

# **Socio-Demographic Characteristics and Outcome of Patients Affected by Covid-19 Virus Reported to a Tertiary Care Hospital Ajman, United Arab Emirates**

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## **Abstract**

The goal of this study was to assess association between social demographic characteristic including Age and gender, patients past medical history, and outcome of Covid-19 admitted cases. Data was collected from the electronic data base of Thumbay hospital Ajman UAE. All registered cases of Covid-19 from January 2020 to August 2021 were included in the research. The study identified that individuals above 40 years were more susceptible to Covid-19, with a higher prevalence in males than females. Diabetes mellitus emerged as the most common non-communicable disease among patients. The majority of cases were categorized as mild, followed by moderate, with a smaller proportion classified as severe. Notably, a significant percentage of cases showed improvement, while a minority experienced complication, and a small percentage resulted in mortality. Overall, this study provides valuable insights into the demographics and outcomes of Covid-19 patients in the specified healthcare setting. Capturing and understanding the information is important to state preventive measures that can help in reducing the number of cases in the country.

**Keywords:** COVID-19 outcomes, Risk Factors.

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## 1. Introduction

Since the start of the pandemic in 2019, researches have been doing ongoing research about the risk factors associated to be able to set preventive measures and treatment options, in order to limit down the morbidity and mortality rates.

The purpose of the study was to identify the risk factors that increases Covid morbidity and mortality rates, to express the percentage of impact on both gender and age groups wise, as well as social factors and their effect, and finally comorbidities and their outcome.

### 1.1 Factors associated with outcome of Covid

There are a lot of factors that are associated with the outcome of Covid-19 disease, which might affect the morbidity and mortality rates. These factors may include age, gender, occupational factors, medical conditions, physical factors, psychological factors, social factors, family factors, and the use of personal protective equipment.

#### 1.1.1 Age

There are mixed opinions regarding the influence of age on COVID-19 morbidity and mortality. Several studies have reported higher mortality and morbidity associated with elderly [1]. Approximately 90% of deaths have occurred in patients aged  $\geq 60$  years in Korea and Italy, respectively [2]. In addition, in China and Korea, severity of COVID-19 was linked to middle or younger age groups. [3]

#### 1.1.2 Gender

Regarding gender, many studies reported the influence of sex and gender on the mortality and morbidity of COVID-19. In a systematic review and metanalysis done by Ortolan et al., they found that Males are slightly more susceptible to COVID-19 (M:F ratio 1:0.9), and they tend to have more severe symptoms than females. In addition, they found that mortality is twice as high in males than in females.

#### 1.1.3 Occupational Factors

Occupational hazard of transmitting the virus among employees has increased since the beginning of the pandemic. According to data from the labor force survey conducted in April 2020 (during the first lockdown), over half of employed persons (46.6 percent) did some of their job from home, with the vast majority (86.0 percent) of these homeworkers citing the coronavirus (COVID-19) pandemic as the reason. People between the ages of 16 and 24 were less likely to work from home. Home Working opportunities were more prevalent in higher-skilled and experienced occupations than in lower-skilled and manual occupations. In different occupational groups, there were significant differences in the proportion of people who worked from home. Health care professions has the highest rate of getting the virus than any other occupation [4].

## 1.2 Medical conditions association with the risk of infection with Covid-19.

Most comorbidities were associated with increased risk, including cardiovascular disease, diabetes, respiratory disease (including severe asthma), obesity, a history of hematological malignancy or recent other cancer, kidney, liver and neurological diseases, and autoimmune conditions. The kidney and the RAS exert fundamental roles in the SARS-CoV-2 infection [5]. South Asian and Black people had a substantially higher risk of COVID-19-related death than white people, and this was only partly attributable to comorbidities, deprivation or other factors. A strong association between deprivation and risk was also only partly explained by comorbidities or other factors [6].

A cross-sectional study conducted in Saudi Arabia reported that factors associated were older age, comorbidities, venous thromboembolism, pneumonia, and high dimer values. Patients with COPD had the most severe outcomes whereas patients with asthma did not have risk of the worst outcome. Obesity has the risk of different complications on top of that it showed a major increase in death rates and intensive care facilities demands. Another cross-sectional study that was done in the United Arab Emirates concluded that diabetes mellitus and hypertension were from the most common comorbidities [7]. Diabetes and obesity have shown to have a strong association with the severe outcome of covid virus [8]. A study showed that being Obese increases the risk of getting infected with Covid-19 and the relation of having severe outcomes, this is due to different mechanisms , increased ACE2, csGRP78 and presumably HSPG and NRP-1 expression levels in various cell types like adipose tissue and pneumonocytes .Second there is an impaired viral clearance because the immune system in obese patients cannot provide an adequate immune response, Immune system triggers a cytokine storm as a result from the excessive production of cytokine by the adipose tissue . A person lifestyle highly affects the influence of covid-19 infection. A well-balanced diet, physical activity, sufficient sleep, and avoiding stress, all those factors prevent obesity and other complications [9].

## 1.3 Environmental Factors

Moving on one of the Environmental factors that are associated with Covid-19 is smoking, there was a strong influence of smoking on severe outcomes of this viral infection and increased risk of ICU admission as well as increased mortality rate [10].

## 2. Main Results

According to our first parameter, in the present study 33.3 percent of the patients where in the age of 40 or less and 66.7 percent are aged more than 40. As for Gender the percentage of males in this study is 76.1 and the female percentage is 23.9, calculating the number of admitted patients to the ICU. In this study 22.2 percent of patients were admitted to ICU and 77.8 were not admitted. In this study 2.1 percent of patients have died due to complications of COVID-19. In this study, the

diseases are grouped into communicable and non-communicable diseases. As for the non-communicable diseases diabetes mellitus had the highest percentage (46.5), followed by hypertension which is 44 percent out of all cases. Dyslipidemia contributed to 13.6 percent of the cases, comes next prediabetes which contributed to 11.7 percent of the cases. Asthma cases contributed to 6.8, Chronic Kidney disease contributed to 5.6. Morbid obesity accounted for 2.5, Hypercholesterolemia accounts for 1.2 percent. Parkinson, cardiovascular events both accounted for 0.6. Hypercholesterolemia contributed to 1.2 percent of all cases. As for non-communicable diseases the highest percentage was hyperuricemia, gastritis has 1.2 percent of all cases. Multiple myeloma, Interstitial lung disease, GERD, papillary carcinoma, seasonal bronchitis, psoriasis, prostate cancer, bells palsy, Rheumatoid arthritis, and COPD is 0.6. Habbits also affected the results and outcome. In this study, covid patients who smoke accounted for 8.3 percent and those who had alcohol consumption history accounted for 6.2 percent of the cases. The results of all cases in this study were divided into three categories the first one is the mild cases, moderate, and severe results were as the following 68.5 of the cases were mild, 24.1 were moderate, and 7.5 percent of the cases were severe. We divided the outcome into three categories which are patients who improved, those who suffered complications, and the last group is patients who died due to covid-19 complications and in this study, regarding the outcome of covid infection, 85.3 percent of the cases improved, 13.0 percent of the cases suffered complications, and 1.7 percent of the death.

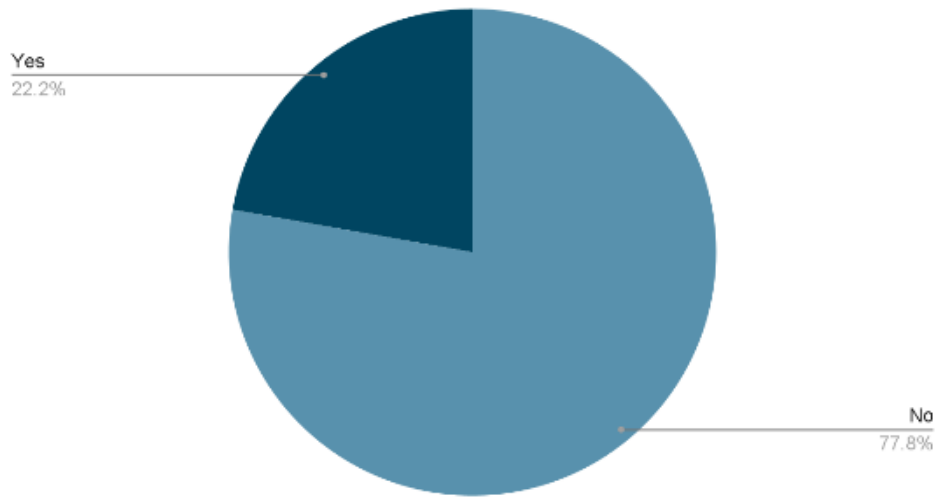
### 3. Labels of Figures and Tables

Socio-demographic characteristics and Outcome of patients affected by Covid-19 virus reported to a Tertiary care hospital Ajman UAE (N=251).

**Table 1: Distribution according to Age and Gender**

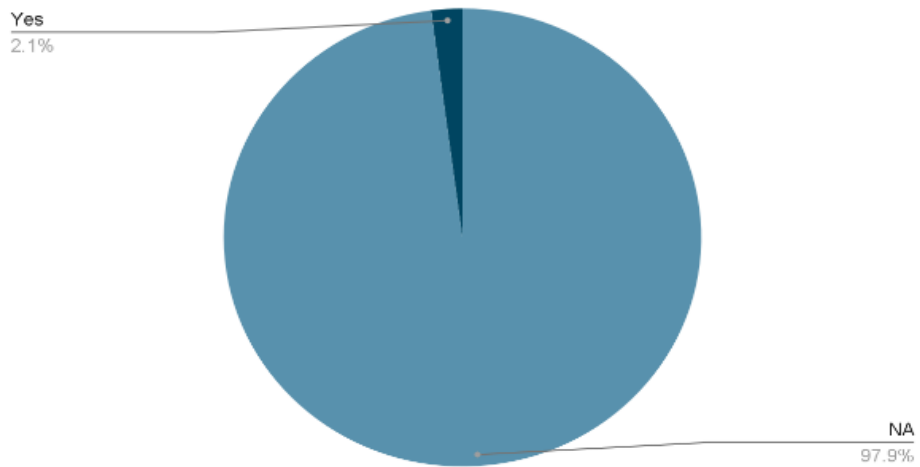
<b>Socio-demographic variables</b>	<b>group</b>	<b>Number</b>	<b>Percentage %</b>
<b>Age group</b>	<=40 years	81	33.3
	>40 years	162	66.7
<b>Gender</b>	Male	185	76.1
	Female	58	23.9

### Admission to ICU



**Figure 1: Patients admitted to the ICU**

### Death within 48 hours



**Figure 2: Frequency of death within 48 hours**

**Table 2: Distribution of Covid-19 case according to comorbidity (N=251)**

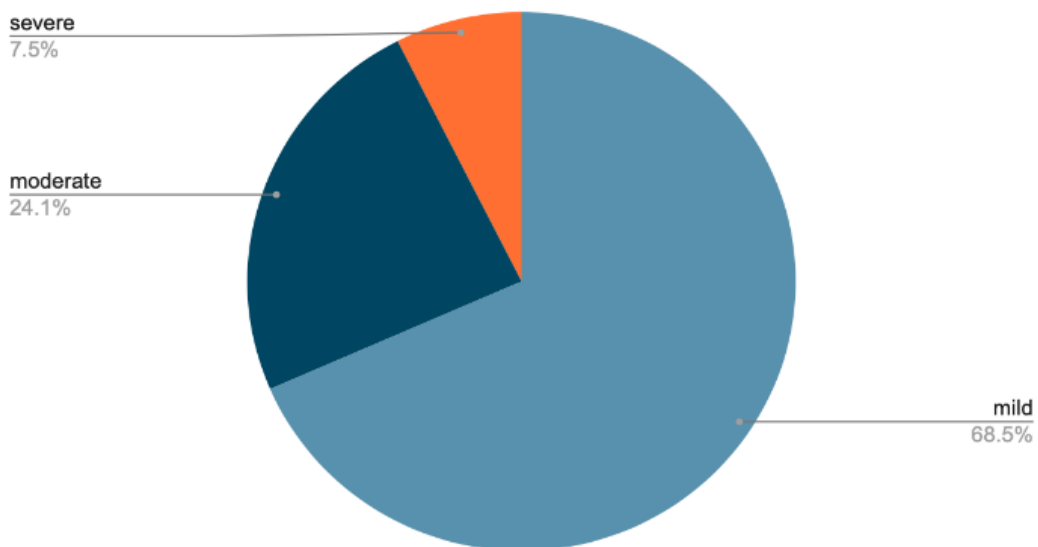
<b>Comorbidities</b>	<b>Yes</b>	<b>%</b>	<b>No</b>	<b>%</b>
Morbid Obesity	4	2.5	158	97.5
Hypertension	72	44	90	55
Multiple Myeloma	1	0.6	161	99.4
Prediabetes	19	11.7	143	88.3
Diabetes Mellitus	73	46.5	84	53.5
Chronic Kidney disease	9	5.6	153	94.4
Asthma	11	6.8	151	93.2
Dyslipidemia	22	13.6	140	86.4
Hypothyroidism	8	5.0	153	95.0
Rheumatoid arthritis	2	1.2	160	98.8
Ischemic heart disease	5	3.1	157	96.9
Interstitial lung disease	1	0.6	161	99.4
Parkinson	1	0.6	161	99.4
GERD	1	0.6	161	99.4
Hyperuricemia	4	2.5	158	97.5
Cardiovascular accident	1	0.6	161	99.4
Gastritis	2	1.2	160	98.8
Papillary carcinoma	1	0.6	161	99.4
Seasonal bronchitis	1	0.6	161	99.4
Pneumonia	3	1.9	159	98.1
Psoriasis	1	0.6	161	99.4
Hyperthyroidism	1	0.6	161	99.4
Prostate cancer	1	0.6	161	99.4
Bells palsy	1	0.6	161	99.4
Rheumatoid arthritis	1	0.6	161	99.4
Hypercholesterolemia	2	1.2	160	98.8
COPD	1	0.6	161	99.4

**Table 3: Habits**

<b>Habits</b>	<b>Yes</b>	<b>%</b>	<b>No</b>	<b>%</b>
<b>Smoking</b>	20	8.3	221	91.7
<b>Alcoholism</b>	15	6.2	226	93.8

**Table 4: Management of Covid-19 cases**

Management	Yes	%	No	%
Physiotherapy	7	2.9	234	97.1
Psychological	2	0.8	239	99.2
Drug treatment	241	100	0	0

**Points scored****Figure 3: Severity of symptoms**

Points scored

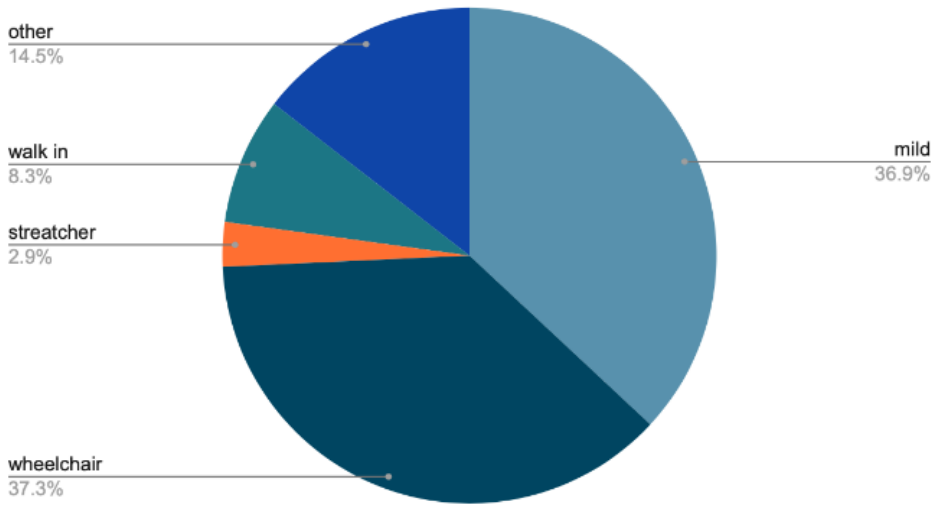


Figure 4: Mode of admission should be with admitted to ICU

Points scored

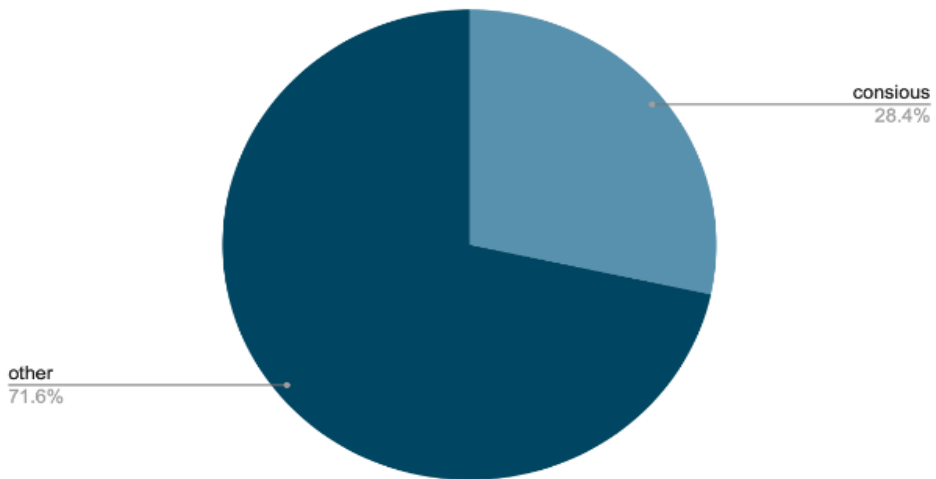


Figure 5: Consciousness



Points scored

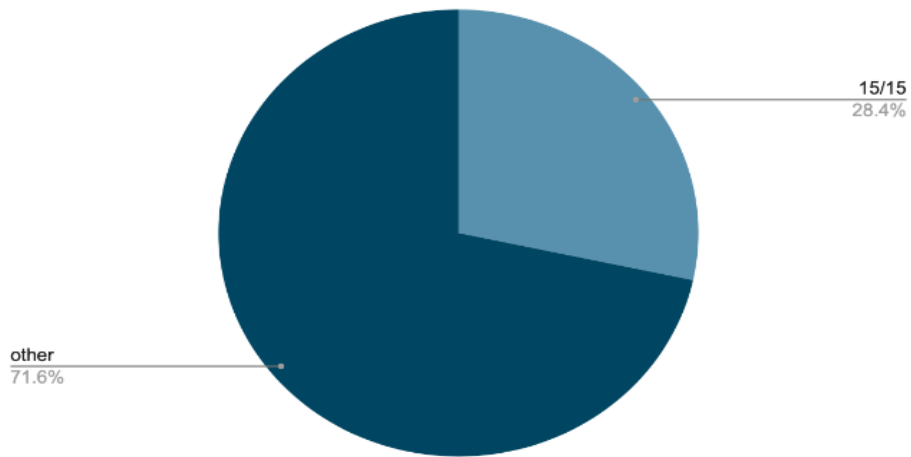


Figure 6: Glasgow scale

Table 5: Allergies

	Yes	%	No	%
<b>Allergy</b>	14	5.8	227	94.2

Points scored

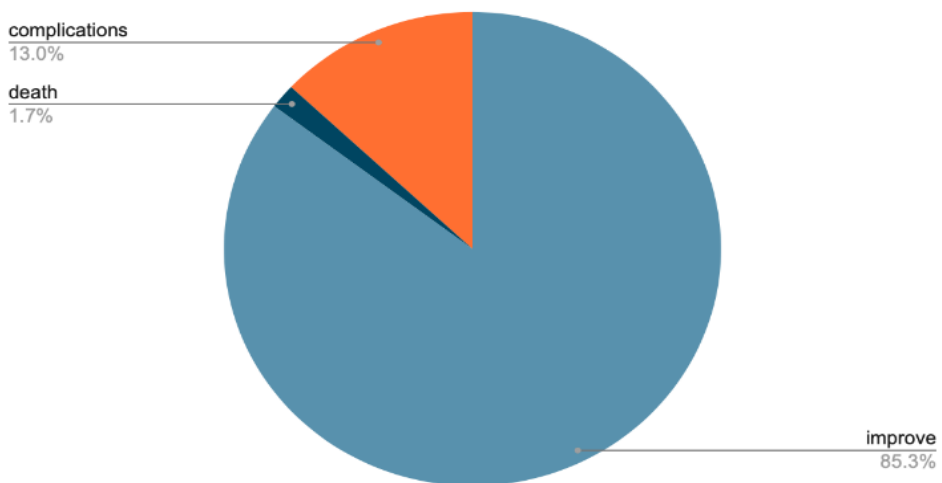


Figure 7: Outcome of Covid Infection

**Table 6: Distribution According social demographic characteristics and outcome  
N=251**

Socio-demographic characteristics		Outcome N=251					
		Death		Complications		Improved	
		NO	%	NO	%	NO	%
<b>Morbid Obesity</b>	No	4	2.6	23	14.8	128	82.6
	Yes	0	0	1	25	3	75
<b>Hypertention</b>	No	2	2.3	14	15.9	72	81.8
	Yes	2	2.8	10	14.1	59	83.1
<b>prediabetes</b>	No	4	2.9	22	15.7	114	81.4
	Yes	0	0	2	10.5	17	89.5
<b>Multiple myeloma</b>	No	4	2.5	24	15.2	130	82.3
	Yes	0	0	0	0	1	100
<b>Diabetes mellitus</b>	No	2	2.4	13	15.7	68	81.9
	Yes	2	50	11	15.5	58	81.7
<b>Chronic Kidney Disease</b>	No	3	2.0	22	14.7	125	83.3
	Yes	1	11.1	2	22.2	6	66.7
<b>Asthma</b>	No	4	2.7	23	15.5	121	81.8
	Yes	0	0	1	9.1	10	90.9
<b>Dyslipidemia</b>	No	3	2.2	23	16.7	112	81.2
	Yes	1	4.8	1	4.8	19	90.5
<b>Hypothyroidism</b>	No	4	2.7	22	14.7	124	82.7
	Yes	0	0	2	25	6	75
<b>Rheumatoid arthritis</b>	No	3	1.9	23	14.6	131	83.4
	Yes	1	50	1	50	0	0
<b>Ischemic Heart disease</b>	No	3	2.0	22	14.7	125	83.3
	Yes	1	11.1	2	22.2	6	66.7
<b>Interstitial lung disease</b>	No	4	2.5	23	14.6	131	82.9
	Yes	0	0	1	100	60	0
<b>Parkinson</b>	No	4	2.5	23	14.6	131	82.9
	Yes	0	0	21	100	0	0
<b>GERD</b>	No	4	100	24	15.2	130	82.3
	Yes	0	0	0	0	1	100
<b>Hyperurecemia</b>	No	4	2.6%	23	14.8%	128	82.6%
	Yes	0	0%	1	25%	3	75%
<b>Cardiovascular accident</b>	No	4	2.5%	24	15.2%	130	82.3%
	Yes	0	0%	0	0%	1	100%
<b>Gasteritis</b>	No	4	2.5%	24	15.3%	129	82.2%
	Yes	0	0%	0	0%	2	100%
<b>Pappilary carcinoma</b>	No	4	2.5%	24	15.2%	130	82.3%
	Yes	0	0%	0	0%	1	100%
<b>Seasonal bronchitis</b>	No	4	2.5%	24	15.2	130	82.3%
	Yes	0	0%	0	0%	1	100%
<b>Psoraiasis</b>	No	4	2.5%	24	15.2%	130	82.3%
	Yes	0	0.0%	0	0.0%	1	100%
<b>Prostate cancer</b>	No	3	1.9%	24	15.2%	131	82.9%
	Yes	1	100%	0	0.0%	0	0.0%
<b>Bells palsey</b>	No	4	2.5%	24	15.2%	130	82.3%
	Yes	0	0.0%	0	0.0%	1	100%
<b>Diabetes mellitus</b>	No	4	2.5%	24	15.2%	130	82.3%
	Yes	0	0.0%	0	0.0%	1	100%
<b>Hypercholesterolemia</b>	No	4	2.5%	24	15.3%	129	82.2%
	Yes	0	0.0%	0	0.0%	2	100%

**Table 7: Age and Gender Distribution in COVID-19 Outcomes**

Socio-demographic characteristics		Outcome					
		Death		Complications		Improved	
		NO	%	NO	%	NO	%
Gender	Male	3	1.6	17	9.3	163	89.1
	Female	1	1.8	14	24.6	42	73.7
Age	>40	4	2.5	20	12.6	135	84.9
	40≤	0	0	11	13.6	70	86.4

## 4. Conclusion

This research explored the socio-demographic characteristics such as gender and age and their relationship with the outcome of patients affected with Covid-19 virus reported to a tertiary care hospital in Ajman, United Arab Emirates. This study explored the comorbidities and how it affected the outcome of Covid-19 patients, discussing the most common comorbidity among all, as well as the mortality rates of the data collected (n=251).

The study concluded that:

- Patients who were more prone to Covid-19 infection were above 40 years of age.
- Males diagnosed with Covid-19 were more than females.
- Diabetes mellitus had the highest percentage of the non-communicable diseases with 46.5% of all cases.
- The results shows 68.5 of the cases were mild, 24.1 were moderate, and 7.5 percent of the cases were severe.
- The results shows 85.3 percent of the cases improved, 13.0 percent of the cases suffered complications, and 1.7 percent of the death.

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It gives us immense pleasure to be able to conduct our research at such a scale. It has been a lifelong dream for us thereby, we would like to sincerely thank Thumbay Hospital and the research department of Gulf Medical University for providing us with this opportunity to showcase ourselves as well as spread awareness within our community.

The completion of this research project could not have been accomplished without the invigorating love and relentless support of our parents. Credit should be given where credit is due, thus we would like to take this opportunity to extend our utmost gratitude and appreciation to our fellow group members for their tireless hard work and sleepless nights, making deadlines meet with undeterred determination.

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