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Research Article

Effect of COVID-19 Pandemic on Mental Wellbeing of Healthcare Workers in Tertiary Care Hospital

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Abstract

Objective: The corona virus (COVID-19) outbreak which started in China now has become a pandemic. This disease is affecting the health of general population and causing severe psychological distress in healthcare workers. This survey was planned to investigate the impact of pandemic on mental wellbeing of these workers.

Methods: Medical staff members working in Services hospital, Lahore were recruited. The information regarding demographic data, insomnia, anxiety, depression and stress symptoms were obtained by questionnaire. Comparison of demographic data and these psychological variables were done between insomnia and non-insomnia groups.

Results: Total 356 healthcare workers were included in the study. There were symptoms of depression in 222 (62.35%), anxiety in 227 (64.76%), stress in 197 (55.33%) and insomnia in 190 (53.37%) of participants. Mild to severe symptoms of depression (91.65% vs. 28.9%), anxiety (83.1% vs. 41.6%) and stress (84.26% vs. 22.22%) were seen predominately in the insomnia group ($p < 0.001$). Insomnia was more in participants with low education level (78.08%) vs post-graduate degree (30.9%). Paramedics, nurses and healthcare workers in isolation/intensive care units were more prone to insomnia ($p < 0.001$).

Conclusion: Mental wellbeing of health care workers is affected due to COVID-19 pandemic. Nurses, paramedics and those working in isolation unit have significant insomnia. Involvement of mental health professionals and online mental health services can be helpful.

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Introduction

Severe acute respiratory syndrome corona virus is the causative agent of COVID-19 pandemic. The outbreak first originated in Hubei province of China in December 2019.¹ It has now spread all over the world. WHO (World Health Organization) announced the occurrence of novel coronavirus in January 2020 and later on declared it a PHEIC (Public Health

Emergency of International Concern)² after the virus spread to other countries. This was followed by official name declarations as 'Corona virus disease-COVID-19 in February 2020 and a pandemic in March 2020.³

First case of this disease in Pakistan was confirmed on February 26, 2020 in Karachi. According to OCHA (United nation Office for Co-ordination of Humani-

tarian Affairs), confirmed cases of COVID-19 in Pakistan has increased to 98,946 on June 06, 2020 with 2002 deaths.⁴

Corona virus has invaded the world and has resulted in worst crisis which we have ever experienced. Two third of the world is under lockdown with hospitals converted to corona hospitals and reports of deaths pouring daily. Non availability of beds, shortage of ICU/Medications and not getting a respectful burial are depressing events sited in every country. In addition to medical catastrophe, it has caused significant socioeconomic turmoil. People are out of jobs, businesses are closed, self-isolated with fear of unknown. All this has significantly induced high level of stress and depression in common population.⁵ A recent study has reported that people are afraid of going to market, concerned for their family members' safety and had elevated levels of fear amongst them.⁶

The complexity of the situation is that the disease is affecting health care workers directly being front liners dealing with these patients. They are working in conditions where proper personal protection equipment are not available. In addition to sensational media reports about mortality of health care workers, improper lockdown policies, non-serious attitude of general public about social distancing, sanitization measures and rising number of cases increases their worries. They themselves and their families are at risk of transmission of disease. In case of suspected infected case, the policy of strict quarantine and isolation from family are additional factors which are increasing their psychological and mental health problems.⁷ A recent review has suggested anxiety being the commonest disorder with sleep disorder.⁸ Few studies have been published regarding the psychological stress of health care workers. To our knowledge, no study has yet been published from Pakistan. So, this study was planned to investigate the frequency of insomnia and other mental health related problems among medical staff working in tertiary care hospital during this pandemic period.

Methods

It was a cross-sectional survey, conducted in Services institute of medical Sciences, Services Hospital, Lahore, Pakistan from 20th May to 3rd June 2020. It is tertiary care hospital dealing with corona patients in emergency along with dedicated corona isolation

wards and COVID ICU in addition to other specialties. Approval for the survey was taken from institutional review board of Services Institute of Medical Sciences. Healthcare workers such as doctors, nurses and paramedics who were willing to participate and English literate, were given a questionnaire. Personals already having psychological disorders were excluded from study after taking previous history.

Sample size was calculated in two steps, keeping confidence level (Z) at 95% and margin of error (M) at 5% and population proportion (P) as 0.5 (50%).

First the infinite sample size (S) was calculated by following formula:

$$S = \frac{Z^2 \times P(1 - P)}{M^2} = 384.16$$

Then, adjusted sample size (SA) to required population (PR) of 5000 was calculated as below while all other values remain as previous:

$$S_A = \frac{S}{1 + \left[\frac{S - 1}{P_R} \right]} = 356$$

Using the questionnaire, details of participants regarding age, gender, marital status, educational level, designation, working place and living status were collected. Depression, anxiety and stress have an impact on sleep pattern. So, two groups of participants were defined as insomnia group (total score ≥ 8) and non-insomnia group (total score < 8) on insomnia severity index (ISI). Each item in this index was rated on 0-4 scale and the total score ranged from 0-28. High score indicated high level of insomnia.⁹

Depression, anxiety and stress were calculated by DASS21 scoring scale. Each item were rated from 0-3 and in the end, mild, moderate and severe symptoms were calculated using the scale.¹⁰ Comparative statistical analysis was performed using SPSS 23. Descriptive statistical analysis was performed. Comparison of demographic data and other psychological variables of depression, anxiety and stress were done between non-insomnia and insomnia and group. Statistical significance was calculated using Chi square. p-value of < 0.05 was considered significant.

Results

In the study, 356 healthcare workers participated, out of whom symptoms of depression were found in

222(62.35%), anxiety in 227(63.76%), stress in 197 (55.33%) and insomnia in 190(53.37%) (Figure-1). Table I showed 174(91.65%) participants in insomnia group had symptoms of depression versus 48(28.9%) in other group ($p < 0.001$). Mild to severe anxiety was seen in 158(83.1%) of insomnia group versus 69(41.6 %) in other group ($p < 0.001$). Table II showed that individuals of insomnia group were mostly in age range of 20-30 years 88(46.31%). The workers with lower education status had more insomnia ($p < 0.001$).

Nurses 46(24.31%) and paramedics 43(25.3%) were more prone to insomnia as compared to doctors. Corona isolation unit workers had significantly more insomnia as compared to other departments ($p < 0.001$). Participants who were living with their families very having more insomnia 125(65.8%) versus 70(42.2%) who were living alone ($p < 0.001$).

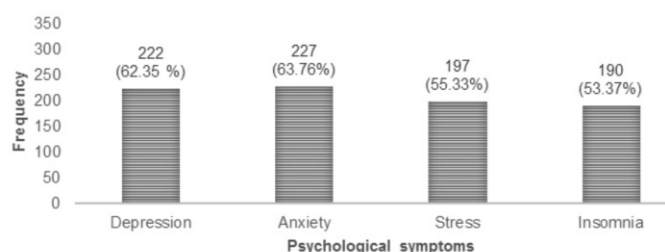


Figure 1: Frequency of Psychological Symptoms

Table 1: Comparison of Psychological Variables of Depression, Anxiety and Stress between Insomnia and Non-Insomnia Group.

Psychological Symptoms	Insomnia	Non Insomnia	P value
Depression	Minimal /None	16 (8.42%)	<0.001
	Mild	146 (76.9%)	
	Moderate	25 (13.15%)	
	Severe	3 (1.6%)	
Anxiety	Minimal /None	32 (16.9%)	<0.001
	Mild	120 (63.15%)	
	Moderate	27 (14.21%)	
	Severe	11 (5.8%)	
Stress	Minimal /None	30 (15.8%)	<0.001
	Mild	104 (54.73%)	
	Moderate	51 (26.9%)	
	Severe	5 (2.63%)	

Discussion

Health care workers have responded to the challenge posed by COVID 19 pandemic diligently. Their physical wellbeing is taken care by giving them personal protective equipment, teaching them donning, doffing techniques and guidelines regarding

Table 2: Comparison of Demographic Data between Insomnia and Non-Insomnia Group.

Demographic data	Insomnia N=190	Non Insomnia N=166	P value
Age	20-30year	88 (46.31%)	0.825
	31-40year	62 (32.63%)	
	41-50year	28 (14.73%)	
	50 above	12 (6.31%)	
Gender	Male	90 (47.4%)	0.788
	Female	100 (52.7%)	
Marital Status	Single	91 (47.9%)	0.777
	Married	99(52.10%)	
Education level	FA / FSc.	57 (30%)	<0.001
	Bachelors	78 (41.05%)	
	PG resident	42 (22.10%)	
	Post-graduation	13 (6.84%)	
Staff type	Doctor	96 (50.52%)	<0.001
	Nurse	46 (24.21%)	
	Paramedics	48 (25.3%)	
		16 (9.63%)	
Current working department	Medical ER	65 (34.21%)	0.001
	Isolation/ Intensive care unit	50 (26.3%)	
	Surgical and allied	45 (23.6%)	
	OPD and inpatient dept.	20 (10.52%)	
	Others	10 (5.3%)	
		21 (12.6%)	
Living situation	Alone	14 (7.37%)	<0.001
	With family	125 (65.8%)	
	In hostel	51 (26.9%)	

safety. Little attention has been paid to their mental health which is essential for their physical wellbeing. This study reported 62.3% depression, 63.7% anxiety, 55.3% stress and 53.3% insomnia symptoms in health care workers. Similar results have been reported in studies from China.^{7,11} Preliminary review reported relatively lower rates of depression, stress, anxiety and insomnia as compared to this study.¹² The relatively high frequency of above symptoms in this study population is due to on-going situation of the pandemic, poor disease control and rising number of deaths amongst health care workers.

In response to pandemic, doctors had to face many challenges. Their rosters were shuffled and pooling of different doctors was done to work away from their specialties. The feeling of vulnerability to disease, rapid spread of virus, changes in the policies at the workplace, confusing misinformation of social media reports and inconsistent government policies of disease control all add to stress and anxiety. In addition to these, violence of public against health care

workers with physical and abusive demonstrations have strong negative impact on their psychological wellbeing.

Different studies have established correlation between psychological variables of depression, anxiety and stress with sleep disturbances.^{13,14} Socio-demographic factors such as level of education had a strong impact on development of insomnia in healthcare workers in this study. Less educated workers were found to be two and half times more prone to insomnia. The results are consistent with the results of study done in China.¹⁵ The personals with low education level usually have poor understanding and information about the pandemic spread and control strategies than ones with post-graduate qualification.

In this study, frequency of insomnia was significantly more in nurses and paramedics. Similar results were seen in studies done in China and Italy.^{11,16} The nurses and paramedics have greater level of stress due to poor situational awareness and lack of knowledge as compared to doctors. Moreover, they have increased physical work load and have longer contact duration with severely ill patients as compared to doctors. Most of the nurses and paramedics have consecutive night shift which disturbs their circadian rhythm that leads to insomnia.¹⁷

Workplace location had a strong impact on sleep disturbance in this study. Healthcare workers in Isolation/ Intensive care units had significantly high frequency of insomnia than the ones working in other departments. Situation is extremely tense in Isolation and intensive care units as patients are lonely, isolated, infected and critical. Prioritizing the beds and ventilators, continuous treatment protocols change and seeing patients worsening definitely adds stress and anxiety. Social behavior of these patients and their relatives, risk of disease transmission to healthcare providers and their families, wearing of full body protective equipment in hot humid weather and inability to take food breaks during duty hours badly affects overall health and sleep of these workers. Similar results are reported from the studies in China during COVID-19 outbreak.^{11,15} Most participants were living with families and were more prone to insomnia than the ones living alone as fear of transmission of diseases to the families especially to old people at home led to sleep disturbances.

The study results showed that healthcare workers dealing with suspected and infected patients during this pandemic are having mental distress. So, interventions are needed at personal and institutional level to cope with this challenging situation. According to WHO guidelines for mental health of healthcare workers, certain coping strategies such as sufficient rest, balanced and healthy diet, physical activities, keeping in contact with friends and family members through digital media and decreasing the screen time on social media help to decrease the stress at personal level.¹⁸

Along with all above, certain measures should be taken at institutional level. Specific measures of infection control, reducing the work intensity and provision of more medical staff can help to decrease the mental distress. Involvement of mental health professionals (MHP) as part of COVID care team can be beneficial. They can identify the persons who are at higher risk of psychological distress who can be monitored and given early psychological support. They can boost the morale of team, motivate them and induce positive thinking. They can also help in improving communication skills to address patients' attendants.¹⁹ Psychological support groups can be of help and online mental health services should be provided to these professionals. Frequent policy changes should be avoided and clear standards of case management should be made to improve the psychological health of health care workers.

Conclusion

Mental wellbeing of health care workers is affected due to COVID-19 pandemic. Nurses, paramedics and those working in isolation unit have a strong association with insomnia. Involvement of mental health professionals and online mental health services can be helpful.

Acknowledgement of Contribution to Authorship

T Wasim conceptualized and designed the study, reviewed the manuscript and approved the final version. G Raana contributed to maintenance of data base and initial writing of script. N Bushra and A Riaz did the data entry and statistical analysis.

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