

## **Perceived Stress and Covid-19 Pandemic: A Web-Based Survey of Paramedical Staff in Punjab, Pakistan**

**\*Rizwan Abbas**

PhD Researcher, Department of Sociology – Health and Demographic  
Research (HeDeRa), Ghent University Belgium.  
Department of Sociology, Ghazi University Dera Ghazi Khan, Pakistan

**Farhan Abbas**

MBBS Student, Fazaia Medical College Islamabad, Pakistan

\*Email of the corresponding author: [rizwan.abbas@ugent.be](mailto:rizwan.abbas@ugent.be)

### **ABSTRACT**

*The direct contact of the paramedical staff with the patients and the significant risk of getting an infection during the Covid-19 outbreak make their job more stressful. The current study aims to measure the prevalence of stress levels among the paramedical staff members during the Covid-19 pandemic. Paramedical staff working in the hospitals of Punjab province, Pakistan, aged 25 to 40 were respondents of the study. A sample of 312 paramedical staff members was taken through a snowball sampling technique because of the web-based survey. The data was collected through a questionnaire on an online platform. The questionnaire link was distributed among the paramedical staff workers of different public hospitals to record the demographic information and stress on Covid-19 Perceived stress scale (PSS-10-C). SPSS 26 was used to analyze the data, and the association between the variables was computed using Chi-Square. The mean difference among the independent variables showing the stress was calculated with the help of a t-test and ANOVA. Demographic factors like gender, family type, occupational category, and individual family income were significantly associated with the level of stress. The identified results indicated the need for stress management programs at the hospital level aimed at paramedical staff.*

**Keywords:** Stress, Covid-19, paramedical staff, Hospitals

**To cite this article:** Abbas, R & Abbas, F. (2022). Perceived Stress and Covid-19 Pandemic: A Web-Based Survey of Paramedical Staff in Punjab, Pakistan. Competitive Social Science Research Journal (CSSRJ), 3(2), 215-226

## **INTRODUCTION**

Paramedical staff generally means the highly trained hospital staff who work for the patient care alongside the doctors. The paramedical staff includes nurses, therapists, technicians, and other ancillary personnel involved in patient care (Britannica, 2019). In Pakistan, nurses are not included in the paramedical staff because of their professional association. So, the technicians and the helpers constitute the paramedical staff. These staff members are directly involved, from diagnosing the patients to caring for and curing them (Shehzad et al., 2020; Yusefi et al., 2017).

The nature of the job of paramedical staff members makes them the frontline health care workers (HCWs) and makes them vulnerable to infections (Haq et al., 2022; Kalantarzadeh et al., 2014). Due to the direct contact of the paramedical staff with the patients and the significant risk of getting an infection (Shaukat et al., 2020; Koh, 2020) during the Covid-19 outbreak makes their job more stressful. Stress is commonly known as the state of adverse response toward an abnormal situation or happening in one's surroundings. Not much has been written about the paramedical staff stress and the concerning Pakistani societal setting. Our study is the first attempt to provide evidence-based analysis of the level of stress to the paramedical staff during the Covid-19 outbreak in relation to their demographic characteristics.

The current study aims to measure the prevalence of stress levels among the paramedical staff members during the Covid-19 pandemic. since the demographic conditions are the primary factor in low- and middle-income countries, so we measure the phenomenon by hypothesizing that there is a significant association between Covid-19 perceived stress and demographic characteristics of working paramedical staff.

## **METHODOLOGY**

### **Population**

The study constituted paramedical staff working in the hospitals of Punjab province, Pakistan, aged 25 to 40. The survey was conducted from the second week of January 2021 till the last week of February 2021.

### **Sampling and Data Collection Technique**

The study included 312 paramedical staff members aged 25 to 45 years old. These 312 workers constituted the sample of the study. The sample was obtained through a snowball sampling technique because of the web-based survey. We created a questionnaire on an online platform, and the questionnaire link was distributed among the paramedical staff workers of different public hospitals. We approached hospital staff members using different social networks and asked them to distribute the questionnaire among other colleagues in their social circles. The questionnaire contained a consent form before starting the survey. Initially, 450 participants started to fill out the questionnaire, but 138 participants did not complete the questionnaire. These participants were removed from the analysis. The cooperation rate was 69.3%.

## Measures

The questionnaire was divided into two sections—the first portion intended to record the participants' demographic information. The second portion consisted of the Covid-19 Perceived stress scale (PSS-10-C) statements.

**Demographic Characteristics:** Age, gender, residential area, marital status, family type, occupational category, and individual monthly income was used to record the demographic characteristics of the study participants.

**Covid-19 Perceived stress scale (PSS-10-C):** Modified version of the 10-item perceived stress scale to Covid -19 was used to measure the stress level in the paramedical staff working in the public hospitals. The responses were taken on a 5-point Likert scale. Categories were listed as (0) Never, (1) Almost Never, (2) Occasionally, (3) Almost Always, and (4) Always. There were six negatively stated items (1, 2, 3, 6, 9, and 10) and four positively stated items (4, 5, 7, and 8). Statements expressing negative statements were reversed. We then calculated the overall score of PSS-10-C, which ranges from 0 to 40. A higher score indicates a higher level of stress(Rahman et al.,2022. A score ranging from 0 to 10 indicated low stress, 11 to 20 was categorized as moderate stress, and 21 to 40 indicated high perceived stress. Reliability was assessed through the alpha reliability, and the scale reflects the good reliability with  $\alpha = 0.83$  for the current sample.

## Data Analysis

SPSS 26 was used to analyze the data. We used the frequency and percentage distribution to present the demographic characteristics and responses to PSS-10-C. While mean and standard deviation were calculated for age and the Covid-19 Perceived stress scale statements. Association between the variables was computed using Chi-Square at 0.05 significance. The mean difference among the independent variables showing the stress was calculated with the help of a t-test and ANOVA.

## Ethical Consideration

The study has adopted the ethical limitations of social science research. We offered informed consent that described the aim and purpose of the study to the participants. We also stated the usability of the collected data. The consent form also stated that they could start the questionnaire if the respondents agreed. We ensured the anonymity of the respondents by not exposing the name of hospitals where the respondents were working.

## ANALYSIS AND RESULTS

**Table 1:** Demographic Characteristics of paramedical staff ( $n=312$ )

Characteristics	Mean (SD)	Frequency	Percentage
<b>Age</b>	27.82 (6.19)		
<b>Gender</b>			
Male		224	71.8
Female		88	28.2
<b>Residential Area</b>			
Rural		106	34.0
Urban		206	66.0
<b>Marital Status</b>			
Single		164	52.6
Married		148	47.4
<b>Family Type</b>			
Nuclear		94	30.1
Joint		188	60.3
Extended		30	9.6
<b>Occupational Category</b>			
Technical Supporting Staff (Grade 9 and above)		144	46.2
Other Sanitary Workers (grade 8 and below)		168	53.8
<b>Monthly Individual Income</b>			
Up to 10000		64	20.5
Up to 20000		90	28.8
Up to 30000		44	14.1
30,001 and above		114	36.5

Table 1 describes the demographic characteristics of the respondents. A total of 312 respondents completed the questionnaire from hospitals of Punjab, Pakistan. 71.8% male and 28.2% female respondents took part in the survey. The mean age of the respondent was 27.82. a respondent residing in the urban areas formed 66% of the study sample. Most of the participating paramedical staff were single, 52.6% with 60.3% having a joint family as their family type. Representation of the sanitary workers (grade 8 and below) was more than half, i.e., 53.8%. Most (36.5%) of the respondents reported that they have 30,001 and above as their monthly income.

**Table 2:** Association between demographic characteristics of respondents and perceived stress ( $n=312$ )

Variables	Perceived Stress			p-value
	Low Stress	Moderate Stress	High Perceived Stress	
	F (%)	F (%)	F (%)	
<b>Gender</b>				
Male	6 (2.7)	140 (62.5)	78 (34.8)	.031
Female	-	45 (51.1)	43 (48.9)	
<b>Residential Area</b>				
Rural	2 (1.9)	64 (60.4)	40 (37.7)	ns
Urban	4 (1.9)	121 (58.7)	81 (39.3)	
<b>Marital Status</b>				
Single	4 (2.4)	100 (61.0)	60 (36.6)	ns
Married	2 (1.4)	85 (57.4)	61 (41.2)	
<b>Family Type</b>				
Nuclear	1 (1.1)	64 (68.1)	29 (30.9)	.001
Joint	5 (2.7)	113 (60.1)	70 (37.2)	
Extended	-	8 (26.7)	22 (73.3)	
<b>Occupational Category</b>				
Technical Supporting Staff (Grade 9 and above)	3 (2.1)	98 (68.1)	43 (29.9)	.011
Other Sanitary Workers (grade 8 and below)	3 (1.8)	87 (51.8)	78 (46.4)	
<b>Monthly Individual Income</b>				
Up to 10000	3 (4.7)	36 (56.2)	25 (39.1)	.023
Up to 20000	-	59 (65.6)	31 (34.4)	
Up to 30000	-	18 (40.9)	26 (59.1)	
30,001 and above	3 (2.6)	72 (63.2)	39 (34.2)	

F=Frequency, %=Percentage, ns=not significant  
Level of Significance=0.05

Table 2 indicated the association between the demographic characteristics of respondents and perceived stress. Perceived stress compared across the demographic characteristics of respondents. Analysis indicated that the association of gender with the perceived stress was significant as the  $p \leq .031$ . High perceived stress among females was 48.9% higher than that of male (34.8%) respondents. Perceived moderate stress was prevalent among males and females, and moderate stress was 62.5% and 51.1%, respectively. Moderate perceived stress was evident among the respondents having different residential areas and marital statuses, but the association of perceived stress to these variables was not significant (Abdulghani et al.,2020) . Moderate perceived stress was significantly associated with the family type of respondents, where 73.3% indicated the prevalence of high perceived as compared to respondents having a nuclear and joint family system. The association was significant at  $p \leq 0.001$ . Perceived moderate stress was prevalent among Technical Supporting Staff (Grade 9 and above) and Other Sanitary Workers (grade 8 and below), and the moderate stress was 68.1% and 51.8%, respectively. While the high perceived stress in technical supporting staff (Grade 9 and above) was 29.9%, and Other Sanitary Workers (grade 8 and below) has 46.4% high perceived stress. High perceived stress was apparent in the individuals having up to 30,000 as monthly income, and it showed 59.1%, while moderate stress was higher among the respondents having income category up to

20,000. The association of stress with individual monthly income was significant at  $p \leq .023$ . Hence it could have been seen that the perceived stress is significantly associated with gender, family type, occupational categories, and individual monthly income.

**Table 3:** Frequency and percentage distribution of responses to the PSS-10-C ( $n=312$ )

Items #	Statements	N	AN	O	AA	A
		F (%)	F (%)	F (%)	F (%)	F (%)
<b>Negatively Stated Items</b>						
1	I have felt affected as if something serious will happen unexpectedly with the pandemic	1 (0.3)	43 (13.8)	86 (27.6)	31 (9.9)	151 (48.4)
2	I have felt that I am unable to control the important things in my life due to the pandemic	16 (5.1)	66 (21.2)	107 (34.3)	39 (12.5)	84 (26.9)
3	I have been nervous or stressed by the pandemic	4 (1.3)	80 (25.6)	71 (22.8)	23 (7.4)	134 (42.9)
6	I have felt unable to cope with the things I have to do to control the possible infection	1 (0.3)	83 (26.6)	88 (28.2)	25 (8.0)	115 (36.9)
9	I have been upset that things related to the pandemic are out of my control	4 (1.3)	79 (25.3)	86 (27.6)	33 (10.6)	110 (35.3)
10	I have felt that the difficulties accumulate in these days of the pandemic, and I feel unable to overcome them	4 (1.3)	44 (14.1)	77 (24.7)	43 (13.8)	144 (46.2)
<b>Positively Stated Items</b>						
4	I have been confident about my ability to handle my personal pandemic related problems	12 (3.8)	93 (29.8)	101 (32.4)	23 (7.4)	83 (26.6)
5	I have felt that things are going well (optimistic) with the pandemic	8 (2.6)	72 (23.1)	111 (35.6)	38 (12.2)	83 (26.6)
7	I have felt that I can control the difficulties that could appear in my life due to the infection	14 (4.5)	91 (29.2)	86 (27.6)	39 (12.5)	82 (26.3)
8	I have felt that I have everything under control in relation to the pandemic	14 (4.5)	83 (26.6)	109 (34.9)	8 (2.6)	98 (31.4)

N=Never, AN=Almost Never, O=Occasionally, AA=Almost Always, A=Always

Table 3 indicated the detailed responses of the paramedical staff about their feelings to the PSS-10-C items. Researchers have recorded the responses of paramedical staff about their perceived stress for each item of the scale during the last twelve months of the pandemic. Researchers divided the questionnaire into two sections, i.e., negatively stated items and positively stated items for elaboration.

Negatively stated items were in the first section, and 48.4% of the paramedical staff always felt affected by unexpected events during the pandemic. 26.9% felt they were always unable to control things, and 42.9% of respondents were always nervous and stressed during the pandemic. 36.9% of respondents thought that they always felt that they could not cope with the pandemic situation. 35.3% of respondents thought that things related to pandemics were out of their control, while 46.2% of respondents felt that they could not overcome the pandemic-related problems.

On the other hand, researchers recorded the responses on positively stated items of the questionnaire and found that 32.4% of the paramedical staff members were occasionally

able to handle their problems. 35.6% said that things were going well occasionally for them during the pandemic. 29.2% of respondents said that they were almost never able to control the difficulties that could appear in their life due to infection, while 34.9% of respondents from paramedical staff viewed those things were occasionally under control during pandemics.

**Table 4:** Descriptive of Covid-19 perceived stress of respondents ( $n=312$ )

Description	Value(s)
Mean (SD)	25.06 (5.80)
Minimum	10
Maximum	39
Inter quartile range	9.75

Table 4 indicates the descriptive of Covid-19 perceived stress of respondents. Responses of the paramedical showed a mean perceived stress due to covid-19 was 25.06 with a standard deviation of 5.80. The range of cumulative responses showed a wide gap between the minimum and maximum values. The value depicting the minimum and maximum range is 10 and 39, respectively, with an interquartile range of 9.75.

**Table 5:** Mean and standard deviation of Covid-19 Perceived stress scale (PSS-10) ( $n=312$ )

Items	Statements	Mean	SD
<b>Negatively Stated Items</b>			
1	I have felt affected as if something serious will happen unexpectedly with the pandemic	<b>2.92</b>	<b>1.16</b>
2	I have felt that I am unable to control the important things in my life due to the pandemic	2.35	1.23
3	I have been nervous or stressed by the pandemic	<b>2.65</b>	<b>1.30</b>
6	I have felt unable to cope with the things I have to do to control the possible infection	<b>2.54</b>	<b>1.24</b>
9	I have been upset that thing related to the pandemic are out of my control	<b>2.53</b>	<b>1.24</b>
10	I have felt that the difficulties accumulate in these days of the pandemic, and I feel unable to overcome them	<b>2.89</b>	<b>1.18</b>
<b>Positively Stated Items</b>			
4	I have been confident about my ability to handle my personal pandemic related problems	2.23	1.24
5	I have felt that things are going well (optimistic) with the pandemic	2.37	1.18
7	I have felt that I can control the difficulties that could appear in my life due to the infection	2.27	1.26
8	I have felt that I have everything under control in relation to the pandemic	2.30	1.28

Table 5 is about the analysis of the mean and standard deviation of PSS-10-C items. This analysis helped identify the severity of the situation and the most prevalent form of stress among the paramedical staff during the pandemic. As one can see, the situation of

perceived stress stated in items 1, 3, 6, 9, and 10 of the scale reflected the stress within the paramedical staff of hospitals in the Punjab province of Pakistan. The 1st item has a mean score of 2.92 with a 1.16 standard deviation and depicts that respondent felt affected by the unexpected things that happened during the pandemic.

The 3rd item depicts a mean score of 2.65 with a 1.30 standard deviation that indicated the nervousness and stress among respondents during the pandemic. The 6th item of the scale indicates that respondents felt unable to cope with what they could do during infection and has a mean score of 2.54 with a standard deviation of 1.24. The 9th item was related to the upsetting of respondents that things related to the pandemic were out of their control, and this item has a mean score of 2.53 with a 1.24 standard deviation. The 10th item depicts the mean score of 2.89 with a 1.18 standard deviation that indicated that the respondents could not overcome the problems during a pandemic. On the other hand, the positively stated item portrays that respondent were more or less occasionally thinking about coping with stress during the pandemic.

**Table 6:** Mean difference, t-value and ANOVA of demographic characteristics of respondents in association with perceived stress ( $n=312$ )

Variables	Mean (SD)	df	t*/F** value	p value
<b>Gender</b>				
Male	2.47 (.599)	310	-1.639*	.102
Female	2.59 (.521)			
<b>Residential Area</b>				
Rural	2.46 (.595)	310	-1.006*	.315
Urban	2.53 (.572)			
<b>Marital Status</b>				
Single	2.44 (.567)	310	-2.074*	.039
Married	2.58 (.587)			
<b>Family Type</b>				
Nuclear	2.46 (.468)	309	8.799**	.000
Joint	2.47 (.607)			
Extended	2.86 (.620)			
<b>Occupational Category</b>				
Technical Supporting Staff (Grade 9 and above)	2.43 (.522)	310	-2.372*	.018
Other Sanitary Workers (grade 8 and below)	2.58 (.618)			
<b>Monthly Individual Income</b>				
Up to 10000	2.38 (.614)	308	3.235**	.023
Up to 20000	2.55 (.561)			
Up to 30000	2.71 (.540)			
30,001 and above	2.46 (.572)			

Level of Significance=0.05



Table 6 illustrates the comparison of mean that explains the stress across demographic characteristics of the paramedical staff. Perceived stress among the female respondents was more than their male colleagues, but the difference is non-significant as the value of the t-test revealed is  $t(310) = -1.639$ ,  $p > 0.05$ . Perceived stress among urban area residents was more than the respondents residing in a rural area, but this difference was not significant as the  $p > 0.05$ . Perceived stress among married individuals was significantly higher than single ones as the  $t(310) = -2.074$ ,  $p < 0.05$ .

Other Sanitary Workers (grade 8 and below) compared to Technical Supporting Staff (Grade 9 and above) reported significantly higher stress,  $t(310) = -2.372$ ,  $p < 0.05$ . The value of ANOVA showed a significant difference across the groups. Perceived stress across the family type groups was significantly different as  $F(309) = 8.799$ ,  $p < 0.05$ . Comparison of individual monthly income showed a significant difference across groups as  $F(308) = 3.235$ ,  $p < 0.05$ . However, data is evident that there was a significant difference in the perceived stress level given demographic characteristics.

## DISCUSSION

The present study observed the perceived stress of Covid-19 among paramedical staff working in hospitals in Punjab, Pakistan, and the association of demographic characteristics. The perceived stress of covid-19 through the PSS-10-C was high among the targeted respondents. Johnson et al., (2005) demonstrated that the most vulnerable staff during the covid-19 was paramedical staff because they were in direct contact with the patients and responsible for cleaning the infected patient's area.

The mean stress score was 25.06, with a standard deviation of 5.80. Prevalence of high perceived was 73.3% among the respondents having extended family as their family type, and the association was significant at  $p < .001$ . More than half (50.3%) paramedical staff members indicated that they felt nervous and stressed more often (almost always and always). Respondents of the present study also reported that they could not overcome their fear and problems due to stress. The fear among the healthcare professionals was explained by Basheer et al. (2015) in their study by stating the contagiousness and aggressiveness of the virus.

Moreover, they stated that most respondents were concerned about their dependents in the family, e.g., parents, siblings, children. This result was in line with the findings of our study related to family type, where we found that the perceived stress was high among the respondents having an extended family system. A study carried out in Poland by Ilczak et al., (2021) stated the perceived stress among the paramedical staff, and the results were consistent with our study. They stated that the fear of getting infected was high among the paramedical staff members.

Furthermore, demographic factors were significantly associated with perceived stress. This association was identified among the paramedical staff during the last year with the covid-19 infected patients. Our study identified that perceived stress is significantly associated with gender, family type, occupational categories, and individual monthly income. On the other hand, perceived stress among the paramedical staff responded in the present study was not significant with their residential area and marital status.

The findings of our study were confirmed by the previous studies conducted in China, Australia, and India (Kaur et al., 2021; Shehzadi et al., 2020; Basheer et al., 2015). We found that the stress among female paramedical staff members was higher than that of the male staff member. This result was consistent with the study of Pappa et al., (2020) and Siddiqui et al., (2017), where they stated that the stress among female healthcare professionals was high compared to their male counterparts. The current study results were contrasted with the study of Cardoso and Nirmala (2012) because they found the prevalence of stress among unmarried was higher, but we found a non-significant association between marital status and perceived stress.

## CONCLUSION

Paramedical staff in the hospitals of Punjab province in Pakistan experienced high perceived stress during the covid-19. It was merely because of the fear of getting infected and the situation. Identified demographic characteristics associated with the perceived stress were gender, family type, occupational category, and individual family income. The association was significant within the paramedical staff who participated in the study. The identified results indicated the need for stress management programs at the hospital level aimed at paramedical staff. These programs help increase the capacity of paramedical staff towards the stress management related to covid-19 and diminish the fear.

## Study Limitations

The study was limited to the hospitals of Punjab in Pakistan. The study's sample size is small, and the data is self-reported, so the results cannot be generalized.

## REFERENCES

- Abdulghani, H. M., Sattar, K., Ahmad, T., & Akram, A. (2020). Association of COVID-19 pandemic with undergraduate medical students' perceived stress and coping. *Psychology research and behavior management, 13*, 871.
- Britannica, T. (2019, February 7). *Paramedical personnel*. *Encyclopedia Britannica*. Retrieved from (<https://www.britannica.com/science/paramedical-personnel> )
- Basheer, M. F., Hussain, T., Hussain, S. G., & Javed, M. (2015). Impact of customer awareness, competition and interest rate on growth of Islamic banking in Pakistan. *International Journal of Scientific & Technology Research, 4*(8), 33-40.
- Cardoso, P. M., & Nirmala, R. (2012). Gender differences and marital status in organisational role stress among medical doctors. *Scottish Journal of Arts, Social Sciences and Scientific Studies, 2012*(2), 100-108.
- Haq, M., Rehman, A., Haq, M., Haq, H., Rajab, H., Ahmad, J., ... & Haq, N. U. (2022). Identifying higher risk subgroups of health care workers for priority vaccination against COVID-19. *Therapeutic advances in vaccines and immunotherapy, 10*, 25151355221080724.
- Ilczak, T., Rak, M., Ćwiertnia, M., Mikulska, M., Waksmańska, W., Krakowiak, A., ... & Kawecki, M. (2021). Predictors of stress among emergency medical personnel during the COVID-19 pandemic. *International Journal of Occupational Medicine and Environmental Health, 34*(2), 139-149.

- Johnson, S., Cooper, C., Cartwright, S., Donald, I., Taylor, P., & Millet, C. (2005). The experience of work-related stress across occupations. *Journal of managerial psychology*, 20(2), 178-187.
- Kalantarzadeh, M., Mohammadnejad, E., Ehsani, S. R., & Tamizi, Z. (2014). Knowledge and practice of nurses about the control and prevention of nosocomial infections in emergency departments. *Archives of clinical infectious diseases*, 9(4).
- Kaur, T., Ranjan, P., Chakrawarty, A., Kasi, K., Berry, P., Suryansh, S., ... & Prasad, V. B. (2021). Association of sociodemographic parameters with depression, anxiety, stress, sleep quality, psychological trauma, mental well-being, and resilience during the second wave of COVID-19 pandemic: a cross-sectional survey from India. *Cureus*, 13(7), 1-10.
- Koh, D. (2020). Occupational risks for COVID-19 infection. *Occupational medicine (Oxford, England)*, 70(1), 3.
- Lai, J., Ma, S., Wang, Y., Cai, Z., Hu, J., Wei, N., ... & Hu, S. (2020). Factors associated with mental health outcomes among health care workers exposed to coronavirus disease 2019. *JAMA network open*, 3(3), 1-12.
- Pappa, S., Ntella, V., Giannakas, T., Giannakoulis, V. G., Papoutsis, E., & Katsaounou, P. (2020). Prevalence of depression, anxiety, and insomnia among healthcare workers during the COVID-19 pandemic: A systematic review and meta-analysis. *Brain, behavior, and immunity*, 88(2020), 901-907.
- Peisah, C., Latif, E., Wilhelm, K., & Williams, B. (2009). Secrets to psychological success: why older doctors might have lower psychological distress and burnout than younger doctors. *Aging and Mental Health*, 13(2), 300-307.
- Rahman, M. M., Tabash, M. I., Salamzadeh, A., Abduli, S., & Rahaman, M. S. (2022). Sampling Techniques (Probability) for Quantitative Social Science Researchers: A Conceptual Guidelines with Examples. *SEEU Review*, 17(1), 42-51.
- Shahbaz, S., Ashraf, M. Z., Zakar, R., & Fischer, F. (2021). Psychosocial, emotional and professional challenges faced by female healthcare professionals during the COVID-19 outbreak in Lahore, Pakistan: a qualitative study. *BMC Women's Health*, 21(1), 1-10.
- Shahzad, F., Du, J., Khan, I., Fateh, A., Shahbaz, M., Abbas, A., & Wattoo, M. U. (2020). Perceived threat of COVID-19 contagion and frontline paramedics' agonistic behaviour: employing a stressor-strain-outcome perspective. *International Journal of Environmental Research and Public Health*, 17(14), 5102.
- Shehzadi, S., Nisar, Q. A., Hussain, M. S., Basheer, M. F., Hameed, W. U., & Chaudhry, N. I. (2020). The role of digital learning toward students' satisfaction and university brand image at educational institutes of Pakistan: a post-effect of COVID-19. *Asian Education and Development Studies*
- Shaukat, N., Ali, D. M., & Razzak, J. (2020). Physical and mental health impacts of COVID-19 on healthcare workers: a scoping review. *International journal of emergency medicine*, 13(1), 1-8.

- Siddiqui, A. F., Al Zaalah, M. A., Alqahtani, A. A., & Alqahtani, M. A. S. (2017). Perceived stress and its associated sociodemographic factors among physicians working in Aseer region of Saudi Arabia. *J Liaquat Uni Med Health Sci*, *16*(1), 10-18.
- Yusefi, A. R., Kavosi, Z., & Sadeghi, A. (2017). Knowledge, attitude, and practice of nurses in affiliated hospitals of Shiraz University of medical sciences about infection control in 2016. *Nursing And Midwifery Journal*, *15*(9), 667-679.