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Functional Status and Quality of Life among Persons Who have Recovered from COVID-19 in Selected Panchayaths at Ernakulam District, Kerala

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Abstract: ***Coronavirus disease (Covid-19) is an infectious disease caused by the SARS -CoV2 virus. The prevalence of Covid -19 cases as on 9th May 2022 was 517,301,451 with 6, 276,522 confirmed deaths. Methodology: A quantitative research approach was used with non-experimental - descriptive correlational design. Conceptual framework was based on Roy's adaptation model. The sample consists of 100 persons who were hospitalized and recovered from Covid-19, and are residing in Kizhakkambalam Panchayat, Ernakulam, who fulfill the sample selection criteria, selected conveniently. Data were collected using the tools- Socio-demographic variables, Post Covid Functional Status Scale and WHO-BREF QOL scale. Result: The data collected were analyzed and interpreted by descriptive and inferential statistics. The results showed that majority of the sample 72(72%) had good QOL, 9 (9%) had very good QOL and 66 (66%) had functional limitations of varying degrees. A high negative correlation (rs=-0.707; p<0.001) observed between functional status and Quality of Life which is found to be statistically significant. There is significant association between age (p<0.001), gender (p= 0.04), educational status (p=0.002), marital status (p=0.04), employment status (p=0.007), comorbidity (p=<0.001), current medications (p=<0.001) with overall functional status and between educational status (p=0.04), comorbidity (p=0.03) and vaccination status (p=0.03) with overall quality of life. Conclusion: The present study showed that persons who have recovered from Covid-19 have varying degrees of functional status and quality of life.***

Keywords: Covid-19**,** quality of life, functional status, WHOBREF assessment scale, Post Covid Functional Status Scale

1. Introduction

Coronavirus Disease 2019 (Covid-19), which was first detected in December 2019 in Wuhan, China, created a public health emergency worldwide. The World Health Organization (WHO) declared Covid-19 as a pandemic on 11 March, 2020. The pandemic affected more than 200 countries globally, and severely affected global health. The Coronavirus Disease-2019 (Covid-19) pandemic wrecked the world with over 100 million confirmed cases and more than 2 million deaths till vaccination got started. It appeared as a severe infectious disease and impacted all ages and sexes, especially older adults with comorbidities. In the world confirmed Covid-19 cases as on 9th May 2022 is 517,301,451 with 6,276,522 confirmed deaths, Patients experience significantly higher levels of post-traumatic stress symptoms and depression due to the disease's novelty and the persistence of the symptoms. This has been severely affected to the patient's quality of life. In this context, studies on the QOL of COVID 19 patients following discharge or recovery has been grown very rapidly. Therefore, it is necessary and timely to compile global evidence on the QOL of Covid -19 patients following discharge or recovery. Understanding the impact of Covid -19 on patients' quality of life following discharge or recovery is essential for planning necessary interventions in advance. Due to the increasing number of subjects recovering from Severe Acute Respiratory Syndrome Corona Virus-2 (SARS COVID-2), the need to monitor the course of the disease and its impact on functional status has been raised as essential. A study was done to assess the PCFS (Post-Covid Functional Status scale) and to evaluate if age, gender, smoking, hospitalization, and comorbidities have any effect on functional limitations in recovered Covid-19 patients in Egypt in the year 2021 among a total of 444 registered confirmed Covid-19 patients. The study concluded that most of the Covid-19 recovered cases have diverse degrees of functional restrictions ranging from negligible to severe based on Post-Covid Functional Status scale (PCFS). Researcher has identified from the previous studies that the persons who have recovered from Covid-19 showed a significant decline in functional status and health-related quality of life.

Objectives:

1) To assess the level of functional status among persons who have recovered from Covid-19
2) To assess the Quality of Life of persons who have recovered from Covid-19
3) To find the relationship between functional status and quality of life among persons who have recovered from Covid-19
4) To find the association of functional status and Quality of Life with the selected demographic variables of persons who have recovered from Covid-19.

2. Materials and Methods

The quantitative approach was adopted for the study. Research design selected for the study was non-experimental - descriptive correlational design. Convenient sampling was used in the present study. It is a nonprobability sampling technique where subjects are selected due to their convenient accessibility and proximity to the researcher. In this study

sample consist of 100 subjects who were hospitalized and recovered from Covid-19, and are residing in Kizhakkambalam Panchayat, Ernakulam. Sample size was estimated based on the power analysis (previous research study and pilot study findings) and statistician's opinion. The investigator used WHOQOL-BREF Assessment Scale which is validated Malayalam version by Dr. Aswathy Sreedevi et al after getting permission from the translators The investigator used structured interview of Post Covid Functional Status Scale (PCFS) which is standardised and a free tool.

The inclusion criteria for the present study comprised individuals who had been hospitalized due to COVID-19, had recovered, and were willing to participate in the study. The exclusion criteria included individuals who had recovered from COVID-19 and who were unable to read, write, or communicate in English or Malayalam, and pregnant women. Data were collected using a structured questionnaire that included socio-demographic variables. After getting the approval of the ethics committee and obtaining permission from the concerned authority, data was collected during the period from 25/4/22- 14/5 /22. After gathering the socio-demographic information, participants were instructed to rate each item of the WHOQOL-BREF scale according to their perceptions and priorities. Subsequently, the investigator conducted structured interviews using the Post-COVID Functional Status Scale. The data obtained were organized, tabulated, and analyzed in accordance with the study objectives using both descriptive and inferential statistical methods.

3. Result

Section-1 Description of Socio- Demographic Data

The present study revealed that majority 38 (38%) of the sample belongs to the age group >60 years., 59 (59%) of them were females., 38(38%) of the sample were educated up to high school level, 78 (78%) of the sample were married ,57 (57%) belongs to joint family, 44 (44%) of the sample had family income of Rs 5000 and below, 41 (41%) of them were unemployed, 62 (62%) of the sample had comorbidities., 83 (83%) had no unhealthy habits, 61 (61%) of the sample were hospitalized for 1week-2weeks., 92 (92%) not admitted in ICU due to Covid-19, 95 (95%) of the sample were not assisted with mechanical ventilation due to Covid-19,55(55%) of the sample were on medications,87 (87%) of the sample were completed second dose vaccination and 51 (51%) of the sample got affected with Covid-19 infection before covid vaccination.

Section 2: Description of Quality of Life

The result showed that among 100 sample, majority 72 (72%) of the sample had good quality of life, and only 1(1%) had poor quality of life. On assessing the entire four domain, which is analyzed using the descriptive statistics revealed that the social domain has the highest median (75) and lowest IQR (6) scores. This shows that the sample had highest quality of life in social domain.

Section 3: Description of functional status

The result showed that among 100 sample, majority 66 (66%) of the sample had functional status limitation of varying degrees. Out of 100 sample 33(33%) had negligible functional limitation, 19 (19%) had slight functional status limitation, 2 (2%) had moderate functional limitation, 1(1%) had severe functional limitation and 44 (44%) had no functional limitation.

Section 4: Correlation between Functional Status and Quality of Life

Spearman's rank correlation analysis was conducted to determine the relationship between functional status and quality of life, as the data did not meet the assumption of normality. A strong negative correlation was observed between functional status and quality of life among individuals who had recovered from COVID-19 ($r_s = -0.707$, $p < 0.001$), indicating statistical significance . This finding suggests that higher functional status scores reflect greater functional limitation, whereas higher quality-of-life scores indicate better overall well-being. Therefore, as functional limitations increase, quality of life decreases, demonstrating an inverse relationship between the two variables.

Section 5: Association between functional status, Quality of Life and demographic variables.

a) Association of Quality of Life with the selected demographic variables

Chi square test and Fisher's exact test was performed to determine the association of Quality of Life with the selected demographic variables of persons who have recovered from Covid-19. Result showed that there is significant association between educational status (38% educated up to high school), comorbidity (62% had comorbidities) and vaccination status (87% of the sample were completed second dose vaccination). with overall quality of life.

b) Association of functional status with the selected demographic variables

Chi square test and Fisher's exact test was performed to determine the association of functional status with the selected demographic variables of persons who have recovered from Covid- 19. Result showed that there is significant association between age, gender, educational status, marital status, employment status, comorbidity and current medications with overall functional status.

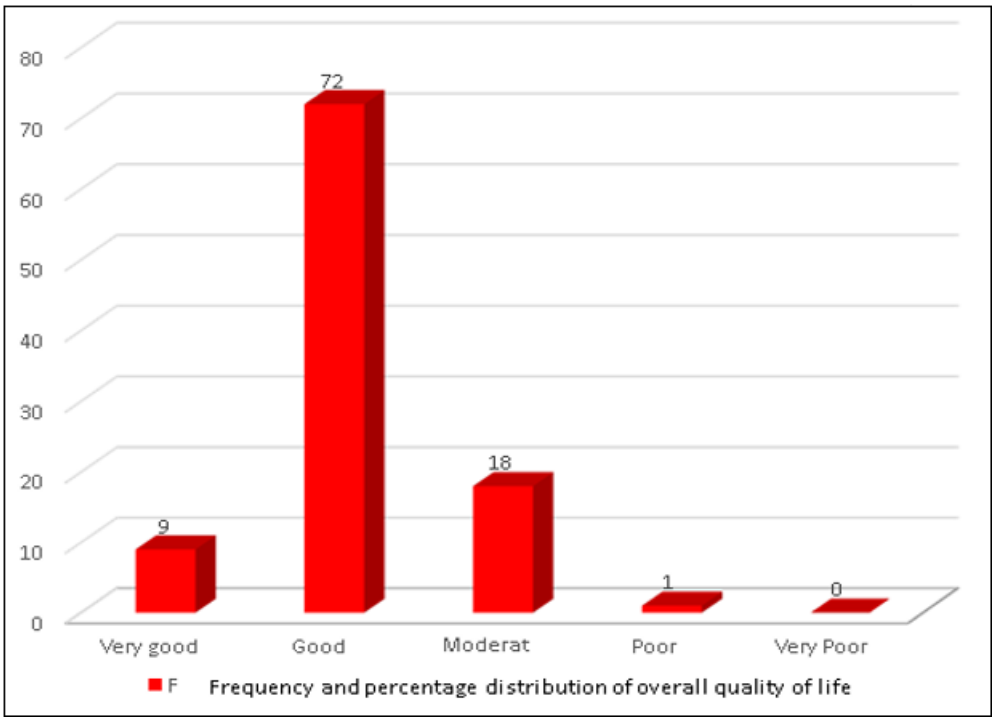

Fig 1 shows that among 100 sample,9 (9%) had very good quality of life, 72(72%) had good quality of life, 18 (18%) had moderate quality of life and 1 (1%) had poor quality of life.

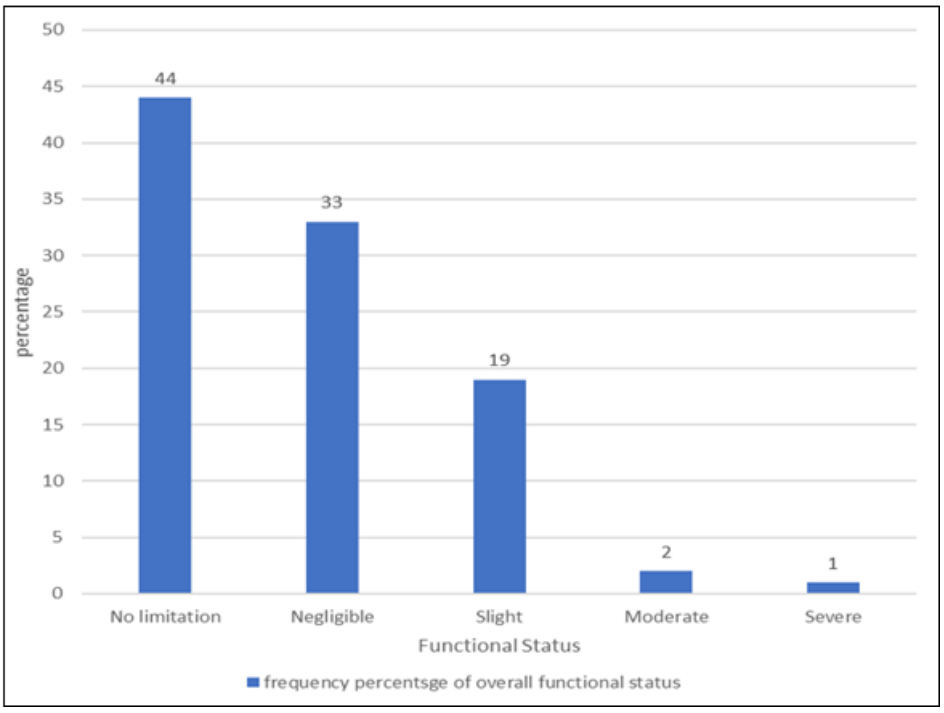

Fig 2 shows that among 100 sample, majority 44 (44%) of the sample had no functional status limitation, 33% had negligible functional limitation and 19% had slight functional status limitation, 2% had moderate functional limitation and 1% has severe functional limitation.

Table 1: Median and Inter Quartile Range (IQR) of domains of Quality of Life, N =100

Domains	Median	Q1	Q3	IQR
Physical	63	44	69	25
Psychological	69	56	75	19
Social relationship	75	69	75	6
Environmental	69	63	75	12

Table 1 shows the median and IQR scores of domains of quality of life. The social domain in quality of life has the highest median (75) and the lowest IQR (6) scores. This shows that the sample has the highest quality of life in social domain.

Table 2: Median and Inter Quartile Range (IQR) of categories of functional status, N =100

Functional status	Median	Q1	Q3	IQR
Constant care	0.00	0.00	0.00	0.00
ADL	0.00	0.00	0.00	0.00
iADL	0.00	0.00	3.50	3.50
Social roles	0.00	0.00	3.00	3.00
Symptom checklist	0.50	0.00	3.00	3.00

Table 2 shows that the constant care and ADL categories had higher median (0.0) and lowest IQR (0.0) values. This shows that the sample had no functional limitation in both constant care and ADL categories.

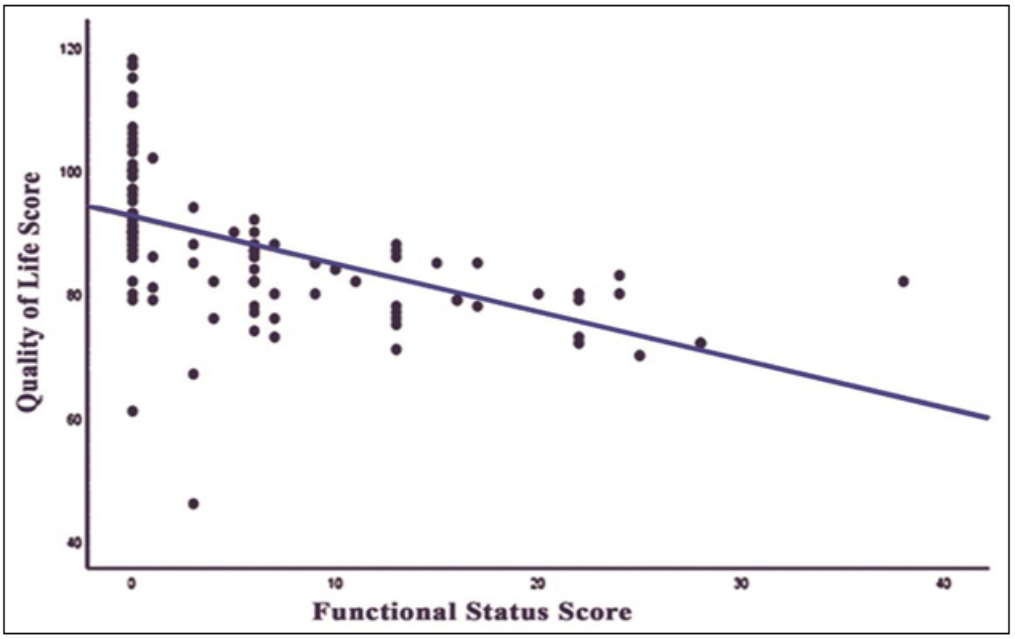

Figure 3: Correlation between functional status and Quality of Life

The calculated value of correlation coefficient (r = -0.70) which is found to be significant at p < 0. 001. Hence the null hypothesis is rejected and the research hypothesis is accepted. It shows that there is a high negative correlation between scores of functional status and quality of life among persons who have recovered from Covid- 19, and which is found to be statistically significant.

4. Discussion

The majority of the sample 61(61%) were hospitalized for a period of 1week-2weeks and 92 (92%) were not admitted to ICU due to Covid-19 and 95 (95%) were not assisted with mechanical ventilation. The majority of the sample 87 (87%) completed second dose vaccination and 51 (51%) got affected by Covid-19 infection before covid vaccination.

The findings were supported by a prospective cross- sectional international online survey that was conducted in United Kingdom to measure the impact of Covid- 19 on QOL of survivors and their partners and family members in 2021.The study results showed that majority 76.6 % of the sample were females, which supports the present study**.**

The present study shows that majority 72 (72%) of the sample have good quality of life and only 1 (1%) have poor quality of life. Descriptive statistics revealed that the social domain had the highest median (30) and lowest IQR (1.5) scores. The study findings were supported by a study done to investigate changes over time in the quality of life, perceived stress, and serious psychological distress for individuals diagnosed with Covid-19 in an urban academic health system in January 2022.

The findings of the study showed that the majority of sample 66 (66%) have functional status limitation of varying degrees, 33% had negligible functional limitation and 19% had a slight functional status limitation, 2% had moderate functional limitation, 1% had severe functional limitation and 44(44%) has no functional limitation. On assessing the entire five categories, analyzed using the descriptive statistics it was revealed that the symptom checklist had the highest median score (0.5) and other categories had the lowest median score (0).The study findings are supported by a cross-sectional study done in 2020 to assess the functional status of post Covid 19 patients and their determinants using the Post Covid Functional Status Scale (PCFS) in Tahirpur, New Delhi.

The present study result showed that there is a significant association between sociodemographic variables**,** educational status (P=0.042), comorbidity (P=0.033), and vaccination status(P=0.031) with Quality of Life. The study findings were supported by a hospital-based study in South Central Ethiopia done to assess the health-related quality of life (HRQOL) and associated factors of Covid-19 patients using primary data from confirmed cases in South Central Ethiopia in 2021.

The present study results showed that there is significant association between sociodemographic variables**,** age(P=<0.001), gender (P=0.042), educational status (P=0.002), marital status (P=0.042), employment status (P=0.007), comorbidity status(P=<0.001), and current medications (P=<0.001) with functional status. The study

findings are supported by a study done in 2021, to assess post-COVID-19 functional status in relation to age, smoking, hospitalization, and previous comorbidities in Egypt. The study results showed that majority 80% of Covid-19 recovered cases have diverse degrees of functional restrictions, 63.1% negligible, 14.4% slight, 2% moderate, 0.5% had severe functional limitation based on PCFS.

5. Limitations

- The study was limited to persons who have recovered from Covid-19 within 1 year period.
- The study was limited to only post hospitalized patients due to Covid-19.

6. Recommendations

Based on the present study, the following recommendations are being made for future research purpose.

- A comparative study can be conducted on the functional status and quality of life of persons who have recovered from covid-19.
- The study can be replicated on a larger sample for generalizing the findings.
- A qualitative study can be done to explore the quality of life and functional status in persons who recovered from covid 19.

7. Conclusion

Coronavirus disease (Covid-19) is an infectious disease caused by the SARS-CoV-2 virus. The present study showed that persons who have recovered from Covid-19 have varying degrees of functional status limitation and quality of life. Hence, there is a need to implement programs to improve the functional status and QOL of post Covid1-9 patients.

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