

A STUDY ON RISK FACTORS OF COVID-19

Dissertation submitted to



The IIHMR University, Jaipur

for the partial fulfilment for the award of the degree of

Master of Business Administration (MBA)

In

Hospital and Health Management

By

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Under the Supervision and Guidance of

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2021

ACKNOWLEDGEMENT

It gives me great pleasure to present this primary research report on topic “A Study on risk factors of Covid-19.” as my dissertation, included in M.B.A. Health and Hospital Management with IIHMR University, Jaipur with National Health Mission, Gujarat. While doing any research work one need help extended from some experts for guidance and support. I am blessed to work under the guidance from my University Mentor Piyusha Majumdar (Assistant Professor) and industry mentor, Dr J. V. Modi (Medical Superintendent Civil Hospital Ahmedabad) I am very glad to express my sincere gratitude to National Health Mission, Gujarat for providing me an opportunity to complete my internship, my mentors Piyusha Majumdar and Dr J. V Modi who were always available to share their experience and expertise and who always offered feedback on my work on regular basis and. Without guidance of my mentors, it would have been impossible for me to complete the work. They helped me during various phases of the research like selecting research topic, outlining research, methods of collecting data and writing report. They constantly motivated me to improve my work and overcome the difficulties in the Dissertation, patiently listened to my worries and difficulties and tried to give me a pathway and suggestions to sort the difficulties related to project. I am very grateful to them for his constant support and time he spent on this project out of his busy schedule. I would also like to thank my family, friends and well-wisher who had encouraged me in completing this project. I am highly obliged towards all the people who contributed directly or indirectly in successful completion of my dissertation.

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Introduction:

World Health Organization has declared Covid-19 as a pandemic because it spread more than 200 countries. The resilience of world public health has tested by this global health emergency, public health practitioner and health care providers need to have high quality research-based evidence to know it is risk factors and prioritize its sources.

The most important question is to solve the current pandemic is “what are the risk factors for Covid-19?”. By current standard, systematic reviews and meta-analysis merged with a standardized method to measure the quality of evidence are considered to provide the best evidence. For example, the GRADE evidence assessment focuses on comparing factors or outcomes across studies to provide an evidence synthesis. If researchers conduct a GRADE evaluation for covid-19 severity in the future, the time investment and internal validity of the assessment will be heavily influenced by the consistency of categorizations and reporting of cases, factors, and outcomes across studies.

Since scientific studies announcing, Covid is being produced quickly, including risk factor studies, summarizing and sharing such information is of primary importance to support an efficient and rapid response. An early review of risk factor studies could also provide some insight on the undesirable heterogeneity of definitions and reporting that might affect later evidence evaluations. Therefore, we compiled a brief summary of the literature evaluating the risk factors for covid-19 disease severity with a two-fold purpose: to provide healthcare and public health professionals with a reference list of the consistency of risk factors for covid-19 severity, and to inform researchers about the consistency of reporting in the available literature.

COVID-19 can affect anyone, and the disease can cause symptoms ranging from mild to very severe. For some other illnesses caused by respiratory viruses (such as influenza), some people may be more likely to have severe illness than others because they have characteristics or medical conditions that increase their risk. These are commonly called “risk factors”.

At the time of beginning of Covid-19 in Wuhan, China in late December 2019, the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) has spread to over 200 countries in about 3 months. On March 11, 2020, the World Health Organization (WHO) declared the outbreak a pandemic. The case fatality rate was 3.5% was counted at that time, that is same to Spanish influenza (2–3%) and much higher than that of seasonal influenza (0.1%) . Over 80% of COVID-19 cases have mild symptoms; however, 10–20% of COVID-19 cases proceed to a severe stage. The identification of factors associated with the aggravation of

patient symptoms from asymptomatic-mild to severe is essential for providing efficient and appropriate management to patients with COVID-19.

Studies have investigated risk factors of mortality in patients with COVID-19, mostly studies explained, Older age and history of coronary vascular disease were reported to increase the risk of death from COVID-19.

Objective of Study:

1. To find the proportion of different type of risk factor during COVID-19.
2. To study main concerns and risk factors of COVID-19.

Research Question

1. What are the main risk factors of COVID-19?
2. What should be Protective Factors for COVID-19?

REVIEW OF LITERATURE:

S.No.	Author	Topic	Year of Publication	Findings
1.	Stuart J McGurnaghan , Amanda Weir, Jen Bishop, Sharon Kennedy et al.	Risks of Risk Factor of COVID-19 Disease in people with Diabetes	2020	Total sample on March 1, 2020 (n=5, 463, 300), 3,19, 349 (5·8%) population with diabetes, Population 1082 (0·3%) had developed fatal or critical care unit-treated COVID-19 by July 31, 2020. In the population without diabetes, 4081 (0·1%) of 5 143 951 people developed fatal or critical care unit-treated COVID-19, thus we can say diabetes or any non-communicable disease is the main cause of Covid-19.
2.	Dominik Wolff	Risk factors for Covid-19 severity and fatality	2020	Covid-19 risk factors severity had identified in 20 signs, habit of Smoking, a higher weight (Obesity) and much waiting time in hospitals, they are unhealthy diet or routine life factors

				related to a higher risk for disease severity. • The most frequently affecting demographical sign is- A. In Gender male followed higher age B. Higher age in women with post-menopausal causes. • This article has showing the higher risk in aged people who are more than 65 years. The most common risk factors are diabetes and higher blood pressure or hypertension .with six records like
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				Chronic lung disease, Chronic tuberculosis, Chronic renal disease, chronic thrombosis are very prone to infecting Covid-19.
3.		Population risk factors for severe disease and mortality in COVID-19: A global systematic review and meta-analysis		with a total of 17,860,001 patients across 14 countries. The studies were highly heterogeneous in terms of the sample under study, outcomes, and risk measures reported. A large number of risk factors were presented for COVID-19. Commonly reported variables for adverse outcome from COVID-19 comprised patient characteristics, including age >75, male sex and severe obesity. Active cancer was associated with increased risk of severe outcome. A number of common symptoms and vital measures (respiratory rate and SpO ₂) also suggested elevated risk profiles.

4.	Meng- Jie Geng, Lie pie Wang et al.	Risk Factor for developin g sever COVID-19 in China	2020	The population of study were 12,647 with age from less than 1 year old to 99 years old. The severe cases were 1662 (13.1%), the median age of severe cases was 57 years, and the median age of non-severe cases was 43 years. The risk factors for severe COVID-19 were being male. The study had concluded that individuals are more than 44 are on risk of Covid-severity.
5.	Arindam Nandi, Ruchita Balasubramanian, and Ramanan Laxminarayan	Who is at the highest risk from COVID-19 in India? Analysis of health, healthcare access, and socioeconomic indicators at the district level		They conducted sensitivity analysis for the health risk index in two ways. First, they included additional indicators – prevalence or incidence rates as available – of chronic obstructive pulmonary disease, asthma, cancer (all causes), and ischemic heart disease at the state level among the covariates of the PCA model. These data were not available at the district level. Second, instead of PCA which estimates factor loads (weights) of the covariates based on the covariance matrix, we constructed the health

				risk index using a simple weighting scheme based on the Wuhan study. they standardized the four district level indicators from the original model and COVID-19 from Wuhan. weighted them with the case fatality rate of The health risk index was calculated as the weighted sum. presents the weighting scheme.
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Research Gap

There are a few limitations to our study. we only assessed symptomatic cases. While asymptomatic cases were not included in this research, perhaps the different risk factors were involved in the occurrence of disease in these cases and cases who are severely ill means who are in ICU wards they are not included in our study.

CHAPTER 3: METHODOLOGY

3.1. Research Question:

(A)What should be the main risk factors of COVID-19?

(B)What should be Protective Factors for COVID-19?

3.2. Study Design: The study is a cross-sectional study design conducted to study risk factors regarding COVID-19, in the patients who are admitted in Manjushree Covid Facility of Civil Hospital Ahmedabad having Covid already.

3.3. Study Duration: Study duration is from 15th April to 15th July 2021, which is our dissertation period in Civil Hospital Ahmedabad.

3.4. Sampling Technique: In this study, non-probability (convenient sampling technique) was used for obtaining samples and responses. About 196 patients admitted in Manjushree Covid Facility of Civil Hospital Ahmedabad, were interviewed for the study. We included all patient interacting in Manjushree Covid Facility, Civil Hospital Ahmedabad face to face interview, the patients present during the study period. In this study, have excluded those patients who are not able to talk or patients admitted in ICU ward.

3.5. Sample Selection: we collected data from 196 respondents who are admitted in Manjushree Covid Facility, Civil Hospital Ahmedabad.

3.6. Exclusion Criteria: Patients who were not able to speak or patient those were admitted in ICU wards or had mucor mycosis or Covid complications during the study were excluded from this study.

3.7. Data Collection Procedure: Data was collected with the help of self-administered questionnaire with face-to-face interview with the interacting people from 14th May 2021 to 18th June 2021. Questionnaire was prepared as a study tool to collect data regarding risk factors like government protocol followed or not, Comorbidity, smoke cigarette, having alcohol and their medical vital data like CT value of RT-PCR and SpO2 value of patient. Questionnaire was first tested with 10 colleague and Civil Hospital staff to check whether the questionnaire was easily understood by them or not.

Data collection is done by face-to-face interview with the people with the help of questionnaire.

3.8. Study Tool: Questionnaire was prepared as a study tool to collect data regarding vaccination knowledge, attitude and practice, and sociodemographic characteristics, dependent and independent variables that include a set of 10 questions. The questionnaire was prepared in a closed format as it is easy and quick to fill up, Questionnaire was prepared in 3 languages-, Hindi, Gujarati English, thus data collected easily and in less time.

3.9. Operational Definition:

A) Sever Patient: CT value of RT-PCR <20

B) Moderate Patient: CT value of RT-PCR is 16 to 20

C) Mild Patient: CT value of RT-PCR>15

3.10. Dependable Variable: The condition of patient has 3 main components., there are-

- 1) Condition of COVID-19 Patient-
 - a) Mild condition (CT value of RT-PCR< 15)
 - b) Moderate Condition (CT value of RT-PCR is 15 to 20)
 - c) Sever Condition (CT value of RT-PCR>20)

3.11. Independent variables in this study:

1. Patient got affected with COVID 19-

(A)From Family.

(B) From Friends

(C) Don't know

(D) Any other

2. Are You Follow Govt. Protocols of COVID-19

(A) Yes

(B) NO

3. If you followed Govt. protocols then –

(A) Used Mask

(B) Social Distancing

(C) Used hand sanitizer/ washing hands frequently

4. The reason of patient admitted-

(A) Breathing Difficulty Issue

(B) Continuous Fever

(C) Nausea

(D) Any Other

5. Patient was Suffering from any Comorbidity-

(A) Blood Pressure

(B) Coronary Heart Disease

(C) Diabetes

(D) Chronic Lung Disease

(E) Renal Disorder

(F) Not having Comorbidity

6. Patient had habit of smoke cigarette-

(A) Yes

(B) No

7. Patient had habit of having alcohol-

(A) Yes

(B) No

3.12 DATA PROCESSING:

After collecting data from 196 respondents, all the questionnaires were collected, and data was entered in excel in a proper manner then all the data variables were given numeric codes thus the analysis become easy.

3.13 DATA ANALYSIS:

After entered data in excel and coding them accordingly. We applied filter on all the variables one by one, then took different sheet in excel for pilot analysis for a variable. After it we entered data in different data sheet then we applied insert pie chart in all different data sheets. By this we found all the frequencies distribution and percentage of all variables.

3.14 ETHICAL CONSIDERATION

To conduct this study, I obtained approval from Dr. J. V. Modi (Medical Superintendent, Civil Hospital Ahmedabad). From each identified participant, consent was taken. The objective and the purpose of the study and time required to conduct interview was explained to the participants before administering the questionnaire so that study should be easy. To ensure the confidentiality of each participant we did not ask the name of the patient, in-stead we used form number to record the responses.

3.15 DISSEMINATION PLAN

We made a report on the findings of the study after data analysis. Report will be shared with NHM Gujarat, Civil Hospital Ahmedabad and with IIHMR University Guide and with IIHMR University library.

CHAPTER 4: RESULTS

We took the responses from 196 Patient. We allowed only patients who can able to speak and not admitted in ICU wards for analysis of the data. Out of 196 respondents. Table 4.1 is showing association between the risk factors and Covid-19-

- **Source of infection:** in this topic we have to understand how Covid spread from-
27% from family
23% from friends
38% from unknown causes
12% from other causes
- **Government Covid protocol** followed by 33% of respondents and it was not followed by 67% of respondents.
- **The respondents who followed** the protocols are –
Used mask- 37%
Maintain Social distancing- 39%
Used Sanitizer/ washing hands-24%
- **CT value varies in respondents-**
11to 15-33%
16 to 20- 49%
21to25 – 18%
Same for the severity of the disease because our criteria of severity is according to CT- value-
- **Severity of disease-**
Mild- 33%
Moderate-49%
Sever- 18%
- **Reason of Admitted Patient-**
Breathing difficulty-51.1%
Continuous fever-65.3%
Nausea-41.8%
Any other-32.7%
- **SPo2 of admitted patient-**
70 to 75- 20%
75 to 85-63%
85 to 90- 17%
- **Patient having Comorbidity-**
Blood pressure- 32.7%

Coronary artery disease-12.1%

Diabetes- 30.1%

Chronic lung disease- 11.1%

Renal disorders- 9.2%

Not having any comorbidity- 37.2%

- **Smoking habit in admitted patient-**

Yes- 57%

No-43%

- **Habit of having alcohol in admitted patient-**

Yes- 54.08%

No-45.91%

- The table 4.1 study of Covid-19 risk factors is showing the results of the study-

S.No.	Characterstics	Catogery	Frequency	Percentage
1	Get Covid from	From Family	53	27%
		From Friends	44	23%
		Don't know	75	38%
		Any other	24	12%
2	Follow Government COVID protocols	Yes	64	33%
		No	132	67%
3	If you followed Govt. protocol then -	Used Mask	32	37%
		Maintain Social Distancing	34	39%
		Used Sanitizer/washing hands frequently	21	24%
4	CT-value in RT-PCR-	11-15	65	33%
		15-20	96	49%
		20-24	35	18%
5	Infection severity of patient-	Mild	65	33%
		Moderate	96	49%
		Sever	35	18%
6	Reason of admitted in hospital	Breathing Difficulty	101	51.1%
		Continuous Fever	128	65.3%
		Nausea	82	41.8%
		Any other	64	32.7%
7	SPO2 when admitted in the hospital	70- 75	39	20%
		75-85	124	63%
		85-90	33	17%
8	Patient having Comorbidity	Blood Pressure	64	32.7%
		Coronary Heart Disease	24	12.1%
		Diabetes	59	30.1%
		Chronic lung disease	22	11.2%
		Renal Disorders	18	9.2%
		Not having Comorbidity	73	37.2%
9	Habit of smoking Cigarette	Yes	111	57%
		No	85	43%
10	Habit of having alcohol	Yes	106	54.08%
		No	90	45.91%

Table:4.1 Study of Covid-19 risk factors

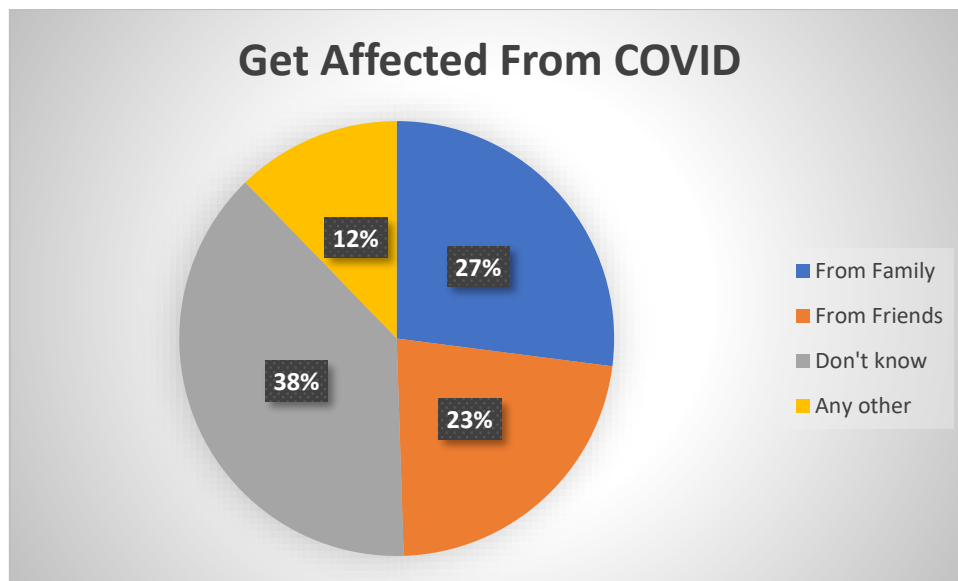


Figure:4.1 Respondents get affected from Covid

The figure is showing how the respondent get affect from Covid-19.

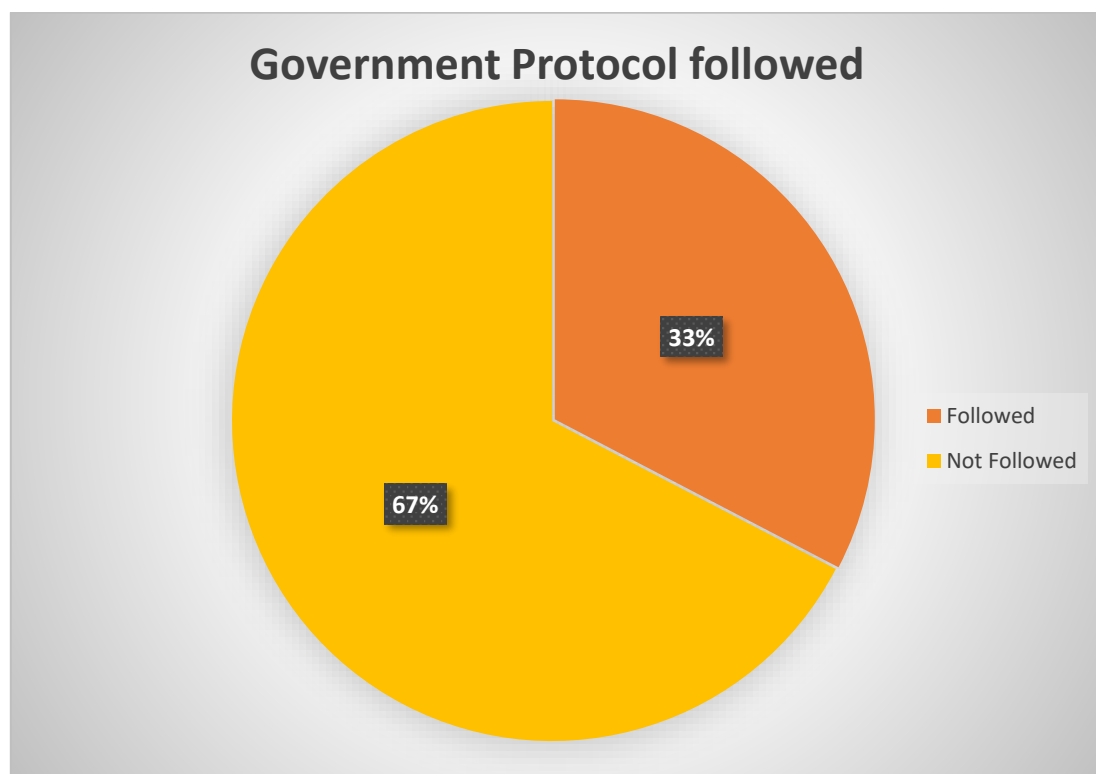


Figure: 4.2 Government protocol followed by the respondent.

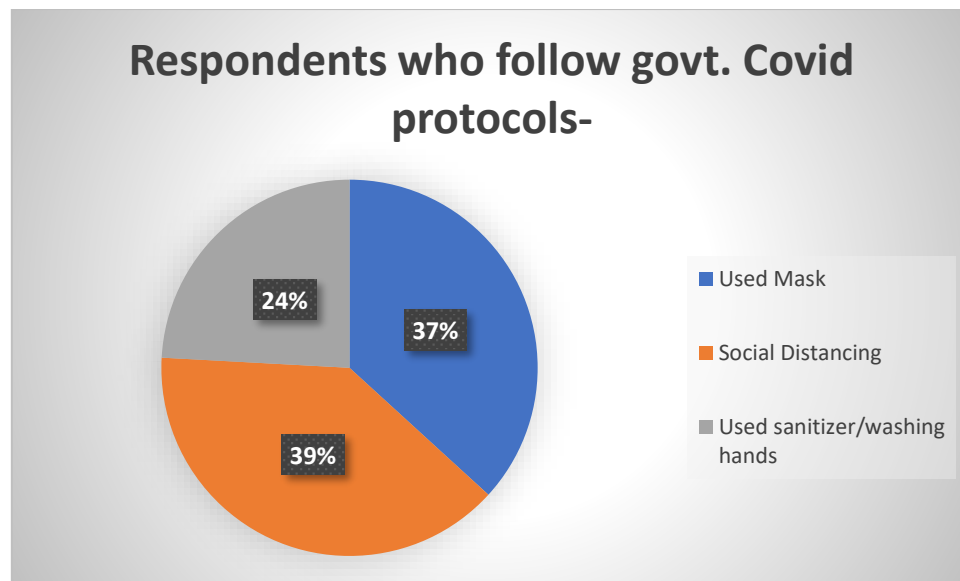


Figure:4.3 Respondents who follow government Covid protocol

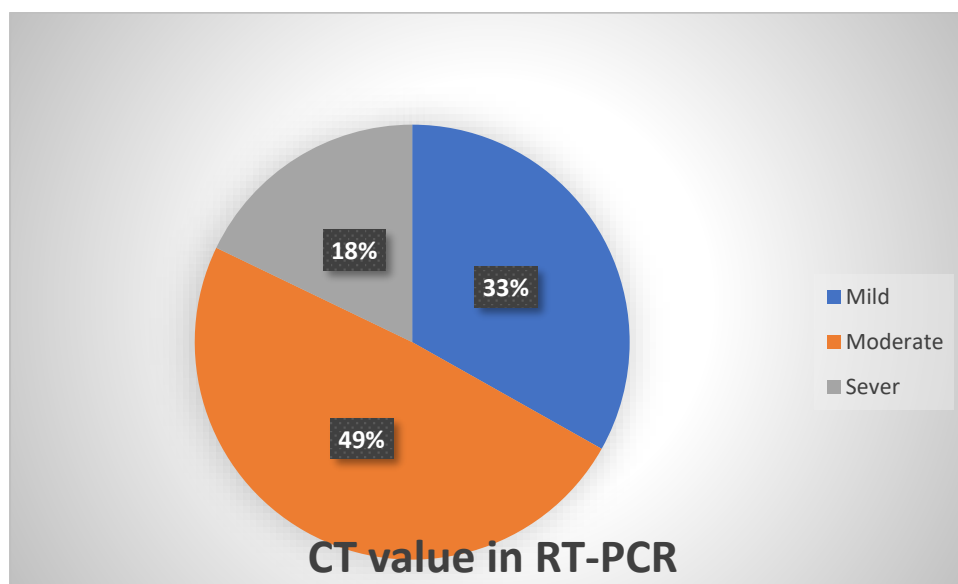


Figure-4.4 CT value in RT-PCR of patients

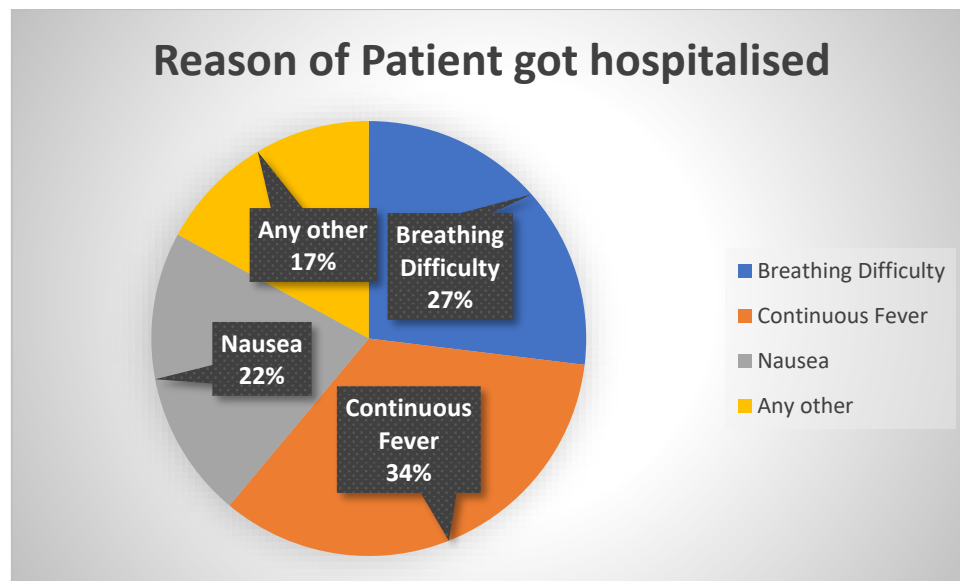


Figure 4.5 Reason of admitted in hospital

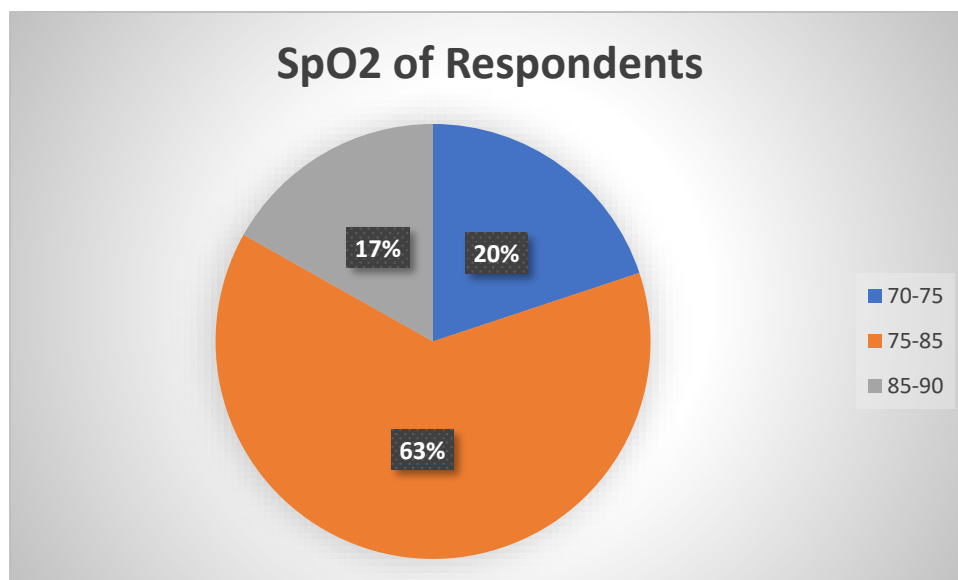


Figure 4.6 SPo2 of respondents

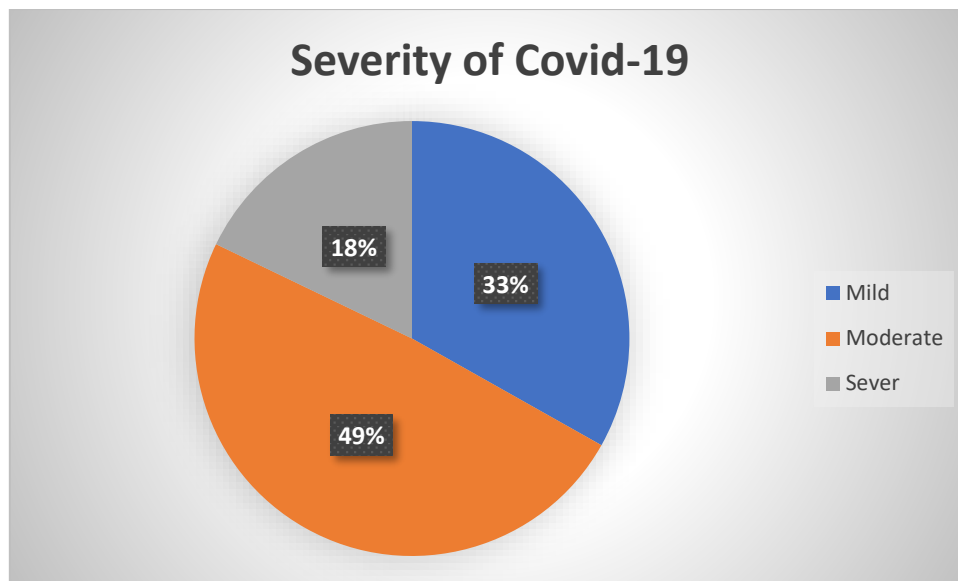


Figure 4.7 Severity of Covid-19 in respondents

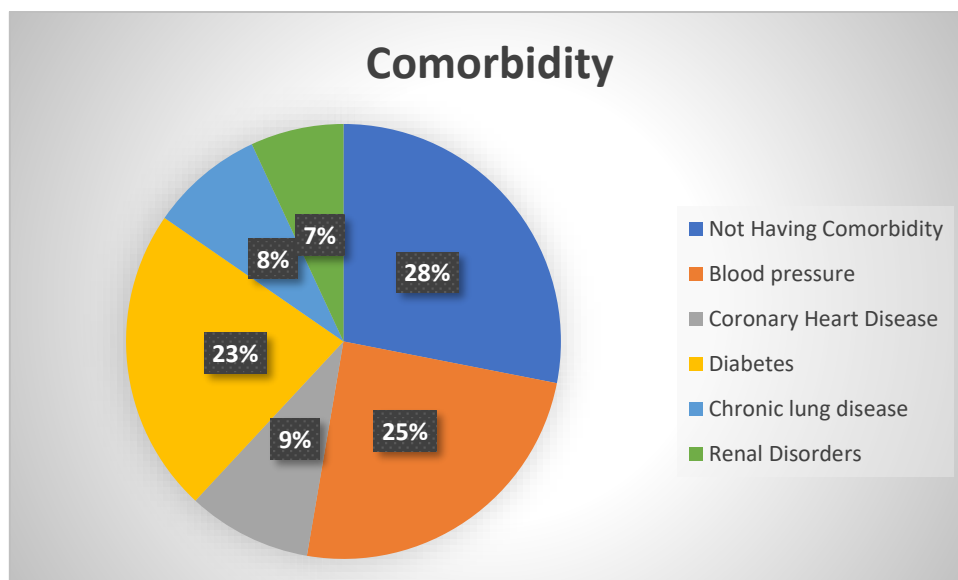


Figure 4.8 Comorbidity in respondents

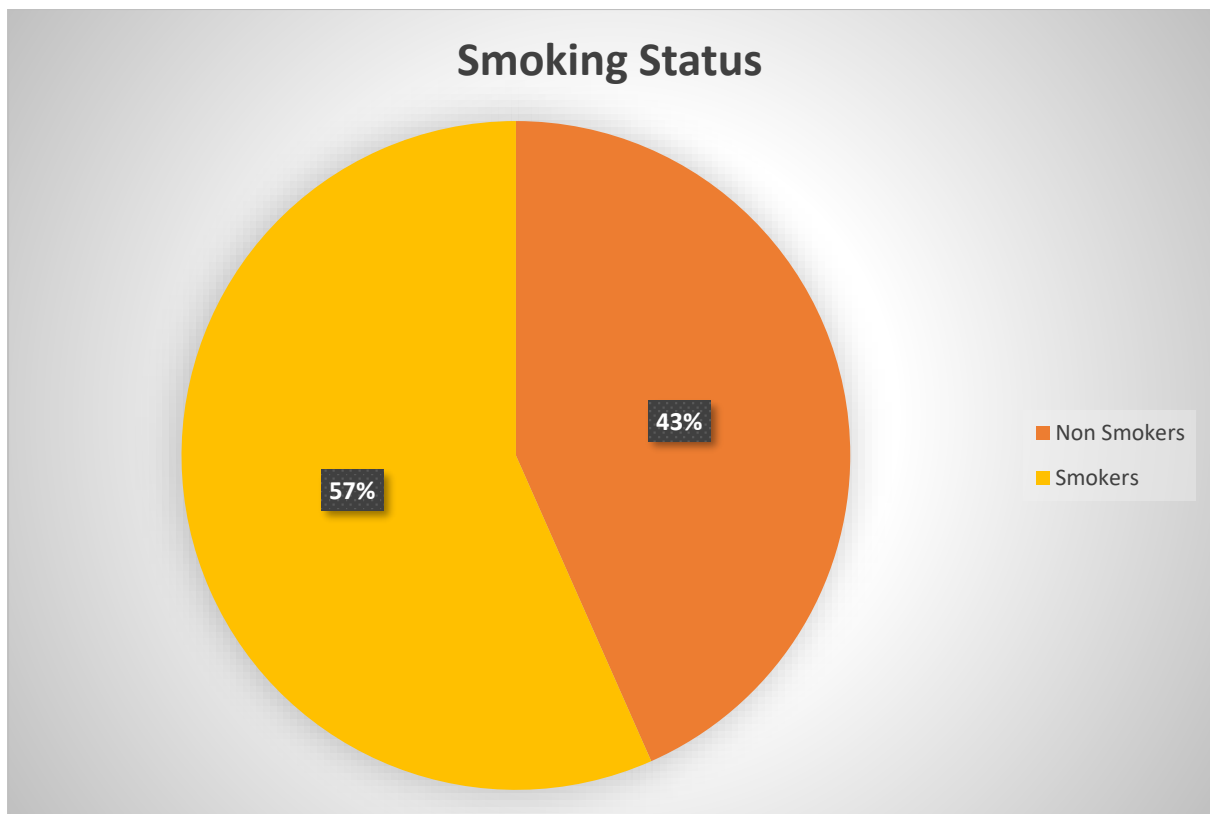


Figure 4.9 smoking status of respondent

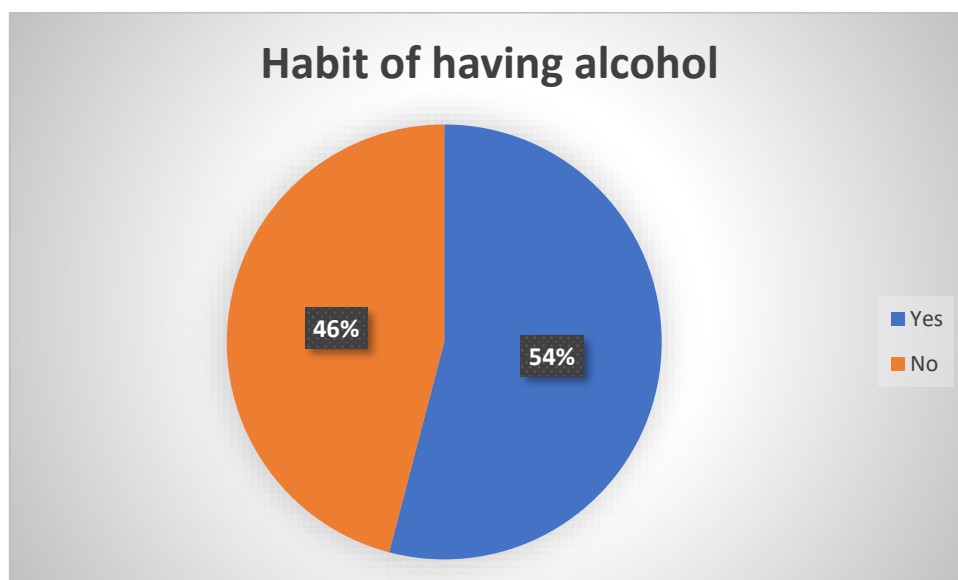


Figure 4.10 Habit of having alcohol in respondents

Chapter 5 Discussion

We have maximum 49% of moderate patient, 33% mild patient and 18% patients are severely ill from Covid-19 disease. the risk factors for severe disease courses, because of all risk factors included in the study. According to an article “Risk factors for Covid-19 Severity and Fatality” there are some similarities in this study according the article form different public authorities. The Robert Koch Institute is Germany’s leading Public Health facility, whereas the Johns Hopkins University is one of the world’s leading facilities for Covid-19 updates. Furthermore, risk factors declared by the United States’ Centres for Disease Control and Prevention and the National Health Service of the United Kingdom are shown. The lists of the different institutions largely overlap. High age (from about 60 years), heart, renal, liver and respiratory diseases as well as diabetes and obesity are frequently mentioned factors. In our study, we also mentioned that comorbidity is a primary risk factor responsible for infection of Covid-19.

According to study “Association of social distancing” individuals who are with the social distancing are lower the risk of Covid 31% and individuals are not following the social distancing had 62% of risk of Covid infection. Similarly, our study explained that 67% respondents who are not following government protocols have the infection of Covid-19 and admitted in Covid facility. Notably, Government of India was induced the lockdown in march 2020 to maintain social distancing in public and down the number of Covid cases. So it is the government rule that 6 feet distance should be maintain to avoid Covid-19.

Chapter 6 CONCLUSION

In this study most of the patient about 67%, did not follow government Covid-protocols. so, they got infected from Covid-19.so it is very necessary to follow all the government protocols.

Respondents about 72% have comorbidity, it shows that the person who are comorbid are very much susceptible for get infected by Covid-19 virus.

Mostly respondents are having diabetes and blood pressure so according to our study, this is the main comorbidity for the Covid-19.

Respondents about 57% are smokers, so we can say it is the prior reason of having Covid-19 disease. WHO's higher authorities were also said in press conference that person who smokes may dead by Covid-19. Smoking is severely affected Covid-19 patients.

Respondents about 54% are having habit of alcohol consumption, so we can say it is also a reason of infected with Covid-19.

The main reason is not following government protocols so government may start a program why it is so important for everyone.

Study Tool:

S.No.	CHARACTERSTICS	
1	How did you got infected by Covid-19	From family From friends Don't know Any other
2	Covid protocols followed by respondent	Yes No
3	If followed then-	Used mask Social Distancing Used Hand sanitizer/washing hands frequently
4	CT value in RT-PCR_	11 to 15 16 to 20 21 to 25
5	Infection severity of patient	Mild Moderate Sever
6	Reason of admitted patient	Breathing Difficulty Continuous fever Nausea Any other
7	SPo2 of respondent	70 to 75 75 to 80 80 to 85
8	Respondent having comorbidity	Blood Pressure Coronary Heart Disease Diabetes Chronic lung disease Renal disorders Not having any comorbidity
9	Respondent having habit of smoking	Yes No
10	Respondent having habit of having alcohol	Yes No

Approval Letter:

To,

Dr. J. V. Modi

Medical Superintendent

Civil Hospital Ahmedabad.

Date; 24th April 2021

Subject; Regarding Dissertation

Dear Sir,

I am Vedansh Parashar ,student of 2nd year MBA Health and Hospital Management has joined as AHA (Intern) of Civil Hospital Ahmedabad from 15th April 2021.

I want to do my dissertation project with Internship, my topic for internship is "Patient Satisfaction in a Covid-facility in Civil Hospital Ahmedabad".

I will be highly obliged if you accept the project and give permission to continue with the project.

Thank you

Your Sincerely

Vedansh Parashar

IIHMR University Jaipur.

AHA Civil Hospital Ahmedabad.

