

Evaluation of Quality of Life, Fatigue Severity and Functional Status in Post Covid-19 Patients - Cross-Over Longitudinal Study

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DOI: <https://doi.org/10.52403/ijhsr.20220907>

ABSTRACT

INTRODUCTION: Covid-19 is a pandemic disease which is affecting the people across the globe and have a significant influence on the condition of physical, mental problems like depression, anxiety, poor sleep, and social health, including patients with mild illness. It has been shown that after viral infections, patients often sustain functional limitations over a long period after discharge from the hospital. So the Purpose Of study was to evaluate the fatigue severity, quality of life and Functional status in the post COVID-19 patient at 2nd week and after 1 year of discharge.

METHODOLOGY: Subjects were selected according to the inclusion and exclusion criteria. Procedure was explained to the subjects and were interviewed for assessing the quality of life, fatigue severity and functional status on 2nd weeks of discharge or completion of isolation period of covid-19 & same individuals were interviewed with the same outcome measures after 1 year. The data was collected and results were carried out.

RESULTS: Fatigue severity on 2nd week was 3.87 ± 1.255 (mean \pm SD) & 1 year was 1.058 ± 0.156 . For quality of life on 2nd week 2.7% poor, 19.2% fair, 43.8% good, 27.4% very good, 6.8% excellent health & after 1 year was, 0% shows poor and fair health condition, 4.1% good, 15.1% very good, 80.8% excellent health condition. Functional status on 2nd week was 21.9% no functional limitations, 26.0% negligible functional limitations, 38.4% slightly functional limitations, 13.7% moderate functional limitations, 0.0% severe functional limitations & after 1 year was 94.5% no functional limitations, 5.5% negligible functional limitations, 0.0% slightly functional limitations, 0.0% moderate functional limitations, 0.0% severe functional limitations.

CONCLUSION: The quality of life, Functional status in post COVID-19 patients is improved after 1 year as compare to 2nd week. Fatigue severity is less after 1 year of covid-19 as compared to 2nd week. But fatigue still persists in negligible percentage after 1 year of covid-19. So the study concludes that covid-19 might lead to long term physical illness.

Keywords: COVID-19, Functional status, Fatigue severity, Quality of life.

INTRODUCTION

Corona virus is a group of viruses belonging to the family of Coronaviridae, enveloped, positive single-stranded large RNA viruses with “human-to-human” transmission through respiratory secretions.^[1]

The clinical features of COVID-19 comprise fever, cough, nasal congestion, fatigue, and other signs of upper respiratory tract infections including dyspnea and severe chest symptoms corresponding to pneumonia.^[1]

Pandemic Covid-19 isn't a simple health-care problem that will go away totally even after the recovery of COVID-19 the most intense symptoms reported were fatigue, muscle weakness and sleeping problems while the least were fever, nausea and dysphagia.

COVID-19 is predicted to have a significant influence on the condition of physical, cognitive, mental and social health, including patients with mild illness. Prior work examining the long-term sequel of severe ARDS has demonstrated deleterious effects on pulmonary function and health status even several years after disease onset.^[2]

It has been shown that after viral infections (e.g., SARS-1), patients often sustain functional limitations over a long period after discharge from the hospital.⁽³⁾

Fatigue is defined as the decrease in physical and/or mental performance that results from changes in central, psychological, and/or peripheral factors. These depend on the task being performed, the environmental conditions it is performed in, and the physical and mental capacity of the individual.

Importantly, fatigue is greatly affected by the factors of conditional dependency and the interactive changes in central, psychological, and peripheral factors that cause fatigue.^[5] Fatigue in post-infection has been frequently found in a variety of situations in both viral and non-viral diseases.^[17,18] Fatigue severity scale is use for the evaluation of fatigue in post COVID patients.

Similarly, as COVID-19 research progresses, it has become increasingly apparent that a high proportion of patients experience persistent symptoms, such as fatigue.^[4] There were many studies on fatigue severity in post covid-19 patients but there were no studies who evaluated fatigue severity after 1 year.

Functional status is an individual's ability to perform normal daily activities required to meet basic needs, fulfil usual roles, and maintain health and well-being. While

functional capacity represents an individual's maximum capacity to perform daily activities in the physical, psychological, social, and spiritual domains of life, functional performance refers to the activities people actually do during the course of their daily lives.

The World Health Organization (WHO) defines QOL as "an individual's perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns".^[6] Standard indicators of the quality of life include wealth, employment, the environment, physical and mental health, education, recreation and leisure time, social belonging, religious beliefs, safety, security and freedom.^[7] In post covid patient, quality of life is affected as the mental health needs long term recovery process.

Manuel Taboada1,et al [2020] studied the quality of life and persistent symptoms after COVID-19, found that at 6 months after recovery a large proportion of them had worsened quality of life, diminution of the functional status, and persistent symptoms compared with their pre-COVID-19 status.^[8]

The Purpose Of study was to evaluate the fatigue severity, quality of life and Functional status in the post COVID-19 patient at 2nd week and 1 year later of discharge.

METHODOLOGY

Study design: Cross over longitudinal.

Sampling technique: Convenient sampling technique

Sample size formula: $no = 4pq/e^2$

Sample size: 73

Study duration: 6 months.

Place of study: Jalgaon city, Maharashtra.

Inclusion criteria:

1. Individuals who tested covid-19 positive who were hospitalized/isolated
2. Individuals who have completed 2 weeks after hospital discharge or

isolation period between age group of 18-50 years.

3. Both genders.

Exclusion criteria:

1. Covid-19 patients with history of ICU admission.
2. Any neurological condition.
3. Any other cardio-vascular condition.
4. Any other pulmonary disease.
5. Any psychiatric problem and cognitive impairment.
6. Taking any medications that can cause fatigue.

Materials: Informed consent, patient evaluation sheet, pen, Orthotoolkit [Online calculator for SF-12].

Outcome Measures:

1. Fatigue severity scale (FSS) to evaluate fatigue.
2. SF-12 scale to evaluate quality of life.
3. PCFS (Post COVID-19 Functional status) scale to evaluate the functional status.

PROCEDURE

To conduct the study Permission from Institutional ethical committee & concerned hospital was taken. Subjects were selected according to the inclusion and exclusion criteria by Convenient sampling Technique. A written consent was taken from subjects for participating in study. Procedure was thoroughly explained to the subjects selected for the study.

Subjects were interviewed for assessing the quality of life, fatigue severity and functional status on 2nd weeks of discharge or completion of isolation period of covid-19 & same individuals were interviewed with the same outcome measures after 1

year of the discharge or completion of isolation period of covid-19

Following out-come measures were used to asses: -

Fatigue Severity Scale (FSS) consists of answering a short questionnaire that requires the subject to rate his or her own level of fatigue. FSS containing nine statements that attempt to explore severity of fatigue symptoms. The subjects were asked to read each statement and circle a number ranging from 1 to 7 depending on how appropriate they felt. A low value indicates that the statement is not very appropriate whereas a high value indicates agreement.

Short Form -12 (SF-12) for Quality of life consisting of 12 questions. Ask the subject to answer every question by placing a check mark on the line in front of the appropriate answer. Result was taken out using online SF12 calculator of orthotoolkit. Health condition of the subjects was noted and data was collected.

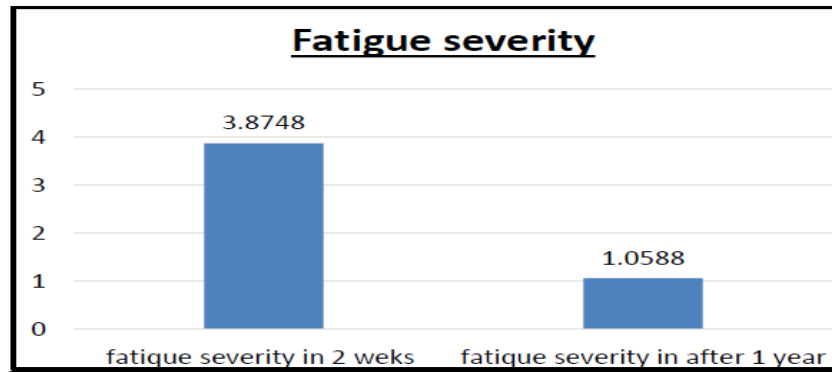
Post COVID Functional status scale (PCFS) scale for Functional status was assess using the 4 appropriate grades by the patient him or herself, which can be done by using the patient questionnaire and a simple flowchart.

The data was collected and enrolled in Microsoft excel sheet and it was been analyzed on descriptive statistic of IBM SPSS statistics version 28.0.1.1. Data were presented using descriptive statistics in form of frequencies and percentages for qualitative variables [quality of life and functional status] and mean and standard deviation (SD) for quantitative variable [fatigue severity].

RESULTS

Frequency of Fatigue severity on 2nd week & 1 year of discharge from hospital/isolation.

Fatigue Severity	Mean	Std. Deviation	p value
On 2nd Week Discharge/Isolation	3.8748	1.25515	<0.001
After 1 Year Of Discharge/Isolation	1.0588	0.15168	

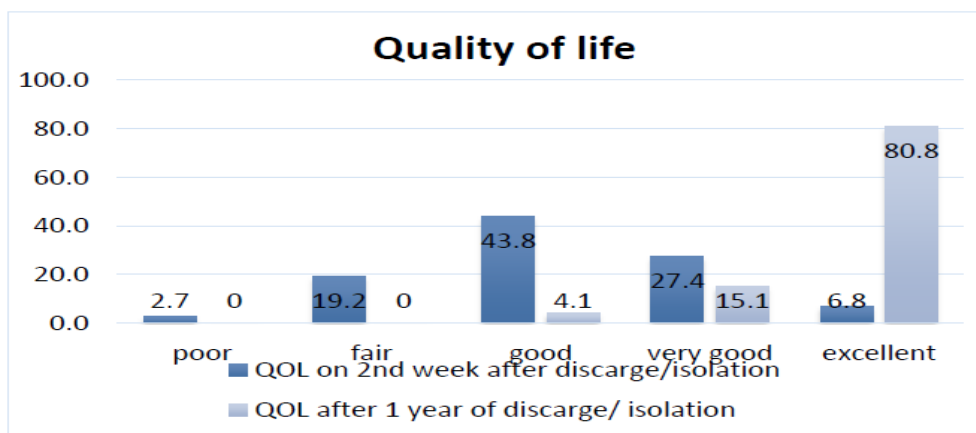


Fatigue severity on 2nd week of discharge/ isolation of post covid period, the mean is 3.87 with standard deviation of 1.255 &

after 1 year of discharge/ isolation, the mean is 1.058 with standard deviation of 0.156.

Quality of life assessment on 2nd week & 1 year of discharge from hospital/isolation

SF12 Scoring	QOL On 2 Weeks After Discharge/Isolation		QOL After 1 Year of Discharge/Isolation	
	Frequency	Percent	frequency	Percent
Poor	2	2.7 %	0	0 %
Fair	14	19.2 %	0	0 %
Good	32	43.8 %	3	4.1 %
Very Good	20	27.4 %	11	15.1 %
Excellent	5	6.8 %	59	80.8 %
Total	73	100 %	73	100 %

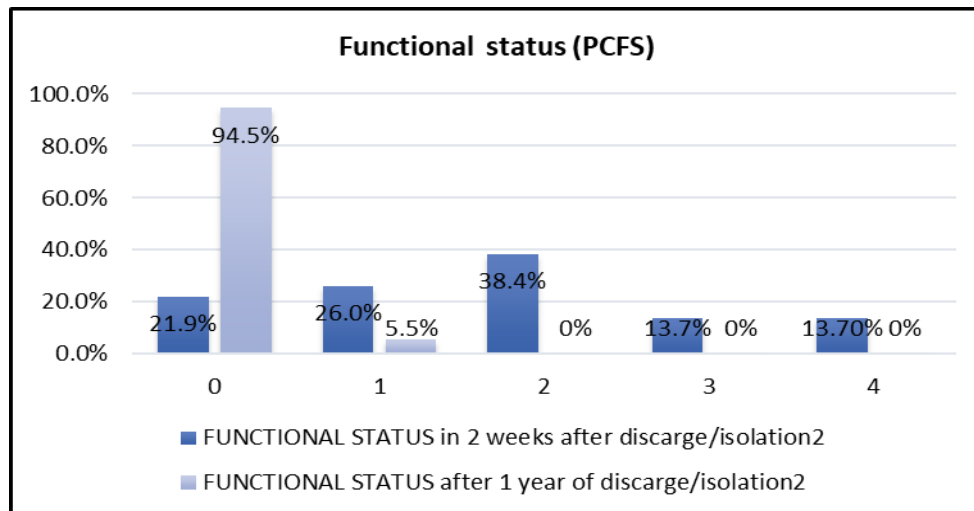


For quality of life on 2nd week of discharge/ isolation from covid-19 2.7% shows poor, 19.2% shows fair, 43.8% shows good, 27.4% shows very good, 6.8% shows excellent health. And after 1 year of

discharge/ isolation from covid-19, 0% shows poor and fair health condition, 4.1% shows good, 15.1% shows very good, 80.8% shows excellent health condition.

Functional status assessment on 2nd week & 1 year of discharge from hospital/isolation

PCFS Scale Score	Functional Status On 2 nd Week After Discharge/Isolation		Functional Status After 1 Year Of Discharge/Isolation	
	[Frequency]	[Percentage]	[Frequency]	[Percentage]
0	16	21.9%	69	94.5%
1	19	26.0%	4	5.5%
2	28	38.4%	0	0%
3	10	13.7%	0	0%



Functional status on 2nd week of discharge /isolation of covid 19 is 21.9% shows no functional limitations, 26.0% shows negligible functional limitations, 38.4% shows slightly functional limitations, 13.7% shows moderate functional limitations, 0.0% shows severe functional limitations. Functional status after 1 year of discharge /isolation of covid 19 is 94.5% shows no functional limitations, 5.5% shows negligible functional limitations, 0.0% shows slightly functional limitations, 0.0% shows moderate functional limitations, 0.0% shows severe functional limitations.

DISCUSSION

In this study, fatigue is evaluated using fatigue severity scale and results showed that in 2nd week after the discharge or isolation period of covid-19, there is persistent of fatigue [mean 3.8] Whereas fatigue is reduced [mean of 1.05] after 1 year as compare to 2nd week of discharge or isolation period of covid-19 with significant difference with p value <0.001.

Fatigue is a body's response to fight against a viral infection such as COVID-19. Fatigue is likely to continue for some time after the infection has cleared. It leads you to sleep more, feel unsteady on your feet, make standing for long periods difficult, as well as affecting your ability to concentrate and your memory. Fatigue is reduced after 1 year by rest and taking short breaks throughout the day (stop and do nothing),

calm your mind, and try breathing exercises or guided relaxation exercises. But still in some negligible quantity fatigue is persist after 1 year so after exploring during survey we found this might be because of improper work pacing, lack of post covid-19 physiotherapy rehabilitation & awareness about it.

In accordance with the present study, Shendy W, Madonna Maher Ezzat and et al [Cairo University, Cairo, Egypt] Fatigue post covid-19 was evaluated by using Modified Fatigue Impact Scale (MFIS) and Shortness of breath (dyspnea) by Numerical rating scale of dyspnea. Result of this study is that fatigue in adult patients post mild and moderate covid-19 cases after three to five months from their recovery was prevalent 64.2% using the MFIS. The association between NRS and MFIS was moderately positive and significant. ($r = 0.39$, $p = 0.0001$).

A study done by Laurie G. Jacobs, et al. showed that the most prevalent and persistent symptoms at 35 days were fatigue (55.0%; 41% rated moderate, severe, or very severe), and dyspnea (45.3%), accompanied by some or much difficulty with walking (15.6%), lifting and carrying (25.5%), walking upstairs (29.9%), and walking fast (45.6%) and that the persistence of symptoms has an important impact on general, physical and mental health status, social functioning and quality of life within 35 days of discharge.

In our study functional status on 2nd week of discharge or isolation of covid-19 is 21.9% shows no functional limitations, 26.0% shows negligible functional limitations, 38.4% shows slightly functional limitations, 13.7% shows moderate functional limitations, 0.0% shows severe functional limitations. And after one year of discharge or isolation of covid-19 is 94.5% shows no functional limitations, 5.5% shows negligible functional limitations, 0.0% shows slightly functional limitations, 0.0% shows moderate functional limitations, 0.0% shows severe functional limitations.

Functional capacity of post covid-19 patients after 2nd week of discharge can be improved by consultation with physiotherapist for cautious, initiation of exercise and recommendations about pacing may be useful. Gradual return to exercise as tolerated could be helpful for most patients. Management like counseling on lifestyle components such as nutrition, sleep, and stress reduction were found useful for improvement.

A study done by Felipe V. C. Machado, Roy Meys and et al to assess functional status of COVID-19 patients, 3 months after the onset of symptoms. They concluded that most of the subjects reported moderate-to-slight functional limitations according to the PCFS Scale (85%) while only 3% of the subjects reported to currently have no limitations in daily life.

For quality of life on 2nd week of discharge/ isolation from covid-19 2.7% shows poor, 19.2% shows fair, 43.8% shows good, 27.4% shows very good, 6.8% shows excellent health. And after 1 year of discharge/ isolation from covid-19, 0% shows poor and fair health condition, 4.1% shows good, 15.1% shows very good, 80.8% shows excellent health condition. Hence quality of life has been improved after 1 year but 19.2 % people have persistent of good and very good quality of life.

QOL in post covid patients was improved by frequent follow-up visits mindfulness or meditation in order to decrease the level of

stress. Slow, progressive and supervised physical and sports activity could promote recovery in post-COVID-19 syndrome and certainly improve QOL.

Manuel Taboada et. al studied Quality of life, functional status, and persistent symptoms after hospitalization of COVID-19 patients at the 6 months interview, 57 (63%) patients reported decreased functional status. Thirty-five (38%) patients had lowered two grades in the PCFS, and 41 (45%) patients described persistent functional limitations (grades 2–4 in the PCFS). At the 6 months evaluation, a high proportion of patients reported dyspnoea on exertion (57%), asthaenia (37%), myalgia (37%), and arthralgia (29%). Only 15 (16%) patients were completely free of persistent symptoms.

CONCLUSION

The quality of life, Functional status in post COVID-19 patients is improved after 1 year as compare to 2nd week. Fatigue severity is less after 1 year of covid-19 as compared to 2nd week. But fatigue still persists in negligible percentage after 1 year of covid-19. So the study concludes that covid-19 might lead to long term physical illness.

LIMITATIONS

CT score was not taken into consideration for generalized result of the study.

SUGGESTIONS

Physiotherapy interventional study could be done to improve fatigue, QOL, functional status.

Fatigue severity, QOL, functional status can be correlated with disease severity.

Acknowledgement: None

Conflict of Interest: None

Source of Funding: None

Ethical Approval: Approved

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How to cite this article: Renuka Sarap, Mukesh Shinde, Pradnya Mahajan et.al. Evaluation of quality of life, fatigue severity and functional status in post Covid-19 patients - cross over longitudinal study. *Int J Health Sci Res.* 2022; 12(9):49-56.

DOI: <https://doi.org/10.52403/ijhsr.20220907>
