Impact of Coronavirus Disease 2019 on Quality of Life in Post COVID-19 Patients

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Abstract

The long-term prognosis and 'health-related quality of life' (HRQoL) following non-hospitalization for COVID-19-related severe acute respiratory infection (SARI) are limited. The goal is to evaluate the impact of HRQoL in non-hospitalized COVID-19-related SARI patients one year after discharge, with an emphasis on the potential impact of age. This study compared the quality of life of people who had recovered from COVID-19 to those who had not been affected. Method This retrospective cohort study examined outcome data from 1207 patients with confirmed COVID-19-related SARI from Surat OPD, neighbouring districts, and educational institutes over 3 months. We gathered 36-item short form (SF-36) HRQoL questionnaires from individuals who survived one year. We compared HRQoL domains across three age groups (<49, 49-69, and over 69). Results Overall mortality among hospitalised patients was 46.5%. In our SF-36 cohort (n=169), there was a significant reduction in all HRQoL domains compared to normative data. The most significant reductions were in the physical component (p<0.001) across all ages and the emotional component (p<0.01) in the 49-69-year age group. Age had no additional impact on HRQoL. Conclusion After one year, all SF-36 domains showed significant reductions. Except for physical functioning and the total physical component, age had minimal effect on HRQoL severity.

Key words: Quality of Life, Post Covid-19, Non-Hospitalization.

1. Introduction

Coronavirus disease-19 (COVID-19), caused by the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), has become a global pandemic, posing a substantial health risk worldwide. Several countries have witnessed a two-wave pattern of reported cases, with the first occurring in spring and the second in late summer and autumn. [1] The main concern in COVID-19 is the involvement of the lungs and respiratory system which may result in dyspnea, low blood oxygen saturation, and respiratory failure, thereby, requiring mechanical ventilation, mostly in those having comorbid conditions such as diabetes mellitus, obesity, ischemic heart disease, cancer, post-surgery, and chronic obstructive pulmonary disease (COPD). [2] The effects of an illness typically extend beyond clinical outcomes such as mortality and morbidity and include subjective measures such as HRQoL. HRQoL is a multidimensional concept that encompasses physical, mental, social, and emotional functioning. [3] There are several HRQoL measurement tools available, some of which are generic and some of which are disease specific. Generic HRQoL tools (for example, the SF-36 (36-item Short-Form Health Survey), SF-6D (Short-Form 6 Dimension) derived from the SF-36, and EQ-5D (Euro-Qol- 5 Dimension)) are widely used to assess multidimensional domains of health and well-being in various populations. [4] St. George Respiratory Questionnaire (SGRQ) and Clinical COPD Questionnaire (CCQ) are two disease-specific

quality of life assessment instruments used in the HRQoL assessment of Covid-19 patients. [5] To the best of knowledge, few review has been published that evaluates the impact of Covid-19 on the HRQoL of patients with Covid-19 (confirmed or suspected). Furthermore, little is known about the effect of Covid-19 on HRQoL in patients with Long Covid (>4 weeks from onset of symptoms). [6] As a result, the goals of this review are to fill a knowledge gap by identifying and evaluating studies that report on the effects of COVID-19 on HRQoL of patients with Covid-19 (confirmed or suspected), as well as to investigate risk factors for reduced HRQoL in Covid-19 patients.

2. Method

Methodology of Investigation Types of research: quantitative, experimental, and methodological. Quasi-experimental research was conducted in Surat and Bardoli physiotherapy offices, including the SRCP OPD, and surrounding areas. Population: Post-COVID-19 patients. Sample: Post-COVID-19 patients who met inclusion criteria. Sample Technique on-probability - Purposive sampling technique Participants in the study were selected based on the following inclusion criteria: There are both men and women present. Never smoked, capable of providing informed consent, fluent in the local language, and a patient with a COVID-19 history dating back over a year. Men and women between the ages of 25 -70 History of COVID-19 within one years (with proof). According to the WHO classification, the patient's symptoms during COVID 19 ranged from mild to severe. During the covid19 pandemic, both hospitalised and non-hospitalized patients were affected. Participants in the study were included based on the following exclusion criteria: Myocardial infarction occurred within the last month. A history of unstable angina. Recent thoracic and abdominal surgeries, as well as ophthalmic surgery to the brain, middle ear, sinuses, eyes, chest, or abdomen. A history of abdominal, thoracic, and cerebral aneurysms. Recent concussion. A history of pulmonary hypertension, pulmonary embolism, and pneumothorax. History of late-term pregnancy. A person with a history of musculoskeletal disorders who regularly practises yoga and breathing exercises.

Patients who agreed to participate in the study and had not previously received PT treatment for their functional capacity were included. (The confirmation of COVID-19 will be validated through an RTPCR report.) Using these criteria, the participants were disqualified.The subject was informed of the study's goal. Using inclusion and exclusion criteria, a sample of 1207 people was chosen; they were willing to participate, and 565 no covid disease were also include in the study their informed consent was also obtained. First, we obtained ethical clearance from the institutional committee for the study. I visited Uka Tarsadia university Bardoli Surat district informed about the research programme meeting done with HOD department and research approval letter received. The faculties with post Covid-19 history were informed and given brief introduction of the study. The other day, they were gathered in the physiotherapy department of the cardio lab, where all devices were available for measuring the outcome measure. The screening procedure began with an explanation of the study, followed by the completion of an assessment form that included inclusion and exclusion criteria, and the selection of an appropriate study sample. The SF-36 questionnaire was used to assess all measurements of pre-health quality of life.

2.1.The 36-Item Short Form Survey (SF-36)

The SF-36 is a generic and easily administered quality-of-life measure that consists of 36 items divided into eight domains [6]: physical functioning (10 items), role limitations due to physical health (4 items), role limitations due to emotional problems (3 items), energy fatigue (4 items), emotional well-being (5 items), social functioning (2 items), pain (2 items), and general health. The SF-36 scores were calculated using RAND Corporation scoring procedures. First, the original response categories were rated on a scale of 0 to 100, with a lower score indicating a poorer health status. Next, the average scores for each of the eight scales were computed.

3. Statistical Analysis

We performed a descriptive analysis to present our findings. Normality was established using the Shapiro-Wilk test and histograms. Continuous variables were reported as medians (25th and 75th percentiles) and compared between COVID-19 and

non-COVID-19 participants using Wilcoxon or t-tests (see Tables 1 and 2). If equal variance was reached, the one-way Analysis of Variance (ANOVA) test was used to compare continuous data among three or more subgroups (i.e., duration from acute COVID-19 and the SF-36 domains); otherwise, the Kruskal-Wallis (nonparametric ANOVA) test was employed. Post-hoc analysis was carried out using the Bonferroni test after ANOVA and Dunn's test after the Kruskal-Wallis test, where needed. Nominal data were reported as frequencies and percentages and compared using the Chi-squared or Fisher exact tests.

Table 1 Comparison of Baseline Characteristics Between Patients with Post-COVID-19 Vs. Control

	No COVID-19 Disease ($n = 565$)	Post-COVID-19 Disease ($n = 1207$)	p-Value
Female	379 (67.08%)	251 (62.75%)	0.164
Age category			
18–25 year	159 (28.14%)	87 (21.75%)	
26–35 year	169 (29.91%)	88 (22%)	
36–45 year	135 (23.89%)	121 (30.25%)	0.001
46–55 year	68 (12.04%)	74 (18.50%)	
56–65 year	29 (5.13%)	28 (7%)	
66–75 year	4 (0.71%)	2 (0.50%)	
More than 75 years	1 (0.18%)	0	
BMI (Kg/m^2)	25 (21–29)	26 (23–29)	0.009
Smokers			
Never	483 (85.49%)	331 (82.75%)	0.505
Current smokers	71 (12.57%)	59 (14.75%)	

Table-2 Comparison of the SF-36 Domains Between Post-COVID-19 and Non-COVID-19 Participants (Data were Presented as Median and Interquartile Limit)

	No COVID-19 Disease ($n = 565$)	Post-COVID-19 Disease ($n = 1207$)	p-Value
Physical function	85 (50–95)	80 (50–95)	0.157
Role physical	100 (50–100)	75 (25–100)	0.045
Body pain	74 (54–100)	74 (51–100)	0.079
General Health	62 (55–75)	62 (52–75)	0.740
Vitality	55 (45–65)	50 (35–60)	<0.001
Social functioning	75 (50–100)	75 (50–88)	0.129
Role emotional	33 (0–100)	67 (0–100)	0.010
Mental health	56 (44–72)	56 (44–70)	0.372
Reported health change	3 (2–3)	3 (2–4)	<0.001
Physical-component summary	49.70 (41.61–55.62)	48.87 (40.52–55.08)	0.171
Mental-component summary	43.40 (35.53–50.32)	41.46 (32.55–49.36)	0.014

4. Results and Discussion

4.1. Results

The quality of life of COVID-19 patients and controls was compared using the SF-36 questionnaire. Statistically significant differences were found in the role physical domain, role emotional domain, vitality domain, reported health change, and mental components.

4.2. Discussion

In this study, we investigated the effect of COVID-19 on quality of life. We contrasted the reactions of those who had previously had COVID-19 (n = 1207) and those who had never had COVID-19 (n = 565). Although non-COVID-19 participants had somewhat higher SF-36 ratings in several areas, the difference was only statistically significant in the role physical, role emotional, and vitality domains, which measured health change and mental components. Respondents who were infected more than once had significantly lower mean SF-36 scores than those infected once in the following domains: role physical, role emotional, overall health, and mental-components summary. Our study evaluated numerous elements of post-COVID-19 (quality of life) in COVID-19 patients in Surat with controls. Our data indicate that COVID-19 had a stronger detrimental influence on some SF-36 domains than others, which is consistent with prior research. Angarita-Fonseca and colleagues discovered that the most common post-COVID symptoms in Latin America were fatigue, sleep issues, headaches, muscle or joint pain, and dyspnea with exertion. Chen and colleagues compared the quality of life of COVID-19 patients in China one month after hospital release to that of healthy individuals. They discovered that patients had lower physical function, social function, and role physical scores, but higher body pain, overall health, and vitality ratings [8]. Three months after recovering from an acute COVID-19 infection, nonhospitalized patients with mild COVID-19 disease reported significantly worse health status on most SF-36 subscales than patients treated inpatient for critical, severe, and moderate COVID-19 disease, with statistically significant differences in physical and social functioning, energy/fatigue, and pain [9]. A longitudinal UK-based study comparing HRQoL of nonhospitalized COVID-19 patients and controls at baseline and six months using an EQ-5D questionnaire discovered that cases have more difficulty with mobility and everyday activities than controls. Controls showed more difficulty with the pain/discomfort and anxiety/depression domains than cases, although the differences were not statistically significant. In contrast, a study discovered that moderate and severe COVID-19 patients had worsening HRQoL in all SF-36 characteristics two to three months after hospital release compared to controls. Differences in COVID-19 impact on HRQoL could be attributed to study design heterogeneity, such as study timing (during the early months of the pandemic with extreme uncertainty versus the post-vaccination stage), severity of COVID-19 infection, time of HRQoL measurement, vaccination status, and participant sociodemographic. Our data revealed that characteristics linked with lower SF-36 scores included older age, higher BMI, diabetes, higher education status, and smoking. The HRQoL values were substantially higher in men. The findings are consistent with earlier research. [8,9,10]

Conclusion

COVID-19's effects may continue beyond the acute infection phase. These implications include alterations in quality of life. Longer follow-up studies are needed to discover how long the effects of COVID-19 remain and what specific care those individuals require.

Acknowledgements

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