DOI: https://doi.org/10.53350/pjmhs221610741

ORIGINAL ARTICLE

Psychological Trauma among Health Care Professional during Covid-19 Pandemic

ASFA ANWAR[1], ZEHRA NAQVI[2]
[1]*Resident, Gynaecology & Obstetrics, Liaquat National Hospital, Karachi*
[2]*Professor, Gynaecology & Obstetrics, Liaquat National Hospital, Karachi*
Corresponding author: Asfa Anwar, Email: anwar.asfa@yahoo.com

ABSTRACT

Introduction: Covid-19 is a complex respiratory infectious disease that is impacting all sectors and industries. This pandemic is known to create a chaos among the healthcare sector and affecting psychological burden of healthcare professional. Less is known about the negative psychological influence of Covid-19 on the healthcare professionals, working in Pakistani hospitals. This study reported the prevalence of psychological trauma among healthcare professionals during Covid-19 pandemic.

Material & Methods: The study adopted a cross-sectional study design and collected a quantitative sample of 195 healthcare professionals, who are working on front and second line. These professionals include; doctors, nurses, and other hospital staff. The data is collected from Liaquat National Hospital of Karachi, Pakistan during the period from April 2021 to March 2022. The study adopted a COPAQ questionnaire to assess psychological trauma among healthcare professionals.

Results & Discussion: Majority of sample were aged less than or equal to 30-years, with more female healthcare professionals than male. Pearson Chi Square showed a significant association of psychological trauma with residence, socioeconomic status, working position and health care professionals with $p<0.05$. The odds ratio at confidence interval of 95%, for psychological trauma, in Univariate analysis urban resident were found 3.9 times, frontline workers gives 7.8 times, doctors gives 17.8 times and nurses gives 6.9 times more likely for psychological trauma and samples with income less than Rs. 25000 were found 0.13 times less likely for psychological trauma with $p<0.05$. In multivariate analysis none of the factors give significant association.

Conclusion: The study recommended that a multi-sectoral and milti-pronged should be developed, to offer technical support for advancing of the healthcare system across the country. Future scholars are recommended to investigate the factors associated to psychological distress across different cities of Pakistan and make a comparison for better understanding.

Keywords: Covid-19, Pakistan, Healthcare professionals, Frontline Healthcare Professionals, Psychological Distress

INTRODUCTION

Corona Virus (Covid-19) a complex respiratory disease emerged back in 2019 and declared a pandemic by 2020 [1]. This disease spreads rapidly worldwide, categorized by asymptomatic carrier transmission, human to human transmission and high energy efficiency [2-4]. Government implemented measures to control the transmission of this virus by implementing a local lockdown across the country. This emergency situation changed the way of living and work habits, especially; healthcare workers were found at a higher risk, while they served public health [5-6]. This pandemic is creating a chaos in the healthcare settings with the rising number of Covid-19 cases and thus healthcare physicians, doctors and paramedic staff are struggling to control the negative impact of this infectious disease [7]. They are devoting their precious lives while combating this deadly virus and working heavily since Covid-19 pandemic. Healthcare professional's alongwith their medical staff members are enduring a lot of mental challenges while surviving and curing the threats associated to the virus [8;9;10]. Previous research on infectious diseases, as; the Middle East Respiratory Syndrome (MERS), the Ebola Virus Syndrome, and the Severe Acute Respiratory Syndrome (SARS), revealed that many healthcare professionals suffered from, depression and anxiety, both during and after the outbreak of these infectious diseases [D;E;F]. It impacts their coping abilities and posits long-lasting effects [11;12;13].

A study reported the prevalence of depression among healthcare workers, with 20.5% moderate to severe depression, 14.7% with moderate to severe stress and 20.1% moderate to severe anxiety [14]. Especially, frontline healthcare workers with advanced clinical duties and infected with these diseases, reports a higher prevalence of depression and anxiety symptoms [15, 16]. The study reported significant levels of stress, anxiety and depression with major concerns of increased infection risk, workplace exposure and transmission to their friends and family members [15, 16].

There is limited evidence on how to support healthcare workers in the distress situations and incorporate effective strategies and federal regulations that could enhance their productivity and offer them peace [17;18;19]. There are limited investigations that report these findings from Pakistani population of healthcare professionals [17;18;19]. There is a need to conduct research investigations and understand the consequences of Covid-19. These consequences will better reveal, how to control the psychological distress and develop better strategies for healthcare professionals [20]. A psychological treatment could facilitate healthcare workers in managing their workplace stress and keep them motivated. For instance; a therapeutic therapy could be supportive for a better well-being of healthcare workers [20].

A study reported 55% distress among healthcare workers, who worked during emergency situations in Covid-19. The sample revealed a higher distress among females (76.5%) in contrast to males (23.4%). Majority of the participants were aged above 40 years (51.3%). This study reported that healthcare workers required psychological care (39.9%). It was affirmed that healthcare professionals are significantly affected psychologically due to Covid-19 and recommended establishment of psychological support services for provision of adequate care [21]. It is imperial to protect healthcare workers psychological health in the times of Covid-19 pandemic [7]. A massive number of healthcare workers got infected with Covid-19 virus, because they had been working without the protective measures, as; wearing masks, gloves and eye guards.

The paper determines the prevalence of psychological trauma among healthcare professionals during Covid-19 pandemic. It is critical to control the impact of Covid-19 epidemic, by development of actionable policies and massive healthcare education campaigns. In order to control the local health burden, it is essential to develop multi-resource, multi-component and multi-departmental psychological interventions, and policy guidelines in support of the vulnerable individuals at risk of psychological distress.

MATERIAL & METHODS

The study adopted a cross-sectional study design and collected data from Liaquat National Hospital, Karachi during the period from April 2021 to March 2022. The study included a sample of 195, calculated using WHO software, with P1=55%[13], 7% as margin of error and at 95% confidence interval. A non-probability sampling strategy and consecutive sampling technique, enabled data

collected and study completed over the span of one year. Healthcare professionals were selected based on the inclusion criteria. They had age ranges in between 18 to 65 years. They have managed patients, during Covid-19 pandemic, as a frontline or second line worker. In this study, the Frontline workers refers to those who are directly involved in clinical management of patients confirmed or suspected with Covid-19 [28]. Second line workers are those who are not directly in clinical management of patients suspected or confirmed Covid-19 [28]. Both; male and female healthcare workers; physicians, technicians, hospital staff, and nurses were included in the study. In contrast, pregnant females, individuals who were unable to submit consent form and individuals with any severe cardiac and pulmonary disease, were excluded from the study.

The study complied for the data collection requirements by ethical review committee. Participants (healthcare professionals) were asked to fill a consent form before participating in the study. The healthcare professionals, who were working in at Liaquat National Hospital, a tertiary care hospital, and fulfilling the inclusion criteria, were included in the study. There demographic details including; age, gender, marital status, socioeconomic status, working position, healthcare profession, and healthcare profession were recorded. The data was collected using The Covid-19 pandemic mental health questionnaire (CoPAQ) [22]. This questionnaire was adopted after critically reviewing past literature on the assessment of psychological trauma among healthcare workers during the times of Covid-19 [22].The CoPAQ tool is attached in annexure-A. This questionnaire tool is based on a total score ranging from 0 to 312. CoPAQ score ≥ 185 reflects psychological trauma amongst the participants. The questionnaire inquires about SARS-Cov-2 infection status, employment status, health insurances status and Covid-19 physical health risk factors. It includes questions related to Covid-19 related constructs; mental health symptomatology, stressors, social media consumption, contamination, anxiety, interpersonal conflicts, paranoid ideations, social cohesion, institutional and political trust, conspiracy beliefs and necessity of and compliance with counter measures. The responses were collected based on the score items from 0 to 4, with 0 = not at all and 4 = extremely.

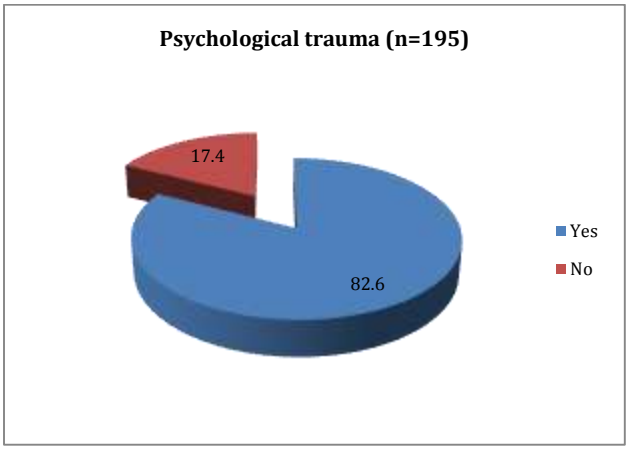
RESULTS

Statistical Analysis: This study adopted a quantitative research method and analyzed the data using IBM-SPSS 23.0 version. The demographic variables as; age, gender, residence, residence, marital status, working position, socioeconomic status and healthcare professional status (HCP) are reported in form of frequency distribution. The scores for COPAQ and psychological trauma are reported. The association of Covid-19 and psychological trauma among HCP is analyzed using Pearson Chi-square analysis. The risk of acquiring psychological distress is analyzed using Binary Logistic regression using univariate and multivariate analysis and odds ratio at 95% confidence interval levels. A p-value<0.05 were considered as statistically significant. The data is presented graphically using bar and pie diagrams.

Table 1: Baseline Characteristics of Studied Samples (n= 195)

Characteristics		n	%
Age Group	<=30 years	103	52.8
	31 - 35 years	65	33.3
	>35 years	27	13.8
Gender	Male	75	38.5
	Female	120	61.5
Marital Status	Unmarried	62	31.8
	Married	133	68.2
Residence	Urban	178	91.3
	Rural	17	8.7
Socioeconomic Status	<25000 PKR	26	13.3
	25000 - 55000 PKR	70	35.9
	55000 - 75000 PKR	79	40.5
	>75000 PKR	20	10.3
Working Position	Frontline	150	76.9
	Second line	45	23.1
Health care profession	Doctors	78	40.0
	Nurses	68	34.9
	Technicians	24	12.3
	Other Hospital Staff	25	12.8
COPAQ score	>=185	161	82.6
	<185	34	17.4

Table-1 shows the baseline characteristics for the sample. The findings reveals that there were 195 samples among them 52.8% were age group less than or equal to 30-years, 61.5% were females, 68.2% were married, 91.2% were urban residence, 40.5% having income between Rs. 55000 to 75000 , working position of 76.9% was frontline, 40% were doctors, 34.9% were nurses, and 12.3% were technicians, COPAQ scores of 82.6% samples was found more than or equal to 185 were considered as psychological trauma.



Pie Chart 1:

Table 2: Association of Psychological Trauma with Studied Factors

Factors		Psychological trauma				p-value
		Yes (n=161)		No (n=34)		
		n	%	n	%	
Age Group	<=30 years	83	51.6	20	58.8	0.59
	31 - 35 years	54	33.5	11	32.4	
	>35 years	24	14.9	3	8.8	
Gender	Male	61	37.9	14	41.2	0.72
	Female	100	62.1	20	58.8	
Marital Status	Unmarried	51	31.7	11	32.4	0.93
	Married	110	68.3	23	67.6	
Residence	Urban	151	93.8	27	79.4	<0.01*
	Rural	10	6.2	7	20.6	
Socioeconomic Status	<25000 PKR	14	8.7	12	35.3	<0.01*
	25000 - 55000 PKR	52	32.3	18	52.9	
	55000 - 75000 PKR	77	47.8	2	5.9	
	>75000 PKR	18	11.2	2	5.9	
Working Position	Frontline	136	84.5	14	41.2	<0.01*
	Second line	25	15.5	20	58.8	
Health care profession	Doctors	74	46.0	4	11.8	<0.01*
	Nurses	60	37.3	8	23.5	
	Technicians	14	8.7	10	29.4	
	Other Hospital Staff	13	8.1	12	35.3	
*p<0.05 was considered statistically significant using Pearson Chi Square test						

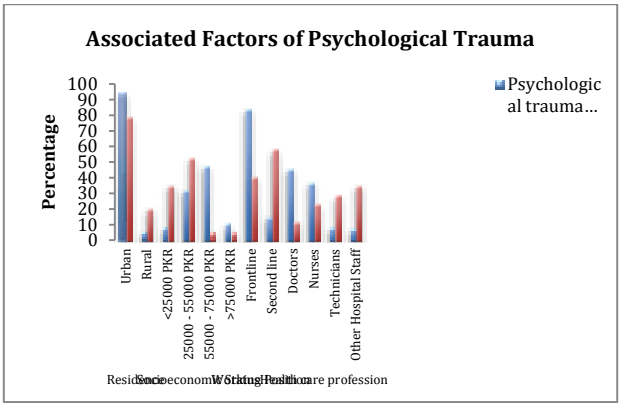
In Table -2, the association of psychological trauma with studied factors is reported. It is found that among samples with psychological trauma 51.6% found with age under 30-years old, 62.7% were female gender, 68.3% were married, 93.8% from Urban residence, 32.3% with SES of Rs. 25000 to 55000, 84.5% were frontline worker, 46% were doctor, 37.3% were nurses, 8.7% were technicians and 8.1% were other hospital staff. Pearson Chi

Square showed a significant association of psychological trauma with residence, socioeconomic status, working position and health care professionals with p<0.05.

Table 3: Odds Ratio for Associated Risk Factors of Psychological Trauma using Binary Logistics Regression Analysis

Factors	Univariate Odds Ratio (95% C.I)	Multivariate Odds Ratio (95% C.I)
Age (Years)	1.04 (0.9 -1.1)	1.02 (0.9-1.2)
Gender: Females	1.1 (0.5-2.4)	1.3 (0.5-3.3)
Marital Status: Married	1.03 (0.4-2.3)	1.1 (0.4-3)
Residence: Urban	3.9* (1.4-11.2)	1.3 (0.3-5.3)
SES: Rs. <25000	0.13* (0.02 - 0.7)	0.6 (0-13.5)
SES: Rs. 25000 – 55000	0.32 (0.06-1.5)	0.7 (0.04 -10.7)
SES :Rs. 55000 – 75000	4.3(0.56-32.4)	4.7 (0.5-45)
Working Position: Frontline	7.8* (3.5-17.4)	1.6 (0.3-8.1)
HCP: Doctors	17.1* (4.8-61.2)	2.8 (0.1-53.9)
HCP: Nurses	6.9* (2.4-20.3)	3 (0.4-22.9)
HCP: Technicians	1.3 (0.4-4)	1.1 (0.3-4.6)
*Odds ratio with p<0.05 were considered statistically significant Dependent Variable : Psychological Trauma		

Table-3 represents the odds ratio at confidence interval of 95%, for psychological trauma, in Univariate analysis urban resident were found 3.9 times, frontline workers gives 7.8 times, doctors gives 17.8 times and nurses gives 6.9 times more likely for psychological trauma and samples with income less than Rs. 25000 were found 0.13 times less likely for psychological trauma with p<0.05. In multivariate analysis none of the factors give significant association.



Bar Diagram 2:

DISCUSSION

In the current study, a CoPAQ tool was used to collect the data from healthcare professionals and assess the level of psychological trauma. The demographic data reveals that majority of the sample included female healthcare professionals (61.5%) in contrast to males (38.5%). The study reveals that most of them are married (68.2%) and have families to cater with their healthcare jobs. Most of the healthcare professionals earn a salary package in between 55000 - 75000 PKR (40.5%) and 25000 - 55000 PKR (35.9%). This means that they are looking after their families with limited financial earnings. Khalid in his study published in 2020, argued that Covid-19 increases the financial burden for the patients, who are bearing the medical costs associated to this infection [7]. The fear to acquire this infection and financial crises is another cause of psychological trauma affecting mental health of the individual in the long-term [7,23]. The sample included healthcare professionals, who were mostly serving as Doctors (40%) and Nurses (34.9%). The study examined how age and psychological trauma are associated. The results of the study reveals that age groups ≤30 years (51.6%), experienced a higher level of psychological trauma in contrast to other age groups; 31 to 35 years (33.5%), and >35 years (14.9%). The study here can be supported with Conti et al., 2020 study, which reported a 55% distress among healthcare professionals [21]. They found that majority of healthcare workers were aged above 40 years (51.3%), which is in contrast to current study - age groups ≤30 years (51.6%). Conti et al., 2020 study reported that healthcare psychological care is significantly affected due to Covid-19 (39.9%), because, they were working without protective measures; gloves, eye guards and protective measures. This was one of the reasons, that they got affected with the infectious disease.

In the current study a chi-square analysis was performed, however, no significant association was found in between age groups and psychological trauma. The study investigated the association between residence and psychological distress. The results report that healthcare professionals who belonged to urban areas (93.8%) faced a higher and significant levels of psychological distress (<0.01*) in contrast to the rural areas healthcare professionals. The results of the study reveal a non-significant association between gender and psychological trauma. However, a higher number of females contributed as frontline/second line healthcare professionals during Covid-19 times. Majority of them were married, however, no association was revealed between marital status and psychological distress. A study by Khanam, 2020, reported similar findings as the current study. The study evaluated the psychological and stress impact of Covid-19 on frontline healthcare workers (FHCWs) [26]. The study had majority of healthcare workers from urban areas (68.4%). Most of the FHCWs were doctors (62.4%) and nurses (21.1%). The study reported that a higher stress in nurses, than in doctors. Nurses experienced feeling of pessimism and sadness, felling of being avoided by others, and they were worried about the care of their family members. Their stress levels increased due to increased work burden, which affected their work quality. The same study reported a significantly higher level of psychological impact (81%) among FHCWs. The result of Khanam, 2020, study, support the findings of this current study, as urban doctors and nurses, who are working at frontline are found affected among Karachi sample. However, the current study revealed that females are more affected than males. In the Khanam, 2020 [26], males are found more affected in contrast to females.

The study analyzed the CoPAQ score and found 82.6% of the sample with ≥185. This affirms that the healthcare professionals working at the frontline/second line during Covid-19 pandemic are warriors. They have risked their lives, while protecting their patients. There are multiple factors that are affecting their mental and psychological health and increasing psychological trauma among them. The study analyzed the association between various factors and psychological factors among the healthcare professionals. Socioeconomic factors association with psychological distress revealed interesting findings in the study. A statistically significant association (<0.01*) is found between income of the healthcare professionals and increasing levels of psychological distress. Most of the healthcare professionals are married, and have family responsibilities. In this scenario, a lower level of income is already a psychological burden. Sahin et al., 2020 argues that Covid-19 disease is a costly disease [23]. It increases psychological, emotional and financial burden on the affected individuals. Due to the severity of this disease, the affected individual is kept in quarantine, to reduce the risk of spreading of this disease. In this situation, the family members of the patient, suffers from financial and emotional distress. In contrast, the healthcare professionals risk their lives, while they treat Covid-19 patients [29]. They need to take special care of themselves and follow safety guidelines. However, the risk can be mitigated; however, it cannot be controlled completely. The study reports that individuals having income levels in below 75,000 suffer their mental health and have higher probability to have psychological distress.

The study findings reveal that working position and psychological distress are strongly association. The healthcare

professionals, who are on frontlines and direct contacts with the Covid-19 patients, have higher probability to have psychological distress (<0.01*). Additionally, study reports a statistically significant association between healthcare profession and psychological distress (<0.01*). The study reveals that Doctors (46%) and Nurses (60%) are at higher risk to have psychological distress, in contrast to Technicians (8.7%) and other hospital staff members (8.1%).

The study performed a univariate and multivariate analysis and odds ration with p<0.05 were considered statistically significant. The study found that urban healthcare professionals are 3.9 times probable to have psychological trauma, in comparison to the rural healthcare professionals. The study found that individuals having lower income range (<25,000) are found 0.13 times less likely to have psychological distress, in contrast to individuals with comparatively higher income range and socioeconomic status. The study reports that frontline managers are 7.8 time at risk, in contrast to second line workers. The study found that Doctors (17.1) and Nurses (6.9) are highly at risk than other healthcare professionals.

Previously, a study by Khalid, 2020, highlighted the Covid-19 related healthcare issues in Pakistan [27]. The study reported that there is a lack of standard operating procedures, which led to an increase in the healthcare burden. The study reported that governmental capacity is limited, when it comes to dealing with Covid-19 crises. The study presented suggestions given by the healthcare professionals. They suggested that government should act responsibly and ensure optimal security to healthcare professionals, specially working at the frontline [27]. Likewise, this study fulfills the gap and brings evidence from Pakistani healthcare sector. The study reveals that psychological state of healthcare professionals are affected with the Covid-19 and it is affecting quality of work. There is a lack of governmental policies, multi-departmental psychological interventions and coping strategies to control risk of psychological distress among healthcare professionals. The study affirms that healthcare burden is increasing, due to the psychological distress among frontline healthcare physicians, with low income and mostly in married females. There is a need to develop strategies that could enable healthcare professionals respond to the consequences of Covid-19. A study based on Indian sample suggested that health workforce capacity must be strengthened, the state and national governments must be supported and continuation of necessary health services must be ensured [30]. The study recommended that a multi-sectoral and milti-pronged should be developed, to offer technical support for advancing of the healthcare system across the country.

CONCLUSION

The study reported a higher incidence of Psychological trauma among female frontline healthcare professionals, in contrast to males, in a sample of 195 healthcare professionals, working at Liaquat National Hospital of Karachi, Pakistan. Future scholars are recommended to examine the factors that are causing the psychological distress among healthcare professionals, in different cities of Pakistan, in the context of Covid-19 rising cases. They can make a comparison across different cities of Pakistan, in both; rural and urban areas and suggest policies that could help these professionals minimize risk of psychological distress.

REFERENCES

1. Trumello C, Bramanti SM, Ballarotto G, Candelori C, Cerniglia L, Cimino S, et al. Psychological adjustment of healthcare workers in italy during the COVID-19 pandemic: Differences in stress, anxiety, depression, burnout, secondary trauma, and compassion satisfaction between Frontline and Non-Frontline Professionals. Intern J Environ Res Public Health. 2020;17(22):8358-71
2. Zhu N, Zhang D, Wang W, Li X, Yang B, Song J, et al. A novel corona virus from patients with pneumonia in China, 2019. N Engl J Med. 2020;382(8):727–33.
3. Li Q, Guan X, Wu P, Wang X, Zhou L, Tong Y, et al. Early Transmission Dynamics in Wuhan, China, of Novel Corona virus-Infected Pneumonia. N Engl J Med. 2020;382 (13), 1199–207.
4. Pan X, Chen D, Xia Y, Wu X, Li T, Ou X, et al. Asymptomatic cases in a family cluster with SARS-CoV-2 infection. Lancet Infect Dis. 2020;20(4):410-1.
5. Tian F, Li H, Tian S, Yang J, Shao J, Tian C. Psychological symptoms of ordinary Chinese citizens based on SCL-90 during the level I emergency response to covid-19. Psych Res. 2020;288:112992-8.
6. Chandir S, Siddiqi DA, Setayesh H, Khan AJ. Impact of covid-19 lockdown on routine immunization in Karachi, Pakistan. Lancet Global Health. 2020;8(9):1118-20.
7. Khalid A, Ali S. COVID-19 and its Challenges for the Healthcare System in Pakistan. Asian bioethics review. 2020 Dec;12(4):551-64
8. Khalid A, Ali S. COVID-19 and its Challenges for the Healthcare System in Pakistan. Asian bioethics review. 2020 Dec;12(4):551-64.
9. Lee SM, Lee D. Opportunities and challenges for contactless healthcare services in the post-COVID-19 Era. Technological Forecasting and Social Change. 2021 Jun 1;167:120712.
10. Khanam A, Dar SA, Wani ZA, Shah NN, Haq I, Kousar S. Healthcare providers on the frontline: A quantitative investigation of the stress and recent onset psychological impact of delivering health care services during COVID-19 in Kashmir. Indian Journal of Psychological Medicine. 2020 Jul;42(4):359-67.
11. Lee SM, Kang WS, Cho AR, Kim T, Park JK. Psychological impact of the 2015 MERS outbreak on hospital workers and quarantined hemodialysis patients. Comprehensive psychiatry. 2018 Nov 1;87:123-7.
12. Kisely S, Warren N, McMahon L, Dalais C, Henry I, Siskind D. Occurrence, prevention, and management of the psychological effects of emerging virus outbreaks on healthcare workers: rapid review and meta-analysis. bmj. 2020 May 5;369.
13. Xiao J, Fang M, Chen Q, He B. SARS, MERS and COVID-19 among healthcare workers: A narrative review. Journal of infection and public health. 2020 Jun 1;13(6):843-8.
14. Kumar D, Tahir Saghir GA, Yasin U, Furnaz S, Karim M, Hussain M, et al. Psychosocial Impact of COVID-19 on Healthcare Workers at a Tertiary Care Cardiac Center of Karachi Pakistan. J Occup Environ Med. 2021;63(2):59-62.
15. Xue-Hui F, Wu L, Lun-Shan L, Kan X-H, Wang H, Yang-jun X. S Analysis of mental health status and needs of health care workers in designated medical institutions of tuberculosis during the epidemic period of COVID-19. Res Square 2020; 1(1): 1-4.
16. Mo Y, Deng L, Zhang L, Lang Q, Liao C, Wang N, et al. Work stress among Chinese nurses to support Wuhan in fighting against COVID-19 epidemic. J Nurs Manag 2020; 1(1): 1–8.
17. Almondes KM, Bizarro L, Miyazaki MC, Soares MR, Peuker AC, Teodoro M, Modesto JG, Veraksa A, Singh P, Han B, Sodi T. Comparative analysis of psychology responding to COVID-19 pandemic in brics nations. Frontiers in Psychology. 2021;12:1925.
18. García E, Weiss E. COVID-19 and Student Performance, Equity, and US Education Policy: Lessons from Pre-Pandemic Research to Inform Relief, Recovery, and Rebuilding. Economic Policy Institute. 2020 Sep 10.
19. Wald HS. Optimizing resilience and wellbeing for healthcare professions trainees and healthcare professionals during public health crises–Practical tips for an 'integrative resilience'approach. Medical Teacher. 2020 Jul 2;42(7):744-55.
20. Pathania N, Singh P, Sohal M, Sawhney RS. Psychological trauma among the healthcare professionals dealing with COVID-19. Asian J Psychiat. 2020;1:1-2.
21. Conti C, Fontanesi L, Lanzara R, Rosa I, Porcelli P. Fragile heroes. The psychological impact of the COVID-19 pandemic on health-care workers in Italy. PloS one. 2020;15(11):1-17.
22. Rek SV, Bühner M, Reinhard MA, Freeman D, Keeser D, Adorjan K, Falkai P, Padberg F. The COVID-19 Pandemic Mental Health Questionnaire (CoPaQ): psychometric evaluation and compliance with countermeasures in psychiatric inpatients and non-clinical individuals. BMC psychiatry. 2021 Dec;21(1):1-5.
23. Sahin T, Aslaner H, Olguner Eker Ö, Gökçek MB, Doğan M. A questionnaire study effect of COVID-19 pandemic on anxiety and burnout levels in emergency healthcare workers. Int J Med Sci Clin Invent. 2020;7(09):4991-5001.
24. Li Z, Ge J, Yang M, Feng J, Qiao M, Jiang R, et al. Vicarious traumatization in the general public, members, and non-members of medical teams aiding in COVID-19 control. Brain, behavior, and immunity. 2020;88:916-9.
25. Parveen S, Awan S, Rabbani F, Pervaiz F, Khan A, Khan FA, et al. Impact of covid-19 on mental health of healthcare workers during pandemic; an experience at a tertiary cardiac care set up. Pak Armed Force Med J. 2020;70(4):838-42.
26. Khanam A, Dar SA, Wani ZA, Shah NN, Haq I, Kousar S. Healthcare providers on the frontline: A quantitative investigation of the stress and recent onset psychological impact of delivering health care services during COVID-19 in Kashmir. Indian Journal of Psychological Medicine. 2020 Jul;42(4):359-67.
27. Khalid A, Ali S. COVID-19 and its Challenges for the Healthcare System in Pakistan. Asian bioethics review. 2020 Dec;12(4):551-64.
28. Teng Z, Wei Z, Qiu Y, Tan Y, Chen J, Tang H, Wu H, Wu R, Huang J. Psychological status and fatigue of frontline staff two months after the COVID-19 pandemic outbreak in China: A cross-sectional study. Journal of affective disorders. 2020 Oct 1;275:247.
29. Cox CL. 'Healthcare Heroes': problems with media focus on heroism from healthcare workers during the COVID-19 pandemic. Journal of medical ethics. 2020 Aug 1;46(8):510-3.
30. Sood B. Investing in a Resilient and Responsive Healthcare System During COVID-19 Pandemic. InHealth Dimensions of COVID-19 in India and Beyond 2022 (pp. 27-52). Springer, Singapore.