

Pre, During, and Post Mental and Psychological State of COVID-19 Affectees: A Descriptive Study

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Article Info

Article History

Received:
December 01, 2020

Accepted:
January 24, 2021

Keywords :

COVID-19 Affectees,
Mental State,
Psychological State,
Nurses, Pakistan

DOI:

10.5281/zenodo.4747131

Abstract

In this research, we examined the pre, during and post mental and psychological state of COVID-19 recovered patients. Through snowball sampling, a total of 115 nurses working in 10 large public and private hospitals were selected from Peshawar city of Pakistan. We distributed 12 questions related to mental and psychological state among the selected sample. The items validity and reliability were ensured. Based on mean score comparison, we found that female nurses have higher level of mental and psychological illness as compared to their male counterparts. Moreover, we found that Affectees are more prone to stress, anxiety, depression, mental and psychological illness during and after infection of COVID-19 as compared before COVID-19 infection. We also found, the Affectees received a low support from their colleagues and bosses during infection period as compared to pre infection period. However, support from family members at all threestages were highest. Discussion and implications are also highlighted.

Introduction

The coronavirus pandemic (COVID-19) is a unique and unprecedented worldwide health crisis (Ornell et al., 2020), unlike other viruses it severally effects the respiratory system causes flu, throat malfunctioning, cold, fever, cough, shortness of breathing, and in certain cases it leads to even death of the Affectees (Cirrincione et al., 2020). The COVID-19 crisis enormously creates a challenging environment for everyone in general, and particular for healthcare workers as they are directly exposed to COVID-19 patients. Resultantly they face psychological problems such as stress, depression, anxiety, and post-traumatic stress disorders (Zhao et al., 2020; Ramaci et al., 2020; Lee et al., 2020; Franklin and Raines, 2019). Healthcare workers are working in the extreme situations due to the fast-transmitted nature of COVID virus, high chances of infection, lack of specific medicine and medical facilities, lack of resources, and lack of standard procedures, made their tasks more difficult and riskier. Literature is of evident that healthcare workers are more prone to develop post-traumatic stress disorders (PTSD) and severe stress as SARs and MERS outbreaks (Kim and Park, 2017; Lee et al., 2018).

It is noted that healthcare workers, directly exposed to the emergency are more prone to the stress disorders as compared to the workers working in other departments (Bojdani et al., 2020; Morrison and Joy, 2016; Ratrou and Hamdan-Mansour, 2017; Luo et al., 2020). Secondary trauma in plain words is the indirect exposure of trauma, which is ensured through narration of the event and result as stress disorder symptoms. Recent studies have found that health professionals such as doctors, nurses and technical staff experiences psychological disorders such as anxiety, distress and depression (Lai et al., 2020; Badahdah et al., 2020; Fofana et al., 2020).

It is also worth noted that the intensity of the stress perceived by healthcare workers varies with demographic attributes such as gender, professions, age, and workplace (Smith et al., 2020; Elbay et al., 2020; Beck, 2011). Studies suggest that besides, demographic factors, psychological variables like lack of social support and self-efficacy highly affect healthcare professionals (Vagni et al., 2020).

Research shows that female health workers having more than ten years of experience in the field are more prone to stress and anxiety (Bitan et al., 2020; Lai et al., 2020; Zhu et al., 2020). Huang et al. (2020) observed that female medical workers are more prone to stress and anxiety as compared to males, and this phenomenon was more found in nurses as compared to doctors. Similarly, Li et al. (2020), also revealed that nurses are more affected from trauma as compared to the general public. Moreover, nurses working in the COVID-19 department showed more severe psychical and psychological symptomology. In a similarly study in Italian context (Simione and Gnagnarella, 2020), doctors and medical staff have developed more stress and anxiety than general public. Moreover, it also confirmed that more proportion of females' workers perceived higher risk and developed depression and anxiety (Bitan et al., 2020). It is pertinent to mention that nurses'

personal traits and sympathy towards patients are also create the stress among them (Eley et al., 2012). Some key risk factors are namely, unpredictability and increasing infection cases (Ratrou and Hamdan-Mansour, 2017), exposure to trauma (Adriaenssens et al., 2012), and feeling of helplessness to save the patients and mortality from COVID-19 (Missouridou, 2017). In other words, the more the workers are intimated to serve the patients the greater they develop secondary traumatic stress (Luftman et al., 2017). Similarly, in the study on COVID-19, it is revealed that nurses on frontline have higher level of STS due to the intimacy, closeness and sympathy with the patients (Zhu et al., 2020).

The healthcare workers exposed to viral disease, tend to develop negative thoughts that may negatively affects their mental health (Khattak et al., 2020). However, recent research studies show that traumatic events are also followed by positive changes after trauma, hence spur the personal growth (Lin et al., 2020). These positive changes are due to the close relationship with patients, intimacy, helpfulness, and positive feelings of personality (Oginska-Bulik and Kobylarczyk, 2015). The development of positive feelings and changes and coping with trauma is attributed to resilience (Lin et al., 2020). This argument is supported through the findings of the studies which revealed that resilience protects the health workers from traumatization (Jamal, 2017; Oginska-Bulik and Michalska, 2020). Moreover, research studies show that health care workers aptly cope up with trauma of COVID-19 having ample resilience (Duncan, 2020; Lin et al., 2020; Hu et al., 2020). Resilience has an important element of control and competence, essential for coping with the traumatic situation (Plessis et al., 2018). Besides, despite from the trauma, mental recovery to the previous situation is also associated with it. The individual learning ability of how to deal with the stressful situations is also enhanced. Coping is the human behavioral efforts to reduce the pressure of stress and distress. It is a psychological trait through which stress can be controlled (Prati and Pietrantonio, 2009). Resilience is the human ability of preparing for threats and controlling stress and negative feelings. It is found that individuals with high resilience have high self-esteem and self-efficacy. Besides, they have the ability to convert threats into opportunity (Semmer, 2006).

McKinley et al. (2019) argued that resilience is not something which can be inculcate into individuals rather demographics, personality traits, organizational and environmental factors and social support, all are account to improve the resilience. Literature is of evident that how resilience can help to defend against the traumatic stress and burnout among health care workers and nurses (Yu et al., 2019; Back et al., 2016). Resilient health professionals are more effectively deal with stress and trauma (Brown, 2018), moreover, they have relatively apt emotional balance (McKinley et al., 2019). One of the important reasons for the reportative nature of resilience is it has repair mechanism that makes protective against negative effects of trauma and conversion into opportunity. It is evident of literature where nurses, owing to resilience, cope up with the stressful situations and develop positive feelings (Foster et al., 2019). Moreover, resilience positively associates with the positive posttraumatic changes in certain medical relief group of workers, and in some cases of firefighters (Oginska-Bulik and Kobylarczyk, 2016).

1.1. The Present Research

A plethora of recent research on COVID-19 and its impact on mental and psychological health of general public, nurses and medical practitioners are highlighted (Vagani et al., 2020; Ornell et al., 2020; Khattak et al., 2020; Satici et al., 2020). However, recent literature is failed to capture the mental and psychological well-being of those people (in our case nurses) who suffered from COVID-19 disease and now healthier (hereafter Affectees). Thus, to bridge this gap and to know the mental and psychological state of those students and teaching staff who recently recovered from COVID-19 disease is the main point of concern of this study. In this research, we asked few questions related to the Affectees anxiety, depression, trauma, social contexts, coping strategies, behavior of their family members, friends, colleagues and seniors, their mental and psychological state at three points i.e., Pre COVID-19 (when he or she was not a patient of COVID-19), During COVID-19 (when he or she was suffering from COVID-19), and after COVID-19 (when he or she recovered from the COVID-19). We descriptively analyze their responses and compare the mean score of each period or point to better understand about their actual state of mind. Furthermore, we also compare the stress, anxiety, depression and hardiness level of male and female nurses to know which gender is more prone to these factors.

2. Method

2.1. Sample and Procedure

We collect the data from 10 public and private sector universities operated in Peshawar city of Khyber-Pakhtunkhwa province of Pakistan. Through snowball sampling, data from those students and teaching staff were collected who were affected from COVID-19 virus and recently recovered from COVID-19 disease. The nature of this research is descriptive i.e., mean comparison at three different points. Initially, through snowball sampling, we received information that 190 students and teachers fulfill the study requirement i.e., they were Affectees of COVID-19 disease and now recovered. We requested all Affectees to participate in the study. The purpose of the study was clearly discussed with the Affectees. However, 115 students and teachers were agreed to participate in the study conditionally that they participate anonymity, and their responses were kept confidential and will only be used for research purpose. Our survey was based on 12 questions measured on five-point Likert scale (i.e., 1 = very low, 2 = low, 3 = moderate, 4 = high, and 5 = very high). Affectees were asked

to tell about their mental and psychological state before, during and after he/ she was exposed to COVID-19 disease.

3. Results

Demographic information of the Affectees is reported in Table 1. Affectees belongs to public universities are 75 in numbers, while 40 belongs to private universities. The total sample comprises of 55 bachelor level students, 40 graduate level students, and 20 teachers. Eighty females' nurses and thirty-five males nurse participate in this survey research.

Table 1: Respondents Demographics

Variable	Frequency	Percentage	Cumulative Percentage	
1. Organization				
Public	75	65.2	65.2	
Private	40	34.8	100.0	
2. Designation				
Bachelor Students	55	47.8	47.8	
Graduate Students	40	34.8	82.6	
Teachers	20	17.4	100.0	
3. Gender				
Female		80	69.6	69.6
Male		35	30.4	100.0
4. Age				
20-25 years		55	47.8	47.8
26-30 years		30	26.1	73.9
31-35 years		10	8.7	82.6
36-40 years		15	13	95.7
41 and above		5	4.3	100.0

We also apply factor loading and alpha statistics to investigate the validity and reliability of the items used in the study. We found that all 12 items have good reliability in all three stages. Similarly, the loading values are also fall in the acceptable range, thus, ensure items validity and reliability.

Table 2: Factor Loading and Item Correlation

Statement	Before		During		After	
	Loading	item Corr.	Loading	item Corr.	Loading	item Corr.
1. Your level of stress	.73	.53	.71	.60	.85	.63
2. Your level of anxiety	.76	.61	.80	.65	.81	.67
3. Your level of depression	.70	.59	.74	.63	.88	.69
4. Your level of hardiness	.81	.60	.89	.67	.85	.70
5. Your mental well-being	.67	.68	.84	.61	.83	.73
6. Your psychological well-being	.69	.71	.75	.60	.85	.74
7. Support from family	.67	.59	.79	.59	.82	.77
8. Support from colleagues	.78	.63	.82	.61	.86	.78
9. Support from seniors	.68	.62	.84	.58	.82	.70
10. Your coping strategies	.62	.59	.75	.64	.85	.73
11. Your care about health	.62	.72	.73	.61	.80	.75
12. Your level of PTSD	.65	.69	.74	.63	.86	.78

We empirically tested the common preposition that women are more prone to stress, anxiety and depression as compared to males. Table 3 provide a comparative analysis of males and females regarding their level of stress, anxiety, depression and hardiness in three different points (i.e., pre, during and after COVID-19 disease). We found support for the common preposition as based on the mean value, the stress, anxiety, depression and hardiness of female students are found more compared to their male counterparts in all three points.

Table 3: Gender Wise Group Comparison

Male(n=35)Female(n=80)

Before During After Before During After

Mean Mean Mean Mean Mean Mean

1. Your level of stress	3.43(.917)	4.29(.458)	2.86(.355)	4.19(.530)	4.62(.487)	3.10(.436)
2. Your level of anxiety	3.74(.796)	4.26(.710)	2.57(.502)	3.94(.663)	4.50(.616)	2.63(.487)

3. Your level of depression	3.86(.648)	4.06(.663)	2.38(.487)	4.12(.603)	4.57(.502)
2.71(.458)					
4. Your level of hardiness	3.29(.710)	4.14(.845)	2.29(.458)	4.06(.832)	4.31(.857)
2.81(.393)					
5. Your level of PTSD	3.74(.657)	4.11(.832)	4.14(.845)	3.85(.658)	4.35(.597)
4.31(.587)					

Note: Standard deviation values are in parentheses

Table 4 highlights the mean score of responses we received at point 1 (before COVID-19 attack), point 2 (during COVID-19 disease), and point 3 (after recovery from COVID-19 disease). The Affectees level of stress, anxiety, depression and hardiness is moderately high in point 1, when he/she was not exposed to COVID-19 disease. Similarly, their mental and psychological well-being is minimum at par average indicating that COVID-19 fear adversely impacted their mental and psychological state. One probable reason for that as COVID-19 is quickly transmitted virus so they were worried to be infected in the near future may affects their mental and psychological well-being. The Affectees reported a higher level of stress, anxiety, depression and hardiness during the COVID-19 disease. A gradual decline was observed in stress, anxiety, depression and hardiness level after successfully return to the normal life.

Affectees received a higher degree of support from their family members (i.e., parents, wife, husband, brothers and sisters) in all three points of time, however, the support he/she received from their colleagues and seniors are very low at the time COVID-19 disease, and gradually increase after health recovery. Affectees reported that their coping strategies and care about their health was minimum at par the average level before infection. However, they concern for health and coping mechanism was well above at the time of disease and after recovery. It means that, Affectees strictly follows the SOPs related to self-protection against COVID-19 disease. The level of post-traumatic stress disorders (PTSD) was slightly above the average level at point 1 and it was highest at point 2 and point 3 (during and after COVID-19 attack).

Table 4: Mean Comparison

Statement	Before		During		After	
	Mean	sd.	Mean	sd.	Mean	sd.
1. Your level of stress	3.96	.754	4.52	.502	2.65	.478
2. Your level of Anxiety			3.74	.796	4.43	.651
.490						2.61
3. Your level of depression			3.87	.614	4.22	.659
.502						2.48
4. Your level of hardiness			3.83	.871	4.26	.677
5. Your mental well-being			2.91	.505	2.26	.608
.498						3.43
6. Your psychological well-being			2.92	.586	2.17	.639
.563						3.35
7. Support from family			4.48	.502	4.65	.478
.502						4.52
8. Support from colleagues			4.30	.462	2.13	.614
.552						2.96
9. Support from seniors			3.78	.781	1.30	.462
.583						2.52
10. Your coping strategies			3.09	.978	4.70	.461
.478						4.65
11. Your care about health			3.08	.656	4.57	.498
.462						4.70
12. Your level of PTSD			3.82	.657	4.28	.682
					4.26	.677

4. Discussion

In the present research, we investigate certain dominant factors that are considered responsible to mental and psychological health. In today's, coronaphobia environment, every individual has strong concern about their health, leading to create stress, fear, depression and anxiety among individuals. The nature of this virus is quite different from other viruses (e.g., Ebola, SARs, and MERS), as this virus spread quickly and have strong health consequences (e.g., flu, cough, pneumonia, shortness of breathing and in certain cases even death). A mounting body of recent research highlighted that healthcare professionals are working in extreme conditions as they directly involved in dealing with COVID-19 patients (Satici et al., 2020; Vagni et al., 2020; Zhou et al., 2020; Mckey and Asmundson, 2020; Khattak et al., 2020). The current research is totally different in nature from the past researches as we targeted those individuals who are Affectees of COVID-19. This unique group were asked to share their story based on 12 items to report their stress, depression, anxiety, hardiness, coping strategies, and

support they received from their family, colleagues and their seniors in all three points i.e., before disease, during disease, and after disease.

Our findings suggest that the moderate level of stress, depression, anxiety, and hardiness among students and teachers were observed before COVID-19 infection. This level reached to the highest point during and after the COVID-19 disease as they found themselves more stressful and depressed. Students and teachers reported that they received higher support from their family members in all three stages, however, the support from colleagues and seniors was found very low during COVID-19 disease. They also accounted that their coping strategies against COVID-19 was at moderate level before infection and reached to the highest level during and after COVID-19 infection. We also check whether there any significant difference was present among male and female nurses regarding stress, anxiety, depression, hardiness, and PTSD. Based on mean score comparison, we found that female nurses have higher level of stress, depression, anxiety, hardiness, and PTSD as compared to male counterparts. Our results are consistent with Bitan et al., (2020) as their study found that the level of stress and anxiety is more in female as compared to males. Lai et al. (2020) and Zhu et al. (2020) also found that female workers have higher level of stress, depression and anxiety as compared to their male counterparts. Our results are also consistent with Beck (2011). In our case, we observed that young students are more prone to a higher level of stress, anxiety, depression and PTSD as compared to their old counterparts. One probable reason for such a result as that in our study students who were above 40 years are less in number i.e., 5 with a valid percentage of only 4.3, so results on such a small sample might be misleading.

4.1. Limitations

Our study has several limitations that need to be addressed. The sample of this research is relatively small i.e., 115. Future studies may replicate our findings with a large sample size. Our study was limited only to university level students of Peshawar city and did not consider the students from other cities who were also infected from COVID-19 and now they are healthier. So, it is suggested that future research may expand our model by selecting the sample from diverse professionals and compare their mental and psychological state affected due to COVID-19. Our study was descriptive in nature. It will be better to explore this phenomenon through qualitative study i.e., grounded theory. Lastly, this study was conducted in Pakistan. Researchers from other cultures are welcome to replicate this study and compare the results with the current research.

4.2. Conclusion

This research is one of the first attempt to examine the mental and psychological state of those students and teachers who were affected from COVID-19 virus. Our study offers some interesting results based on actual data collected from COVID-19 infected nurses. Surprisingly, students reported that, instead of higher level, they have moderate level of coping strategies against COVID-19, although, they attend COVID-19 patients on routine basis. Similarly, the priority about their own health is at par above the average instead of higher priority given by oneself. This might be the main reason of COVID-19 infection. We recommended that healthcare professionals are our frontline soldiers, they must utilize all possible safety measures to protect their selves from a speedy transmitted COVID-19 virus.

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