

A cross-sectional study on quality of life and the functional status in post covid-19 patients

Research Article

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Abstract

COVID-19 is caused by SARS-CoV2. Post-COVID syndrome is described as signs or symptoms that develop during an infection or after an infection which continue for more than 12 weeks. The lockdown of COVID-19 had worsened the mental health in both general population and COVID-19 patients. It was reflected in well-being of the people. Hence, a study was carried out to get the better understanding of the health status and limitations in their functions of post COVID-19 patients who were infected within 6 months. AIM: To estimate the quality of life and the functional status in post COVID-19 patients. MATERIALS AND METHODS: A hospital-based study which was Cross sectional in nature was carried with 100 post COVID-19 patients infected within 6 months, attended between the age group of 18 and 70 of all genders. After obtaining the informed consent, the quality of life of post COVID-19 patients within 6 months was assessed using EQ-5D-5L questionnaire and functional status was assessed using post-COVID-19 functional status scale (PCFS) RESULT: According to EQ-5D-5L scale 43% people affected with Mobility, 30% by Self-care, 42% by Usual activities, 65% by Pain/discomfort, 42% by Anxiety/depression. In Post Covid Functional Status Scale - PCFS scale, 65% had limitations in their function ranging from (grade 1 to grade 3).

Keywords: COVID-19, Quality of life, Functional limitation, Post COVID, Cross-sectional study.

Introduction

COVID-19 was caused by Corona Virus 2, which was first identified at Wuhan city in China and named 2019-nCoV by WHO afterwards named as Corona virus disease 2019 (COVID-19) and SARS-COV-2 in February 2020. The first case reported in India in December 2019 spread globally led to a Pandemic disease. This had resulted in global health care crisis (1). In India from January 3, 2020 to March 31, 2022 there have been 43,024,440 confirmed cases of COVID-19 with 521,129 deaths (2).

Signs and symptoms during the initial infected phase include fever, cough, dyspnea, fatigue, and reduced O₂ saturation. Some require hospitalization, but after being discharged from the hospital, they are not free of symptoms. Some others progress to ARDS, acute respiratory distress syndrome, which is associated with high mortality. The infection caused not only respiratory symptoms, but also cardiac manifestations, renal complications, gastrointestinal symptoms, and neurological symptoms (3). COVID-19 is a multi-organ system-affecting disease with many complications. There are many studies that report prolonged and persistent effects after exposure to COVID-19 (4). COVID-19 has a major effect on mental status, physical

ability, and social health status, even in mildly infected patients. It is unrelated to the impact on health or the stages of illness. Thus, it is important to assess the functional limitations of an individual (5).

According to the Centers for Disease Control and Prevention (CDC), post-COVID conditions are people experiencing symptoms four or more weeks after the initial infection. Post-COVID symptoms include difficulty breathing, tiredness, cough, headache, joint or muscle pain, diarrhea, sleep problems, etc. (6). These patients are also experiencing mental health problems, especially physical and psychological issues that lead to a poor quality of life (7).

The persistent symptoms may have an impact on quality of life. QOL is defined as an individual's feelings of welfare with respect to satisfaction with important aspects of life (7). So, a cross-sectional study was carried out to provide an overview of well-being after COVID-19 infection and the functional status of an individual.

Methods

It is a cross-sectional study- hospital based. The sample size was 100 patients who were infected within 6 months of COVID-19 disease reported at OPD of APH-NIS (Ayothidoss Pandithar hospital, National Institute of Siddha), Chennai were selected for this study, with the age group between 18 to 70 years of all gender were included. Post-COVID-19 patients and immigrants from foreign countries were excluded from the study. The primary objective of this study was to estimate the quality of life and functional status. The secondary objective was to document the persistent

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symptoms after COVID-19 and to document the severity of co-morbid conditions after COVID-19.

The Quality of life (QoL) was assessed using the EQ-5D-5L (Euroqol Group Association five-domain, five-level questionnaire), which consists of the EQ-5D descriptive system and the EQ visual analogue scale (EQ VAS).

- The EQ-5D descriptive system has five domains (mobility, usual activities, self-care, anxiety/depression, pain/discomfort). Each domain has 5 levels: no problems, slight problems, moderate problems, severe problems, and extreme problems. The patients were asked to indicate his/her health state. This decision results in a 1-digit number that expresses the level selected for that dimension. The digits for the five dimensions can be combined into a 5-digit number that describes the patient's health state.
- The EQ VAS records the respondent's self-rated health on a 20 cm vertical, visual analogue scale with endpoints labelled 100- 'the best health you can imagine' and 0-'the worst health you can imagine'. This information can be used as a quantitative measure of health as judged by the individual respondents. (8).

The functional status was assessed using the Post-Covid Functional Status (PCFS) scale, which consists of 6 grades: 0-no limitation, 1-negligible functional limitation, 2-slight functional limitation, 3-moderate functional limitation, 4-severe limitation, and grade D (death) (5).

After obtaining approval from the IEC (Institutional Ethics Committee), NIS/IEC/2021/MP-6, and being registered in the CTRI (Clinical Trial Registry of India), CTRI/2022/02/039935, the study was conducted.

The study was conducted from February 2022 to April 2022. After obtaining written consent, the study patients were asked about their quality of life and functional status using a pre-designed questionnaire. After obtaining data from the required sample size (100 patients), the frequency for each factor was obtained.

Observations and Results

Demographic status

In this study, among 100 patients, the mean range in the age group of 18–30 years was 25.75, 31–40 years was 34.36, 41–50 years was 44.34, 51–60 years was 54.72, and 61–70 years was 64.81.

Severity of the COVID-19 disease

In this study, among 100 cases, 45% were in the mild category of infection, 24% were in the moderate type of infection, 2% were in the severe type of infection, and 29% of them were not aware of the severity of the disease.

Distribution of vaccination status

In this study, among 100 patients before the COVID-19 disease, 29 patients vaccinated with their 1st dose, 18 patients vaccinated with their 2nd dose of

vaccination, and after the COVID-19 disease, 64 patients vaccinated with their 1st dose and 65 patients vaccinated with their 2nd dose of vaccination.

Distribution of Isolation of participants during COVID-19 Disease

In this study, among 100 patients, 56% were under home isolation and 44% were hospitalized during COVID-19 disease.

Distribution of treatment histories of COVID-19 patients

In this study, among 100 patients, 67% followed standard allopathy medication along with Siddha treatment, 25% followed only allopathy medication, 5% followed only Siddha treatment, 2% followed only Ayurveda treatment, and 2% followed allopathy with homeopathy treatment according to their symptoms during COVID-19 disease.

Quality of life for post-COVID-19 patients

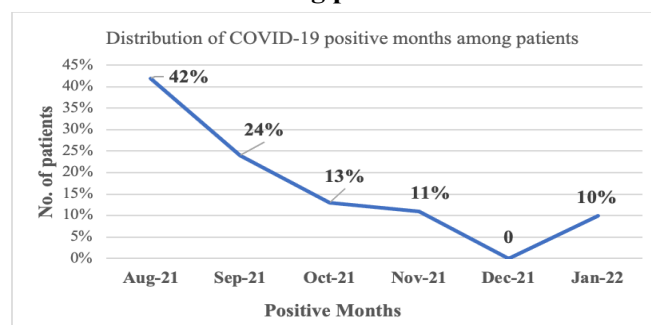
In this study, 43% were affected by mobility, 30% with self-care, 42% with daily activities, 65% suffered from pain, and 42% with anxiety and depression. (Figure 4)

Post-COVID-19 functional status scale (PCFS scale)

In the PCFS scale, 34% are affected by negligible limitations, 26% are affected by limitations in their day-to-day lives, but they sometimes have to avoid physical activities, and 5% have limitations and are not able to do their activities. (Figure 6)

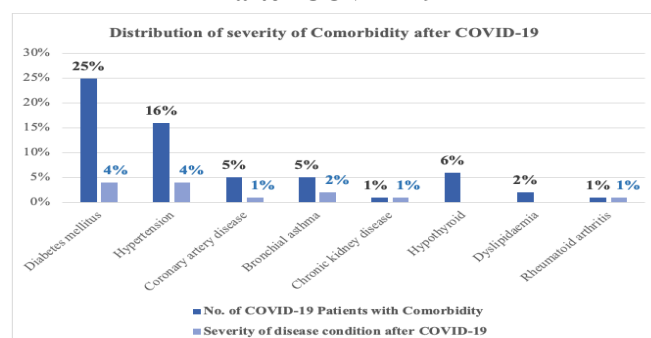
COVID-19 positive months among patients

Figure 1: Distribution of COVID-19 positive months among patients



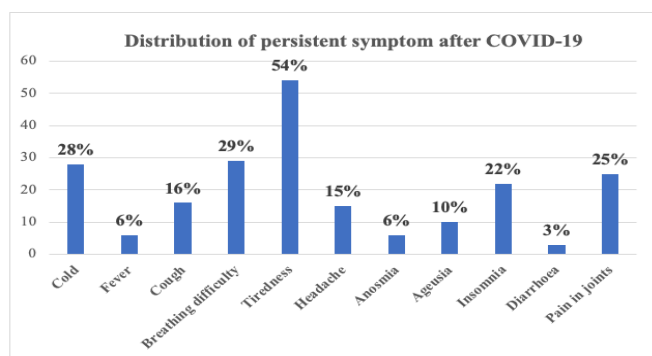
Severity of co-morbidity after Covid-19 Disease

Figure 2: Distribution of severity of Comorbidity after COVID-19



Persistent symptom after covid-19 disease:

Figure 3: Distribution of persistent symptom after COVID-19



Discussion

COVID-19 is a global disease that affects the health of many lives. Many studies reported that there was a difference in their functional status before and after the COVID-19 disease.

A study (9) conducted with 242 COVID-19 hospitalized patients reported that 87 (47.5%) patients had decreased in their functional status on the PCFS scale. This study also found that a large number of hospitalized patients had limitations in their functional status even after 6 months of hospitalization. Age, female sex, duration in hospital, and ICU admission were the factors that affected the functional status.

A study (10) with a follow-up report of 14–21 days found that 35% of non-hospitalized patients had persistent symptoms and could not get back to their normal state of well-being. The most common persistent symptoms were cough, headache, and fatigue.

In a review (11) of 34 studies on physical and mental health complications with a 3-month follow-up, it was reported that persistent symptoms such as pain (4.5%–36%), arthralgia (6%–27%), tiredness (28%–87%), and deterioration in their function, daily activities, and care (15%–54%).

A systematic review (12) was conducted on post-COVID-19 syndrome, and they found that poor health status was reported for 58% of patients, and the most common persistent symptoms include anosmia, tiredness, dyspnea, pain in joints, cough, and insomnia.

A study (13) was conducted on patients after 1 month of discharge from severe COVID-19 disease. The study included 161 severe COVID-19 patients. It states that patients commonly experience respiratory related complications, affecting both mental and physical health for at least some weeks.

A study (14) conducted with 106 patients to assess the limitations in their functions of COVID-19 patients using the PCFS scale reported that certain limitations in their daily functions should be forecast after COVID-19 infection and were observed in 43.4% of patients (negligible limitation grade 1 - Severe limitation grade 4)

Thus, it is important to assess the functional limitations of the disease to prevent further worsening of the health condition.

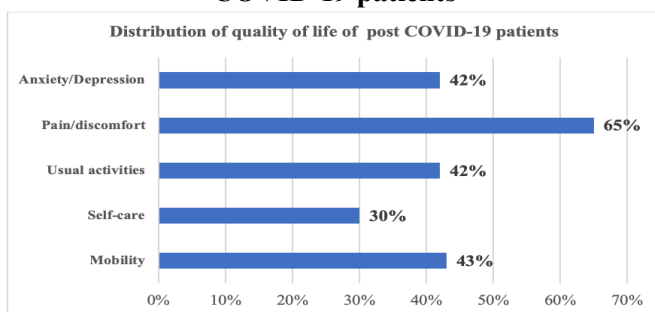
In this study, 100 post-COVID-19 patients were studied. Among them, 56% were male and 44% were female, with a mean age of 18–30 (25.7), 31–40 (34.4), 41–50 (44.34), 51–60 (54.7), and 61–70 (64.8). We collected demographic data. In the 100 patients, 46% were unemployed, 28% were semi-professional, and 17% were unskilled workers. The comorbidity of patients includes 25% having diabetes mellitus and 16% having hypertension. The severity of co-morbidity after COVID-19 is represented in Figure 2. The COVID-19 disease severity for the patients ranges from mild (45%), moderate (24%), and severe (2%).

The study also found a new onset of certain comorbidities only after the COVID-19 disease. 7% had diabetes mellitus, 1% had hypertension, and 1% had hypothyroidism after COVID-19 disease.

In the EQ-5D-5L scale assessed in 100 patients (Figure 4), in mobility, 43% had difficulty ranging from

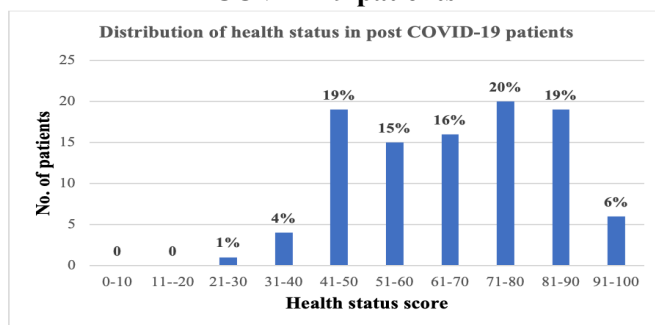
Quality of life of post covid-19 patients EQ-5D descriptive system

Figure 4: Distribution of quality of life of post COVID-19 patients



EQ visual analogue scale (EQ VAS)

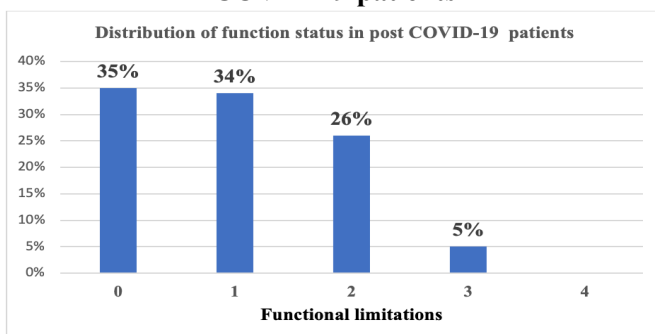
Figure 5: Distribution of health status in post COVID-19 patients



(0-Worst health condition ; 100- best health condition)

Post covid-19 functional status scale

Figure 6: Distribution of function status in post COVID-19 patients



(0-No limitation; 1-Negligible limitations; 2-Limitations in everyday life; 3-Limitations in everyday life not able to do activities; 4-Severe limitations)

(slight -severe). 30% had problems with self-care ranging from (slight -moderate). 42% had difficulty in usual activities ranging from (slight -severe), 65% had pain or discomfort ranging from (slight-severe). 42% had anxiety or depression ranging from (slight -severe) in their post COVID period.

And the overall health status was assessed using the score of the EQ-VAS (Figure 5), which consists of a scale range from worst health as 0 to best health condition as 100, and they were asked about how best their health condition after COVID-19 disease. Based on their answers, the mean and SD of health status scoring before COVID are 8.69(1.13) to 7.07(1.72) after COVID; and it is statistically significant. Thus, the health condition of the patients was significantly worsened after the COVID disease.

In PCFS (Figure 6), 35% were found to be normal even after the disease, but 65% had functional limitations ranging from grade 1–3, i.e., negligible functional limitations to moderate functional limitations. The functional limitations are not related to the severity of the disease condition.

In 100 post-COVID patients, the most common persistent symptoms were tiredness (54%), breathing difficulty (29%), cold (28%), insomnia (22%), and pain in all major joints (21%), which resulted in limitations in their daily activities. (Figure 3)

As compared with the previous studies, this study also found that there is a significant increase in functional limitations after COVID-19 disease. The limitation of this study is that we included only a limited number of participants in a single center where critically severe COVID-19 patients were relatively less. The major limitation is that there will be recall bias as this study is truly based on the patient’s statement.

Conclusion

Hence, this study concluded that COVID-19 disease significantly affects the well-being and functional limitations of an individual in their post-COVID period. Negligence and improper medications during the COVID-19 disease period may have an impact on their quality of life. A healthy diet and lifestyle with proper medication and pranayama during and after COVID can improve their quality of life.

Conflict of interest: Nil

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