

# Impact of Obesity on Frailty in Older Population of Karachi, Pakistan

Aadil Ameer Ali<sup>1,\*</sup>, Noman Haq<sup>2</sup>, Kainat Chang<sup>1</sup>, Sana Naqi<sup>3</sup>, Muhammad Rafique<sup>4</sup>, Muhammad Ismail<sup>4</sup>, Rabbia Naseer<sup>1</sup>, Aqeel Nasim<sup>5</sup>, Muhammad Kumail<sup>3</sup>

<sup>1</sup>Department of Physical Therapy and Rehabilitation Sciences, Isra University, Karachi, PAKISTAN.

<sup>2</sup>Faculty of Pharmacy and Health Sciences, University of Balochistan, Quetta, PAKISTAN.

<sup>3</sup>Institute of Physiotherapy and Rehabilitation Sciences, Liaquat University of Medical and Health Sciences, Jamshoro, PAKISTAN.

<sup>4</sup>Department of Statistics, University of Sindh, Jamshoro, PAKISTAN.

<sup>5</sup>Pharmacist, Balochistan Institute of Nephro-Urology, Quetta, PAKISTAN.

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\*Correspondence to:

Dr. Aadil Ameer Ali

PPDPT Scholar, Isra Institute of Rehabilitation Sciences, Karachi, Sindh-75300, PAKISTAN.

Email: aadilamirali@hotmail.com

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## Abstract

Many frail older adults are slim, weak and under nourished; this part of frailty remains a critical concern in the old age. However, there is also strong conformation that excessive obesity contributes to frailty, therefore, present study was conducted to assess the Relationship between Obesity and Frailty in Older Population of Karachi, Pakistan. A cross sectional survey was conducted in different hospitals of Karachi, Pakistan from January to March 2018. BMI was measured by standard procedure in already diagnosed 377 patients of Frailty (mild and sever) and SPSS version 23 was used to analyze the data. The majority were (n=215, 57%) male and having age between 61 to 63 years (n=75, 19.9%), overweight (n=151, 40%) and Obese were (n=37, 9.8%) no significant correlation was found between obesity and frailty. This Study concluded that there is no significance of obesity on Frailty, because mostly the government facilities are being attended by the poor patients and the rich patients who may have the obesity along with Frailty may go to the private institutes.

**Key words:** Obesity, Frailty, Older Population, Karachi, Pakistan.

## INTRODUCTION

Many frail older adults are slim, weak and under nourished; this part of frailty remains a critical concern in the old age. However, there is also strong conformation that excessive obesity contributes to frailty by decreasing the ability of older adults to perform activities of daily living/life along with decreased metabolic stability.<sup>[1]</sup>

As the Characteristics of frailty, proposed by Fried *et al.* which includes five components: decreased level of physical activity along with decreased muscle strength, self-reported fatigue, decreased walking speed, unintended weight loss and overtiredness. Moreover, the presence of one or two measures characterizes the pre-frailty condition, while more than three criteria characterize frailty.<sup>[2]</sup> Frailty is considered a forecast of adverse results, such as: its negative impact on health-related quality of life, the utilization of healthcare services and health conditions comorbidities, falls, institutionalization, disability, mortality along with its prevalence which is especially relevant with the domain of public health.<sup>[3,4]</sup>

Early identification of subgroups of the population could be beneficial for planning for the capability of health and social systems to care for increasing numbers of frail older people over time.<sup>[5]</sup> Previous studies consistently demonstrated that frailty increased markedly with advancing age<sup>[6]</sup>

Exploring factors that are associated with frailty is a basic research concern. Identification of correlates of frailty status facilitates the development of early preventive interventions of the occurrence of frailty. Studies exploring

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factors that are associated with frailty are essential to practically generate hypotheses for future study about causality to better predict risk of frailty or theoretically underpin the frailty model. Necessary the struggle should be increase to identify ways to better forecast the risk of frailty and to develop interventions to minimize the occurrence of frailty in the older population along with the universal incline of an aging population.<sup>[7]</sup>

Although research regarding potential risk factors of frailty and its possible causal relationship, which may be targeted in effective intervention and management, should have high priority, correlational studies of frailty are essential to practically generate hypotheses for future study about causality and theoretically test/underpin the frailty model.<sup>[7]</sup>

The abnormal acquisition of body fat is known as Obesity, usually more than 20% of an individual's ideal body weight. Obesity is mainly related with enhanced risk of disease, disability that can also cause the death.

Bariatrics is the branch of medicine that is associated with the study and management of obesity.

Nowadays the obesity has become a major health issue.<sup>[8]</sup> Obesity in older adults is associated with an increased risk for difficulties in performing physical functions. Both objective and subjective functional capacity, particularly mobility, are significantly decreased in overweight and obese compared to that of non-obese and lean older adults.<sup>[9]</sup> It is a clinical syndrome in which three or more of the following criteria were present: Self-reported exhaustion, unintentional weight loss (10 lbs. in past year), slow walking speed, weakness (grip strength) and low physical activity.<sup>[10]</sup>

**METHODOLOGY**

**Study Design, Settings and Duration**

A cross sectional descriptive study was conducted from January to March 2018 and data was collected from different Government hospitals of Karachi (Jinnah Post Graduate Medical Center, Dr. Ruth K.M. Pfau Civil Hospital and Abbasi Shaheed Hospital). These three hospitals had the major flow of the patients in the city.

**Sampling**

Convenient Non-Probability Sampling Technique was used. All registered patients in above mentioned hospitals were targeted. During the study period a total of 397 patients were registered out of which 377 patients were included who agreed to participate in the study. Patients with both genders (male and female), above 60 years of age with clinically confirmed diagnosis of frailty (mild and severe) and willing participate were included in the study. While, patient below 60 years of age, Having any disease which make them unable to walk or stand and not willing to sign inform consent were excluded.

**Data Collection Tool**

BMI and clinical diagnosis were done for determination of frailty. Patients height and weight were measured and BMI was calculated for declaring them as obese (Peig and Green, 2009) for Frailty patients clinical diagnosis were considered for declaring patient with Frailty (mild and severe).

**Data Analysis Procedure**

Descriptive statistics; categorical variables were measured as frequency and percentage where continuous variables were expressed as mean standard deviation. Inferential statistics. Correlation between obesity and Frailty

was determined by using spearman correlation test. Data will be analyzed by using Statistical Package for Social Sciences (SPSS) version 23.

**Ethical Concern**

Approval from the medical superintendent of the respective hospitals. During study Informed patient consent was taken, patients were convinced about their confidentiality, responses and their right to withdraw.

**RESULTS**

**Demographics**

Table 1 Describes the demographic Characteristics, which states that the majority were (n=215, 57%) male and having age between 61 to 63 years (n=75, 19.9%).

**Health Perception**

Table 2 showed about health perception of patients. It was observed that when the patient asked about their health the majority have the perception of fair health (n=182, 48.3%), followed by (n=95, 25.2%) good health.

**Characteristics of Obesity**

Table 3 we calculated the BMI of individuals by using BMI, find that the majority were overweight (n=151, 40%) and Obese were (n=37, 9.8%).

**Obesity**

Table 4 when we measure the level of frailty clinically, we find the majority were frail (n=209, 55.4%) and intermediate frail were (n=168, 44.6%).

**Table 1: Demographics.**

Variable	Frequency	Percentage
<b>Gender</b>		
Male	215	57
Female	162	43
<b>Age</b>		
60	38	10.1
61	75	19.9
62	75	19.9
63	75	19.9
64	38	10.1
65	38	10.1
66	38	10.1

**Table 2: Health Perception.**

Variable	Frequency	Percentage
Excellent	09	2.4
Very Good	11	2.9
Good	95	25.2
Fair	182	48.3
Poor	80	21.2

**Table 3: Characteristics of Obesity.**

Variable	Frequency	Percentage
Under Weight	76	20.2
Normal	113	30
Over Weight	151	40
Obese	37	9.8

**Table 4: Obesity.**

Variable	Frequency	Percentage
Intermediate	168	44.6
Frail	209	55.4

**Table 5: Correlation between Obesity and Frailty.**

Variable	N	Intermediate Frailty	Frailty	P-value
Obesity				
Under Weight	76	39	37	0.480
Normal	113	46	67	
Over Weight	151	65	86	
Obese	37	18	19	

### Correlation between Obesity and Frailty

Correlation between Obesity and Frailty discussed in Table 5 and concluded that there is no significance of obesity on Frailty.

### DISCUSSION

Current study revealed that there is no significant relationship between obesity and frailty however. After the extensive literature search it is found out that there is no study reported which is in line with the results of the current study however results from different studies gives opposite results. Blaum *et al.* conducted study in 2005 in Baltimore, Maryland taking female patients and concluded being overweight was significantly associated with prefrailty and obesity was associated with prefrailty and frailty.<sup>[11]</sup> Similarly, Ruth E. Hubbard *et al.* conducted a three-year study in 2009 in England taking the age over 50 years and concluded that there is a correlation between obesity and frailty.<sup>[10,12]</sup> Katie J Sheehan *et al.* conducted a study in 2013 in Ireland taking the age over 60 years and concluded that obesity significantly contributes in frailty.<sup>[13,14]</sup> TE Strandberg *et al.* conducted a study in 2000 in Finland taking the mean age of 47 years and concluded frailty was significantly higher among those men who were overweight or obese.<sup>[15]</sup> Sari Stenholm *et al.* conducted a two years study in 2000, 2001 in Finland having the age group between 30 to 75 years (majority of 30 to 60years) and concluded that the persons who are overweight and obese are at the high risk of frailty.<sup>[14]</sup> Olga Gajic-Veljanoski, *et al.* conducted a study in 2018 in Canada and concluded that obesity was associated with faster frailty progression.<sup>[16]</sup> The contrary results may be due to the selection of the participants, as study conducted in only three of Government the hospitals of the city. It is important to mention that mostly the government facilities are being attended by the poor patients.<sup>[17]</sup> The rich patients who may have the obesity along with Frailty may go to the private institutes.<sup>[18]</sup> The study should be conducted in private hospitals and clinics so that the effect of obesity on Frailty can be assess.

### CONCLUSION

This Study concluded that there is no significance of obesity on Frailty because mostly the government facilities are being attended by the poor patients and the rich patients who may have the obesity along with Frailty may go to the private institutes.

### Recommendation

The study should be conducted in private institutes in order to know the impact of obesity on frailty among rich peoples.

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### CONFLICT OF INTEREST

The authors hereby declare there is no conflict of interest with this submission.

### ABBREVIATIONS

**BMI:** Body Mass Index; **SPSS:** Statistical Package for the Social Sciences.

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