A Study to Assess the Association between Body Mass Index in Covid Severity among Patients with Covid 19 in SMCH

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ABSTRACT

AIM: The present study aims to assess the association between body mass index in covid severity among patients with covid 19 in SMCH **METHODS AND MATERIALS**: A descriptive research design was used for the present study. A total 30 samples were collected using non probability purposive sampling technique. The demographic data and BMI, covid severity was assessed using structured questionnaire and Covid-19 Reporting and Data system (CO-RADS SCORE) followed by that data was gathered and analyzed. **RESULTS**: The results the study revealed that there is a significant association between the level of BMI and covid severity among covid-19 patients at the level of $p<0.01$ **conclusion**: Thus, the present despites that there is significant association between body mass index and covid severity among covid -19 patients.

KEYWORDS: *body mass index (BMI), covid severity*

INTRODUCTION

The Coronavirus Disease 2019 is an infectious disease caused by severe acute respiratory syndrome coronavirus, has become one of the worst pandemics in this century.[1] The World Health Organization (WHO) announced the confirmation of COVID-19 as a pandemic on March 11th, 2020 [2]. As of May 26th COVID-19 has affected over 5.5 million people worldwide, causing more than 347,000 fatalities [3]. The clinical outcomes of COVID-19 vary in severity from asymptomatic to lethal [4]. In addition to several degrees of pneumonia, this infection has drastic impact on many organs such as kidney, liver and heart [5].

Obesity, is excessive accumulation of body fat under adipose tissue, is generally determined by body mass index (BMI), calculated by body weight (kg) divided by height squared (m^2) [6].around worldwide obesity is becoming major health problem which further ends with complication [7] Adiposity affects adverse health outcomes such as coronary artery disease, cerebrovascular disease, insulin resistance, hypertension and fatty liver disease [6]. Fat accumulation not only affect mechanical-related health complications, but the abundant adipose tissue also releases many adipokines which play a role in the inflammatory process and rises the histamine level in the body [7]. Nonetheless, the immune system is suppressed in obese people, especially in vulnerable people with multiple comorbidities even with corona pandemic [8]. A pathophysiology of COVID-19 is an immune response dysfunction resulting in damage to multiple organs, particularly the lower airways.[9]

Because either obesity itself or the severity of COVID-19 disease could prompt admission to hospital, the association between these factors might be spurious. A large population-based study, which avoided the risk of collider bias, found that having a body-mass index (BMI) of 30 kg/m^2 or higher was

associated with a slightly greater risk of death from COVID-19 than a BMI of less than 30 kg/m^2.[10]

The purpose of the study
1. To assess the level of BMI and covid severity
2. To find the association between level of BMI and covid severity among covid patients

MATERIAL AND METHODS

After obtaining and ethical clearance from the institutional ethical committee of Saveetha institute of medical and technical science and formal permission letter obtained from the head of SMCH, present study was conducted. For the present study quantitative approach with descriptive research design was adopted. The data were collected using a non probability purposive sampling technique from 30 samples. The inclusion criteria for the study, participants, who are available during the study period and who are cooperative and who understand both Tamil and English. exclusion criteria for the study are, samples who not willing to participate in the study. The purpose of the study was explained by the investigator to each of the study participants and a written informed consent was obtained from them. the

demographic and the level of BMI and covid severity was collected from the samples using structured questionnaire. the data were analyzed by biostatistics. The sample characteristics were described using frequency and percentage. Chi- square was used to associate the level of BMI and covid severity among covid clients.

RESULTS AND DISCUSSION

SECTION A: Description of the demographic variables of the patients

SECTION B: To assess the BMI and covid severity among patients

SECTION C: Association between BMI and covid severity

SECTION A: DESCRIPTION OF THE DEMOGRAPHIC VARIABLES OF PATIENTS

The data despite that maximum of the samples were falling in the age group of 40-59, about 66.6% were males, with co morbid illness of diabetes mellitus. Maximum of the samples were on non veg diet, 50% of them were alcoholic with family history of diabetes mellitus
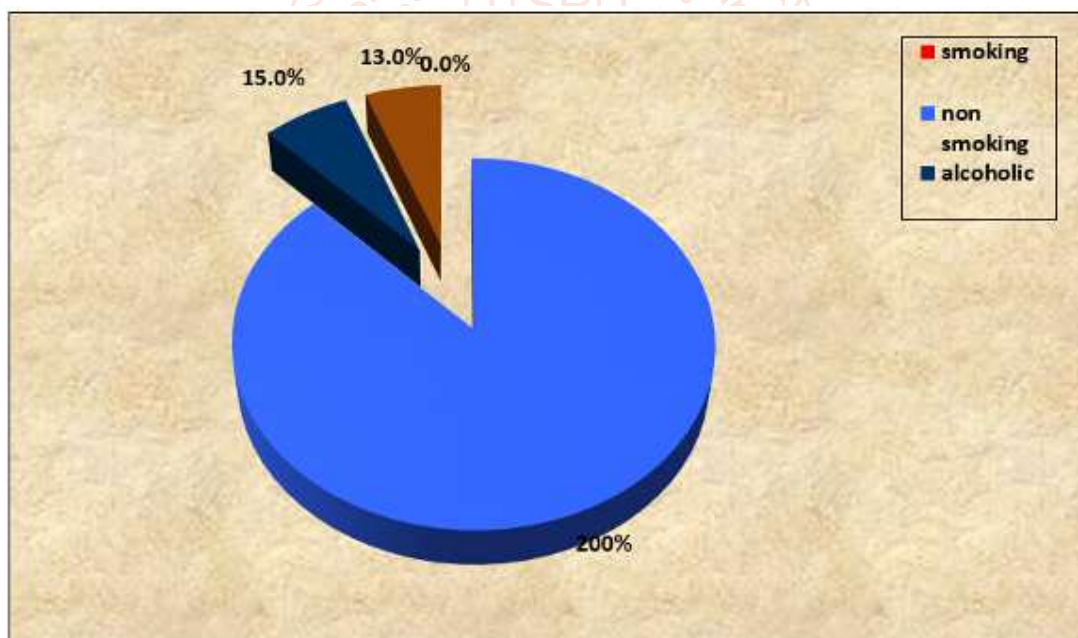
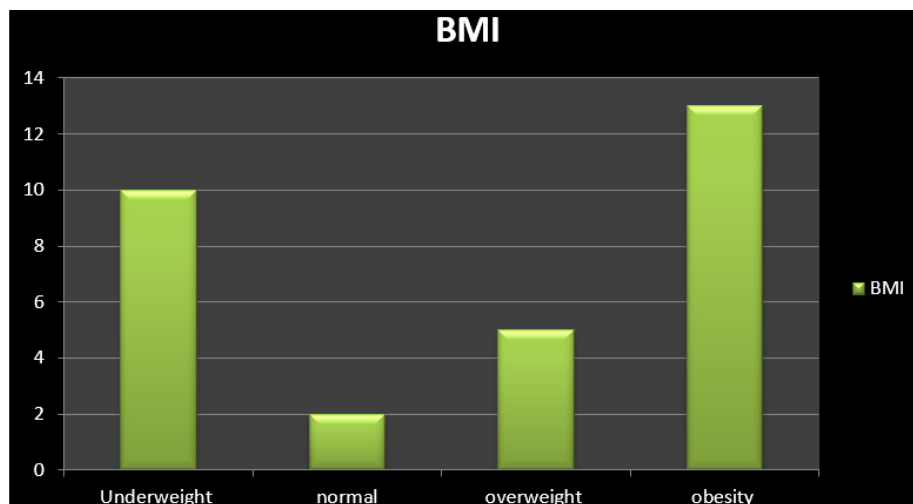**Percentage distribution of life style of covid patients**

SECTION B: To assess the BMI and covid severity among patients

Table 1`: Frequency and percentage distribution of level of BMI

n = 30

Level of BMI	NO	%
Underweight	10	33.3
Normal	2	6.7
Overweight	5	16.6
Obesity	13	43.3

This table shows maximum of them were falling on obesity, 33.3% underweight, 6.7% normal, 16.6 overweight.

Body mass index pictorial

Table 2: Frequency and percentage distribution of level of BMI

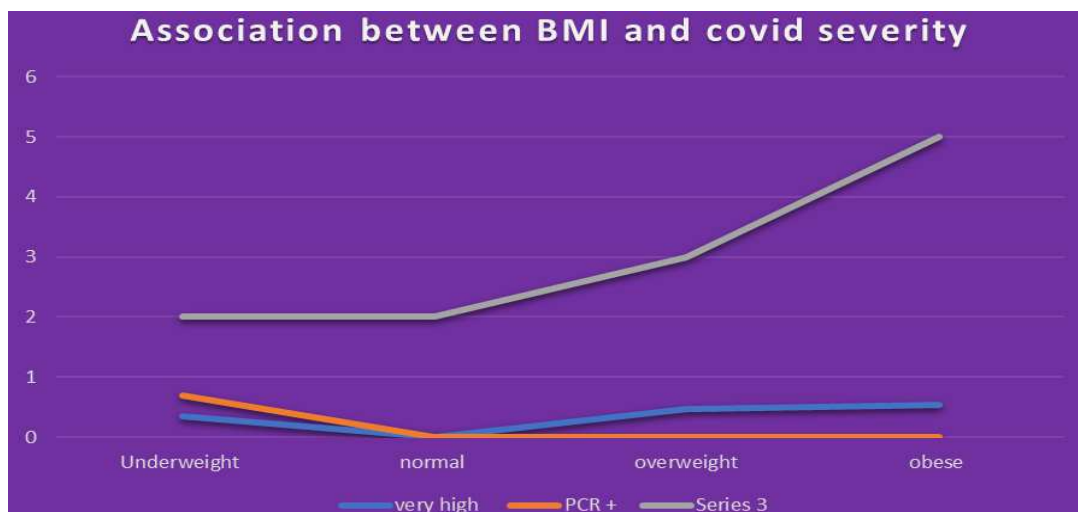| Covid severity	NO	%
No	5	16.6
Low	3	10.0
In determinant	5	16.6
High	2	6.7
Very High	12	40.0
PCR+	4	13.3

This table shows maximum of patients were falling on very high on covid severity rating

SECTION C: Association between BMI and covid severity

Table 4: association between body mass index and covid severity among covid patients

BMI	COVID SEVERITY			
	Very high		PCR+	
	(95% CI)	P –value	(95% CI)	P –value
Underweight	3.45(0.46-12.90)	0.346	2.69(0.26-15.08)	0.689
Normal	Reference		Reference	
Overweight	4.67(0.32-13.77)	0.001	0.38(5.84-96.21)	0.001**
obese	5.43(0.23-40.88)	0.456	0.95(36.0-69.55)	0.001**

P<0.001**

This table shows that maximum of them (40%) were falling on very high covid severity

This association table despites that very high covid severity shows significant association with overweight (BMI status) p-0.001

CONCLUSION

From the results of the present study association between BMI and covid severity.

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