



## **A Cross Sectional Study on Post Covid Manifestations in Adult Patients Attending A Tertiary Health Care Centre, Hyderabad**

<sup>1</sup>Dr.Sravanthi Devireddy, Assistant Professor, Department of General Medicine, Mamata Academy of Medical Sciences, Hyderabad, Telangana, India.

<sup>2</sup>Dr.Visala V. Nanduri, Associate Professor, Department of General Medicine, Mamata Academy of Medical Sciences, Hyderabad, Telangana, India.

<sup>3</sup>Dr.Shilpa Pradhan, Assistant Professor, Department of Microbiology, Mamata Academy of Medical Sciences, Hyderabad, Telangana, India.

<sup>4</sup>Dr.Kiranmayi Karanati, Assistant Professor, Department of Community medicine, Mamata Academy of Medical Sciences, Hyderabad, Telangana, India.

**Citation of this Article:** Dr. Sravanthi Devireddy, Dr. Visala V. Nanduri, Dr. Shilpa Pradhan, Dr. Kiranmayi Karanati, “A Cross Sectional Study on Post Covid Manifestations in Adult Patients Attending A Tertiary Health Care Centre, Hyderabad,” IJMSAR – December – 2021, Vol. – 4, Issue - 6, P. No. 18-24.

**Copyright:** © 2021, Dr. Kiranmayi Karanati, et al. This is an open access journal and article distributed under the terms of the creative commons attribution noncommercial License. This allows others to remix, tweak, and build upon the work non commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

**Corresponding Author:** Dr. Kiranmayi Karanati, Assistant Professor, Department of Community medicine, Mamata Academy of Medical Sciences, Hyderabad, Telangana, India.

**Type of Publication:** Original Research Article

**Conflicts of Interest:** Nil

---

### **Abstract**

#### **Title**

A Cross Sectional Study On Post Covid Manifestations In Adult Patients Attending A Tertiary Health Care Centre, Hyderabad

#### **Objectives**

To study various post Covid manifestations in Covid recovered patients.

### **Methods**

This observational cross-sectional study was conducted in a tertiary health care Centre, Hyderabad.

### **Results**

44% of the participants had any one post-Covid manifestation and 56% were free from manifestations and the most common manifestation was fatigue (42.5%). The significant association was found between

severity of covid-19 disease and presence of any co-morbidity with post-Covid manifestations.

### **Conclusion**

The present study stated that post Covid manifestations are common and 44% of the subjects had at least one post-covid manifestation. Hence patients who recovered from covid-19 require long-term monitoring especially in those who had severe form of covid-19 disease with presence of any co-morbidity.

### **Keywords**

Arthralgia, COVID-19, fatigue, post-COVID-19 manifestations

### **Introduction**

Corona virus disease (COVID-19) is an infectious disease caused by the SARS-CoV-2 virus. The World Health Organization (WHO) on March 11, 2020, has declared the novel corona virus (COVID-19) outbreak a global pandemic (1). Most people infected with the virus will experience mild to moderate respiratory illness and recover without requiring special treatment. However, some will become seriously ill and require medical attention. Older people and those with underlying medical conditions like cardiovascular disease, diabetes, chronic respiratory disease, or cancer are more likely to develop serious illness. Anyone can get sick with

COVID-19 and become seriously ill or die at any age (2).

Covid-19 is a respiratory illness with variable symptoms, and commonly includes fever, cough, headache, fatigue, breathing difficulties, and loss of smell and taste. Symptoms may occur one to fourteen days after exposure to the virus. COVID-19 spreads through airborne transmission via respiratory droplets commonly. At least one third of people who are infected do not develop any symptoms and remain asymptomatic. Symptomatic disease can be mild, moderate and severe. Some people continue to experience a range of effects (long COVID) for months after recovery, and damage to organs has been observed (3).

Diagnosis of COVID-19 is done through polymer chain reaction (PCR), computed tomography (CT) scan of chest and blood test (4). The standard diagnostic method is by detection of the virus nucleic acid by real-time reverse transcription polymerase chain reaction (RT-PCR) from a nasopharyngeal swab. Treatment is mainly supportive for mild cases, for moderate to severe cases depending on individual case treatment includes oxygen support, antivirals and corticosteroids, with or without mechanical ventilation [5].

Hence our study aims to investigate the post-COVID-19 manifestations occurring in patients recovered from covid 19 and to identify the factors associated with these manifestations.

### **Materials and Methods**

The current study was observational cross-sectional study which was conducted between March to August 2021 in a tertiary health care Centre, Hyderabad. The study subjects enrolled were adult ( $\geq 18$  Years old) post-covid patients diagnosed with covid-19 by RTPCR, undergone treatment, recovered and presented with post covid manifestations within 6 months after diagnosis. Sample size was calculated using the formula  $(n) = 4pq/l2$ , where, P = proportion of post-covid symptoms (55%) (6 ), q = 100 - prevalence (45%), l = 10% of P. The calculated sample size was 328, after considering 10% non-response rate the obtained sample size was 350. After obtaining permission from institutional ethical committee the study was conducted among patients visiting department of general medicine, Mamata academy of Medical Sciences, Telangana, to obtain the information regarding socio-demographic details, clinical profile and post covid symptoms after getting informed consent.

### **Statistical Analysis**

Data collected was entered into MS excel and results were analyzed using Statistical Package for Social Sciences version 20. Categorical variables are presented as n (%), continuous variables are presented as Mean $\pm$ SD (standard deviation). Categorical variables were compared using the chi-square test, and continuous variables were compared using an independent sample Student's t-test. Statistical significance was set at  $p < 0.05$ .

### **Results**

According to the present study the mean age  $\pm$  SD of the participants was  $37.9 \pm 13.7$  and mean BMI was  $25.1 \pm 3.1$ . Among the study subjects majority were males (55.4%) followed by females (44.6%) and 11.1% were smokers. Severity of covid-19 disease has been categorized into mild (home based treatment), moderate (oxygen therapy) and severe (Invasive ventilation) based on treatment. The study reported 86.0%, 11.7%, 2.3% had mild, moderate and severe disease respectively. Regarding co-morbidities highest proportion (72.9) of the subjects do not have any known history of past-illness whereas 6.9% were having diabetes mellitus, 9.4% hypertension, 1.7% hypothyroidism, 1.1% bronchial asthma and 8% multiple co-morbidities.

The study found statistically significant association between severity of disease, presence of any co-morbidity and post-covid manifestations. Those who suffered from moderate to severe form of covid-19 disease had relatively more post covid manifestations than with mild disease. Those who had past history of any co-morbidity had higher rate of post- covid manifestations than without any co-

morbidity. The mean age and mean body mass index was high among those with post-covid manifestations but this difference was not statistically significant. Very slight difference was observed between male and female participants who had post-covid symptoms and this difference was not significant. (Table-1-2,Figure-1)

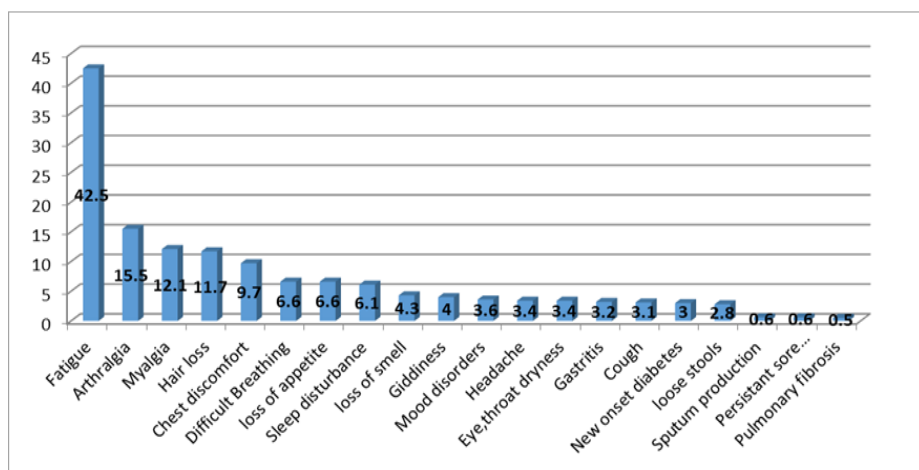
**Table-1:** Demographic profile of the study subjects

	Frequency(n=350)	Percentage (%)
<b>Gender</b>		
Male	194	55.4
Female	156	44.6
<b>Severity of Covid-19 Disease</b>		
Mild	301	86.0
Moderate	41	11.7
Severe	8	2.3
<b>Smoking Status</b>		
Smoker	39	11.1
Non-smoker	311	88.9
<b>Body Mass Index</b>		
Underweight	4	1.1
Normal weight	193	55.1
Pre-obese	136	38.9
Obese	17	4.9
<b>Co-morbidities</b>		
Diabetes Mellitus	24	6.9
Hypertension	33	9.4
Hypothyroidism	6	1.7
Bronchial asthma	4	1.1
More than one co-morbidity	28	8.0
No co-morbidity	255	72.9

**Table-2:** Association between demographic-clinical profile and post Covid manifestations

Variable	Any one Post- covid manifestation		P- Value
	Present	Absent	
Mean Age	39.5±13.2	36.8±14.1	t=1.8,p=0.077
Mean BMI	25.3±3.3	24.8±2.9	T=1.3, p=0.20
<b>Gender</b>			
Male	86(44.3)	108(55.7)	Chi square=0.019 P=0.488
Female	68(43.6)	88(56.4)	
<b>Severity of Covid disease</b>			
Mild	109(36.2)	192(63.8)	Chi square=52.9 P=0.000*
Moderate-Severe	45(91.8)	4(8.2)	
<b>Any Co-morbidity</b>			
Present	59(62.1)	36((37.9)	Chi square=17.4 P=0.000*
Absent	95(37.3)	160(62.7)	
<b>Total</b>	<b>154(44.0)</b>	<b>196(56.0)</b>	<b>350(100)</b>

**Fig-1:** Distribution of study subjects based on Post-Covid manifestations



**Discussion**

The present observational cross-sectional study stated that 44% of the participants had post covid manifestations and fatigue was the most prevalent manifestation (42.5%) followed by arthralgia (15.5), myalgia (12.1) and hair loss

(11.7%). Similar findings were observed in a cohort study done by Mahmud R et al., (7) in Bangladesh where 46% patients developed post-COVID-19 symptoms, with post-viral fatigue being the most common symptom (70%).

According to a prospective study by Naik S et al., (8) In north India revealed 22% developed persistent covid symptom which is lower than the current study. Nasserie T et al., (9) systematic review had also shown the median proportion of individuals experiencing at least 1 persistent symptom was 72.5% which is higher than the current study. Individual symptoms occurring most frequently included shortness of breath or dyspnea, fatigue or exhaustion and sleep disorders or insomnia. Carfi A et al., (6) study which was done in Italy also revealed high proportion of individuals with fatigue (53.1%), dyspnea (43.4%), joint pain, (27.3%) and chest pain (21.7%). Most reported symptoms by post COVID-19 subjects were fatigue, headache and disturbed sleep according to Ghizal Fatima<sup>10</sup> study.

According to the present study the significant factors associated with post-covid syndrome were severity of covid-19 disease and presence of any co-morbidity. Kamal M et al., (11) also reported similar relationship between presence of other comorbidities, severity of the disease and post covid manifestations. Another study done by Mahmud R et al., (7) also stated that patients with covid disease for a prolonged

duration and more severe form require special attention in the post COVID-19 state. Ghizal Fatima (10) study had also shown similar findings.

### **Conclusion**

The present study stated that post covid manifestations are common and 44% of the subjects had at least one post-covid manifestation, most common being fatigue followed by arthralgia and myalgia. A significant association was found between severity of covid-19 disease and presence of any co-morbidity with post-covid manifestations. Hence patients who have recovered from covid-19 require long-term monitoring especially in those who had severe form of covid-19 disease with presence of any co-morbidity.

### **References**

1. WHO Director-General's opening remarks at the media briefing on COVID19 -March 2020.
2. <https://www.who.int/health-topics/coronavirus>.
3. CDC (11 February 2020). "Post-COVID Conditions". Centers for Disease Control and Prevention. Retrieved 12 July 2021.
4. Udugama B, Kadhiresan P, Kozlowski HN, et al. Diagnosing COVID-19: the disease and

- tools for detection. *ACS Nano*. 2020; 14(4): 3822- 3835.
5. Li, T., et al., Clinical observation and management of COVID-19 patients. 2020. 9(1): p. 687-690.
6. Carfi A, Bernabei R, Landi F, for the Gemelli against COVID-19 Post-Acute Care Study Group. Persistent Symptoms in Patients after Acute COVID-19. *JAMA*. 2020; 324(6):603–605. doi:10.1001/ jama.2020. 12603.
7. Mahmud R, Rahman M.M, Rassel MA, Monayem FB, Sayeed SKJB, Islam M.S, et al. (2021) Post-COVID-19 syndrome among symptomatic COVID-19 patients: A prospective cohort study in a tertiary care center of Bangladesh. *PLoS ONE* 16(4): e0249644. <https://doi.org/10.1371/journal.pone.0249644>.
8. Naik S, Haldar SN, Soneja M, et al. Post COVID-19 sequelae: A prospective observational study from Northern India. *Drug Discov Ther*. 2021; 15(5):254-260. doi:10.5582/ddt.2021.01093.
9. Nasserie T, Hittle M, Goodman SN. Assessment of the Frequency and Variety of Persistent Symptoms among Patients with COVID-19: A Systematic Review. *JAMA Netw Open*. 2021; 4(5):e2111417. doi: 10.1001/ jamanetworkopen. 2021.11417.
10. Ghizal Fatima, Divyansh Bhatt, Jaserah Idrees, Bushra Khalid, Farzana Mahdi. Elucidating Post-COVID-19 manifestations in India, *MedRxiv* 2021.07.06.21260115; doi: <https://doi.org/10.1101/2021.07.06.21260115>.
11. Kamal M, Abo Omirah M, Hussein A, Saeed H. Assessment and characterization of post-COVID-19 manifestations. *Int J Clin Pract*. 2021; 75(3):e13746. doi:10.1111/ijcp.13746.