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ORIGINAL RESEARCH ARTICLE

LEVEL OF DEPRESSION ANXIETY AND STRESS AMONG HEALTH CARE WORKERS AT A TERTIARY HOSPITAL DURING SECOND WAVE OF COVID IN NEPAL

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ABSTRACT

Background: Psychological impact of COVID-19 pandemic on health care workers (HCWs) is a burning issue that needs to be taken care of with utmost importance. The main objective of this study was to assess depression, anxiety and stress among HCWs at a tertiary care hospital dedicated for COVID-19 while fighting with the ongoing second wave of Covid.

Methods: A descriptive cross-sectional study was conducted among 245 HCWs at a COVID dedicated hospital in July and August 2021, after IRC approval and with informed written consents. Convenient sampling method was applied. Depression, anxiety and stress scale (DASS) 21 and semi structured proforma were utilized. All the statistical calculations were done by STATA 15.1. Frequency and percentage were calculated as descriptive statistics for baseline characteristics.

Results: Depression was observed in 22.86%, anxiety in 50.61% and stress in 15.51%. Stress was highest among nurses (18.18%), followed by clinicians (16.36%). Anxiety was seen highest among nurses (63.64%) followed by pharmacists (60%). Depression was highly prevalent in nurses (26.57%) compared with clinicians (24.45%) and laboratory staff (6.67%).

Conclusions: Despite developments in the knowledge, management, exposure and experience with COVID-19 since first wave, depression, anxiety and stress has affected health care workers. Therefore, mental health needs of the health care workers have to be taken care of for maintaining a better effective healthy workforce and service delivery.

INTRODUCTION

Since the outbreak in Wuhan, and declaration as global health emergency, the COVID-19 pandemic has been an overwhelming historical challenge to the world, the existing health care system and health care workers (HCWs).[1-4] Since 3rd Jan 2020 till Nov 2021, Nepal has witnessed 813,011 confirmed Covid-19 cases, suffered 11,416 deaths and has adopted strategy to vaccinate citizens as much early with widespread coverage possible, administering a total of 15,268,771 doses of vaccine till 24th Oct 2021.[5]

The Pandemic leads to risk of immediate psychosocial trauma, with probability of mental health consequences in future also. Psychosocial interventions and preparedness are essential for future pandemics too. Thus, healthcare workers need to be prevented, helped out from both the immediate and long-term psychological effects of the pandemic.[6-14]

Several studies were done mostly in the early phase of the pandemic. Impact of prolonged stress and changes in the evidence base, knowledge, experience need to be assessed with newer studies. This study aimed to assess the level of depression, anxiety and stress of health care workers along with socio-demographic and work-related factors.

METHODS

This is a single hospital based descriptive cross-sectional study, conducted in July and August 2021, at a tertiary care Covid dedicated hospital. After IRC approval and informed written consent, the health care workers at the hospital were approached in person to fill the data collecting tools in paper format. Healthcare workers of the hospital currently on active duty, registered in their professional councils were included irrespective of the other comorbidities. Those who were out of the active workforce during the study period due to any cause such as COVID-19 infection, leave etc. were excluded.
Sampling was by convenience method. Sample size was calculated using the formula

$n = Z^2 P (1-P) / d^2$

Where n is the sample size, Z is statistic corresponding to

level of confidence, P is expected prevalence 0.356,[15] d is the precision. At level of confidence 95%, precision 5% and Z=1.96, minimum sample size comes to be 215 for a population of HCWs of 530. Assuming a non-response rate of 14%, desired sample size was 245.

This study used the Depression, Anxiety, and stress scale-21 (DASS-21) with 21 items, carrying 7 items in each dimension. Each item is assigned with definite score which were added and then multiplied by two for calculating the final score. Final score was then categorized into five categories under each dimension.

The internal consistency as reported in the original scale validation study was 0.81 for Depression; 0.73 for Anxiety, and 0.81 for Stress.[16]Internal consistency evaluated by various other studies have shown a good Cronbach's alpha values for all the subscales of DASS21.[17-19]

Depression, anxiety, and stress were the dependent variables of this study whereas demographic variables and variables related with workplace were the independent variables. Sex, age, education, marital status (married and single including unmarried, divorcee, widow and widower), family history of mental illness, history of Covid-19 infection to self and family, work department, years of experience, PPE availability, satisfaction with allowance, availability of leaves and vaccination status were the various independent variables. All the statistical calculations were done by STATA 15.1. Frequency and percentage were calculated as descriptive statistics for baseline characteristics.

RESULTS

Out of the total 245 participants, 167 (68.16%) were females and 78 (31.84%) males. Majority of them, 198 (80.82%) were from age group 25-49 years. Similarly, 102 (41.63%) had PCL level of education, and 159 (64.9%) were married. Two hundred eight (84.9%) of them had no family history of mental illness. Ninety (36.73%) of them had acquired COVID-19 infection and 177 (72.24%) had family members, acquiring COVID-19 since the pandemic.

Out of 245 HCWs, 56 had some form of depression while 2 individuals had extremely severe depression. Further, 124 individuals had mild to extremely severe anxiety, 70 (28.57%) out of them were having moderate anxiety. Only, 38 HCWs were seen to be in some level of stress, 1 of them had extremely severe stress (Table 1).

Table 1: Depression, anxiety, and stress severity distribution (n=245)

Mental Illness	Group	Frequency (%)
Depression	Normal	189(77.14)
	Mild	35(14.29)
	Moderate	19(7.76)
	Extremely severe	2(0.82)
Anxiety	Normal	121(49.39)
	Mild	32(13.06)
	Moderate	70(28.57)
	Severe	17(6.94)
	Extremely severe	5(2.04)
Stress	Normal	207(84.49)
	Mild	23(9.39)
	Moderate	9(3.67)
	Severe	5(2.04)
	Extremely severe	1(0.41)

Table 2: Distribution of depression, anxiety, and stress across demographic characters of participants (n=245)

Characteristics	Group	Frequency (%)	Stress		Anxiety		Depression	
			No (%)	Yes (%)	No (%)	Yes (%)	No (%)	Yes (%)
Sex	Female	167 (68.16)	137 (82.04)	30 (17.96)	66 (39.52)	101 (60.48)	124 (74.25)	43 (25.75)
	Male	78 (31.84)	70 (89.74)	8 (10.26)	55 (70.51)	23 (29.49)	65 (83.33)	13 (16.67)
Age	Below 25	36 (14.69)	26 (72.22)	10 (27.78)	11 (30.56)	25 (63.44)	26 (72.22)	10 (27.78)
	25 to 49	198 (80.82)	171 (86.36)	27 (13.64)	102 (51.52)	96 (48.48)	154 (77.78)	44 (22.22)
	Above 49	11 (4.49)	10 (90.91)	1 (9.09)	8 (72.73)	3 (27.27)	9 (81.82)	2 (18.18)
Education	*TSLC	28 (11.43)	24 (85.71)	4 (14.29)	16 (57.14)	12 (42.86)	21 (75.00)	7 (25)
	#PCL	102 (41.63)	87 (85.29)	15 (14.71)	46 (45.10)	56 (54.90)	81 (79.41)	21 (20.59)
	Bachelor	77 (31.43)	64 (83.12)	13 (16.88)	30 (38.96)	47 (61.04)	57 (74.03)	20 (25.97)
	Masters	38 (15.51)	32 (84.21)	6 (15.79)	29 (76.32)	9 (23.68)	30 (78.95)	8 (21.05)
Marital status	Married	159 (64.9)	135 (84.91)	24 (15.09)	90 (56.60)	69 (43.40)	129 (81.13)	30 (18.87)
	Single	86 (35.1)	72 (83.72)	14 (16.28)	31 (36.05)	55 (63.95)	60 (69.77)	26 (30.23)

Mental illness history in family	No	208 (84.9)	178 (85.58)	30 (14.42)	108 (51.92)	100 (48.08)	166 (79.81)	42 (20.19)
	Yes	37 (15.1)	29 (78.38)	8 (21.62)	13 (35.14)	24 (64.86)	23 (62.16)	14 (37.84)
Covid history	No	155 (63.27)	137 (88.39)	18 (11.61)	86 (55.48)	69 (44.52)	126 (81.29)	29 (18.71)
	Yes	90 (36.73)	70 (77.78)	20 (22.22)	35 (38.89)	55 (61.11)	63 (70.00)	27 (30.00)
Family covid history	No	68 (27.76)	61 (89.71)	7 (10.29)	35 (51.47)	33 (48.53)	51 (75.00)	17 (25.00)
	Yes	177 (72.24)	146 (82.49)	31 (17.51)	86 (48.59)	91 (51.41)	138 (77.97)	39 (22.03)

*Abbreviations represent: *Technical school leaving certificate; #Proficiency certificate level.*

Table 3: Distribution of depression, anxiety and stress across factors affecting working zone (n=245)

Characteristics	Group	Frequency (%)	Stress		Anxiety		Depression	
			No (%)	Yes (%)	No (%)	Yes (%)	No (%)	Yes (%)
Work department	Clinician	55 (22.45)	46 (83.64)	9 (16.36)	36 (65.45)	19 (34.55)	41 (74.55)	14 (25.45)
	Laboratory	15 (6.12)	14 (93.33)	1 (6.67)	10 (66.67)	5 (33.33)	14 (93.33)	1 (6.67)
	Nursing	143 (58.37)	117 (81.82)	26 (18.18)	52 (36.36)	91 (63.64)	105 (73.43)	38 (26.57)
	Pharmacy	5 (2.04)	5 (100)	0 (0)	2 (40.00)	3 (60.00)	5 (100)	0 (0)
	Radiology	8 (3.27)	8 (100)	0 (0)	6 (75.00)	2 (25.00)	8 (100)	0 (0)
	Others	19 (7.76)	17 (89.47)	2 (10.53)	15 (78.95)	4 (21.05)	16 (84.21)	3 (15.79)
Experience	Below 1 yrs	14 (5.71)	11 (78.57)	3 (21.43)	6 (42.86)	8 (57.14)	13 (92.86)	1 (07.14)
	1 to 5 yrs	103 (42.04)	85 (82.52)	18 (17.48)	41 (39.81)	62 (60.19)	76 (73.79)	27 (26.21)
	6 to 10 yrs	69 (28.16)	60 (86.96)	9 (13.04)	32 (46.38)	37 (53.62)	52 (75.36)	17 (24.64)
	Above10	59 (24.08)	51 (86.44)	8 (13.56)	42 (71.19)	17 (28.81)	48 (81.36)	11 (18.64)
PPE available	No	18 (7.35)	14 (77.78)	4 (22.22)	6 (33.33)	12 (66.67)	14 (77.78)	4 (22.22)
	Yes	115 (46.94)	106 (92.17)	9 (7.83)	56 (48.70)	59 (51.30)	97 (84.35)	18 (15.65)
	Inadequate	112 (45.71)	87 (77.68)	25 (22.32)	59 (52.68)	53 (47.32)	78 (69.64)	34 (30.36)
Covid allowance provided	No	27 (11.02)	21(77.78)	6 (22.22)	8 (29.63)	19 (70.37)	20 (74.07)	7 (25.93)
	Yes	60 (24.49)	56 (93.33)	4 (6.67)	40 (66.67)	20 (33.33)	55 (91.67)	5 (08.33)
	Unsatisfied	158 (64.49)	130 (82.28)	28 (17.72)	73 (46.20)	85 (53.80)	114 (72.15)	44 (27.85)
Leave permitted	No	42 (17.14)	32 (76.19)	10 (23.81)	21 (50.00)	21 (50.00)	29 (69.05)	13 (30.95)
	Yes	146 (59.59)	128 (87.67)	18 (12.33)	76 (52.05)	70 (47.95)	120 (82.19)	26 (17.81)
	Not taken	57 (23.27)	47 (82.46)	10 (17.54)	24 (42.11)	33 (57.89)	40 (70.18)	17 (29.82)
Vaccinated	No	7 (2.04)	5 (71.43)	2 (28.57)	4 (57.14)	3 (42.86)	4 (57.14)	3 (42.86)
	Yes	238 (97.14)	202 (84.87)	36 (15.13)	117 (49.16)	121 (50.84)	185 (77.73)	53 (22.27)

In all 3 subscales of DASS 21, prevalence of psychological issues was higher among females as compared to males. Trend of prevalence of stress, anxiety and depression was noticed to decrease with increasing age. Among below 25 category, depression, anxiety and stress was observed in 27.78%, 63.44% and 27.78% of HCWs respectively. Stress (16.88%),

anxiety (61.04%), and depression (25.97%) were found highest among those with bachelor level of education. Prevalence of psychological issues was higher among single compared to married individuals. Stress and anxiety were found among 16.28% and 63.95% respectively, while depression was observed in 30.23% single HCWs. Stress and anxiety were prevalent in 21.62% and 64.86% respectively, and depression in 37.84% of those with family history of mental illness, higher as compared with those without family history of mental illness, 14.42%, 48.08% and 20.19% respectively. Those with history of Covid-19 infection had higher prevalence of stress, anxiety and depression compared to those without. Among those with history of Covid-19 infection, stress and anxiety were seen in 22.22% and 61.11%; and depression in 30% versus 11.61%, 44.52%% and 18.71% respectively in those without history of Covid-19 infection. Stress and anxiety were observed higher among those with family members having Covid-19 infection (17.51% and 51.41% versus 10.29% and 48.53%), while depression was among 25% HCWs without Covid-19 in family, higher than those with family having Covid-19 (22.03%) (Table 2).

First of all, stress was highest among nurses (18.18%), followed by clinicians (16.36%). Secondly, anxiety was seen high among nurses (63.64%) followed by pharmacists (60%). Next, depression was more prevalent in nurses (26.57%) compared with clinicians (24.45%) and laboratory staff (6.67%). HCWs with work experience of 1 to 5 years group were found to have highest prevalence of anxiety (60.19%) and depression (26.21%) while stress was observed most commonly among the group with work experience less than a year (21.43%). While stress, anxiety and depression were prevalent among both vaccinated and unvaccinated, depression was highly prevalent among 42.86% of unvaccinated as compared to 22.27% of the vaccinated group. (Table 3).

DISCUSSION

The objective of our study was to find psychological issues (depression, anxiety, and stress) among health care workers during 2nd wave of COVID-19 in Covid dedicated hospital which also had run parallel regular services. In line with our objective, depression was observed in 22.86%, anxiety in 50.61% and stress in 15.51% of our participants. A study done in April-May 2020 in Nepal had shown that prevalence of stress, anxiety and depression among HCWs were 17.1%, 35.6% and 28.9% respectively, in varied level of severity.[15] Another cross-sectional survey found 50.4%, 44.6%, 34.0%, and 71.5% of all participants were having symptoms of depression, anxiety, insomnia, and distress, respectively.[20] In addition, Chong et al found that 77.4% participants had anxiety and worrying, 74.2% depression and poor family relationships, 69.0% somatic symptoms and 52.3% sleep problems; anxiety being marked initially and depression in later phase.[21] This multitude of psychological issues in HCWs could be due to prolonged exposure to the distress and overwhelming burden since the origin to worldwide spread and surges of the cases in waves and its impact upon lives, duties, responsibilities, burden and challenges for the HCWs.

In our study, we found that females had higher prevalence of mental health issues than males. Nurses were having the mental health issues more than other work categories. Our findings were in consistence with the findings of previous studies conducted during initial phase of pandemic in Nepalese context.[15] Increased psychological impact during COVID-19 may be due to increased challenges, hectic work schedules, emotional turmoil brought by the pandemic, and the reason of it being high among nurses may be because they are the primary frontline workers. To add on, all of the nurses at the hospital were females. Therefore, females might have been affected more as per our findings. Likewise, next similar study of Oct 2020 in Nepal, 46.5% participants experienced mild to moderate distress while 6.7% were in severe distress. Females and doctors were noted having higher level of distress. .[22] Depression, anxiety and stress was higher among those who were single compared to those who were married. The term 'singles' here represent all those who are unmarried or never married. Psychological issues were noticed higher among singles and those with family history of mental illness in this study. Stress and anxiety were prevalent in 64.86% and depression in 37.84% of those with family history of mental illness, higher as compared with those without family history of mental illness, 48.08% and 20.19% respectively. Marriage and support from family has positive impact on mental health of HCWs.[23] Probable cause may be that being single might be causing concerns about lack of care from close relatives in this frightening situation. Prolonged nature of the stress, our hospital being a Covid dedicated could have affected people working in all departments. At the same time, being single and having mental illness in family are itself risk factors for developing psychological issues.[24] Also, as prevalence of depression is high in females, it could have reflected in nurses and females being affected more in other studies.[25] Prevalence of stress, anxiety and depression was noticed to decrease with increasing age. Among below 25 category, depression, anxiety and stress was observed in 27.78%, 63.44% and 27.78% of HCWs respectively. Similar was found by a study in Trinidad and Tobago, HCWs in the age category 30 years and below, were experiencing higher level of depression, anxiety and stress as compared to others.[23]

Those HCWs with history of Covid-19 infection had higher prevalence of stress, anxiety and depression compared to those without. Among those with history of Covid-19 infection, stress and anxiety were seen in 22.22%, 61.11% and depression in 30% versus 11.61%, 44.52%% and 18.71% respectively in those without history of Covid-19 infection. Stress and anxiety were observed higher among those with family members having infection (17.51%, 51.41%) versus those without Covid-19 in family (10.29%, 48.53%), while depression was 25% among those without Covid-19 in family, higher than those with family having Covid-19 (22.03%). Nayak BS et al reported that exposure to suspected Covid-19 patients led to high prevalence of anxiety as compared to depression and stress. Furthermore. depression, anxiety and stress were similar irrespective of contact status to confirmed cases, with slightly higher score on all 3 subscales among those not in contact with confirmed

Covid-19 cases.[23]

Furthermore, Muller et al reported HCWs in various duties and responsibilities affected by anxiety, depression, distress, and sleep problems during the covid-19 pandemic.[9] Zhang et al from China states, medical health workers as compared to non-medicals, had a higher prevalence of insomnia , anxiety, depression, somatization, and obsessive-compulsive symptoms.[26] To add, those who had faced isolation and quarantine were at higher risk for depression even as a long term effect.[27] Hectic duty schedules, facing difficult situations, deaths, fear, uncertainty added to the psychological distress of the health workers.[28] Here in our study, nurses were the most affected. So, various work areas are affected but the level of impact was different. HCWs with work experience of 1 to 5 years were group found to have highest prevalence of anxiety (60.19%) and depression (26.21%), while stress was more common among HCWs with experience less than a year (21.4%), they had depression the least common only among 7.14%. Nayak BS revealed that HCWs with work experience of 1-10 years had higher mean scores on all the three subscales on DASS 21, compared to the more experienced ones..[23] Stress and depression were high among those who didn't receive or had inadequate protective equipment, while anxiety was highly prevalent among all irrespective of PPE availability. Similar study reports that HCWs with insufficient/ no PPE were more likely to have depression.[15] Those who replied that they received the covid allowance, had lesser prevalence of stress, anxiety and depression. Those who got leaves when they needed had psychological issues relatively lesser. Further, those who received vaccination had lower prevalence of stress and depression, while anxiety was still high among all HCWs whether vaccinated or not.

To minimize the negative psychosocial effects of the pandemic and to keep the HCWs fit physically and mentally, appropriate measures are to be taken in time.[29] These seemingly high prevalence mental health issues in the initial phase studies of COVID-19 could be reflecting the panic, fear, uncertainty of initial days due to inadequate knowledge about the virus and the disease. Overall, several studies done in various part of the world has found significant psychosocial impact upon the healthcare workers since the first wave of the pandemic. Majority of the studies done in early to mid-2020, this study done in 2021 also found that health care workers are facing the psychological trauma in the face of the pandemic.[19-27]

Like other studies, this study does have certain limitations. Firstly, this is a self-reported cross-sectional study which has potential of having reporting bias. Secondly, this is a single hospital-based study with non-probability sampling because of which findings cannot be claimed to population representative.

CONCLUSION

HCWs are under psychological trauma due to pandemic particularly nurses, those with history of mental illness in the family, and young singles. Since the findings have shown these groups to be vulnerable, this study suggests that robust longitudinal study needs to be done and policy needs to be strengthened for addressing and alleviating the workplace psychosocial issues.

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REFERENCES:

1. Wu JT, Leung K, Leung GM. Nowcasting and forecasting the potential domestic and international spread of the 2019-nCoV outbreak originating in Wuhan, China: a modelling study. Lancet. 2020;395(10225):689–97. [DOI]
2. Dong E, Du H, Gardner. An interactive web-based dashboard to track COVID-19 in real time. The Lancet Infectious Diseases. Elsevier Ltd; 2020 May;20(5):533–4. [DOI]
3. Mohabeer P, Banerjee I, Kashyap A, Shukla A, Robinson J, Ramdhan ND. SARS-CoV-2 - an update in virology: A Narrative Review. J Biomed Sci. 2020;7(2):77–87. [DOI]
4. Armocida B, Formenti B, Ussai S, Palestra F, Missoni E. The Italian health system and the COVID-19 challenge. Lancet Public Heal. 2020;5(5):253. [DOI]
5. World Health Organization. WHO Coronavirus (COVID-19) Dashboard [Internet]. WHO. 2021 (cited 20 Nov 2021). [LINK]
6. Dubey S, Biswas P, Ghosh R, Chatterjee S, Dubey MJ, Chatterjee S, et al. Psychosocial impact of COVID-19. Diabetes Metab Syndr Clin Res Rev. 2020;14(5):779–88. [DOI]
7. Rodríguez BO, Sánchez TL. The psychosocial impact of COVID-19 on health care workers. Int Braz J Urol. 2020;46(Suppl 1):195–200.[DOI]
8. Armour C, McGlinchey E, Butter S, McAloney-Kocaman K, McPherson KE. The COVID-19 psychological wellbeing study: understanding the longitudinal psychosocial impact of the COVID-19 pandemic in the UK; a methodological overview paper. J Psychopathol Behav Assess. 2021;43(1):174–90. [DOI]
9. Muller AE, Hafstad EV, Himmels JPW, Smedslund G, Flottorp S, Stensland SO, et al. The mental health impact of the covid-19 pandemic on healthcare workers, and interventions to help them: A rapid systematic review. Psychiatry Res. 2020;293(August):113441. [DOI]
10. Wang C, Pan R, Wan X, Tan Y, Xu L, Ho CS, Ho RC. Immediate psychological responses and associated factors during the initial stage of the 2019 Coronavirus Disease (COVID-19) epidemic among the general population in China. Int J Environ Res Public Health. 2020 Mar 6;17(5):1729. [DOI]
11. United Nations Children's Fund. The State of the World's Children 2021: On My Mind – Promoting, protecting and caring for children's mental health. UNICEF, New York; October 2021.[LINK]
12. Di Tella M, Romeo A, Benfante A, Castelli L. Mental health of healthcare workers during the COVID-19 pandemic in Italy. J Eval Clin Pract. 2020;26(6):1583–7.[DOI]
13. Hammen C. Stress and depression. Annu Rev Clin Psychol. 2005;1:293–

319. [DOI]

14. Jerg-bretzke L, Kempf M, Jarczok MN, Weimer K, Hirning C, Gündel H, et al. Psychosocial impact of the covid-19 pandemic on healthcare workers and initial areas of action for intervention and prevention—the egepan/voice study. Int J Environ Res Public Health. 2021;18(19):1–16.[DOI]
15. Pandey A, Sharma C, Chapagain RH, Devkota N, RanabhatK, Pant S, Adhikari K. Stress, anxiety, depression and their associated factors among health care workers during COVID -19 pandemic in Nepal. J Nepal Health Res Counc. 2021 Jan 21;18(4):655-660. [DOI]
16. Lovibond SH, Lovibond PF. Manual for the Depression Anxiety Stress Scales. Vol. 56, Psychology Foundation of Australia. 1995. p. 42. DASS FAQ (unsw.edu.au)
17. Tonsing KN. Psychometric properties and validation of Nepali version of the Depression Anxiety Stress Scales (DASS-21). Asian J Psychiatr. 2014;8(1):63–6.[DOI]
18. Thapa DK, Visentin D, Kornhaber R, Cleary M. Psychometric properties of the Nepali language version of the Depression Anxiety Stress Scales (DASS-21). Nurs Open. 2021;(October 2020):1–10. [DOI]
19. Choulagai BP, Sharma C, Rana M, Sharma P (Institute of Medicine, Tribhuvan University, Kathmandu, Nepal). Validation of Nepali version of the depression, anxiety and stress scales (N-DASS 21) in higher secondary school students in Kathmandu. Bhaktapur:Nepal, University Grants Commission; 2020. 41p.
20. Lai J, Ma S, Wang Y, Cai Z, Hu J, Wei N, et al. Factors associated with mental health outcomes among health care workers exposed to coronavirus disease 2019. JAMA Netw Open. 2020;3(3):1–12.[DOI]
21. Chong MY, Wang WC, Hsieh WC, Lee CY, Chiu NM, Yeh WC, et al. Psychological impact of severe acute respiratory syndrome on health workers in a tertiary hospital. Br J Psychiatry. 2004;185(AUG.):127–33. [DOI]
22. Kafle K, Shrestha DB, Baniya A, Lamichhane S, Shahi M, Gurung B, et al. Psychological distress among health service providers during COVID-19 pandemic in Nepal. PLoS One. 2021;16(2 February):1–12. [DOI]
23. Nayak BS, Sahu PK, Ramsaroop K, et al. Prevalence and factors associated with depression, anxiety and stress among healthcare workers of Trinidad and Tobago during COVID-19 pandemic: a cross-sectional study. BMJ Open 2021;11:e044397. [DOI]
24. Behere AP, Basnet P, Campbell P. Effects of Family Structure on Mental Health of Children: A Preliminary Study. Indian J Psychol Med. 2017 Jul-Aug;39(4):457-463. [DOI]
25. Albert PR. Why is depression more prevalent in women? J Psychiatry Neurosci. 2015 Jul;40(4):219-21. [DOI]
26. Zhang WR, Wang K, Yin L, Zhao WF, Xue Q, Peng M, et al. Mental health and psychosocial problems of medical health workers during the COVID-19 epidemic in China. Psychother Psychosom. 2020;89(4):242–50. [DOI]
27. Liu X, Kakade M, Fuller CJ, Fan B, Fang Y, Kong J, et al. Depression after exposure to stressful events: Lessons learned from the severe acute respiratory syndrome epidemic. Compr Psychiatry. 2012;53(1):15–23.[DOI]
28. Neto MLR, Almeida HG, Esmeraldo JD ar., Nobre CB, Pinheiro WR, de Oliveira CRT, et al. When health professionals look death in the eye: the mental health of professionals who deal daily with the 2019 coronavirus outbreak. Psychiatry Res. 2020;288(April):2–4. [DOI]
29. AlGhufli F, AlMulla R, Alyedi O, Zain AlAbdin S, Nakhal MM. Investigating the Impact of COVID-19 Pandemic on Mental Health Status and Factors Influencing Negative Mental Health among Health-Care Workers in Dubai, United Arab Emirates. Dubai Med J. 2021;1–9. [DOI]