

A study of clinical profile, sequelae of COVID, and satisfaction of inpatient care at a government COVID care hospital in Karnataka

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ABSTRACT

Background: Coronavirus disease 2019 (COVID-19) is caused by SARS-CoV-2 virus has increased the morbidity and mortality across the world. The most common symptoms are fever, dry cough, tiredness, and the least common symptoms are aches and pains, sore throat, diarrhoea, conjunctivitis, headache and loss of taste or smell. In this current pandemic, the number of COVID-19 survivors being discharged from the hospital is increasing day by day and the long-term effect among the survivors is also increasing. Fatigue and dyspnea were the most reported Post COVID symptoms. The presence of these symptoms is also known as “Long COVID”. COVID-19 disease has not only affected the physical health but also the mental health of the patients which also had led to decrease in their quality of life. **Material and Methods:** A retrospective cross-sectional study was conducted among 35 patients who were admitted in District hospital in Mysuru during the month of October 2020. Purposive Sampling was adopted for selecting the patients. Data was collected through telephone after their discharge. Data were entered in Microsoft Excel sheet and analysed using SPSS trial version 23. Descriptive statistics such as percentages and proportions were calculated. To see the association between the variables, Chi-square test, Fischer’s exact test was used. $P < 0.05$ was taken as statistically significant. **Results:** The mean age of the study participants was 49.1 years. Majority of them had fever (68.6%) followed by Myalgia (65.7%), cough (60%), fatigue (42.9%), headache (37.1%) Majority of the patients had no symptoms after discharge (65.7%). After being discharged from the hospital, 22.9% of patients had difficulty in sleeping, 17.1% had loss of taste/smell and fatigue, 8.6% of them had breathlessness and 5.7% of the patients had a change in voice and loss of appetite. **Conclusion:** With the increasing number of cases across the world, we will most likely face an ongoing wave of COVID-19 sequelae. To Prevent this, an extensive rehabilitation program is necessary for patients during hospitalization and after discharge.

Keywords: Clinical profile, COVID-19, sequelae

Introduction

Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), the microorganism responsible for the coronavirus disease 2019 (COVID-19) pandemic, has increased the morbidity and mortality across the world.^[1] COVID 19 is an infectious disease,

emerged in Wuhan, China in December 2019.^[2] The severe infectious and rapid progression of the COVID-19 disease created a global public health attention.^[3] The outbreak was declared a public health emergency of international concern on January 30, 2020 and was later announced as a pandemic on March 11, 2020. The main route of transmission of COVID-19 is through droplets of saliva or discharge from nose when an infected individual coughs or sneezes. The most common symptoms are fever, dry cough, and tiredness, and the least common symptoms are aches and pains, sore throat, diarrhea, conjunctivitis, headache, and loss of taste or

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smell. Some infected persons remain asymptomatic and do not feel unwell.^[4] Though SARS-CoV-2 primarily affects the respiratory system, various studies and reports specified that COVID-19 is a multisystem infection with apparent health consequences.^[5] In this current pandemic, the number of COVID-19 survivors being discharged from the hospital is increasing day by day and the long-term effects among the survivors are also increasing.^[6] An Italian study reported that 32% of the hospitalized patients had complaints of persistence of one or two COVID-19 symptoms and 55% reported three or more symptoms after being discharged. Fatigue (53.1%) and dyspnea (43.4%) were the most reported post-COVID symptoms. The presence of these symptoms are also known as “Long COVID”.^[7] Early reports indicated that the residual effects of SARS-CoV-2 infection like fatigue, dyspnea, chest pain, cognitive disturbance, arthralgia, and also decline in quality of life (QOL).^[7,8] COVID-19 disease has not only affected the physical health but also the mental health of the patients which also had led to decrease in their QOL.^[9] The primary care physicians, being the forefront people in this COVID-19 pandemic, have faced a tremendous pressure while providing primary care for the COVID-19 affected people. In addition, to the nonspecific manifestations of COVID-19 more pressure is among the primary care physicians. After the pandemic, the primary care has expanded to a greater extent.^[10,11] In this view, current pandemic and as most of the research articles have focused on the clinical profile separately and sequelae separately, here in this study, we concentrated to study the clinical profile, sequelae, and QOL of the COVID-19 patients along with their satisfaction level with inpatient care.

Objectives

1. To study the clinical profile of COVID 19 inpatients at the government COVID care hospital.
2. To identify the post-COVID sequelae and QOL of the patients after discharge.
3. To assess the patient's satisfaction level during the hospital stay.

Materials and Methods

A retrospective cross-sectional study was conducted among 35 patients who were admitted in District hospital in Mysuru during the month of October 2020. Ethical clearance was obtained from the Institutional Ethical Committee. Data were collected through telephone after their discharge. Informed consent was obtained from the participants as the very first question in the beginning of the interview. Purposive sampling was adopted for selecting the patients. Then, the sociodemographic information of the patients, the clinical characteristics during their infection with COVID-19 were collected. In addition, their satisfaction level during the hospital stay was assessed and finally the post-COVID sequelae and QOL after COVID-19 infection was also assessed. Anonymity and confidentiality of the responses were assured to the participants taking part in the study.

European Five-Dimensional Health Scale was used to assess QOL among the patients. It is a self-completed instrument for describing and assessing the quality of health states. It measures five dimensions of health: Mobility, self-care, usual activities, pain/discomfort, and anxiety/depression. Each dimension has three levels, corresponding to “no problem,” “some problem,” and “extreme problem,” allowing for 243 possible health combinations.

Statistical analysis

Data were entered in Microsoft Excel sheet and analyzed using SPSS trial version 23. Descriptive statistics such as percentages and proportions were calculated. To see the association between the variables, Chi-square test and Fischer's exact tests were used. $P < 0.05$ was taken as statistically significant.

Results

A total of 35 patients' clinical information were collected in this study who were admitted at district hospital in Mysore. The mean age of the study participants was 49.1 years. Among the 35 patients [Table 1], 25 (71.4%) of them were males and 29 (82.9%) of them were married and 24 (68.6%) of them belonged to the urban area. Of the 35 patients, 36.1% ($n = 13$) were graduates. Most of the respondents were unemployed (34.3%) and most of them were belonging to middle class (28.6%) and lower middle class (28.6%) [Table 1].

Table 1: Sociodemographic profile of the patients

Variables	Categories	Frequency (%)
Age (Mean, SD)		49.1, 12.3
Gender	Male	25 (71.4%)
	Female	10 (28.6%)
Residence	Urban	24 (68.6%)
	Rural	11 (31.4%)
Marital status	Married	29 (82.9%)
	Unmarried	6 (17.1%)
Literacy	Illiterate	2 (5.7%)
	Primary school	6 (17.1%)
	High school	4 (11.4%)
	PUC	10 (28.6%)
Occupation	Graduate	13 (36.1%)
	Unemployed	12 (34.3%)
	Unskilled	5 (14.3%)
	Semi-skilled	6 (17.1%)
	Skilled	9 (25.7%)
Socioeconomic status	Highly skilled	3 (8.6%)
	Upper class	6 (17.1%)
	Upper-middle class	6 (17.1%)
	Middle class	10 (28.6%)
	Lower-middle class	10 (28.6%)
Family size	Lower class	3 (8.6%)
	1-4	16 (45.7%)
	5-7	15 (42.9%)
	>8	4 (11.4%)

Table 2 shows the clinical and hospital characteristics of the patients. For 45.7% of the patients, the suspected place of contact was the hospital and 34.3% of them did not know the place of contact. Among presentation of symptoms, majority of them had fever (68.6%) followed by myalgia (65.7%), cough (60%), fatigue (42.9%), headache (37.1%), etc. Of the 35 patients, 65.7%

Table 2: Clinical and hospital characteristics of the patients

Variables	Categories	Frequency (%)
Suspected place of contact	Home	4 (11.4%)
	Working place	2 (5.7%)
	Market	1 (2.9%)
	Hospital	16 (45.7%)
	Unknown	12 (34.3%)
Presentation	Asymptomatic	9 (25.7%)
	Symptomatic	26 (74.3%)
Symptoms*	Fever	24 (68.6%)
	Cough	21 (60%)
	Myalgia	23 (65.7%)
	Breathlessness	4 (11.4%)
	Sore throat	5 (14.3%)
	Fatigue	15 (42.9%)
	Headache	13 (37.1%)
	Nausea	2 (5.7%)
	Vomiting	7 (20%)
	Diarrhoea	3 (8.6%)
	Runny nose	12 (34.3)
	Loss of appetite/smell	10 (28.6%)
Duration of symptoms	< 7 days	26 (65.7%)
	7–14 days	6 (17.1%)
	>14 days	3 (8.6%)
Duration of stay in hospital	< 7 days	20 (57.1%)
	7–14 days	10 (28.6%)
	>14 days	5 (14.3%)
Admission in ICU	Yes	5 (14.3%)
	No	30 (85.7%)
Investigations	Blood	26 (74.3%)
	Chest X-ray	27 (77.1%)
	CT scan	7 (20%)
Chest X-ray (n=27)	Normal	25 (92.6%)
	Bilateral pneumonia	2 (7.4%)
CT scan (n=7)	Unilateral pneumonia	0 (0)
	Normal	5 (71.4%)
	Bilateral pneumonia	2 (28.6%)
Comorbidities	Unilateral pneumonia	0 (0)
	Diabetes	10 (28.6%)
	Hypertension	8 (22.9%)
	Heart disease	1 (2.9%)
	Others	4 (11.4%)
Treatment given	No comorbidities	12 (34.3)
	Antibiotic	35 (100%)
	Hydroxychloroquine	5 (14.3%)
	Antivirals	17 (48.6%)
	Corticosteroids	4 (11.4%)
	Oxygen therapy	12 (34.3%)
On ventilator	8 (22.7%)	

*Not mutually exclusive

of them had symptoms for less than 7 days duration and 57.1% of them stayed in hospital for less than 7 days duration and 28.6% of the patients stayed between 7 and 14 days duration. The average days of stay in hospital by these patients was 10.6 days. Among the 35 patients, 14.3% had availed ICU care. The blood investigations were done for 74.3% ($n = 26$) of the patients, chest X-ray for 77.1% ($n = 27$), and CT scan for 20% ($n = 7$). In chest X-ray, only 2 (7.4%) had bilateral pneumonia and 25 (92.6%) patients' chest X-ray were normal. In CT scan, two (28.6%) patients had bilateral pneumonia and five (71.4%) members CT scan were normal. Among the participants, 28.6% had diabetes, 22.9% had hypertension, and 2.9% had heart disease. All 35 patients received antibiotics, whereas 17 (48.6%) patients received antivirals, 5 (14.3%) received hydroxychloroquine, and 4 (11.4%) patients received corticosteroids. Among 35 patients, 12 (34.3%) patients were put on oxygen therapy and 8 (22.7%) patients were put on ventilators.

Among the three service categories, which were used to assess the net overall satisfaction rate of patients, the majority of the patients were satisfied with all the services under service utilization-related information, patient and health care provider interaction, and facility-related information. This study finding showed that most of the study participants 29 (82.9%) were satisfied with information provided on the available service by the staffs, 23 (71.4%) with admission processes of the hospital, and 26 (74.3%) with waiting time to get service. In patient and health care provider interaction, a total of 32 (91.4%) patients claimed that they were satisfied with the physician service. The highest dissatisfaction proportion in this study was registered regarding the cleanliness status of the wards and toilets in the hospital. A total of five (14.3%) patients claimed that they were very dissatisfied with the cleanliness of the wards and toilets in the hospital [Table 3].

Table 4 shows the postdischarge sequelae of the patients. Majority of the patients had no symptoms after discharge (65.7%). After being discharged from the hospital, 22.9% of patients had difficulty in sleeping, 17.1% had loss of taste/smell and fatigue, 8.6% of them had breathlessness, and 5.7% of the patients had a change in voice and loss of appetite. Among the 35 patients, 5 (14.3%) had used health services after discharge. The reason for the usage of health services after discharge was due to breathlessness, fever, diarrhea, and difficulty in sleep by the patients.

According to Table 5, variables which were found to have statistically significant association were self-care and sex of the patients (P -value < 0.05), anxiety/depression and sex of the patients (P -value < 0.05), self-care and age of the patients (P -value < 0.05), pain/discomfort and age of the patients (P -value < 0.05), mobility and duration of stay in hospital (P -value < 0.05), usual activities and duration of stay in hospital (P -value < 0.05), and mobility and admission in ICU also had a statistically significant association.

Table 3: Satisfaction levels of patients with inpatients care

Variables	Dissatisfied	Neutral	Satisfied
Service utilization-related information			
Information on services provided	1 (2.9%)	5 (14.3%)	29 (82.9%)
Admitting processes of the hospital	3 (8.6%)	7 (20%)	23 (71.4%)
Waiting time to receive service	1 (2.9%)	8 (22.9%)	26 (74.3%)
Patients and healthcare provider Interaction			
Nursing care	1 (2.9%)	3 (8.6%)	31 (88.6%)
Physician service	0 (0)	3 (8.6%)	32 (91.4%)
Health education provided by health workers	1 (2.9%)	7 (20%)	27 (77.1%)
Facility amenity-related information			
Room accommodation	4 (11.4%)	6 (17.1%)	25 (71.4%)
Dietary service given by hospital	4 (11.4%)	6 (17.1%)	25 (71.4%)
Toilet cleanliness	5 (14.3%)	4 (11.4%)	26 (74.3%)
Ward cleanliness	5 (14.3%)	3 (8.6%)	27 (77.1%)
Bed cleanliness	4 (11.4%)	3 (8.6%)	28 (80%)

Table 4: Post discharge sequelae of the patients

Variables	Categories	Frequency (%)
Symptoms after discharge	Asymptomatic	23 (65.7%)
	Fatigue	8 (22.9%)
	Breathlessness	3 (8.6%)
	Change in voice	2 (5.7%)
	Loss of appetite	2 (5.7%)
	Difficulty in sleeping	6 (17.1%)
	Loss of taste/smell	6 (17.1%)
Usage of health services after discharge	Yes	5 (14.3%)
	No	30 (85.7%)
Reasons for usage of health services after discharge (n=5)	Breathlessness	1 (20%)
	Difficulty in sleep	1 (20%)
	Fever	2 (40%)
	Diarrhoea	1 (20%)

Discussion

As of July 31, 2021, the total number of COVID-19 cases across the world was 197 million and in India it was around 31.6 million cases.^[12] With the increase in the number of active COVID-19 cases, the clinical characteristics of the patients along with their sequelae were studied in this study. The mean age of the patients in this study was 49.1 years, and the median age of the patients was 48. This was in consonance with studies done by Han *et al.*^[13] and Zhao *et al.*^[14] in China and similar to Kayina *et al.*^[15] and Dosi *et al.*^[16] in India. In this study, the males [71.4%] were more commonly affected which was almost similar to study done by Kayina *et al.*^[15] and Saxena *et al.*^[17] This might be due to the fact as majority of the working population in our country are males, so the chances of contact with infected person are more among males. However, along with the social factors, genetic, hormonal difference, and immunological factors also might play important role in the gender disparity.^[17] The most commonly reported symptoms in this study were fever (68.6%), myalgia (65.7%), and cough (60%). Similarly, in a study done by Kayina *et al.*^[15] the most commonly reported symptom was fever (68.1%), but in study done by Saxena *et al.*^[17] the commonly reported symptom was cough (49.3%) followed by fever (47.1%). In total, 25.7% of the patients were asymptomatic in this study. This was in contrast with studies done by Saxena *et al.* (40%)^[17] and

Chen *et al.*^[18] (40–45%). Diabetes and hypertension were the most commonly reported symptoms in this study. This was similar to studies done by Singh *et al.*,^[19] Scheen *et al.*,^[20] and Saxena *et al.*^[17] COVID-19 patients with diabetes are likely to experience hypoxia and will need ventilation control in intensive care unit patients as compared with patients without diabetes. Similarly, people with diabetes and hypertension are likely to have a significantly higher risk of respiratory infection.^[21]

In our study, majority of them did not have any symptoms (65.7%) post discharge, but around 22.9% of the patients reported fatigue as post-discharge symptom followed by difficulty in sleeping and loss of taste and smell among 17.1% patients. This was in consonance with the studies conducted in Italy, the United Kingdom, and Egypt where fatigue was found to be the most common post-COVID-19 symptom.^[7,22,23] Moreover, postrecovery fatigue is common following infection with Coxsackie B viruses, arboviruses, human herpes virus-6, Epstein–Barr virus, and cytomegalovirus.^[24] During the previous outbreaks of SARS and MERS outbreak, some patients had also developed chronic fatigue syndrome.^[25] The primary care physicians should be involved in planning the health infrastructure for the current and future health emergencies because they are the forefront people to the public and they will help for a successful health emergency plan.^[10]

Conclusion

Patients with COVID-19 require long-term follow-up even after recovery, for the observation of their post-COVID symptoms. With the increase number of cases across the world, we will most likely face an ongoing wave of COVID-19 sequelae. To prevent this, an extensive rehabilitation program is necessary for patients during hospitalization and after discharge. In this current pandemic as the health facilities are overwhelmed, it will be difficult to follow-up all patients, but special care should be given to patients who had respiratory distress, patients with lethargy, and patients with symptoms for a prolonged duration. Further studies in this regard will help in better understanding of this very important aspect of the COVID-19 pandemic and aid

Table 5: Association between five dimensions of EQ-5D and influencing factors

	Mobility			Self-care			Usual activities			Pain/Discomfort			Anxiety/Depression		
	No	Some or extreme	P	No	Some or extreme	P	No	Some or extreme	P	No	Some or extreme	P	No	Some or extreme	P
Sex															
Male	17	8	0.269	24	1	0.029	21	4	0.140	20	5	0.411	21	4	0.038
Female	5	5		7	3		6	4		7	3		5	5	
Age															
18-25	10	3	0.415	13	0	0.047	12	1	0.130	13	0	0.035	10	3	0.297
45-60	7	6		12	1		10	3		9	4		11	2	
>60	5	4		6	3		5	4		5	4		5	4	
Marital Status															
Married	18	11	0.608	25	4	0.454	21	8	0.182	21	8	0.182	21	8	0.507
Unmarried	4	2		6	0		6	0		6	0		5	1	
Education level															
Illiterate	2	0	0.393	2	0	0.765	2	0	0.871	2	0	0.542	2	0	0.614
Primary School	5	1		5	1		5	1		5	1		4	2	
High School	3	1		4	0		3	1		2	2		3	1	
PUC	6	4		8	2		8	2		7	3		6	4	
Graduate and above	6	7		12	1		9	4		11	2		11	2	
Occupation															
Unemployed	8	4	0.311	9	3	0.338	8	4	0.636	7	5	0.130	8	4	0.464
Unskilled	5	0		5	0		5	0		5	0		5	0	
Semiskilled	3	3		5	1		5	1		4	2		4	2	
Skilled	5	4		9	0		7	2		9	0		6	3	
Highly skilled	1	2		3	0		2	1		2	1		3	0	
Socioeconomic class															
Upper class	2	4	0.366	6	0	0.495	4	2	0.786	5	1	0.581	6	0	0.184
Upper middle class	4	2		6	0		5	1		5	1		3	3	
Middle class	6	4		8	2		7	3		6	4		8	2	
Lower middle class	7	3		8	2		8	2		8	2		6	4	
Lower class	3	0		3	0		3	0		3	0		3	0	
Duration of stay in hospital															
<7 days	17	3	0.007	19	1	0.386	19	1	0.013	16	4	0.084	16	4	0.615
7-14 days	2	3		4	1		3	2		2	3		3	2	
>14 days	3	7		8	2		5	5		9	1		7	3	
Admission in ICU															
Yes	1	4	0.05	3	2	0.089	2	3	0.067	4	1	0.681	3	2	0.383
No	21	9		28	2		25	5		23	7		23	7	

in designing effective preventive and control strategies to tackle this problem. In this study, altogether we have assessed the clinical profile of COVID-19 patients, the post-COVID sequelae, their QOL after recovering from COVID, and also their satisfaction level during the hospital stay. To the best of our knowledge, there are very few studies who have studied all these factors together among the same patients. This is one novel idea which we have adopted in our study for better planning of health infrastructure. In a pandemic situation, it is important to look at the long-term morbidity rather than just mortality due to the disease.

Key Points:

- Clinical profile of COVID-19 patients in our setup was similar to cases elsewhere.
- Quality of in-patient care is an important parameter for people to come forward for testing and treatment.
- COVID 19 is likely to have long-term morbidity in some patients which should be promptly addressed.

Limitations

The study was restricted to one public sector hospital of Mysuru district. So, the result cannot be generalized to the whole population because of the probable variations in the sociodemographic characteristics. Nonprobability method of sampling was used due to feasibility issues.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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