

# Fatigue among medical doctors in the post Covid-19 period: a multicenter study from Lahore, Pakistan

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## ABSTRACT

**Introduction:** During Covid-19 pandemic, fatigue is one of the common symptom, which adversely affects the working capability and quality of life.

**Objective:** To determine the frequency of fatigue among medical doctors in the post Covid-19 period.

**Materials & Methods:** A descriptive cross-sectional study was conducted from July 2021 to December 2021 among medical doctors who recovered from Covid-19 & were working in Children's Hospital, General Hospital, Fatima Memorial Hospital, Jinnah Hospital, and Services Hospital, Lahore. Non probability convenience sampling was used to collect data from male and female participants after obtaining informed consent. Fatigue Assessment Scale was used to analyse the Post Covid-19 fatigue among doctors. Data were analyzed for descriptive statistics by SPSS; t-test and chi-square test were applied, keeping  $p \leq 0.05$  as significant.

**Results:** Fatigue was recorded in 70% of the participants. Out of 340 participants, frequency of fatigue was high among females 138(40%) and males 103(30%); however, the difference was not statistically significant ( $p=0.147$ ). A positive correlation was found between age and total fatigue scores.

**Conclusion:** Post Covid-19 fatigue was frequent in front line medical doctors, which may adversely affect the health and quality of life of participants which needed to be addressed.

**Keywords:** Fatigue; Covid-19; Healthcare; Personnel, Healthcare; Patient Care Team.

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## INTRODUCTION

Recently, outbreak of SARS-COVID-19 infection in Wuhan city of China has gained great attention worldwide.<sup>1</sup> The 2019 Novel Coronavirus has its origin from Wuhan city, China, which spread globally and became a pandemic. In December 2019, adults in Wuhan, China, presented to local hospitals with severe pneumonia of unknown cause. The Surveillance system was activated, and respiratory samples of patients were taken for investigations to know its cause. On December 31, 2019, China notified the pandemic outbreak to WHO. On 11 March 2020, corona virus disease (Covid-19) was announced as global pandemic by WHO. Among many countries drastically affected by Covid-19 UK has been one of the worst affected countries with over 286,000 confirmed cases and more than 44,000 confirmed deaths.<sup>2</sup>

Covid-19 is caused by SARS-COV-2 which belongs to B-corona virus family which also includes 2 other highly pathogenic human coronaviruses.<sup>2</sup> Cough, fever, fatigue, myalgia, are the common presentations and headache, diarrhoea, expectoration, haemoptysis are uncommon.<sup>1</sup> Pulmonary system is affected primarily with symptoms of shortness of breath, dry cough, fever, and hypoxia.<sup>3</sup> Patients affected by Covid-19 viral infection, besides several long-term consequences, have high incidence of fatigue, even after recovery from infection.<sup>3</sup> Muscle aches, arthralgia, and fatigue, are the manifestations commonly developed by most patients in post Covid-19 period.<sup>3</sup> During the early days after recovery, within 2 weeks after recovery from Covid-19, patients eventually developed lethargy, weakness, sad mood and easy fatigability.<sup>3</sup>

Neurological, immunological, and respiratory dysfunctions may finally cause fatigue; these 3 mechanisms can be envisioned in "post viral fatigue" and Covid-19. Fatigue refers to abnormal exhaustion following normal activities. Direct (hematogenic) and indirect (systemic) inflammation (IL-6), hyper inflammatory inducing mechanisms driven by SARS-COV- 2 infection cause GABA impairments (fatigue and exhaustion).<sup>4</sup> The clinical presentation of Covid-19 infection with symptoms range from mild smell and

taste disturbances to dyspnea and respiratory failure; the long-term side effects of Covid-19 infection are many, being explored, with fatigue being reported in the post Covid-19 period.<sup>5</sup>

A study was conducted in Hayat National Hospital Riyadh, Saudi Arabia, from 10 July to 28 July 2020.<sup>3</sup> The sample was of 200 patients who recovered from Covid-19 recently (114 male and 86 female); mean fatigue score was  $40.81 \pm 5.75$ . Further studies found high score of fatigue in Post Covid-19 patients<sup>6</sup> who noted high incidence of fatigue, myalgia and weakness in Post Covid-19 period<sup>7</sup>.

The rationale for conducting the present study was to determine the frequency of fatigue among doctors in Post Covid-19 period and to educate them about their health and fitness by encouraging fatigue management exercises.

**MATERIALS & METHODS**

A cross sectional observational study was conducted at Children’s Hospital, General Hospital, Fatima Memorial Hospital, Jinnah Hospital, and Services Hospital, Lahore in a period of 6 months (July 2021 to December 2021). Participants within ages of 23 to 45 years, medical doctors with Post Covid-19 (recovered 2 months ago) were included, while those with any other previous systemic diseases, chronic diseases manifesting with fatigue, psychotropic medications, and pregnancy, were excluded from the study. Based on these criteria, 340 doctors from different hospitals were entitled. The data was collected with the help of Fatigue Assessment Scale.<sup>8</sup>

Non probability convenience sampling was used to collect data from participants. Data were analyzed by SPSS program. Quantitative data were analyzed for mean and standard deviation. Qualitative data were analyzed for frequencies and percentages. Chi square test was used to compare categorical variables (gender) and fatigue status (present, absent). Two groups of data were compared for means by t-test; continuous data was correlated by Pearson Correlation. A  $p \leq 0.05$  denoted significance.

**FATIGUE ASSESSMENT SCALE:** Post Covid-19 fatigue was analyzed by using Fatigue Assessment Scale (FAS), a 10-item validated & reliable general tool for fatigue assessment.<sup>8</sup> A total FAS score <22 indicates no fatigue and a score >22 indicates fatigue; total scores can range from 10 to 50.

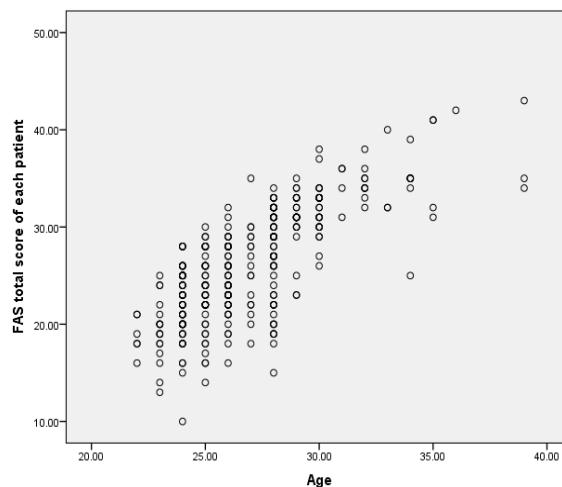
- FAS scores 10-21: no fatigue
- FAS scores 22-50: substantial fatigue
- Extreme fatigue: >35 scores
- Fatigue: 22-34 scores

**RESULTS**

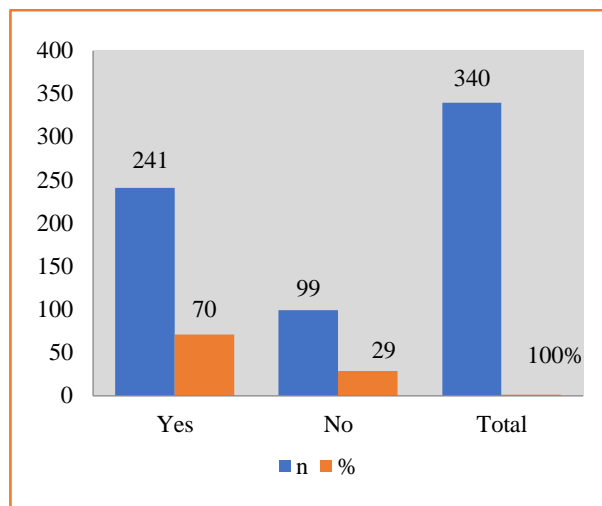
Of the 340 subjects, 153(45%) were male, and 187 (55%) were female front line medical doctors in several hospitals of Lahore, Pakistan.

Figure 1 illustrates the positive relationship between age and FAS total score of each patient. As the age progresses, there is increased rate of fatigue development in participants.

Figure 2 demonstrates the frequencies of Post Covid fatigue among subjects, which was present in 70% (n=241), whereas 29% (n=99) of medical doctors had no Post Covid-19 fatigue.



**Figure 1:** Illustrates the positive relationship between age and FAS score (n=340).



**Figure 2:** Illustrates final results of frequency of Post Covid-19 fatigue found among medical doctors (n=340).

The Chi square test was applied to reveal the association between fatigue frequency and gender.

Table 1 illustrates that fatigue rate was little higher in female doctors (40%) than male doctors (30%). There was high frequency of Post Covid-19 fatigue among participants (70%).

**Table 1:** Association between fatigue and gender distribution (n=340, Chi Square Test).

Gender	No Fatigue	Fatigue	X <sup>2</sup>	p-Value
Male	50	103	1.71	0.191
Female	49	138		

**DISCUSSION**

This study showed the frequency of Post Covid-19 fatigue among doctors in Lahore, Pakistan. The Post Covid-19 fatigue was a long-term persistent complaint in massive population especially

frontline medical health workers. In this study, there was a positive co-relation found between age and Post Covid-19 fatigue. There was high frequency of fatigue among female doctors (40%) than men (30%) out of n=340 (100%) sample size. Several studies were done to find the commonness of Post Covid-19 fatigue among health workers (nurses, doctors, volunteers), so that the attention could be paid to the mental and physical health of doctors and other medical caregivers to ensure proper management of risk factors of fatigue and itself fatigue could be considered. The Post Covid-19 fatigue, leading long term symptom, immensely affects the quality of life. Doctors' work-related fatigue due to Covid-19 has been known as a threat to doctors' health and patients' care. Our data demonstrated impact of Covid-19 on feeling of fatigue.

In China, a recent study was done to assess the prevalence of fatigue among Covid-19 recovered patients. Muscle aches, fatigue, weakness was mostly developed by Post Covid-19 patients in their recovery period, which reflects the high rate of long term developed symptoms (fatigue).<sup>7</sup> Another study was done during Covid-19 outbreak. A study was conducted in China, which revealed the high rate of fatigue (73.7%) among frontline staff (including doctors, nurses, community workers), which supported recent studies results. Fatigue Self-Assessment Scale was used in a study to assess mental and physical fatigue among participants.<sup>8</sup>

Several studies were conducted in Norway, fatigue was more prevalent in women than men.<sup>9,10</sup> The relationship of fatigue with age had also positive direct relationship. That direct relationship of fatigue with age demonstrated that there was high risk of fatigue development by increasing age.<sup>9,11</sup> In light of evidence from a study,<sup>12</sup> patients who recovered from Covid-19 may have certain risk factors which lead to long Covid-19 or Post Covid-19 symptoms. Gender was a risk factor related to long Covid-19. Women had double risk of development of long Covid-19 than men. Another factor was increasing age.<sup>12</sup> There was a study conducted in China during Covid-19 outbreak which evidenced that heavy workload of medical staff, daily infection precautionary measures at work (face mask wearing, frequent hand washing, full gear personal protection adherence), social distancing, increased patient's admittance rate could be an evident risk factor of Post Covid-19 fatigue (mental and physical), anxiety and stress.<sup>13</sup>

During Covid-19 outbreak to assess the prevalence of fatigue, a study was done in Norway.<sup>14</sup> The sample size was (n=458), in which Post Covid-19 fatigue was developed in women (55%) compared with men (35%). In that study fatigue was higher in rate in women than men ( $p < 0.001$ ).<sup>14</sup>

Another study was conducted in Ireland<sup>5</sup> in which prevalence of fatigue was examined in acute Covid-19 recovered patients.

Chalder Fatigue Score (CFQ-11) was used in a study to determine levels of fatigue. Out of 128 participants, more than half of participants developed Post Covid-19 fatigue (67/128; 52.2%), at median of 10 weeks after acute phase of Covid-19 illness. This study also emphasized on the importance of examining Post Covid-19 recovered population for severe fatigue symptoms, so that the quality of life could be better.<sup>5</sup>

A study conducted in Riyadh, Saudi Arabia,<sup>3</sup> aimed to assess the occurrence of post Covid-19 fatigue. A sample size of 200 post Covid-19, patients were collected. Fatigue Assessment Scale (FAS) was used to examine and measure the fatigue levels in participants. The study revealed that there were high scores of FAS. Post Covid-19 fatigue was present in high rates, mean fatigue score was  $40.81 \pm 5.75$ .<sup>3</sup>

All above mentioned studies supported this study. Fatigue Assessment Scale was used and reported high frequency of post Covid-19 fatigue among post Covid-19 recovered doctors. Post Covid-19 fatigue was higher in females as compared to male population. The study highlighted the importance of assessing and screening the frontline healthcare staff for post Covid-19 fatigue. The management of long Covid-19 or post Covid-19 requires special consideration which could affect quality of life and work output. There is a need to support early analysis by multi-disciplinary fatigue management planning. Medical treatment if needed in severe cases, interventions like graded exercises, cognitive behavioural therapy are needed to manage chronic fatigue and could be relevant to post Covid-19 fatigue.<sup>5</sup>

## CONCLUSION

Post Covid-19 fatigue was frequent among medical working doctors and affected their professional performance; females were affected more than males and a positive correlation was found with increasing age.

## RECOMMENDATIONS

The importance of proper Fatigue Assessment and Stress Management strategies should be considered to restore normal physical functioning and reduce fatigue which will result in effective patient care in hospital settings. In future studies, its recommended that quality of life should be assessed by using validated QOL questionnaire.

## LIMITATIONS

Few important limitations were there during study that male and female participant's ratio was not possible to be equally distributed, although participants responded equally from all selected hospitals. Due to shortage of time, participant's workload, large sample size and all peripheral city hospitals could not be chosen.

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