

# Anxiety and Depression among COVID Positive Frontline Health Care Workers in Nepal

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## ABSTRACT

**Background:** COVID-19, an emerging contagious disease had affected all over the world and become a global health threat. Lockdown and restriction had made the life of the health care workers troublesome and psychosocial problems are exaggerated. Moreover, health care workers are the frontline workers to deal with the COVID-19 patients; they are at high risk. Due to social stigma and hectic schedule of work had made their life more stressful. The study aimed to assess anxiety and depression and its associated factors among COVID-19 positive frontline health care workers during COVID-19 pandemic.

**Methods:** A web-based cross-sectional study was conducted among 323 COVID-19 positive health care workers working in different provinces of Nepal. The Google form was made by adopting GAD-7 for anxiety and PHQ-9 for depression and made available to study population through various social media.

**Results:** The prevalence of anxiety and depression among the COVID-19 positive frontline health care worker was 39% and 35.5% respectively. The study showed significant association between staying with friend during pandemic (p 0.015), daily meditation (p 0.020), duty in isolation ward (p 0.027), unaware of incentives provision (p 0.034), stigma (p <0.001) with anxiety and education status (p 0.023), fear of dying from COVID-19 (p 0.045) and stigma (p 0.05) with depression in multiple logistic regression analysis.

**Conclusions:** In the pandemic, COVID-19 positive frontline health workers had developed anxiety and depression symptoms. Training and sufficient preventive practice need to be implemented to control consequences of COVID 19 pandemic.

**Keywords:** Anxiety; Coronavirus; Depression; Frontline health workers, Nepal

## INTRODUCTION

COVID-19 is a disease caused by the SARS-CoV-2 and first detected in Wuhan China in late December in 2019 which has spread all over the world.<sup>(1)</sup> On 30 January 2020, the World Health Organization had declared the outbreak a public health emergency of international concern.<sup>(2)</sup> COVID-19 disease has become a global health threat.<sup>(3)</sup> According to WHO,

the case fatality rate is around 2%.<sup>(4)</sup> However, some reports suggest that the rate ranges from 0.3% to 0.6%.<sup>(5)</sup> The COVID-19 pandemic brought not only the risk of death from infection, but also unbearable psychological pressure.<sup>(6)</sup> Study of China showed 16.5% depression while 28.8% anxiety symptoms.<sup>(7)</sup> Frontline health care workers involved in COVID-19 management were associated with a higher

risk of symptoms of depression.<sup>(8)</sup> A study conducted in India among health care workers showed 11.4% depression and 17.7% anxiety.<sup>(9)</sup> Females, health professionals, staying alone were at high risk of anxiety and depression.<sup>(10)</sup> Study of Nepal reflected 38% of the healthcare workers suffered from anxiety and/ or depression.<sup>(11)</sup> More than half of health workers (53.7%) reported that they faced stigma due to COVID-19.<sup>(12)</sup>

Study of TPO Nepal showed 37% suffered from anxiety and worry.<sup>(13)</sup> Study among Nepalese nurses during COVID pandemic revealed that 25.6%, 10.3% and 16.7% suffered from moderate anxiety, severe anxiety and mild anxiety respectively.<sup>(14)</sup> COVID-19 cases are increasing daily and many health care workers were infected and some of them died. Moreover, stigma towards the disease has also accelerated anxiety and increased stress. Thus, this study aims to assess anxiety, depression and associated factors that will guide interventions to maintain psychological well-being among the health care workers.

## MATERIAL AND METHODS

Web based cross-sectional study was conducted to assess anxiety and depression among SARS CoV-2 positive frontline health care workers working in health institution of all provinces of Nepal. Non-probability sampling method i.e. purposive sampling was done to reach to the study population. The duration of the study was from October to January with one month for data collection starting from first week of November.

### Participants

Frontline health care workers working in the health institution and had been diagnosed as SARS-COV-2 positive were the most important selection criteria for study population. As the study is web based, the Google form was made available to study population through different social media.

### Sample size

The Cochran formula was used to calculate the sample size with anxiety prevalence ( $p$ )=0.256 among Nepalese nurses working in frontline during COVID-19<sup>(14)</sup>. Adding a 10% non-response rate, the final sample size for the study was 323.

### Data collection tool

Generalized Anxiety Disorder-7 tool was used to assess level of anxiety and Patient Health Questionnaire (PHQ-9) developed by PRIME MD was used to assess depression level among participants.<sup>(15)</sup> GAD consists of 7 items on a four-point Likert scale ranging from 0 to 3, in which 0 implies 'not at all' and 3 implies "nearly every day". The level of anxiety was categorized into four groups as minimal, mild, moderate and severe based on scoring 0-4, 5-9, 10-14, and 15-21 respectively. Accordingly, minimal and mild were merged; '<10' was absence of anxiety and moderate and severe were merged for presence of anxiety '≥ 10'. PHQ-9 consists of 9 items on a four-point Likert scale ranging from 0 to 3, where 0 implies 'not at all' and 3 implies "nearly every day". The level of depression was categorized into five groups as minimal, mild, moderate, moderately severe and severe based on scoring 0-4, 5-9, 10-14, 15-19 and 20-27 respectively. Minimal and mild were merged '<10'; and moderate, moderately severe and severe were merged '≥ 10'. The scores (≥ 10) was used to determine the existence of depression. Internal validity was ensured through constructing the tools as per research objectives. Pre-tested tool was used for data collection.

### Data Analysis

The collected data was saved and data cleaning was done. After data cleaning, it was imported to SPSS version 16 for the further processing and analysis of data. The descriptive analysis was done by expressing frequency and percentage. Also, based on the nature of data, both mean and median

was computed. For inferential analysis, univariate and multiple logistic regression analysis was performed to find out the association between dependent and independent variables. Anxiety and depression levels were assessed by scoring. After scoring of general anxiety disorder and depression, its association with socio-demographic characteristics, health-related factors, work related factors and stigma was computed. Health care workers who had access to internet were only able to fill up the online Google form.

### Ethical consideration

Ethical approval was taken from the Nepal Health Research Council (NHRC). Participants were fully informed regarding study objectives and written informed consent was obtained from participants previously to administration of questions in Google form. Confidentiality of the data was fully maintained and collected data was used only for the research purpose. All data was store in the computer database that was accessible only to the researcher with password protection and only share with the research team members. Monitoring was done regularly of the submitted forms and ensure accessibility to the participants of the research.

### RESULTS

More than half (51.7%) of the respondents were male. Most of the respondents belong to Hindu (86.4%) religion followed by Buddhism (9.9%). About 56.3 % respondents had changes in their diet pattern. Three-fourth (77.4%) respondents don't exercise or play sports daily. Two-third (67.8%) respondents works in government health facility. More than half (57%) respondents didn't have their own transportation to reach health facility. About 76.8% respondents don't feel that the workplace is well-equipped for COVID treatment. More than half (53.3%) respondents didn't received training on COVID-19 prevention. Majority (91.6%) didn't received psychosocial training.

**Table 1: Sociodemographic Characteristics of the respondents**

Characteristics	Number	Frequency
<b>Provinces</b>		
Province 1	40	12.4
Province 2	30	9.3
Bagmati	92	28.5
Gandaki	34	10.5
Lumbini	53	16.4
Karnali	36	11.1
Sudurpaschim	38	11.8
<b>Ethnicity</b>		
Dalit	32	9.9
Janajati	71	22
Madhesi	46	14.2
Brahmin/Chhetri	174	53.9
<b>Education</b>		
Intermediate	102	31.6
Bachelor	139	43
Master and above	82	25.4
<b>Occupation</b>		
Nursing	126	39
Doctor	98	30.3
Laboratory and diagnostics	26	8
Pharmacy	19	5.9
Health assistant	42	13
Others	12	3.7
<b>Staying with during pandemic</b>		
With family	206	63.8
Without family	87	26.9
With friends	30	9.3

**Table 2 : Health-related factors of respondents**

Characteristics	Number	Frequency
<b>Daily Meditation</b>		
Yes	34	10.5
No	177	54.8
Sometimes	112	34.7
<b>Health problem (Chronic)</b>		
Yes	47	14.6
No	276	85.4
<b>Involved in recreational activity during pandemic</b>		
Yes	86	26.6
No	237	73.4
<b>Fear of dying from COVID</b>		
Yes	196	60.7
No	127	39.3
<b>Working health facility</b>		
Primary	132	40.9
Secondary	71	22
Tertiary	120	37.2
<b>Exposed to COVID patient</b>		
Yes	198	61.3
No	6	1.9
May be	119	36.8
<b>Change in duty during pandemic</b>		
Yes	201	62.2
No	122	37.8
<b>Unaware of incentives provision</b>		
Yes	271	83.9
No	52	16.1
<b>Incentives provided</b>		
Yes	102	31.6
No	221	68.4
<b>Stigma faced</b>		
Yes	126	39
No	197	61

One-third of respondents had intermediate level education. More than one

third (39%) respondents were engaged in nursing profession. About two-third (64.7%) were married and had a nuclear family. About 63.8% respondents were staying with family during the pandemic. More than half

(55.7%) respondents live in their own home. Two-third (67.5%) respondents had vulnerable population in their home. (Table 1)

**Table 3: Univariate Logistic Regression Analysis with Anxiety**

Variables	Anxiety		p-value	OR	95% CI
	Presence	Absence			
<b>Provinces</b>					
Province 1	14(35%)	26(65%)	<0.001*	1	Ref
Province 2	20(66.7%)	10(33.3%)		3.71	1.36-10.08
Bagmati	10(10.9%)	82(89.1%)		0.22	0.90-0.57
Gandaki	17(50%)	17(50%)		1.85	0.72-4.73
Lumbini	28(52.8%)	25(47.2%)		1.85	0.74-4.61
Karnali	18(50%)	18(50%)		1.85	0.73-4.66
Sudurpaschim	19(50%)	19(50%)		2.08	0.89-4.83
<b>Gender</b>					
Male	61(36.5%)	106(63.5%)	0.344	1	Ref
Female	65(41.7%)	91(58.3%)		1.24	0.79-1.94
<b>Religion</b>					
Hinduism	108(38.7%)	171(61.3%)	0.642	1	Ref
Buddhism	13(40.6%)	19(59.4%)		1.08	0.51-2.28
Islam	4(57.1%)	3(42.9%)		2.11	0.46-9.61
Christian	1(20%)	4(80%)		0.39	0.04-3.58
<b>Ethnicity</b>					
Dalit	16(50%)	16(50%)	0.009*	1	Ref
Janajati	23(32.4%)	48(67.6%)		0.48	0.20-1.12
Madhesi	27(58.7%)	19(41.3%)		1.42	0.57-3.52
Brahmin/ Chhetri	60(34.5%)	114(65.5%)		0.52	0.24-1.12
<b>Place of residence</b>					
Rural municipality	37(52.1%)	34(47.9%)	0.014*	1	Ref
Municipality	55(41.4%)	78(58.6%)		0.64	0.36-1.15
Sub metropolitan	12(30%)	28(70%)		0.39	0.17-0.89
Metropolitan	22(27.8%)	57(72.2%)		0.35	0.18-0.69
<b>Education</b>					
Intermediate	41(40.2%)	61(59.8%)	0.001*	1	Ref
Bachelor	67(48.2%)	72(51.8%)		1.38	0.82-2.32
Master and above	18(22%)	64(78%)		0.41	0.21-0.80
<b>Occupation</b>					
Nursing	54(42.9%)	72(57.1%)	0.175	1	Ref
Doctor	32(32.7%)	66(67.3%)		0.64	0.37-1.12
Laboratory and diagnostics	11(42.3%)	15(57.7%)		0.97	0.41-2.29
Pharmacy	10(52.6%)	9(47.4%)		1.48	0.56-3.89
Health Assistant	18(42.9%)	24(57.1%)		1.00	0.49-2.02
Others	1(8.3%)	11(91.7%)		0.12	0.01-0.96
<b>Family Type</b>					
Nuclear	91(43.5%)	118(56.5%)	0.024*	1	Ref
Joint	35(30.7%)	79(69.3%)		0.57	0.35-0.93
<b>Staying with during pandemic</b>					
With family	77(37.4%)	129(62.6%)	0.020*	1	Ref
Without family	30(34.5%)	57(65.5%)		0.88	0.52-1.49
With friends	19(63.3%)	11(36.7%)		2.89	1.31-6.40
<b>Exercise/ play sport</b>					
Yes	12(16.4%)	61(83.6%)	<0.001*	1	Ref
No	114(45.6%)	136(54.4%)		4.26	2.19-8.30
<b>Daily Meditation</b>					
Yes	2(5.9%)	32(94.1%)	0.003*	1	Ref
No	74(41.8%)	103(58.2%)		11.49	2.67-49.47
Sometimes	50(44.6%)	62(55.4%)		12.90	2.94-56.47
<b>Involved in recreational activity</b>					
Yes	19(22.1%)	67(77.9%)	<0.001*	1	Ref
No	107(45.1%)	130(54.9%)		2.90	1.64-5.13
<b>Fear of dying from COVID</b>					
Yes	94(48%)	102(52%)	<0.001*	1	Ref
No	32(25.2%)	95(74.8%)		0.37	0.24-0.59
<b>Working health facility</b>					
Primary	62(47%)	70(53%)	<0.001*	1	Ref
Secondary	34(47.9%)	37(52.1%)		1.04	0.58-1.84
Tertiary	30(25%)	90(75%)		0.37	0.22-0.64

**Table 3 continued...**

<b>Own transport</b>					
Yes	39(28.1%)	100(71.9%)	<0.001*	1	Ref
No	87(47.3)	97(52.7)		2.30	1.44-3.68
<b>Duty in isolation ward</b>					
Yes	65(47.4%)	72(52.6%)	0.008*	1	Ref
No	61(32.8%)	125(67.2%)		0.54	0.34-0.85
<b>Change in duty during pandemic</b>					
Yes	67(33.3%)	134(66.7%)	0.007*	1	Ref
No	59(48.4%)	63(51.6%)		1.87	1.18-2.97
<b>Unaware of incentives provision</b>					
Yes	118(43.5%)	153(56.5%)	<0.001*	1	Ref
No	8(15.4%)	44(84.6%)		0.24	0.10-0.52
<b>No Access to PPE</b>					
Yes	116(41.4%)	164(58.6%)	0.023*	1	Ref
No	10(23.3%)	33(76.7%)		0.43	0.20-0.90
<b>Well-equipped workplace for COVID-19</b>					
Yes	21(28%)	54(72%)	0.026*	1	Ref
No	105(42.3%)	143(57.7%)		1.89	1.08-3.32
<b>Training on COVID prevention</b>					
Yes	73(48.3%)	78(51.7%)	0.001*	1	Ref
No	53(30.8%)	119(69.2%)		0.48	0.30-0.75
<b>Psychosocial training</b>					
Yes	6(22.2%)	21(77.8%)	0.062	1	Ref
No	120(40.5%)	176(59.5%)		2.39	0.94-6.09
<b>Stigma</b>					
Yes	68(54%)	58(46%)	<0.001*	2.81	1.76-4.47
No	58(29.4%)	139(70.6%)		1	Ref

**Table 4 Uni-variate logistic regression analysis with Depression**

Variables	Depression		p-value	OR	95% CI
	Presence	Absence			
<b>Provinces</b>					
Province 1	10(25%)	30(75%)	<0.001*	1	Ref
Province 2	15(50%)	15(50%)		3.0	1.09-8.25
Bagmati	11(12%)	81(88%)		0.40	0.15-1.05
Gandaki	15(44.1%)	19(55.9%)		2.36	0.88-6.34
Lumbini	31(58.5%)	22(41.5%)		2.18	0.83-5.71
Karnali	17(47.2%)	19(52.8%)		2.68	1.01-7.07
Sudurpaschim	16(42.1%)	22(57.9%)		4.22	1.71-10.40
<b>Gender</b>					
Male	55(32.9%)	112(67.1%)	0.300	1	Ref
Female	60(38.5%)	96(61.5%)		1.27	0.81-2.01
<b>Ethnicity</b>					
Brahmin/ Chhetri	58(33.3%)	116(66.7%)	0.004*	1	Ref
Dalit	20(62.5%)	12(37.5%)		3.33	1.52-7.2
Janajati	18(25.4%)	53(74.6%)		0.67	0.365-1.26
Madhesi	19(41.3%)	27(58.7%)		1.40	0.72-2.74
<b>Marital Status</b>					
Married	73(34.9%)	136(65.1%)	0.731	1	Ref
Unmarried	42(36.8%)	72(63.2%)		1.09	0.68-1.75
<b>Place of residence</b>					
Metropolitan	19(24.1%)	60(75.9%)	0.028*	1	Ref
Rural municipality	34(47.9%)	37(52.1%)		2.90	1.44-5.81
Municipality	47(35.3%)	86(64.7%)		1.72	0.92-3.22
Sub metropolitan	15(37.5%)	25(62.5%)		1.89	0.833-4.31
<b>Education</b>					
Master and above	18(22%)	64(78%)	0.015*	1	Ref
Bachelor	58(41.7%)	81(58.3%)		2.54	1.36-4.74
Intermediate	39(38.2%)	63(61.8%)		2.20	1.14-4.25
<b>Family Type</b>					
Joint	30(26.3%)	84(73.7%)	0.010*	1	0.32-0.86
Nuclear	85(40.7%)	124(59.3%)		0.52	
<b>Staying with during pandemic</b>					
With family	68(33%)	138(67%)	0.001*	1	Ref
Without family	26(29.9%)	61(70.1%)		0.86	0.50-1.48
With friends	21(70%)	9(30%)		4.73	2.05-10.89
<b>Change in diet pattern</b>					
Yes	76(41.8%)	106(58.2%)	0.009*	1	0.33-0.86
No	39(27.7%)	102(72.3%)		0.53	

Table 4 Continued...					
<b>Exercise/ play sport</b>					
Yes	17(23.3%)	56(76.7%)	0.012*	1	1.17-3.87
No	98(39.2%)	152(60.8%)		2.12	
<b>Daily Meditation</b>					
Yes	10(29.4%)	24(70.6%)	0.473	1	Ref
No	68(38.4%)	109(61.6%)		1.49	0.67-3.32
Sometimes	37(33%)	75(67%)		1.18	0.51-2.73
<b>Health problem (chronic)</b>					
Yes	10(21.3%)	37(78.7%)	0.026*	1	1.08-4.76
No	105(38%)	171(62%)		2.27	
<b>Involved in recreational activity during pandemic</b>					
Yes	23(26.7%)	63(73.3%)	0.045*	1	1.01-2.99
No	92(38.8%)	145(61.2%)		1.74	
<b>Fear of dying from COVID</b>					
Yes	85(43.4%)	111(56.6%)	<0.001*	0.40	0.25-0.66
No	30(23.6%)	97(76.4%)		1	
<b>Working health facility</b>					
Primary	61(46.2%)	71(53.8%)	0.001*	2.95	1.71-5.12
Secondary	27(38%)	44(62%)		2.11	1.11-4.02
Tertiary	27(22.5%)	93(77.5%)		1	Ref
<b>Working HF type</b>					
Government	87(39.7%)	132(60.3%)	0.025*	1	0.34-0.93
Private	28(26.9%)	76(73.1%)		0.56	
<b>Own transport</b>					
Yes	34(24.5%)	105(75.5%)	<0.001*	1	1.49-3.94
No	81(44%)	103(56%)		2.43	
<b>Exposed to COVID patients</b>					
Yes	68(34.3%)	130(65.7%)	0.653	1	Ref
No	0(0%)	6(100%)		0	
May be	47(39.5%)	72(60.5%)		1.24	0.78-1.99
<b>Unaware of incentives provision</b>					
Yes	103(38%)	168(62%)	0.039*	1	0.25-0.98
No	12(23.1%)	40(76.9%)		0.49	
<b>Unaware of insurance provided by government</b>					
Yes	111(37.6%)	184(62.4%)	0.014*	1	0.09-0.82
No	4(14.3%)	24(85.7%)		0.28	
<b>No Access to PPE</b>					
Yes	105(37.5%)	175(62.5%)	0.069	1	0.24-1.07
No	10(23.3%)	33(76.7%)		0.51	
<b>Satisfied with provided PPE</b>					
Yes	22(22.7%)	75(77.3%)	0.001*	1	1.38-4.11
No	93(41.2%)	133(58.8%)		2.38	
<b>well-equipped workplace for COVID-19</b>					
Yes	17(22.7%)	58(77.3%)	0.008*	1	1.23-4.01
No	98(39.5%)	150(60.5%)		2.23	
<b>Training on COVID prevention</b>					
Yes	64(42.4%)	87(57.6%)	0.017*	1	0.36-0.91
No	51(29.7%)	121(70.3%)		0.57	
<b>Psychosocial training in pandemic</b>					
Yes	3(11.1%)	24(88.9%)	0.005*	1	1.43-16.54
No	112(37.8%)	184(62.2%)		4.87	
<b>Stigma</b>					
Yes	70(55.6%)	56(44.4%)	<0.001*	4.22	2.60-6.85
No	45(22.8%)	152(77.2%)		1	

One in ten (10.5%) respondents do meditation daily. About 85.4% respondents don't have chronic health problems. About three-fourth (73.4%) respondents had involved in recreational activity during pandemic. About 60.7% respondents had fear of dying from COVID-19. Two-fifth (40.9%) respondents were engaged in primary level health facility. About 61.3% respondents were exposed to COVID-19

patients. More than two-fifth (42.4%) of the respondents had duty in isolation ward. Most of the respondents (91.3%) were unaware of insurance provided by government. About 86.7% respondents responded for no access to PPE and around three-fourth (70%) respondents weren't satisfied with provided PPE is illustrated in Table 2.

In table 3, the univariate logistic regression analysis, the different factors like province (p < 0.001), ethnicity (p 0.009), place of residence (p 0.014), education (p 0.001), family type (p 0.024), staying with (p 0.020), doing exercise/play sport (p < 0.001), daily meditation (p 0.003), involved in recreational activity during pandemic (p < 0.001), Fear of dying from COVID-19 (p < 0.001), working health facility (p < 0.001), own transportation facility to reach HF (p < 0.001), duty in isolation ward (p 0.008), change in duty during pandemic (p 0.007), unaware of incentives provision (p < 0.001), no access to PPE (p 0.023), well equipped workplace for COVID-19 (p 0.026), Training on COVID prevention (p 0.001) were found statistically significantly associated with anxiety.

The factors like province (p < 0.001), ethnicity (p 0.004), place of residence (p 0.028), education (p 0.015), family type (p 0.010), staying with during

pandemic (p 0.001), change in diet pattern (p 0.009), exercise/play sport (p 0.012), health problem (p 0.026), involved in recreational activity (p 0.045), fear from dying from COVID-19 (p < 0.001), working health facility (p 0.001), type of working HF (p 0.025), own transport (p < 0.001), unaware of incentives provision (p 0.039), unaware of insurance provided by government (p 0.014), satisfied with provided PPE (p 0.001), well equipped workplace for COVID-19 (p 0.008), training on COVID-19 prevention (p 0.017), psycho-social training in pandemic (p 0.005) were statistically associated with depression. (Table 4) The predictors for anxiety (Table 5) and depression (Table 6) were shown.

Figure 1 explains one in fourth (25.1%) respondents had minimal anxiety symptoms and around one in fourth (23.2%) had minimal depressive symptoms. The prevalence of anxiety and depression was 39% and 35.5% respectively.

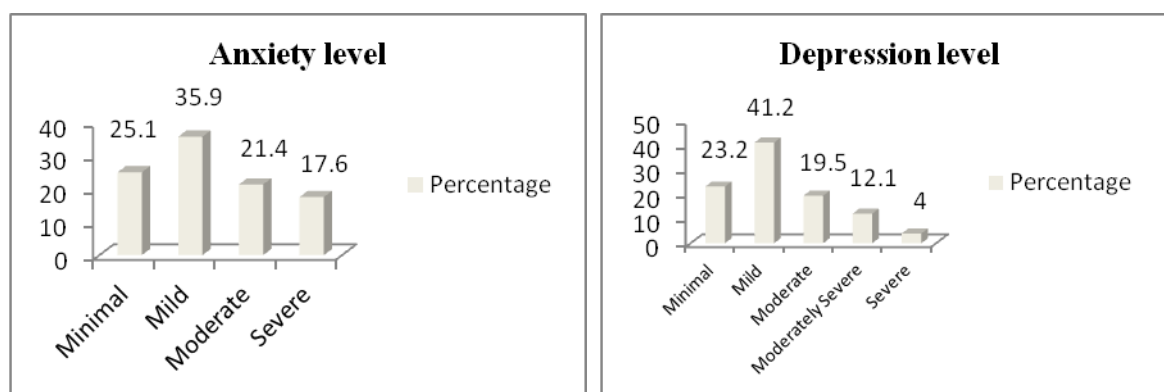


Fig 1 The rate of different severities of anxiety and depressive symptoms

Table 5 Multiple logistic regression analysis with anxiety

Anxiety Variables	AOR	95% CI	P value
<b>Staying with during pandemic</b>			
With family	1	Ref	0.015*
Without family	0.92	0.45-1.90	
With friends	6.31	1.69-23.50	
<b>Daily Meditation</b>			
Yes	1	Ref	0.020*
No	21.29	2.46-184.22	
Sometime	19.94	2.32-171.05	
<b>Duty in isolation ward</b>			
Yes	1	Ref	0.027*
No	0.46	0.23-0.91	
<b>Unaware of incentives provision</b>			
Yes	1	Ref	0.034*
No	0.25	0.07-0.90	
<b>Stigma</b>			
No	1	Ref	<0.001*
Yes	3.16	1.66-6.03	

Table 6 Multiple logistic regression analysis with depression

Depression Variables	AOR	95% CI	P value
<b>Education status</b>			
Intermediate	1	Ref	0.023*
Bachelor	3.05	1.37-6.80	
Master and above	2.56	0.76-8.59	
<b>Fear of dying of COVID-19</b>			
Yes	1	Ref	0.045*
No	0.48	0.23-0.98	
<b>Stigma</b>			
No	1	Ref	
Yes	2.54	1.32-4.88	0.05*

## DISCUSSION

The study revealed that two-fifth (39%) and more than one-third (35.5%) COVID-19 positive frontline health care workers who had internet access were

suffering from moderate to severe anxiety and depressive symptoms respectively. More than half of health workers (53.7%) reported that they faced stigma due to COVID-19 which is higher than our study (39%).<sup>(12)</sup> This study shows 30% of the health workers were satisfied with provided PPE which is comparatively higher than the study conducted in Nepal among health workers (21.1%) during COVID-19.<sup>(12)</sup> More than half (60.7%) of the frontline health workers had fear of dying from COVID-19 in the present study while in another study conducted in Nepal showed 46.1% expressed high degree of COVID related fear.<sup>(12)</sup> The study found different factors like daily meditation, duty in isolation ward, unaware of incentives provision were associated with anxiety whereas, strong association was found between education status and fear of dying from COVID-19 with depression.

### **Anxiety**

Our study showed 25.1 % had minimal anxiety, 35.9% had mild anxiety symptoms, 21.4% had observed among health care workers in minimal (62.7%) and lower percent points in mild (27.3%), moderate (8%) and severe (0.7%) anxiety symptoms in Nepal.<sup>(11)</sup> Our study revealed prevalence of anxiety (39%) was somehow lower than the study where anxiety (41.9%) was found among health care workers during early phase of COVID-19 in Nepal.<sup>(12)</sup> In the earlier phase, health workers were less informed about the pandemic. Study done in China anxiety among health workers was higher (44.6%) than present study. Similar finding was found in a study done in Nepal which showed 38% anxiety among health care workers on COVID-19 duty.<sup>(5)</sup>

### **Depression**

The present study showed 23.2, 41.2, 19.5, 12.1, 4.1 percent were scored in minimal, mild, moderate moderately depressive and severely depressive symptoms respectively among the COVID-

19 positive health care workers. With contrast to our findings, 66 %, 26%, 5.3%, 0.7% and 2% COVID-19 positive health care workers had minimal, mild, moderate, moderate severe and severe depressive symptoms respectively.<sup>(11)</sup> Study shows somehow lower depression (35.6%) than the study conducted among health care workers during early phase of COVID-19 in Nepal (37.5%).<sup>(12)</sup> Another contradicts findings was found in the study done in China which showed about half (50.4%) of health care workers suffered from depressive symptoms.<sup>(8)</sup> While only 8% depressive symptom was reflected by the study conducted in Nepal.<sup>(11)</sup>

Our study shows that marital status (OR 0.65; 95% CI, 0.40-1.05) and presence of chronic illness (OR 1.81; 95% CI, 0.92-3.59) were not found to be statistically significant with anxiety while the study conducted in Ethiopia showed statistically significant with marital status (OR 3.56; 95% CI, 2.30, 6.38) and presence of chronic illness (OR 3.43; 95% CI, 1.59-7.43). The present study reflects no PPE access (OR 0.43; 95% CI, 0.20-0.90) to be statistically significant with anxiety which is found similar with the study (OR, 2.55; 95% CI, 1.43, 4.56).<sup>(16)</sup>

### **Limitations**

The present study had many limitations. Firstly, frontline health care workers who had access to internet were only able to fill up the online Google form. Secondly, self-reported responses were considered to assess anxiety and depression. Despite of all the limitations, study had made an important role to identify various factors as a predictor for anxiety and depression.

### **CONCLUSIONS**

In the pandemic COVID 19 positive frontline health workers had developed anxiety and depression symptoms. Factors like staying with during pandemic, daily meditation, duty in isolation ward, unaware of incentives provision, stigma are found to



be independent predictors for anxiety whereas educational status, fear of dying of COVID-19, stigma are the independent predictors for depression. Anxiety among health workers could be minimized by organizing meditation class. Motivational package needs to be developed for staffs working in isolation ward. Awareness program to minimize stigma in the community could prevent depression among health workers. Training and sufficient preventive practice need to be implemented to control consequences of COVID 19 pandemic.

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