Health care workers depression and associated factors during COVID-19. Health facility-based study in Eastern Ethiopia

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Keywords: Health worker, depression, COVID_19, East, Ethiopia

Posted Date: December 29th, 2020

DOI: <https://doi.org/10.21203/rs.3.rs-135135/v1>

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Abstract

Background

Depression of health care workers was related to work absences, resignations, and poor work performance, affecting the quality of patient care and the health care system. It may be at higher risk during the Coronavirus disease (COVID-19) pandemic. There is limited evidence that assesses depression and its associated factors in the study area. Therefore this study aimed to assess depression and associated factors among health care workers (HCW) in eastern Ethiopia.

Method:

The cross-sectional study design was conducted from October 26th to November 10, 2020. To assess depression among health care workers. Patient Health Questionnaire (PHQ-19) questionnaire was used for the collection of depressive symptoms. The data were analyzed by using STATA version 14 software. Adjusted Odds Ratio (AOR) along with 95% CI was estimated to examine factors associated with depression symptoms using logistic regression analysis.

Results

Of the total 265 study participant, 176 (66.4%) and 95% CI: 60.4%, 71.8% of them reported depressive symptom. Of 176 reported symptoms of depression 27.9%, 24.1%, 9.4%, 3.7%, and 1.1% were had minimal, mild, moderate, moderate-severe, and severe depressive symptoms respectively. Being female [AOR: 3.40, (95%CI: (1.79, 6.45))], participants who perceived susceptibility to COVID-19 [AOR: 2.30, (95%CI: (1.12, 4.71))], and perceived severity to COVID-19 [AOR: 3.06, (95%CI: (1.35, 6.91))] were higher risks of experiencing depression symptoms. Participants who had work experience 3–5 years [AOR: 0.21, (95%CI: (0.08, 0.56))], and the participant who had 6–10 years' work experience [AOR: 0.30, (95%CI: (0.11, 0.84))] were had less likely to experience depression symptoms when compared with a participant who had two and fewer years of work experience.

Conclusions

A high proportion of health care workers experienced depression symptoms. Health care workers' mental health needs to be protected during the COVID-19 pandemic. Female health care workers, junior health care workers, and HCWs perceived susceptibility, and perceived severity of COVID-19 need attention.

Background

Since the World Health Organization (WHO) declared coronavirus disease 2019 (COVID-19) a pandemic, it became a major challenging public health problem worldwide[1]. Globally, many countries have been affected by the pandemic, as of October 27, 2020; there were 43,873,412 recorded cases and 1,166,039 fatalities [1]. During the same period, 93,707 cases and 1,437 fatalities were recorded in Ethiopia[2]. Similarly, more than 10,000 health care workers (HCWs) in the 40 countries of Africa have been infected with COVID-19[3].

With the ever-growing number of confirmed and suspected cases, the workload of HCWs has been overwhelming [4]. The long and irregular hours of such continuous and heavy volumes of work have the potential to trigger depression among HCWs [5–8]. Safety measures like lockdown and physical distancing recommended by the world health organizations to limit the spread of pandemics among the public, but health care workers (HCWs) are left exposed[9]. Globally, the prevalence of depression among HCWs range from 18–72% [10–16]. Also, they are burdened with emotionally challenging interactions with the sick and potentially dying persons, fearing for their and families' health, and subject to occupational overload due to staff shortages and insufficient personal protective equipment [17].

Many studies documented as HCWs face physical exhaustion, sleep disruption, fear, emotional disturbances, feeling vulnerable, loss of control, changes in working patterns/routine, feelings of personal danger, being isolated, lacking necessary supplies to conduct their work due to the pandemic [4, 18–20]. This may increase their risk of depression, suicide, and burnout. Depression symptoms were related to work absences resignations and poor work performance, affecting patient care and the healthcare system [15, 21].

The study suggests that HCWs with depression benefit from care involving medical and psychological interventions [22]. World Health Organization identified protecting the mental wellbeing of healthcare workers caring for people with COVID-19 has been identified as crucial for the long-term capacity of the HCWs [23]. However, most HCWs experiencing depression were not planning to seek help and 30% were not aware of workplace help programs. This may be due to a lack of information on the prevalence and associated factors of depression. There is a limited study in Ethiopia that assess depression and associated factors among health care workers. Therefore, this study aimed to assess depression status and associated factors among health care workers during COVID-19 pandemic in the Eastern part of Ethiopia.

Methods And Materials

Study setting and period

The study was conducted among health facilities found in the Eastern Hararghe Zone, Oromia regional states found in eastern part of Ethiopia. The East Hararge Zone is bordered on the southwest by Bale, on the west by West East Shewa Zone, on the north by Dire Dawa and on the north and east by the Somali

Region. The Harari regional state is an enclave inside this zone. The Administrative center of this zone is Harar city. The East Hararghe zone contains four hospitals, and 67 health centers according to the East Hararghe health bureau report [24]. The study was conducted from October 25 to November 15, 2020.

Study design and source population

Health facilities based cross-sectional study design was used. All health care workers from randomly selected health facilities found in the Eastern Hararghe zone were the study population. Health care workers who unable to communicate due to illness were excluded.

Sample size determination

The sample size was calculated using the formula for estimation of a single population proportion ($n = \frac{[Z\alpha/2]^2 * P(1-P)}{d^2}$) with the assumptions of 95% confidence level, marginal error (d) of 0.05, and 50.4% the prevalence of depression among health care workers [25]. Thus, after applying the finite population correction formula and adding 10% of the non-response rate, the final sample size obtained was 297.

Sampling procedure and sampling technique

Two hospitals and eight health centers were selected by simple random sampling method (lottery method) from four hospitals and 39 health centers. The study participants from each selected health facilities were selected by simple random sampling technique by considering proportional to the institutions health professionals' size.

Variables

Dependent variable was depression.

Independent variables were socio-demographic characteristics such as age, marital status, and level of education, work experience, Perceived susceptibility, perceived severity, and perceived benefit.

Data collection and questionnaire

An interview questionnaire was developed to assess socio-demographic characteristics include; age sex, marital status, educational level, type of profession, types of health facility, and worker experiences. The 9-item Patient Health Questionnaire (PHQ-9) tool was used to assess depression symptoms. The questionnaire was validated in the Ethiopian context and it recommended for use [26].

The data was collected by ten nurses. Four MSC health professionals were assigned to supervise the data collection process. Both the data collectors and supervisors were taken 2-day intensive training before the actual work about the aim of the study, procedures, data collection techniques, the art of interviewing, ways of collecting the data, and clarification. The intensive supervision was done by the principal investigator, co-investigators and supervisors. Completeness, accuracy, and consistency of data were checked at the site of data collection throughout the data collection period. Finally, double data entry was done by two data clerks, and consistency of the entered data was cross-checked by comparing the two separately entered data.

Measurements

The PHQ-9 is the depression module, which scores each of the nine DSM-IV criteria as 0 to 3 for every nine symptoms of depression, "0" not at all, "1" several days "2" more than half the days "3" nearly every day. Scoring was done by counting the number of boxes checked in a column. Multiply that number by the value indicated above, then add the subtotal to produce a total score. PHQ-9 total score for the nine items ranges from 0 to 27. Scores of zero, 1-4, 5-9, 10-14, 15-19, and 20-27 represent cut-points for no depression symptoms, minimal, mild, moderate, moderately severe, and severe depression, respectively [27]. For logistic regression analysis we have categorized those who had no symptom as have no depression and coded as "0" and the rest who had at least one symptom categorized as had depression symptoms and coded as "1"

The age of the mother was recorded based on maternal response later and was grouped as 19-24, 25-29, 30-34, 35-39, and ≥ 40 with codes 1,2,3,4,and 5, respectively, for analysis. Work experience was grouped as < 2 years, 3-5 years, 6-10 years, and >10 years with codes 1, 2, 3, and 4, respectively, for analysis. Data for perceived susceptible was collected by interview using a single question "How likely do you think it is that you will develop COVID-19 during your providing care?" liker scale of five were used and labeled as "Strong unlikely", "unlikely", "Neutral", "likely", and "Strongly likely" and coded with 1, 2, 3, 4, and 5 respectively. For logistic regression analysis, we categorize as strong unlikely, unlikely, and neutral as no perceived susceptible, no susceptible coded as "1" and susceptible coded as "2". With a similar pattern. Data for perceived severity was collected by interview using question with a single question "Getting COVID-19 in the future worries me and It is important for me to prevent getting". Likert scale of five was used and labeled as "Strong unlikely", "unlikely", "Neutral", "likely", and "Strongly likely" and coded with 1, 2, 3, 4, and 5 respectively. For logistic regression analysis, we categorize as strong unlikely, unlikely, and neutral as no perceived susceptible, no susceptible coded as "1" and susceptible coded as "2".

Interpretation

PHQ-9 questionnaire is not a screening tool for depression but it is used to monitor the severity of depression and response to treatment. However, it can be used to make a tentative diagnosis of depression in at-risk populations (Table 1).

Table 1: Adapted interpretation of the PHQ-9 Scores for tentative diagnosis of depression in at-risk populations (Table 1).

Interpreting PHQ-9 Scores		Action
Minimal depression	0-4	The score suggests the patient may not need depression treatment
Mild depression	5-9	
Moderate depression	10-14	
Moderately severe depression	15-19	Warrants treatment for depression, using antidepressant, psychotherapy and/or a combination of treatment
Severe depression	20-27	

Statistical Analysis

Double data entry was made using the Epidata 3.1 software. Then after validation was done the data exported to the STATA statistical package version 14 for further analysis. Descriptive statistics were used to summarize the variable. Continuous variables like age and work experience were first transformed into categorical variables before analyzed. Initially, the crude odds ratio (COR) along with a 95% confidence interval was estimated to assess the association between each independent variable and the outcome variable. Multicollinearity was tested using the Variance Inflation Factor (VIF) test and the tolerance test. No multicollinearity problem was found. The Hosmer-Lemeshow goodness-of-fit tests were used to test for model fitness [25]. The logistic regression model was used to assess the association between predictor variables and the outcome variable depression symptoms. Adjusted Odds Ratio (AOR) along with a 95% confidence interval was estimated to assess the strength of the association. Statistical significance was declared at a p-value $\leq$ 0.05

Ethical consideration

The study was approved by the Haramaya University, College of Health and Medical Sciences Institutional Health Research Ethics Review Committee (IHRERC). The permission and agreement consent was obtained from East Hararghe Zone, participating District health bureau, and health care facilities office prior to the study. The study participant was informed about the purpose of the study, their right to refuse, and written and signed voluntary consent was obtained prior to data collection. Based on the interpretation and recommendation HCWs who had depression symptoms were obtained management.

Results

Socio-demographic characteristics of the respondents

A total of 265 health care workers were participated in this study. The mean ($\pm$ SD) age of HCWs was 29.29 ($\pm$ 6.40) years. The mean ($\pm$ SD) HCWs work experience was 6.25 ($\pm$ 4.98) years. Of these, 69(26.04%) were working in outpatient department, 49 (18.49%) were working in mother and neonatal health, the majorities 118 (44.53%) were nurse in profession, and more than two-third 183(69.06%) were married (Table 2).

Table 2
Socio-demographic characteristics of respondents in in Eastern Hararghe zone, Oromia region, Eastern Ethiopia, 2020.

Characteristics	Category	Frequency	percent
Age	19–24	35	13.21
	25–29	135	50.94
	30–34	60	22.64
	35–39	18	6.79
	≥ 40	17	6.42
Work experience	< 2 years	55	20.75
	3–5 years	81	30.57
	6–10 years	90	33.96
	> 10 years	39	14.72
Type of facility	Health center	167	63.02
	Hospital	98	36.98
Ward/area	OPD	69	26.04
	ART/TB	15	5.66
	Gyen /Obstetric	46	17.36
	MCH	49	18.49
	Emergency/ICU/X	24	9.06
	Surgical	8	3.02
	Medical	14	5.28
	Lab	12	4.53
	Pharmacy	16	6.04
	Pediatrics	10	3.77
Profession	Nurse	118	44.53
	Public health	28	10.57
	Midwifery	71	26.79
	Pharmacy	17	6.42
	MLT	13	4.90
	Medical Dr.	18	6.79
Level of education	Diplo	101	38.11
	Bsc	144	54.34
	MSc /MPH	2	0.75
	Doctors	18	6.79
Sex	Male	149	56.23
	Female	116	43.77
Marital status	Unmarried	82	30.94
	Married	183	69.06

COVID-19 related perception

Participant response on perceived susceptibility, perceived severity, and perceived benefit indicated as 96(36.23%) participants were strongly perceived as they perceived susceptible in experienced COVID-19 during care provision, 121(45.66%) respondents believe regular use of the mask is an effective way of avoiding COVID-19, 114 (54.34%) of respondents were regularly used mask (Table 3).

Table 3

Assessment of health care workers COVID-19 related perceived susceptibility and severity in Eastern Hararghe zone, Oromia region, Eastern Ethiopia, 2020.

Characteristics	Strong unlikely		unlikely		Neutral		likely		Strong likely	
	n	%	n	%	n	%	n	%	n	%
How likely do you think it is that you will develop COVID-19 during your providing care?"	25	9.43	38	14.34	13	4.91	93	35.09	96	36.23
Getting COVID-19 in the future worries me" and "It is important for me to prevent getting	25	9.43	18	6.79	14	5.28	114	43.02	94	35.47
Regular use of mask is an effective way of avoiding COVID-19	13	4.91	16	6.04	12	4.53	114	54.34	80	30.19
Regular use of glove is an effective way of avoiding COVID-19	21	7.92	27	10.19	23	8.68	121	45.66	73	27.55
Regular use of goggle is an effective way of avoiding COVID-19	34	12.88	27	10.23	15	5.68	120	45.45	68	25.76

Categorized COVID-19 related perceived susceptibility and severity

After categorizing, 202(76.23%) and 222(83.77%) respondents were perceived as susceptible and perceived severe to COVID-19 respectively (Table 4).

Table 4
COVID-19 related Susceptibility and Severity in Eastern Hararghe zone, Oromia region, Eastern Ethiopia, 2020.

Characteristics	Category	Frequency	Percent
Perceived susceptibility	No	63	23.77
	Yes	202	76.23
Perceived severity	No	43	16.23
	Yes	222	83.77

Depression status of participants

More than half, 148 (55.85%) of respondents not at all had interest or pleasure in doing things over the past two weeks. Two third 174 (65.66%) of the respondents not at all feeling down, depressed, or hopeless, feeling tired 171 (64.53%) and trouble concentrating on things, such as reading the newspaper or watching television 173 (65.28%) over the past two weeks (Table 5).

Table 5
Depression status of health care workers in Eastern Hararghe zone, Oromia region, Eastern Ethiopia, 2020.

Characteristics	Not at all		Several days		More than half the days		Nearly every day	
	n	%	n	%	n	%	n	%
Little interest or pleasure in doing things	148	55.85	54	20.38	34	12.83	29	10.94
Feeling down, depressed, or hopeless	174	65.66	42	15.85	37	13.96	12	4.53
Trouble falling or staying asleep, or sleeping too much	196	73.96	27	10.19	31	11.70	11	4.15
Feeling tired or having little energy	171	64.53	44	16.60	41	15.47	9	3.40
Poor appetite or overeating	208	78.49	23	8.68	23	8.68	11	4.15
Feeling bad about yourself or that you are a failure or	214	80.75	22	8.30	20	7.55	9	3.40
Trouble concentrating on things, such as reading the newspaper or watching television	173	65.28	48	18.11	22	8.30	22	8.30
Moving or speaking so slowly that other people could have noticed. Or the opposite being so fidgety or restless that you have been moving around a lot more than usual	193	72.83	38	14.34	24	9.06	10	3.77
Thoughts that you would be better off dead, or of hurting yourself	234	88.30	16	6.06	10	3.77	5	1.89

Level of depression of participants

Concerning the level of depression of respondents, 176 (66.4%) and 95% CI: 60.4%, 71.8%) of them reported at least one depressive symptom. Of respondents who had symptoms of depression, 74(27.92%) had minimal and 64 (24.15%) were had mild symptoms of depression (Fig. 1).

Factors associated with depression

In multivariable regression analysis the Odds of being female [AOR: 3.40, (95%CI: (1.79, 6.45)], participants who perceived susceptibility [AOR: 2.30, (95%CI: (1.12, 4.71)], and perceived severity [AOR: 3.06, (95%CI: (1.35, 6.91))] were higher risks of experiencing depression symptoms. Participants who had work experience 3–5 years [AOR: 0.21, (95%CI: (0.08, 0.56))], and the participant who had 6–10 years' work experience [AOR: 0.30, (95%CI: (0.11, 0.84))] were less likely to experience depression symptoms when compared with a participant who had two and fewer years of work experience (Table 6).

Table 6
Factors associated with the depression of health care workers in Eastern Hararghe zone, Oromia region, Eastern Ethiopia, 2020.

Depression					
Characteristics	Category	No n (%)	Yes n (%)	COR (95% CI)	AOR (95% CI)
Marital status	Unmarried	24 (29.27)	58(70.73)	1.00	1.00
	Married	65(35.52)	118(64.48)	0.75(0.42, 1.32)	0.74(0.36, 1.51)
Age	19–24	13(37.14)	22(62.86)	1.22(0.56, 2.65)	0.97(0.36, 2.570)
	25–29	44(32.59)	91(67.41)	1.02(0.43, 2.42)	1.06(0.34, 3.31)
	30–34	22(36.67)	38(63.33)	1.53(0.44, 5.30)	0.79(0.15, 4.03)
	35–39	5(27.78)	13(72.22)	1.41(0.40, 4.94)	1.16(0.22, 6.16)
	≥ 40	5(27.78)	12(70.59)	1.00	1.00
Sex	Male	64(42.95)	85(57.05)	1.00	1.00
	Female	25(21.55)	91(78.45)	2.74(1.58, 4.74)	3.40(1.79,6.45)
Level of education	Diploma	51(31.48)	111(68.52)	0.78(0.46, 1.32)	0.52(0.27, 1.01)
	BSc and above	38(36.89)	65(63.11)	1.00	1.00
Type of facility	Health center	51(30.72)	115(69.28)	0.71(0.42, 1.20)	0.53(0.28, 1.02)
	Hospital	38(38.38)	61(61.62)	1.00	1.00
Type of profession	Nurse	64(34.04)	124(65.96)	1.07(0.61, 1.88)	0.53(0.37, 1.16)
	Others	25(32.47)	52(67.53)	1.00	1.00
Work Experience	≤ 2 years	8(14.55)	47(85.45)	1.00	1.00
	3–5 years	37(45.68)	44(54.32)	0.20(0.84, 0.48)	0.21(0.08, 0.56)
	6–10 years	33(36.67)	57(63.33)	0.29(0.12, 0.69)	0.30(0.11, 0.84)
	> 10 years	11(28.21)	28(71.79)	0.43(0.15, 1.20)	0.36(0.10, 1.27)
Susceptibility	No	35(55.56)	28(44.44)	1.00	1.00
	Yes	54(26.73)	148(73.27)	3.42(1.90, 6.15)	2.30(1.12, 4.71)
Severity	No	28(65.12)	15(34.88)	1.00	1.00
	Yes	61(27.48)	161(72.52)	4.92(2.46, 9.85)	3.06(1.35, 6.91)

Multicollinearity test

Multicollinearity was tested using the Variance Inflation Factor (VIF) and tolerance test. Variance Inflation Factor for all variables was less than five. Variance Inflation Factor below 5 is believed non-significant multicollinearity and therefore there is no need for correction [28] (Table 7).

Table 7
Multicollinearity test output among predictor variables, Harar, Eastern Ethiopia, 2016

Variables	Variance inflation test (VIF)	Tolerance test (1/VIF)
Experience	1.37	0.729844
Age	1.37	0.730546
Perceived severity	1.25	0.798794
Perceived susceptibility	1.21	0.827699
Marital status	1.19	0.840225
Educational level	1.19	0.842732
Profession	1.14	0.873767
Facilities	1.12	0.891002
sex	1.11	0.903292
Mean VIF	1.22	

Discussion

In this study, overall, 276 (66.42%) of the study participants have had at least one self-reported depression symptoms. Factors significantly associated with depression symptoms were being a female, work experiences, perceived susceptibility, and perceived severity.

The depression symptoms reported in this study was consistent with those reported in studies conducted elsewhere [29–33]. This may be due to fears and concerns for self, family members, problems with children and spouses, and difficulties entailed in working at home are some of the stressors during the Covid-19 pandemic [34]. This may also due to, Ethiopia is one of low income countries which left HCWs with high fear of COVID-19 due to lack of personal protective equipment(PPE) and shortage of human power to handle ever increasing the case [14, 35], and low preparedness to compact the pandemic [35–37]. As some bodies experience stress, adrenal glands make and release cortisol hormone into the bloodstream. Prolonged elevated cortisol level leads to the manifestation of depression [38–40] and minimize the body immunity [41]. Health care providers at higher risk of experiencing severe disease and even may fatal. ICN confirms 1,500 nurses have died from COVID-19 in 44 countries and estimates that healthcare worker COVID-19 fatalities worldwide could be more than 20,000 as of October 28, 2020 [42]. Without addressing mental health services, we risk not having a workforce left to care for us.

The study showed depression symptoms were higher among female health care workers. This is supported by studies conducted in China [19, 43], Gulian [44], Egypt[45] and Ethiopia[46]. Women are among the highly vulnerable population groups during a pandemic due to disrupting the food system and other economic activities. A study in India showed COVID-19 case fatality rate among men were 2.9% and 3.3% among women [47]. Study showed that, there was gender difference in stress and coping styles, numerous studies have determined that women find themselves in stressful circumstances more often than men, and their coping style is more emotion-focused than that of men [48]. Social roles also seem relevant in the stressful life experiences of women, especially in low-income countries. There can be sex differences in the use of coping strategies which is important for the mitigation of depressive symptoms [49]. The study shows that certain psychological and social determinants were associated with increased depressive symptoms, women are disadvantageous in low-income country, COVID-19 enhances the vulnerability to the mental health challenge [50]. Measures must be put into place to ensure the protection of women on the frontlines while reducing COVID-19 deaths and adverse health effects among displaced populations.

This study also showed work experience was significantly associated with had symptoms of depression. Health workers who had less work experience had developed more depressive symptoms. This found to be in line with a finding study done in Nepal [51]. The study showed a lack of communication skills with patient, among health professionals and colleague, medical knowledge, and skills associated with depression symptoms [52], less experience may weaken self-regulation ability and copying mechanism for stressor [22]. Training on knowledge and skill and schedule for activities mixing senior professionals who had skill and experience with junior health workers may benefit.

Perceived susceptibility (perception of the risk of acquiring COVID-19) was associated with participants who had symptoms of depression. This is consistent with the study finding in China [53, 54]. Also, participants who perceived the severity of COVID-19 were six times more likely to develop depression compared with their counterparts. This is in line with a study done in China[19]. Perceived susceptibility may be related to shortages of personal protective equipment (PPE) or other essential equipment, low community role in practice to protect themselves and the play their role in mitigating the transmission including to the health care worker [55]. Contradicting of belief in susceptibility and severity, with the low accessibility of protective measure, less concern of the community and the health manager may put health care provider at risk of experiencing depressive symptoms. Health care may also face moral dilemmas in decision-making around the provision of care with limited resources [6].

Depression symptoms were related to work absences and reduced work performance. The study investigated that workers with depression may benefit from care involving medical and psychological interventions [22]. World Health Organization identified protecting the mental wellbeing of healthcare workers caring for people with COVID-19 has been recognized as crucial for the long-term capacity of the health workforce [23]. However, most health care workers experiencing depression were not planning to seek help and not aware of workplace help plan [22]. Prioritizing the wellbeing of health care workers must be at the forefront of the action plan to tackle the coming wave of this pandemic. We suggested that comprehensive psychological assistance should be provided to support the mental well-being of healthcare workers.

Strengths, limitations, and future directions

The study conducted in multiple health care facilities including Hospitals and Health Centers found in town and rural areas. However, the cross-sectional study is important to be aware of the predictive, there is generally no evidence of a temporal relationship between exposure and outcome because the exposure and outcome are simultaneously assessed. The study includes only depressive symptoms, other mental health problems were not included. This study also not include staff who had contact with COVID-19 patients. We suggest a study that includes health professionals who had contact with COVID-19 patients, assessment of other mental health problems, longitudinal studies that assess the prolonged implication on HCWs need further investigation.

Conclusion

A high proportion of health care providers experienced depression symptoms. The mental health of healthcare workers should be protected during the COVID-19 pandemic. Female health workers, junior health workers, have less work experience and perceived susceptibility, and perceived severity of COVID-19 need attention.

Declarations

Acknowledgements

The authors would like to thank Oromia Regional state Health Bureau for financial support, the study participants, for their generosity spent many hours responding to questionnaires. We wish to acknowledge the sterling contributions of our field workers, administrators, data personnel and other staff who contributed to the data collection.

Authors' contributions

TA.Y, YB, and BB conceived and designed the paper, involved in data collection, performed the statistical analysis, interpret the results, wrote and reviewed the manuscript. All authors read and approved the final version of manuscript before submission.

Funding

This study was financially supported by Oromia Regional state health bureau, Ethiopia.

Availability of data and materials

The datasets used and/or analyzed during the current study are available from the corresponding author on reasonable request.

Ethics approval and consent to participate

The written consent was obtained from each respondent. Privacy and confidentiality were resolutely kept in all data collection procedures. The study material was reviewed and approved by the Institutional Health Research Ethics Review Committee of the College of Health and Medical Sciences at Haramaya University. Permission was obtained from each of the health facilities involved in the study.

Consent for publication

Not applicable

Competing interests

The authors declare that they have no competing interests.

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Figures

Figure 1

Level of depression among health care workers in Eastern Hararghe zone, Oromia region, Eastern Ethiopia, 2020