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Table of content

[Introduction](#)

[Materials and Methods](#)


[Statistical analysis](#)

[Result](#)

[Discussion](#)

[Conclusion](#)

Rehabilitative needs in COVID19 recovered persons: A cross-sectional survey

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ABSTRACT

Background: Coronavirus disease (COVID-19) has caused a global pandemic since 2019, creating a burden on the medical industry. Recent studies have showed that even after recovering from the disease, the affected person can have persisting symptoms suggested as Long-COVID.

Objective: The aim of the survey was to understand the long-term sequelae of COVID-19 recovered people of different parts of India, and hence to assess the need of rehabilitation in them.

Method: It was a cross-sectional survey design. The survey was conducted via Google Forms on a convenient sample of COVID recovered participants (minimum 2 months post-recovered). Those with active disease or re-infections were excluded.

Results: 50 participants completed the survey. Difficulty in breathing was reported as the symptom persisting even after recovering by 44% of the participants. 58% of the participants reported difficulty in returning to work. 62% had shortness of breath after using the stairs and 48% of them got tired after doing daily tasks.

Conclusion: The long-term complications prevail in people who have recovered from COVID-19 which can potentially be addressed with a structured rehabilitation program.

Key words – Coronavirus disease, Long COVID, Pandemic, COVID recovered, Rehabilitation.

Introduction

Coronavirus disease is an infectious disease that is caused by SARS-CoV2. It originated from Wuhan, China. Symptoms of the disease can range from asymptomatic to mild, moderate or severe. Viral invasion may be acquired by several routes, such as blood-brain barrier spread, trans-synaptic spread, infection of the vascular epithelium, or entry via the olfactory nerve. ^[1] The National Institute for Health and Care Excellence (NICE) reported that the symptoms may last for more than eight or twelve weeks. It can devastate people's lives and make them fatigued even after a short walk. ^[2] Recent studies have shown that even after recovering from the disease, the affected people have difficulty returning to their earlier lives and have persistent symptoms of the disease, commonly fatigue and shortness of breath, which compromise their overall quality of life. This condition of long-term effects of the disease is referred to as Long COVID, Chronic COVID Syndrome or Long Haul COVID. Treatment of persons affected with long COVID requires a multi-disciplinary approach encompassing assessment, treatment based on symptoms, occupational therapy, psychological support and physiotherapy. ^[3] Activity restrictions, difficulty in returning to work or socializing or reduced participation, in general, suggest the need for rehabilitation for those affected. The World Health Organization has urged nations over the globe to prioritize rehabilitation for the complications resulting from COVID. ^[4] Several studies have asserted that it is imperative to begin rehabilitation for a

person as soon as his/ her health is stabilized. Rehabilitation aims to reduce fatigue, dyspnea, and anxiety, prevent complications and improve function and quality of life. Prolonged stay in the intensive care unit (ICU) and prolonged use of ventilators can put the person at risk of developing post-ICU syndrome, the effects of which can remain even after years of discharge. Considering the cognitive, pulmonary, neuromuscular, neurological and debility complications, early rehabilitation in the ICU is crucial to prevent the development of Long COVID. The survey aimed to understand the long-term sequelae of COVID-19 in COVID recovered people in different parts of India and assess the need for rehabilitation in them.

Materials and Methods

It was a cross-sectional survey design. A semi-structured questionnaire was constructed after analyzing and understanding the existing research on long COVID. The survey was conducted via Google Forms and circulated to the participants in India via social media platforms viz WhatsApp and Instagram, through convenient sampling. People who had recovered from coronavirus disease at least two months prior were included for the study, while those who had active disease or re-infections were excluded. There was no restriction on the age range.

Statistical analysis

Descriptive statistics was used, and data were analyzed in terms of means, percentages and frequencies. The data was analyzed using SPSS version 16.

Result

Demographic Data

The survey included 50 participants who had recovered from the disease. The participants' age ranged from 8 to 66 years. 60% of the participants were females (n=30), and 40% were males (n=20). The participants were all Indians and belonged to Delhi, Chennai and Pune regions. The participants had the following pre-existing

comorbidities: Hypertension (10%), Asthma (4%), Heart Disease (2%), Obesity (6%), Hypothyroidism (6%), Post-Polio Residual Paralysis (2%), Migraine (2%), Cold and cough (2%), and Anxiety (2%). The reported range of symptoms during the course of COVID has been summarized in Table 1. 2% of the participants were asymptomatic.

Symptom	Percentage distribution	Symptom	Percentage distribution
Cough	66%	Diarrhea	36%
Sore Throat	58%	Fatigue	20%
Fever	52%	Rashes	16%
Difficulty in Breathing	50%	Anxiety	16%
Loss of Taste	48%	Abdominal Pain	14%
Loss of Smell	42%	Nausea and Vomiting	8%
Myalgia	40%	Headache	6%
Difficulty in Sleeping	40%	Conjunctivitis	6%
Loss of Appetite	4%	Loss of hearing	2%
Inability to wake up or difficulty in staying awake	4%	Weakness	2%
Repeated shaking with chills	2%	Leg pain	2%

Table 1. Distribution of symptoms reported during COVID19

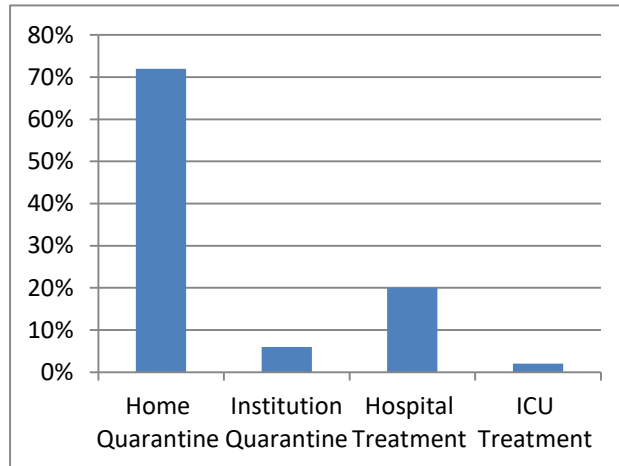
When asked about added complications, the following were the responses received along with the percentage of participants mentioned in parenthesis:

- Generalized weakness (8%)
- Tiredness and Difficulty in Breathing (2%)
- Eye weakness (2%)
- Continuous burnt smell feeling (2%)
- Poor immunity (2%)
- High fever (2%)

Most of the participants were treated under home quarantine (72%), and 2% were admitted to ICU, while the rest were either quarantined in designated institutions (6%) or treated in stable areas of the hospital (20%), (Graph 1).

Graph1: Distribution of the location where the participants were treated.

Around 26% of the participants took 1-10 days to recover, 46% recovered in 10-20 days, 24% took less than a month, and 4% took ≥ 2 months to recover from COVID.



The participants reported a range of symptoms that persisted even after two months of recovery, as summarized in Table 2.

The following were the relieving factors of their symptoms, as reported by the participants.

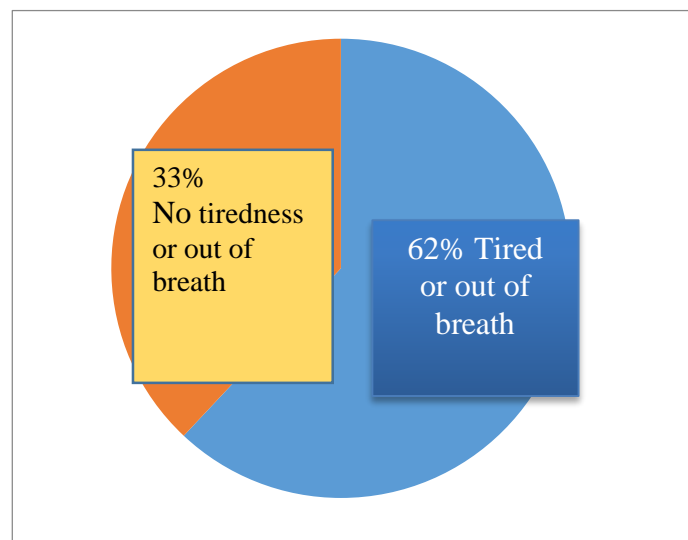
- Rest (12%)

- Medication (22%)
- Yoga (4%)
- Hot water gargles (8%)
- Consuming healthy food (6%)
- Vitamin C (2%)
- Relaxation – Breathing exercises (14%)
- Homeopathy medicines and Ayurveda medicines (4%)
- Avoiding activities which can aggravate the symptoms (2%)
- Being occupied (4%)
- Sleep (6%)
- Nebulization with the help of an oxygen mask (2%)
- Maintaining a daily routine (2%)
- Honey and ginger (2%)
- Home remedies – kadha (4%).

On being asked whether they felt tired or out of breath after walking or climbing stairs, 33% of the participants responded negatively, while 62% reported walking for a short distance or climbing stairs made them tired (Graph 2).

Symptoms	Percentage distribution	Symptoms	Percentage distribution
Difficulty in breathing	44%	Headache	8%
Cough	18%	Fever	8%
Difficulty in Sleeping	14%	Tachycardia	6%
Fatigue	12%	Skin Rashes	6%
Myalgia	12%	Short-Term Memory Issues	6%
Loss of Smell	12%	Low mood	4%
Difficulty with Thinking and Concentration	10%	Anxiety	4%
Chest Pain	8%	Changes in Mood	4%
Runny or Congested Nose	2%	Hair loss	2%
Complete or partial loss of sense of taste	2%	Diarrhoea	2%
Abdominal pain	2%	Blurred Vision	2%

Table No 2 Symptoms persisting after recovery from COVID19



Graph 2: Percentage of participants reporting tiredness or out of breath while walking or climbing stairs

58% of the people felt that COVID affected their ability to be efficient at work, while 42% reported no such issues.

48% found it difficult to do daily tasks due to tiredness, while 52% reported no such difficulty.

The majorities of the participants (48%) said that the symptoms had not hindered their ability to socialize, while 16% said that it did. 36% of the participants reported confusion about this response. Most participants reported being satisfied with their health, while a small part (24%) responded that they were not at all satisfied with their health.

When asked to rate their tiredness on a scale of 1 to 10, 52% of the participants gave a rating between 1 to 5, and 48% gave a rating between 6 and 10.

When the participants were asked to rate their difficulty in breathing on a scale of 1 to 10, 86% gave a rating between 1 and 5, while 14% gave a rating between 6 and 10. When the participants were asked to rate their quality of life after COVID, 34% gave a rating between 1 and 5, while 64% gave a rating between 6 and 10, which shows little to no disruption in the overall quality of life. The higher the score, the better the quality of life.

Discussion

This survey examined the long-term consequences of coronavirus disease and how it had affected the lives of recovered persons. A total of 50 participants from Delhi, Chennai, and Pune, who had recovered from COVID19, completed the survey.

Though not an accurate representation, the survey from multiple regions helped us to understand how COVID has affected different regions. To the best of our knowledge, it is the first attempt to study

the long-term sequelae of COVID in persons living in India. Most participants (72%) studied were home quarantined during their acute illness. One of the asymptomatic subjects during acute illness reported a late onset difficulty in breathing with activity after two months of recovery. [5]

The present study reported that shortness of breath, cough, insomnia, fatigue and anosmia the most commonly reported symptoms in individual 2-month post-recovery. This observation is consistent with a review by Malkova et al [6]. Lemhofer et al. found that 84.1% participants had limited participation and activity restrictions and 61.9% had long-COVID symptoms more than 3 months post infection. However, they reported that those symptoms were not severe and did not lead to a reduced quality of life, which is consistent with our findings. [7] The majority of our participants also reported a better QOL. Chen (2020) reported a poor health-related QOL amongst COVID persons. That was understandable as, during the COVID infection, the person suffers from multiple ailments and emotional stresses. Hence the status of health-related QOL would be expected to be poorer than our participants, where the status of QOL was being understood after a recovery period of a minimum of two months. [8]

44% of the participants reported having dyspnea and tiredness while walking or after climbing stairs. This was in line with the findings of the survey conducted by Orru, G et al (2021), where shortness of breath was reported by 40% of the participants two months after recovery. They also found that the long COVID

symptoms recede over time, which could explain the better quality of life. [9]

Lemhofer, C et al (2021) found that 61.9% of the participants reported at least one symptom persisting more than 3 months of recovery and 49% had participation limitations and activity restrictions. However, the impacts on quality of life were low, which is consistent with our findings. [10]

While several studies assessed the persistence of long-covid symptoms, little investigated the impact of long COVID on return to work. In our study, we found that long COVID significantly impacted the said area. 58% of the participants had difficulties being as efficient at work as before and 48% of the participants faced difficulties socializing. Additionally, 48% of the participants reported activities related to restrictions.

Among the reported long-term sequelae, a structured, tailor-made rehabilitation has shown promising results in overcoming fatigue, difficulty breathing, mood disorders, difficulty concentrating, reduced functional ability and generalized myalgia. Among the reported long-term sequelae, a structured, tailor-made rehabilitation has shown promising results in overcoming fatigue, difficulty breathing, mood disorders, difficulty concentrating, reduced functional ability and generalized myalgia. Rehabilitation should focus on graded aerobic exercises, stress management techniques, easing safe return to work, energy conservation techniques and strategies to prevent ICU or hospital-related complications. Several rehabilitation protocols have also been laid down to address the complications resulting from this syndrome. [11-14]

Lemhofer, C et al (2021) developed a comprehensive screening tool to evaluate the need of rehabilitation during and after the end of the active phase of the disease. [15]

The results of the study may be generalized given certain limitations. The sample size was small and diverse regarding geographical location and age. It was limited to people who could understand English and had access to social media. The responses were limited to the self-understanding of the participants. Nevertheless, our study managed to capture the main long-term effects of COVID 19 recovered persons in a diversified population.

Conclusion

The long-term complications prevail in people who have recovered from COVID-19, which can potentially be addressed with a structured rehabilitation program.

Conflict of interest

The authors declare no conflict-of-interest

Acknowledgement

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