		Others	22	8.0
3	Qualification of healthcare workers	Diploma	88	32.0
		Degree	167	60.7
		Masters	15	5.5
		specialist	5	1.8
4	The profession of healthcare workers	General practitioner	11	4.0
		Health officer	39	14.2
		Nurses	98	35.6
		Midwifery	36	13.1
		Laboratory	38	13.8
		Pharmacy	39	14.2
		Anesthesia	7	2.5
		IESO	4	1.5
5	Religion	Orthodox	73	26.5
		Muslim	45	16.4
		Protestant	127	46.2
		Wakeffata	25	9.1
		others	5	1.8
6	Residence	Rural	74	26.9
		Urban	201	73.1
7	Family size	1	76	27.6
		2–3	98	35.6
		4–5	66	24.0
		≥ 6	35	12.7
8	Monthly income	≤ 4000	35	12.7
		4001–8000	210	76.4
		> 8000	30	10.9

1.23–31.84) when compared with healthcare workers who earned 8000 Ethiopian birrs per month or more.

Factors Associated with Stress of Healthcare Workers

The factors associated with stress due to COVID-19 identified by logistic regression analysis were considered for the candidate of multiple logistic regressions. The variables

associated with stress due to COVID-19 were alcohol use, medical disease, and lack of knowledge of COVID-19 (Table 3).

According to this study, healthcare professionals who use psychoactive drugs are 1.52 times more likely to report stress symptoms (OR = 1.52, 95% CI, 1.35–11.21) compared with none users. Healthcare workers who use alcohol were 3.71 times more likely to report stress symptoms (OR = 3.71,

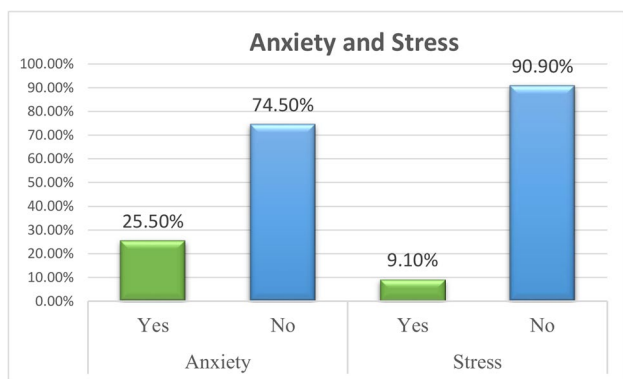


Fig. 1 Distribution of status of anxiety and stress-related to COVID-19 among health care workers of west Guji Zone public health facilities, 2020

95% CI, 1.35–10.192) when compared with non-alcohol users after adjusting for other confounding variables.

Healthcare providers who had a previous history of psychological distress were 1.51 times more likely to report stress symptoms due to COVID-19 (OR = 1.51, 95% CI, 0.46–5.01) when compared with previously no history of psychological distress. Healthcare workers who had a medical disease are 7.61 times more likely to report stress symptoms (OR = 7.61, 95% CI, 2.52–22.95) when compared with healthcare workers free from medical illness. Lack of knowledge about COVID-19 is also another factor significantly associated with stress. Healthcare workers who had poor knowledge about COVID-19 were 11.11 times more likely to report stress symptoms (OR = 11.11, 95% CI, 3.527–34.99) than those who had good knowledge after controlling for confounding factors.

Table 2 Logistic regression analysis of factors associated with anxiety due to COVID-19 among healthcare workers of West Guji Zone public health facilities, 2020

SN	Variables	Anxiety		COR (95% CI)	P	AOR (95% CI)		P
		Yes	No					
1	Sex	Male	46	127	1		1	
		Female	24	78	0.85 (0.48–1.50)	0.574	0.72 (0.39–1.34)	.297
2	Age	20–24	10	12	4.33 (1.21–15.48)	.024	5.39 (1.35–21.54)	.017
		25–29	29	93	1.62 (0.57–4.61)	.364	1.15 (0.43–4.68)	.265
		30–34	26	74	1.83 (0.64–5.25)	.263	1.72 (0.56–5.25)	.345
		≥ 35	5	26	1		1	
3	Residence	Urban	47	154	1.48 (0.82–2.67)	.195	0.70 (0.38–1.32)	.273
		Rural	23	51	1			
4	Marital status	Married	44	109	2.83 (0.62–12.95)	.181	2.27 (0.48–10.82)	.304
		Single	24	82	2.05 (0.44–9.65)	.364	1.38 (0.27–6.99)	.696
		Divorced and widowed	2	14	1		1	
5	Family size	One person	17	59	1			
		Two to three family members	27	71	1.32 (0.36–1.92)	.663	0.76 (0.32–1.81)	.540
		Four family members and above	26	75	1.2 (0.26–1.61)	.343	0.59 (0.23–1.51)	.270
6	Psychoactive drug use	Yes	7	7	3.14 (1.06–9.30)	.039	1.52 (1.35–11.21)	0.05
		No	63	198	1			
7	Alcohol use	Yes	37	37	5.09 (2.83–9.18)	0.000	3.85 (1.94–7.65)	0.000
		No	33	168	1			
8	Had medical illness	Yes	30	15	9.50 (4.68–19.27)	0.000	8.74 (3.61–21.18)	0.000
		No	40	190	1			
9	Monthly Income	≤ 4000 EBR	14	21	2.67 (1.91–45.58)	.006	12.58 (2.13–74.38)	0.005
		4001–8000 EBR	54	156	1.38 (1.12–21.03)	.035	6.26 (1.23–31.84)	0.027
		> 8000 EBR	6	24	1			
10	Training on COVID-19	Yes	32	131	0.48 (0.213–3.64)	.054	1.15 (0.58–2.29)	0.692
		No	38	74	1			
11	Outbreak management experience	Yes	20	58	1.01 (0.56–1.85)	.964	0.77 (0.34–1.78)	0.543
		No	50	147	1		1	
12	Knowledge about COVID-19	Good knowledge	70	205	1		1	
		Poor knowledge	8	34	1.45 (0.68–3.51)	.303	1.57 (0.69–3.59)	0.280

Table 3 Logistic regression analysis of factors associated with stress due to COVID-19 among healthcare workers of West Guji Zone public health facilities, 2020

SN	Variables		Stress		COR (95% CI)	P	AOR (95% CI)	P
			Yes	No				
1	Residence	Urban	11	190	0.55 (0.21–1.49)	0.24	.64(0.27– 1.57)	0.33
		Rural	7	67				
2	Family size	1	5	71	0.34 (0.09–1.20)	0.09	4.0 (0.69–23.1)	0.12
		2–3	3	95	0.15 (0.04–0.65)	0.01	1.29 (0.27– 6.27)	0.75
		4–5	4	62	0.31 (0.08–1.19)	0.09	1.05 (0.21–5.35)	0.95
		> =6	6	29	1			
3	Psychoactive drug use	Yes	5	9	5.99 (3.11–36.16)	0.00	1.52(0.38–6.09)	0.56
		No	23	248				
4	Alcohol use	Yes	14	60	11.49 (3.65–36.23)	0.00	3.71 (1.35–10.192)	0.01
		No	4	197				
5	Had medical illness	Yes	13	32	18.28(6.11–54.69)	0.00	7.61 (2.52–22.95)	0.00
		No	5	225				
6	Previous history of psychological distress	Yes	5	9	10.59 (0.35–14.61)	0.72	1.513(0.46–5.01)	0.49
		No	13	248				
7	Previous outbreak managements experience	Yes	6	72	1.28 (0.47–3.55)	0.63	1.33 (0.415–4.26)	0.63
		No	12	185				
8	Knowledge about COVID-19	Good knowledge	14	219	5.55 (2.32–13.31)	0.00	11.11(3.527–34.99)	0.00
		Poor knowledge	11	31				

Discussion

This study was conducted to assess the prevalence of, and factors related to, anxiety and stress among healthcare workers of the West Guji Zone. An increase in the number of confirmed and suspected cases, lack of PPE, lack of specific drugs, increased risk of infection for family members and colleagues, and inability to adapt to prevention strategies will increase the level of anxiety, and stress among healthcare workers. According to this finding, the prevalence of anxiety and stress were 25.5% and 9.1% respectively.

The prevalence of anxiety (25.5%) in this finding was consistent with a systematic review and meta-analysis of 25.5% (12) but higher than the study done in China 16.63% (13). On the other hand, the finding of the study conducted in Oman was 34.1% (14), online survey in China 44.4% (15), Malaysia 29.7% (11), Turkey 60.2% (16), and in 31 countries 60% (17) were higher than this finding. The possible reason for this discrepancy among these countries might be due to the levels of information they had been different, and the availability of PPE they have can lead to compromise in their psychological status.

The prevalence of stress (9.1%) among healthcare workers in this study was in line with a survey done in China 9.1% (18) but higher than finding done in India 5.2% (19) and Singapore 6.6% (20). However, the prevalence of stress in this study was lower than that of health workers from Dilla, Ethiopia, 51.6% (21); Oman 23.8% (14); Wuhan,

China 71.5% (15); Malaysia 23.5% (11); Turkey 76.5% (16); and systematic review and meta-analysis 45% (12). The possible explanation is that the study conducted in Dilla used a perceived stress scale (PSS-10) which is different from the Depression, Anxiety, and Stress Scale-21 (DASS-21). The variation from other countries may be different study periods, different study designs, and the number of reported cases was relatively insignificant in the study settings.

In the current study, several factors were associated with anxiety and stress. The factors associated with anxiety were age, monthly income, alcohol use, and medical diseases. Factors associated with stress were alcohol use, medical diseases, and lack of knowledge about COVID-19. According to this study, healthcare workers 20–24 years old were more than five times as likely to report anxiety symptoms, compared with those aged 35 and older. This study was similar to a study done in India and Singapore (19). The possible reasons might be, that as the age of healthcare workers increases, they may adapt to a stressful working environment and develop more experiences and manage uncomfortable situations.

The study also indicates that healthcare workers who drank alcohol were three times more likely to report having anxiety and stress symptoms than their counterparts. Drinking alcohol may increase anxiety and stress levels and decrease cognitive abilities (31). Alcohol dependence can cause a stigma that makes it difficult for healthcare

professionals to seek treatment for fear of losing their sick leave. Having a medical disease was significantly associated with anxiety and stress. This study is in line with the reports from India and Singapore (19), Turkey (16), Spain (22), Norway (23), and Huwan, China (24). According to CDC reports, adults of any age with medical illness lead to higher levels of stress and anxiety (25).

This study also revealed that the monthly income of healthcare workers was significantly statistically associated with anxiety. Having less than four thousand and four thousand to eight thousand Ethiopian birrs per month were more likely to report anxiety symptoms, respectively, when compared with healthcare workers who got eight thousand Ethiopian birrs per month and above. This is in line with a study done in the United Arab Emirates (26).

Furthermore, our findings suggest that the level of knowledge about COVID-19 may have protective effects. Those with a lack of knowledge about COVID-19 were more likely to report stress symptoms than those who had good knowledge. This is consistent with previous studies finding in Cyprus (27), the United Arab Emirates (26), and a Web-based survey (28) that healthcare workers who had good knowledge reduced their level of stress. It appears that the lack of information could lead to disruptions in the implementation of necessary precautions and PPE, which could add to the COVID-19 concern.

Thus, this study identified important factors which need intervention at a national level as well as at local levels for the well-being of healthcare workers. Ensuring the psychological well-being of healthcare workers is very essential for providing universal quality care. Since they are playing a vital role in response to the pandemic crisis, comprehensive psychological support for the mental well-being of healthcare workers to mitigate the negative effects of anxiety and stress due to COVID-19 pandemic.

This study was not without limitations. The demerits of this study were that the cross-sectional studies cannot establish a temporal sequence of events, which requires future longitudinal studies or randomized control trials and there may be potential unmeasured confounders. The responses provided were self-reported and may be subject to recall bias. Despite these limitations, this study provided valuable insights into healthcare workers' levels of anxiety and stress due to COVID-19 and related factors.

Conclusion

The prevalence of anxiety and stress among healthcare workers due to COVID-19 were average compared with studies in low-income and high-income countries. Nearly two-thirds of health workers had trained on COVID-19, and

around one-third had an experience in outbreak management. Factors associated with anxiety were age, monthly income, alcohol use, and medical illness, and stress due to COVID-19 were alcohol use, medical illness, and knowledge about COVID-19. Health institutions must focus on the well-being of healthcare workers during the fighting for COVID-19 and comprehensive psychological assistance to support the mental well-being of healthcare workers by giving different training and giving time support for mental health through interdisciplinary work through the hotline, the media, or a team of mental health professionals. Further studies should be done by using a mixed method of data collection approach to assess the potential effect of anxiety, and stress of the COVID-19 pandemic.

Supplementary Information The online version contains supplementary material available at <https://doi.org/10.1007/s40615-022-01335-1>.

Author Contribution ZJW conceived the project, developed a proposal, collected data, did data analysis and interpretation, and wrote the manuscript. GTM developed a proposal, collected data, analyzed data, and wrote the manuscript. EAH developed a proposal, collected data, analyzed data, and wrote the manuscript. All authors read and approved the final manuscript.

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Data Availability The datasets used in this study are available from the corresponding author upon reasonable request.

Declarations

Ethics Clearance Ethical clearance was obtained from Bule Bora University IRB with a reference number; Ref. No (BHU/PRD/01/2020). Based on the approval, an official letter was written by the research publication directorate to the West Guji Zone administration office and the West Guji zone health department. The Zone health office wrote to the relevant health institutions asking for cooperation and permission to carry out the study. At last, data was collected after assuring the confidentiality nature of responses and obtaining written consent from the study participant.

Consent for Publication Not applicable.

Competing Interest The authors declare no competing interests.

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