

A PROSPECTIVE STUDY ON HEALTH RELATED QUALITY OF LIFE IN COVID-19 RECOVERED PATIENTS

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ABSTRACT

Health related quality of life (HRQOL) is an important component in assessing people's health. Environmental quality can influence people's quality of life in the physical health, psychological, social relationships and environment domains. Covid-19 has caused a worldwide pandemic and led a huge impact on the health of human and daily life. **Objectives:** The purpose of this study was to evaluate health related quality of life (HRQOL) and persistent symptoms in post COVID-19 patients. **Materials and Methods:** The study was carried out at K R Hospital Mysuru, Karnataka, from November 2020 to April 2021. A total 250 patients were enrolled in the study as per the inclusion and exclusion criteria. Patient demographics and persistent symptoms data were collected using data collection forms. Quality of life was analyzed by WHOQOL-BREF Questionnaire. ANOVA and two-tailed t test of statistical analysis was carried out and P-value of <0.05 was considered as statistically significant. **Results:** Out of 250 participants, males show dominance over females. The WHOQOL was low, psychological (11.02) and social relationship (4.32) had severely decreased mean scores whereas, physical (12.71) and environmental relationship (14.58) had moderately low scores. The most frequently reported persistent symptoms were fatigue (62.4%), dyspnea (36.8%), cough (36.8%) and sleep disturbances (35.2%). **Conclusion:** The mean score for WHOQOL-BREF in post-COVID19 patients was low. The HRQOL of discharged COVID-19 patients did not come back to normal even at second month after discharge and affected by aging, smoking and persistent symptoms after discharge.

KEYWORDS: Health related quality of life (HRQOL), COVID-19, Persistent symptoms, World Health Organization quality of life- Brief (WHOQOL-BREF).

INTRODUCTION

The coronavirus disease 19 (covid-19) is an infectious disease caused by the relentless spread of the severe acute respiratory coronavirus 2 (SARS-CoV2) from human to human all over the world.^[1] Severe acute respiratory infection symptoms usually occur in the early stages of this disease. Some patients rapidly develop acute respiratory distress syndrome^[2] and other serious complications. In addition to the pulmonary system, covid-19 can impact on multiple organ system including neurological^[3] cardiovascular^[4] hematopoietic^[5] and physiological.^[6]

Health related quality of life (HRQOL) is defined as a subjective feeling by patients of the multifaceted effect

of a disease.^[7] QOL is an important component in assessing people's health. It commonly focuses on physical and mental health and functional performance of individuals, however quality of life can be measured in a broad range. The World health organization quality of life: Brief version (WHOQOL-BREF) assesses quality of life in four domains including physical health, psychological, social relationship and environment.^[8]

QOL refers to individuals 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. The quality of life in the 4 domains can be affected by variety of factors like age, sex, rural and urban areas^{[9][10]} and health and

disease status.^[11]

After the outbreak of the covid-19 pandemic there has been little attention on the health-related quality of life of covid-19 patients after discharge from the hospital. Covid-19 patients with serious disease (moderate to severe pneumonia) may have ongoing or chronic symptoms (dyspnea, asthenia, fatigue),^[12] persistent impairment of lung function and exercise ability and psychological or psychosocial issues, all of which may affect the daily functioning and HRQOL in the short and long-term.^{[13][14]}

The quality of both the physical and built environment can influence people's perception of general health will being and QOL especially to the youth and elderly.^[15]

Our study into, using the WHOQOL-BREF, to evaluate the impact of covid-19 in HRQOL and persistent symptoms in patients who have recovered and been discharged from the hospital.

MATERIALS AND METHODOLOGY

This is a hospital based prospective observational study. It was conducted at K R Hospital, Mysore. The study duration was a period of six months from November 2020 - April 2021. The data were collected from the patient case records and other relevant sources after getting informed consent. During the study period, we attended 250 participants of all age groups. The patients who were pregnant, non-covid19 infected patients were excluded from the study.

Ethical approval was obtained from the Institutional Ethical Committee of Mysore Medical College and Research Institute, K R Hospital; Mysuru.

Importance of the study was explained to the participants

and informed consent was retrieved from all the subjects participated in the study. The data were collected from the patients using questionnaire (WHOQOL-BREF) and data collection form. The statistical analysis was done by using SPSS and analyzed using the statistical like ANOVA and two-tailed t-test and the results were compared.

RESULTS

Two fifty eight COVID-19 recovered patients were enrolled in the study. Among those, 5 subjects did not follow up, 3 subjects provided incomplete data. A total of 250 participants were available for analysis.

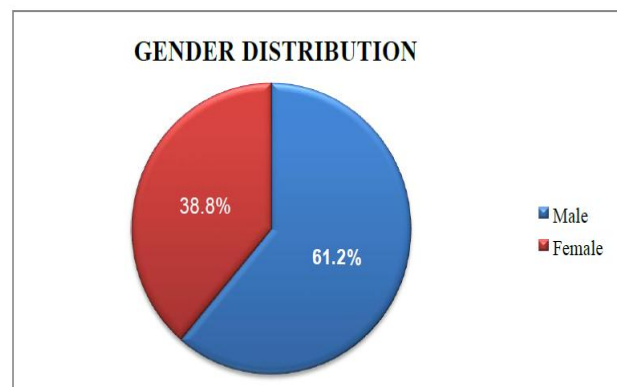


Figure 1: Gender Distribution in study population.

The study participants included 153 men (61.2%) and 97 women (38.8%) (Figure 1) with mean age (SD) was 48.8 (17.54). 13 subjects belong to the group of 1-18 years and 69 subjects were above 60 years. More than half of the patients were aged within 18-60 years (n=168) (Figure 2). Baseline characteristics of the participants were collected (Table 1).

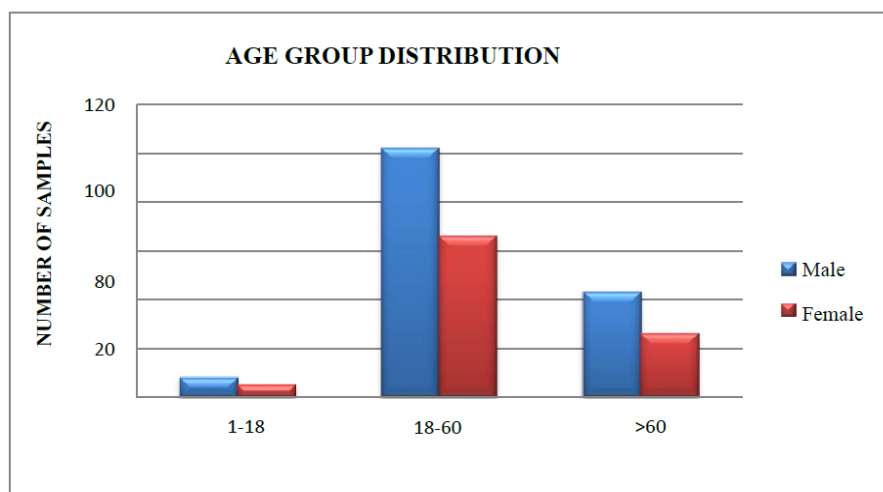


Figure 2: Age group distribution in the study population.

Smoking status was defined in 3 categories: Active, Former, None. Among 250 participants 19 (17.6%) active smoker, 33 (13.2%) were former smoker & 198

subjects never smoked.

Patients hospitalized to ward 201(80.4%) was

significantly high when compared to ICU admissions. 49 (19.6%) in Table 1, with mean length of stay of 10.15 days for female and 10.46 days for male group.

The follow up for the persistent symptoms of patient was carried out with mean duration of 28.5 days and 30.2 days among female & male patients respectively.

Table 1: Baseline characteristics

Baseline characteristics	Male N = 153	Female N = 97	P-value
Age (years)			
1-18	8	5	0.097
18-60	102	66	0.097
>60	43	26	0.085
Smoking			
None	101	97	0.00
Active	19	0	
Former	33	0	
Length of stay(mean)In days	10.46	10.15	0.036
Hospitalization (%)			
Ward	125 (81.7%)	76 (78.4%)	0.031
ICU	28 (18.3%)	21 (21.6%)	
Oxygen requirement(%)			
Yes	72 (47.1%)	47 (48.5%)	0.046
No	81 (52.9%)	50 (51.5%)	
Follow up duration(mean) In days	30.2	28.5	0.030

Our secondary objective being assessing the persistent symptoms in post COVID-19 patients. The symptoms was divided into two groups ≥ 1 symptoms and ≥ 3 symptoms.

On assessing the persistent symptoms either gender have 45.2% (113) had ≥ 3 symptoms with pvalue 0.021. The data among either gender is given below. (Table 2, Figure 3).

Table 2: Persistent symptoms distribution in gender.

	Male	Female
≥ 1 symptoms	47.7% (73)	41.2% (40)
≥ 3 symptoms	52.3% (80)	53.7% (57)
Total	Count 153	Count 97
	100%	100%

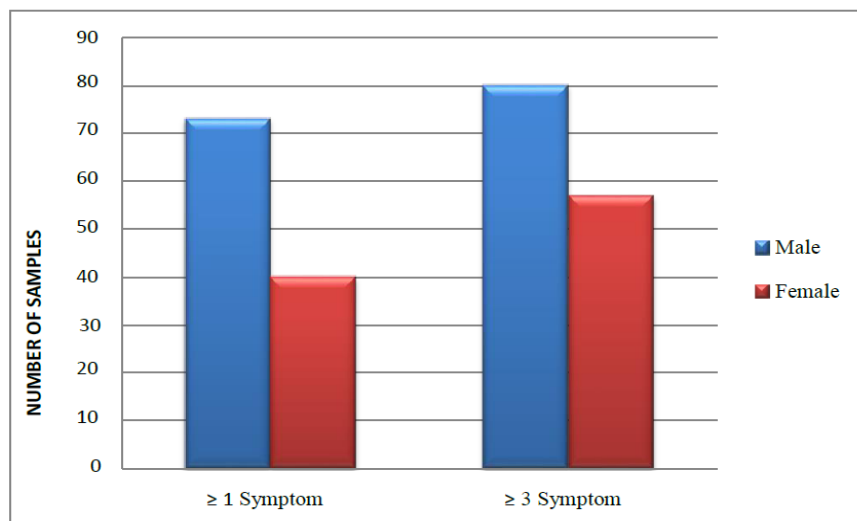


Figure 3: Persistent symptoms distribution in gender.

The persistent symptoms was categorized as, General Sequelae which includes fatigue 62.4% (156), joint pain 36.0% (90), muscular pain 30.8 (77), fever 6.4 (16).Respiratory sequelae includes dyspnea 36.8% (92), cough 36.8% (92), chest pain 6.8% (17) & palpitations 22.0% (55) was observed in Cardiovascular sequelae.

Neuropsychiatric sequelae which includes anxiety 16.4%(41), depression 10.8% (27), loss of taste/smell 31.6 (79) & headache 26.4 (66). Gastrointestinal sequelae which includes diarrhea 6.4% (166) was observed to be occurring less common in post COVID-19 patient. On observing Dermatology sequelae trend

there was symptoms of hair loss 6.0% (15) & skin rash 6.4 (16).

Table 3: Sequelae of persistent symptoms.

Persistent symptoms	Male N = 153	Female N = 97	P-value
Persistent symptoms			
≥1 symptoms	73	40	0.02
≥3 symptoms	80	47	
General sequelae (%)	93 (60.8%)	63 (64.9%)	0.031
Fatigue	55 (35.9%)	35 (36.1%)	0.054
Joint pain	47 (30.8%)	30 (30.9%)	0.060
Muscular pain	10 (6.5%)	6 (6.2%)	0.056
Fever			
Cardiovascular sequelae (%)	33 (21.6%)	22 (22.7%)	0.047
Palpitation	10 (6.5%)	7 (7.2%)	0.051
Chest Pain			
Respiratory sequelae (%)	58 (37.9%)	34 (35.1%)	0.037
Dyspnea	51 (33.3%)	41 (42.3%)	0.050
Cough			
Neuropsychiatric sequelae (%)	24 (15.7%)	17 (17.5%)	0.041
Anxiety	17 (11.1%)	10 (10.3%)	0.050
Depression	50 (32.7%)	38 (39.2%)	0.018
Sleep disturbance	43 (28.1%)	36 (37.1%)	0.088
Loss of taste/smell	35 (22.9%)	31 (32.0%)	0.075
Headache			
Gastrointestinal sequelae (%)	7 (4.6%)	9 (9.3%)	0.113
Diarrhea			
Dermatological sequelae (%)	5 (3.3%)	10 (10.3%)	0.023
Hair loss	7 (4.6%)	9 (9.3%)	0.113
Skin rash			

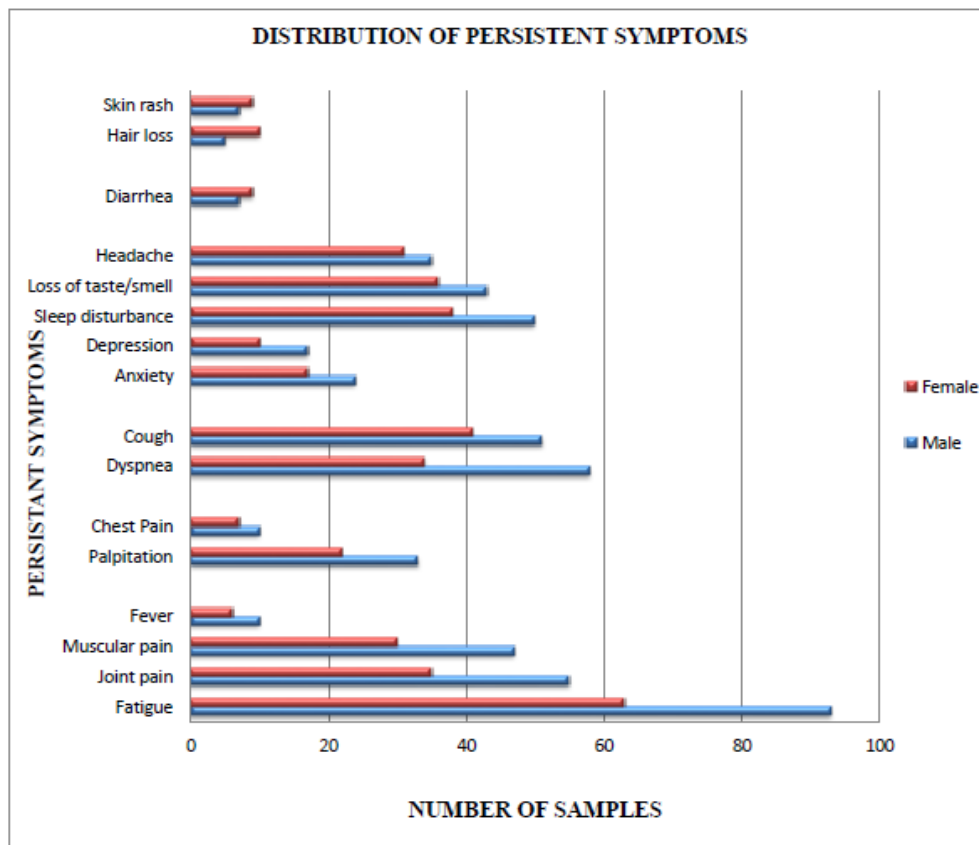


Figure 4: Distribution of persistent symptoms.

Switching to the main Quality of life of post COVID-19 patient was observed to be low in this following study (Table 3, Figure 4).

The four domain scores in WHOQOL-BREF denote an individual's perception of quality of life in each particular domain. Domain scores are scaled in a positive direction (i.e., higher scores denote higher quality of life). The mean score of items within each domain is used to calculate the domain scores.

Firstly Physical health (Domain 1) had a mean value of 12.81 with 3.8 SD in males & mean of 12.56 with 3.5 SD in females.

The Psychological health (Domain 2) had a mean of 11.09 with 3.2 SD in males & 10.0 mean with 3.1 SD in females.

Social relationships (Domain 3) as observed to be one of the major factor leading to the low Quality of life even after recovering from COVID-19. The mean value was 4.41 in males where females had 4.16.

The Environmental health (Domain 4) was also minimum with mean of 14.52 in males & 14.69 in females and the datais detailed (Table 4, Figure 5).

Table 4: WHOQOL-BREF Scale.

WHOQOL- BREF Scale	Male N = 153		FemaleN = 97		P-value
	Mean	SD	Mean	SD	
Domain 1	12.8	3.89	12.56	3.5	0.050
Domain 2	11.09	3.2	10.90	3.1	0.041
Domain 3	4.41	2.04	4.16	1.6	0.031
Domain 4	14.5	3.6	14.69	3.7	0.021

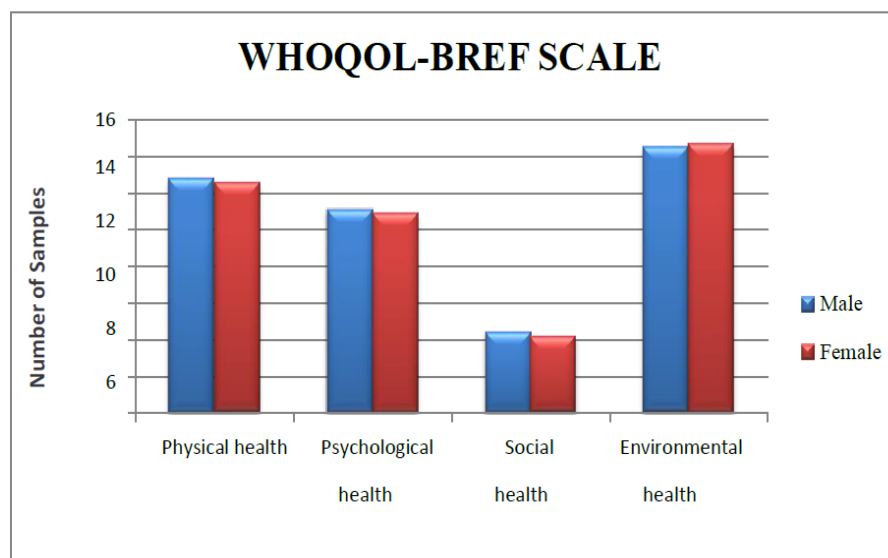


Figure 5: WHOQOL-BREF Scale

DISCUSSION

Quality of life as a measurement can identify groups with physical or mental health problems and provide a guide to intervention and follow up evaluation.^[1]

One of the major objective of this study was to evaluate the quality of life in COVID-19 recovered patients with use of the Kannada and English version of the WHOQOL-BREF Questionnaire by utilizing medical record abstraction and telephone survey.

Along with the primary objective, the study also assessed the persistent symptoms as a secondary objective. This study was carried out in K R hospital, Mysuru over a period of six months.

Among 250 participants, we found that male patients (61.2%) were predominant while compared to female patients (38.8%). This was similar to the study conducted by **Arnold DT et al., 2020.**^[16]

For the HRQOL of COVID-19 patients after discharge from hospital, we found that the scores of all the dimensions of WHOQOL-BREF were lower, which indicated that the HRQOL of COVID-19 patients was impaired and did notrecovered to normal, even at 1, 1.5 and 2 months after discharge. These findings were consistent with previous studies **Santus et al., 2020;**^[17] **Van der sar -van der Brugge et al., 2020.**^[18]

Nevertheless, the findings of our study was partly

different with a follow up study conducted by **Chen K et al., 2020**^[19] who found that at one month after discharge, there was no difference in scores of the domains.

In our study, we found average of 12.71 of patients displayed poor physical health, 11.02 average of displayed poor psychological health, 4.32 decreased social relationships, 14.58 environmental health. And male (61.2%) patients were predominantly impaired than females (38.8%). This was contrary to the **Guangbo et al., 2021** study.^[20]

Of the total participants 45.2% had ≥ 1 symptoms and 54.8% had ≥ 3 symptoms ($P=0.02$). Among this 62.4% of patients reported fatigue, 36.8% of them had dyspnea and cough, which was most commonly reported. While other persistent symptoms includes joint pain (36%), muscular pain (30.8), sleep disturbances (35.2%) and loss of taste/smell (31.6%). Similar findings were reported from studies in Europe by **Casfi A et al., 2020**^[21], **Carvalho Schneider et al., 2021**^[22] **Moreno Perez et al., 2021**.^[23]

The wide range of symptoms and reduced HRQOL seen in this study re-enforced the importance of a holistic approach advocated by the BTS and other guidelines.^{[24][25]}

CONCLUSION

The present study display that most post-COVID19 participants who has underwent a WHOQOL-BREF Scale assessment exhibit the low mean score of quality of life which is influenced by decreased physical activities, psychological health, social relationships and environmental health of the subjects, even after discharged from the hospital. Fatigue, dyspnea, cough and sleep disturbances are the dominant enduring symptoms observed to be statistically significant in our study participants.

Along with that even the risk factor like age, smoking and persistent symptoms also instigate lower quality of life. Early post-acute evaluation of symptoms and their impact on function is necessary to plan community-based services.

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