

A Study of Complications in The People Recovered From Covid-19

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Abstract: Background and objectives: post-recovery sequelae have become a major concern in patients who have recovered from coronavirus disease 2019 (COVID- 19). Many reports have shown that COVID- 19 has a variety of long- term manifestations on almost all systems including respiratory, cardiovascular, gastrointestinal, neurological, psychiatric, and dermatological systems. Our objective is to investigate the prevalence and characteristics of post- COVID complications among COVID- 19 survivors.

Material and methods: We performed a semi-structured questionnaire to inquire about the presence of persistent symptoms beyond 12 weeks from the first diagnosis. Demographic profile, comorbid conditions, characteristics of acute COVID- 19, presence of persistent symptoms by systems, and information about outpatient clinic visits after post COVID recovery were analyzed. **Results:** Out of 300 participants, 45 (15%) had comorbidities, (33.3%) had more than one symptom. Fatigue, low mood (overall 38.2%) were the most frequent persistent symptoms followed by arthralgia (13.3%). A total of 25 participants had visited outpatient clinics for several reasons during the post- COVID- 19 period, and 5 were hospitalized. **Interpretation and conclusion:** Understanding the spectrum of the post- COVID complications is essential for appropriate management. Our study emphasizes the fact that the prevalence of post- COVID complications is higher than expected and affects many systems. A multidisciplinary follow- up should be provided to COVID- 19 survivors in the post-recovery period.

Keywords: Post COVID-19 syndrome, Long COVID, Post COVID sequelae, Complications after COVID, manifestations after COVID recovery.

I. Introduction

Globally, as of 22 October 2021, there have been 242,348,657 confirmed cases of COVID-19, including 4,927,723 deaths, reported to WHO¹. Apart from respiratory manifestations, symptoms such as anxiety, depression, joint pain, chest pain, headache, & dementia should be taken into consideration, due to their debilitating effect & increased prevalence in the general population²

Although many COVID-19 patients eventually recover, some do not cease experiencing symptoms after their COVID-19 PCR test turns negative; this is commonly referred to as “post-COVID-19 syndrome” or “long COVID.” As per guidelines by the National Institute for Health and Care Excellence (NICE), Post COVID-19 syndrome is defined as, “signs and symptoms that develop during or after an infection consistent with COVID-19, continuing for more than 12 weeks (3 months), and not explained by an alternative diagnosis”³.

Long COVID-19⁷ is used to describe both patients with symptomatic COVID-19 (from 4 to 12 weeks) and post-COVID-19 syndrome (12 weeks or more)⁴. The most prevalent reported symptoms were fatigue, shortness of breath, muscle pain, joint pain, headache, cough, chest pain, altered smell, altered taste, and diarrhea. Other common symptoms were cognitive impairment, memory loss, anxiety, and sleep disorders. Beyond symptoms and complications, people with long COVID often reported impaired quality of life, mental health, and employment issues.⁵

There is a high probability that symptoms of psychiatric, neurological, and physical illnesses, as well as inflammatory damage to the brain in individuals with post-COVID syndrome, increase suicidal ideation and behavior in the post-COVID syndrome patient population. COVID-19 survivors without post-COVID syndrome may also be at elevated suicide risk.⁶

In this study, we described the organ-specific complications in the persons recovered from COVID-19. This gives information about the impact of these complications in the individual’s life and necessary actions to be taken by the government to improve the overall health status of the individuals in the post-recovery period.

II. Material and Methods

Study design: Retrospective study

Sample size: 300 participants

Study duration: 3 months(July to Sep 2021)

Inclusion criteria:

1. Both males and females of >18 years of age group.
2. Persons who were COVID positive before the study

Exclusion criteria:

1. Population aged less than 18 years
2. Those who were not willing to participate in the study.

Data collection procedure: A semi-structured questionnaire was prepared and information was collected by interview method.

Ethical consideration:Approval from the Institutional Ethics Committee (IEC) will be taken prior to the study initiation and written consent will be taken from the participants.

Statistical analysis: By using Microsoft excel.

III. Results

Out of 300 participants, 140(46.6%) were males and 160(53.3%) were females. 205(68.3%) are in the age group of 18-45, & 95(31.6%) are 45-60. Out of 300 participants, 45 (15%) had co-morbidities. The pattern of co-morbidities is Diabetes mellitus 20(6.6%), Hypertension 15(5%), asthma 5(1.6%), and cardiovascular disease 5(1.6%).

Fig 1: Pattern of Co-morbidities among the participants

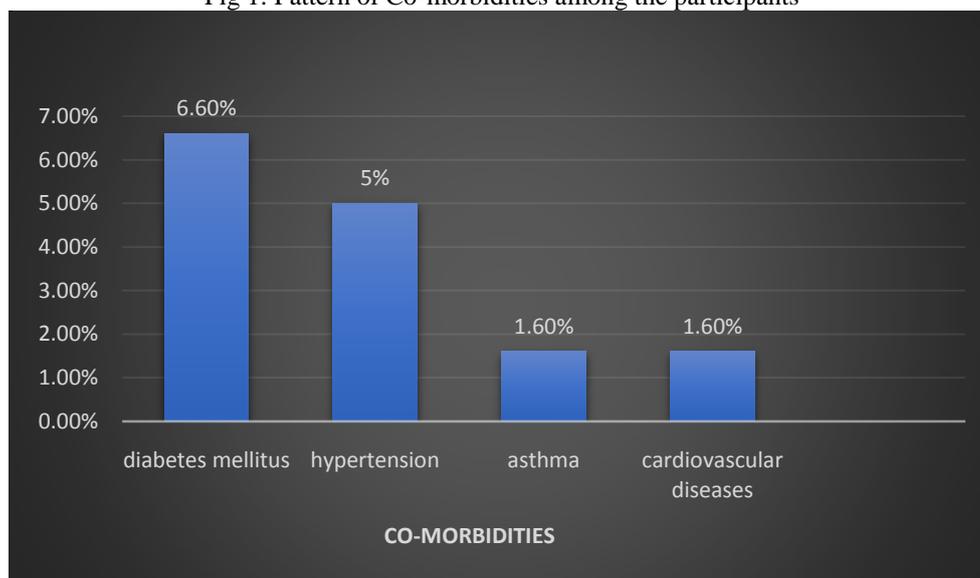


Table 1 – age-wise distribution of complications among the participants

Parameter	(18-44)	(45-60)	Total
Neuropsychiatric	75	5	80 (26.6%)
Weakness and respiratory	5	40	45 (15%)
Rhuematalogical	35	5	40 (13.3%)
Persistent weakness	35	0	35 (11.6%)
Weakness and neurological	10	20	30 (10%)
Weakness and rheumatological	5	20	25 (8.3%)
Neurological	15	0	15 (5%)
Cardiovascular	10	5	15 (5%)
Respiratory	10	0	10 (3.33%)
GIT	5	0	5 (1.6%)

Chi square test value = 172.88 and p value = < 0.05
 Results found to be statistically significant

Table 2 – gender-wise distribution of complications among the participants

Parameter	(Male)	(Female)	Total
Neuropsychiatric	35	45	80 (26.6%)
Weakness and respiratory	20	20	45 (15%)
Rheumatological	20	20	40 (13.3%)
Persistent weakness	5	30	35 (11.6%)
Weakness and neurological	15	15	30 (10%)
Weakness and rheumatological	20	5	25 (8.3%)
Neurological	10	5	15 (5%)
Cardiovascular	5	10	15 (5%)
Respiratory	10	0	10 (3.33%)
GIT	0	5	5 (1.6%)

Chi square test value = 45.86 and p-value = < 0.05
 Results found to be statistically significant.

IV. Discussion

In the present study nearly 45% with persistent weakness, 26.6 % neuropsychiatric, 18.3% with respiratory while a study done by Mandal et.al.,⁷ showed that symptom burden in subjects recovering COVID-19 are 53% reported persistent breathlessness, 34% persistent cough, 69% persistent fatigue & 15% were depressed

In the present study, 45% with persistent weakness, 21.6% rheumatological, 18.3% respiratory and 5% cardiovascular complications while a study done by Carfi A. et.al.,⁸ showed that a high proportion of individuals reported fatigue (53.1%), dyspnea (43.4%), joint pain, (27.3%) & chest pain (21.7%)

In the present study, nearly 45% with persistent weakness, 26.6 % neuropsychiatric, 18.3% respiratory while a study done by Xiong Q. et.al.,⁹ general symptoms (n = 267, 49.6%), respiratory symptoms (n = 210, 39%), cardiovascular-related symptoms (n = 70, 13%), psychosocial symptoms (n = 122, 22.7%) and alopecia (n = 154, 28.6%).

In the present study, 21.6% with rheumatological while a study conducted by Eastin, C. et.al.,¹⁰ arthralgias are reported in 15% of patients with COVID-19, and myalgia has been reported in 44% of patients.

In the present study, while a study conducted by Romero-Duarte, Á et.al.,¹¹ the sequelae were very diverse, but the most frequent were respiratory (42.0%), systemic (36.1%), neurological (20.8%), mental health (12.2%) and infectious (7.9%)

In the present study 45% with persistent weakness while a study conducted by Carvalho-Schneider, C. et.al.,¹² 68% (103/150) of patients had at least one symptom; 66% (86/130) had symptoms, mainly anosmia/ageusia: 59% (89/150). Half of the patients (74/150) reported asthenia.

In the present study nearly 45% with persistent weakness, 26.6 % neuropsychiatric, 18.3% with respiratory problems while study conducted by Arnold, D. T et.al.,¹³ 81 (74%) patients reported at least one ongoing symptom: 39% breathlessness, 39% fatigue, and 24% insomnia

In the present study nearly 45% with persistent weakness, 26.6 % were neuropsychiatric, 18.3% with respiratory problems while a study conducted by Garrigues, E et.al.,¹⁴ out of 120 patients, most frequently reported persistent symptoms were fatigue (55%), dyspnoea (42%), loss of memory (34%), concentration and sleep disorders (28% and 30.8%, respectively).

In the present study 18.3% with respiratory symptoms, 45% with persistent weakness while a study conducted by Fernández-de-Las-Peñas, C., et.al.,¹⁵ the prevalence of long-term cough, chest pain, dyspnoea, and fatigue was 2.5%, 6.5%, 23.3%, and 61.2%, respectively

In the present study, 45% with persistent weakness, 26.6 % neuropsychiatric, while in a study conducted by Bozzetti, S. et.al.,¹⁶ the most common reported symptoms were hyposmia (n = 11), fatigue (n = 28), myalgia (n = 14), and impaired memory (n = 11).

In the present study, 45% with persistent weakness and 5% cardiovascular complications while a study conducted by Osikomaiya, B. et al.,¹⁷ out of 274 patients more than one-third (40.9%) had persistent COVID-19 symptoms after discharge, and 19.7% had more than three persistent COVID-like symptoms. The most persistent COVID-like symptoms experienced were easy fatigability (12.8%), headaches (12.8%), and chest pain (9.8%).

In the present study, 45% with persistent weakness, 26.6% were neuropsychiatric while a study conducted by Naik S. et al.,¹⁸ out of 1234 patients, 495 (40.1%) had persistent symptoms post-discharge or recovery. Most common symptoms included myalgia (10.9%), fatigue (5.5%), shortness of breath (6.1%), cough (2.1%), insomnia (1.4%), mood disturbances (0.48%) and anxiety (0.6%).

In the present study 45% with persistent weakness, 26.6% neuropsychiatric, 18.3% with respiratory symptoms while a study conducted by Blomberg, B. et al.,¹⁹ 52% (32/61) of home-isolated young adults, aged 16-30 years, had symptoms at 6 months, including loss of taste and/or smell (28%, 17/61), fatigue (21%, 13/61), dyspnea (13%, 8/61), impaired concentration (13%, 8/61) and memory problems (11%, 7/61).

V. Conclusion

Patients who recovered from COVID-19 should be educated about the sequelae and long-term effects of COVID-19.

A clear understanding of the long-term sequelae of the disease will allow physicians and governments to draw guidelines to support patients who survived COVID-19 because the long-term sequelae of COVID-19 are expected to have a physical, mental, and financial burden on the patients, carers, and healthcare systems.

Hence, there must be a comprehensive plan laid out to prevent and manage post-COVID-19 complications and support the patients who are experiencing delayed morbidity and disability resulting from those complications.

There is also an increased risk of suicidal behavior in patients suffering from the post-COVID syndrome. Appropriate management of psychiatric, neurological, medical conditions and providing social support may reduce suicide risk among COVID-19 survivors with or without the post-COVID syndrome.

In the post-COVID period, health care should be planned as a multidisciplinary approach involving the long-term monitoring of symptoms, to identify potential complications, physical rehabilitation, mental health, and social support to address the patient.

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