ORIGINAL ARTICLE

Annals of Punjab Medical College

Frequency of Obesity and Overweight in General Population

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ABSTRACT

Objective: To determine frequency of obesity and overweight indoor patients in tertiary care hospital and to compare the results with international studies. **Study Design:** Cross Sectional Descriptive Case Series. **Settings:** In outdoor patients of medicine department Allied hospital Faisalabad. **Duration:** 6 months from 01-08-2018 to 31-01 -2019. **Methodology:** Adult patients of either gender were included in the study. Patients of bed bound and on chemotherapy patients were excluded. Nonprobability consecutive sampling technique was used. After enrolment of patients according to criterion an informed consent was taken. Body weight and height were taken and BMI was calculated. **Results:** We Included 400 patients. Age ranged from 12-80 years (mean =40.50±15.2years). Out of these 400 patients 58.3% patients were found to have overweight and obesity. There were 261 females and 139 males. Age of patients ranged 12-80 years (mean = 40.50±15.2 years). Out of 400 patients 58.3% had obesity amongst which 70.4% were female and 29.6% were males and P value regarding gender distribution was (0.032) very significant showing strong association of gender and obesity and graph2 is showing that more than two third obese patients were females. In our data of 400 patients majority of patients in age above 30 years were obese and P value regarding age distribution was (0.001). very significant indicating important relationship between age and obesity. **Conclusion:** obesity and overweight are common in Pakistani population and needs to be considered in most of patients in outdoor patients especially females who are more predispose to having obesity and either gender with age above 30 years

Keywords: Obesity, Overweight, Females.

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INTRODUCTION

Obesity is overgrowing problem of the global community. Obesity refers to deposition of fat in excess in the body. The term overweight means an excess of body weight. Obesity is a chronic disease and is increasing in prevalence worldwide. There is global epidemic of obesity especially over the past 20 years. American population is expected to be 50 % over weight and 25% obese during their life.[1] Measuring body mass index (BMI) is the first important step to determine the degree of fat in the body.[1]

For Asians, overweight is taken as a BMI between 23 and 24.9 kg/m2, and obesity is taken as BMI >25 kg/m2 and abdominal obesity is Waist Circumference >90 Cm irrespective of BMI.

In general, greater BMI is associated with increased rate of death from all causes and from cardiovascular diseases. Hypertension is one of the leading causes of morbidity and mortality among obese people. In one study, overweight and obesity accounted for 26% cases of hypertension in men when followed up to 44 years of age. With significant increase in obesity in last decade, prevalence of hypertension has also increased significantly.[2]

The data from the WHO suggests 65% of the world's population live in countries where overweight and obesity kills more people than underweight. The WHO defines ―overweight as a BMI greater than or equal to 25, and obesity as a BMI greater than or equal to 30. Both overweight and obesity are major risk factors for heart disease and stroke and diabetes. A surrogate marker for body fat content is the body mass index (BMI), is measured by weight divided by height in square. A better way to define obesity would be in terms of percent total body fat. Based on BMI, prevalence should take the overweight and obesity of all inpatient and outpatient. Other studies states that more than 75% of population was having obesity and overweight in south coastal India.[3,4]

Obesity increases the risk of developing cardiovascular disease and diabetes. Obesity is a rapidly growing health problem in the world conferring substantial excess risk for morbidity and mortality.[5] Characteristics of BMI-metabolic risk sub phenotypes have been described in selected study samples, from which the prevalence data has been collected from the respective hospital. Furthermore, both obesity and Metabolic syndrome are risk factors for type 2 diabetes but whether elevated BMI in their absence confers risk for type 2 diabetes is imprecise.[5] The prevalence of obesity and metabolic syndrome is rapidly increasing in India and other South Asian countries have increased mortality and morbidity due to CVD and T2DM. The Asian Indian studies refer to the fact that high prevalence of diabetes and cardiovascular diseases is seen in people originating from South Asian nations. These disturbances include high FBS and increased levels of waist circumstances, low levels of high-density lipoprotein (HDL) and high levels of triglycerides, and hypertension. All of these risk factors have been taken as a metabolic syndrome.[6,7]

Obesity is a Major factor in development of hypertension, diabetes and other cardio metabolic conditions. Other than cardiometabolic condition obese patient has psychological issue even there are musculoskeletal conditions and newer research finding are showing obesity is associated more incidence of malignancies. Obese patients are four-fold increased risk of diabetes mellitus and hypertension and four-fold increased risk of cardiometabolic disorders in general patient have other disorders but with obesity, Obesity is also burden on economy of countries and adversely affect country and performance of different department due to obesity related issues.[8,9]

Research is showing obesity from 12% to 40 in different parts of world in our study, is found to 30 % which is comparable to Europe and Asian population and overweight patient are more. They are potential patient for future obesity and its related disorders.[10,11]

The aim of this study to assess the prevalence of obesity and overweight in both genders and to create awareness among adults regarding obesity and overweight.

METHODOLOGY

Study Design: Cross Sectional Descriptive Case Series.
Settings: In outdoor patients of medicine department Allied hospital Faisalabad-Pakistan.
Duration: 6 months from 01-08-2018 to 31-01-2019.
Sampling Technique: Non probability consecutive sampling
Inclusion Criteria: Adult patients of either gender were included.
Exclusion Criteria: Patients who were bedbound and on chemotherapy were excluded from this study.
Data Collection Procedure: After selection of patient as per criterion, informed consent was taken. Then a brief history regarding demographic details, body weight and height and BMI was calculated. Patient's history of DM, Hypertension and smoking was recorded. The obesity finding in relation to age distributions is depicted in table 1

In this study WHO criteria for obesity and overweight was applied. After the data collection was accomplished, results were analyzed by SPSS version 21.

RESULTS

Total number of patients was 400. There were 261 females and 139 males. Age of patients ranged 12-80 years (mean = 40.50±15.2 years). Out of total number of 400 patients 58.3% had obesity amongst which 70.4% were female and 29.6% were males and P value regarding gender distribution was (0.032) very significant showing strong association of gender and obesity and graph is showing that more than two third obese patients were females.

In our data of 400 patients, majority of patients in age above 30 years were obese and P value regarding age distribution was (0.001). very significant indicating important relationship between age and obesity.

Table 1: Distribution of respondents according to their age

Age (Years)	Frequency	Percent	Valid Percent	Cumulative Percent
<= 30	97	24.3	24.3	24.3
31 - 40	96	24.0	24.0	48.3
41 - 50	95	23.7	23.7	72.0
51+	112	28.0	28.0	100.0
Total	400	100.0	100.0	

Table 2: Gender distribution of respondents

Gender	Frequency	Percent	Valid Percent	Cumulative Percent
Male	139	34.7	34.7	34.7
Female	261	65.3	65.3	100.0
Total	400	100.0	100.0	

Table 3: Distribution of respondents according to their body mass index

BMI group	Frequency	Percent	Valid Percent	Cumulative Percent
Under weight	8	2.0	2.0	2.0
Normal weight	159	39.7	39.7	41.7
Over weight	120	30.0	30.0	71.7
Grade I obesity	84	21.0	21.0	92.7
Grade 2 Obesity	20	5.0	5.0	97.7
Morbid Obesity	9	2.3	2.3	100.0
Total	400	100.0	100.0	

Table 4: Relationship between BMI Group and age group

BMI Group		Age group				Total
		<= 30	31 - 40	41 - 50	51+	
Under weight	Count	4	2	1	1	8
	% within BMI	50.0%	25.0%	12.5%	12.5%	100.0%
	% within Age group	4.1%	2.1%	1.1%	0.9%	2.0%
Normal weight	Count	51	31	29	48	159
	% within BMI	32.1%	19.5%	18.2%	30.2%	100.0%
	% within Age group	52.6%	32.3%	30.5%	42.9%	39.8%
Over weight	Count	19	34	35	32	120
	% within BMI	15.8%	28.3%	29.2%	26.7%	100.0%
	% within Age group	19.6%	35.4%	36.8%	28.6%	30.0%
Grade I obesity	Count	17	21	23	23	84
	% within BMI	20.2%	25.0%	27.4%	27.4%	100.0%
	% within Age group	17.5%	21.9%	24.2%	20.5%	21.0%
Grade 2 Obesity	Count	5	1	7	7	20
	% within BMI	25.0%	5.0%	35.0%	35.0%	100.0%
	% within Age group	5.2%	1.0%	7.4%	6.3%	5.0%
Morbid Obesity	Count	1	7	0	1	9
	% within BMI	11.1%	77.8%	0.0%	11.1%	100.0%
	% within Age group	1.0%	7.3%	0.0%	0.9%	2.3%
Total	Count	97	96	95	112	400
	% within BMI	24.3%	24.0%	23.8%	28.0%	100.0%
	% within Age group	100.0%	100.0%	100.0%	100.0%	100.0%

Chi-square value = 37.01**; **P-value = 0.001**
NS = Non-significant (P>0.05); * = Significant (P<0.05); ** = Highly significant (P<0.01)

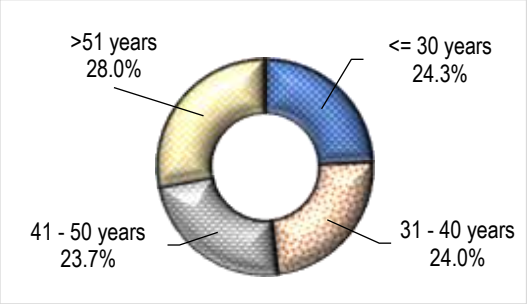

Figure 1: Age group distribution

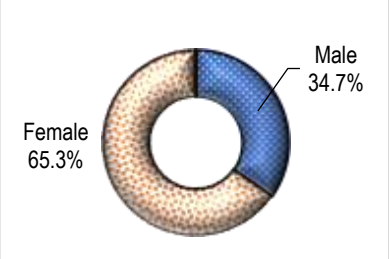

Figure 2: Gender distribution

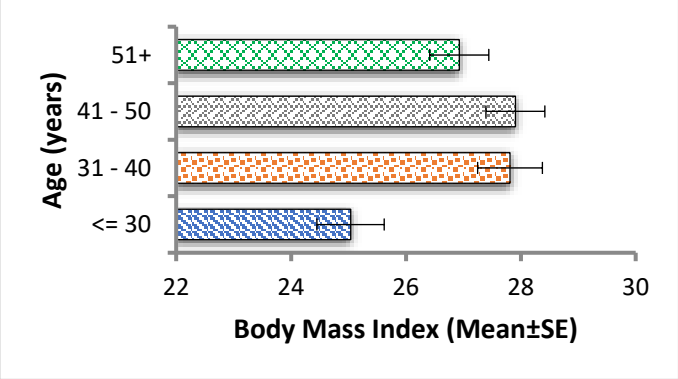

Figure 5: Age distribution

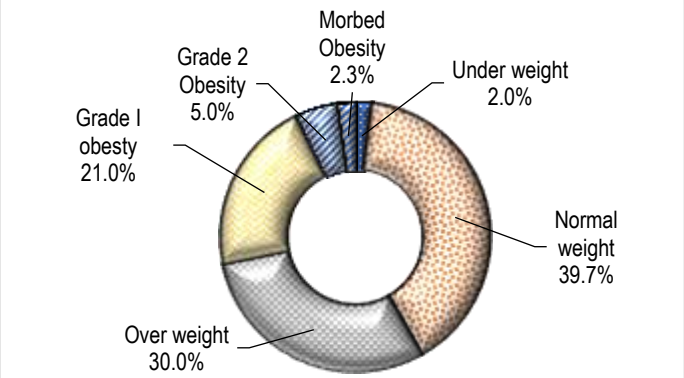

Figure 7: Body mass index (BMI) with different grades of obesity

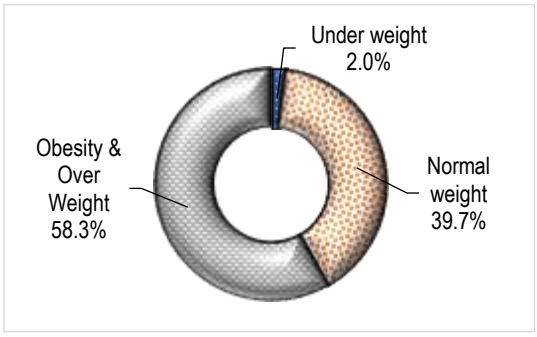

Figure 8: Body mass index (BMI) and percentage of obesity and overweight

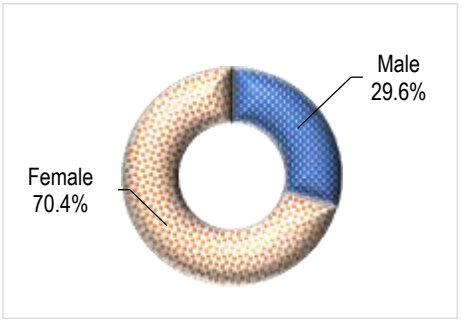

Figure 9: Obesity in male and female

Table 5: Relationships between BMI Group and Gender

BMI Group		Gender		Total
		Male	Female	
Under weight	Count	3	5	8
	% within BMI	37.5%	62.5%	100.0%
	% within Gender	2.2%	1.9%	2.0%
Normal weight	Count	67	92	159
	% within BMI	42.1%	57.9%	100.0%
	% within Gender	48.2%	35.2%	39.8%
Over weight	Count	42	78	120
	% within BMI	35.0%	65.0%	100.0%
	% within Gender	30.2%	29.8%	30.0%
Grade I obesity	Count	22	62	84
	% within BMI	26.2%	73.8%	100.0%
	% within Gender	15.8%	23.8%	21.0%
Grade 2 Obesity	Count	5	15	20
	% within BMI	25.0%	75.0%	100.0%
	% within Gender	3.6%	5.7%	5.0%
Morbid Obesity	Count	0	9	9
	% within BMI	0.0%	100.0%	100.0%
	% within Gender	0.0%	3.4%	2.3%
Total	Count	139	261	400
	% within BMI	34.7%	65.3%	100.0%
	% within Gender	100.0%	100.0%	100.0%

Chi-square value = 12.20*; P-value = 0.032
NS = Non-significant (P>0.05); * = Significant (P<0.05); ** = Highly significant (P<0.01)

DISCUSSION

Obesity in a very common chronic disease with significant morbidity and mortality and is fifth leading cause of death globally. Without active screening patients may have silent killing diseases like hypertension, diabetes and metabolic syndrome.

In a study conducted by Sumanth, Ramya N et al in pharmacy department Reddy memorial college published in world journal of pharmacy in May 2016. Data was collected from tertiary care hospital and this study was done on 353 patients with male 196 and females were 157. The study showed 42.4% patient were overweight and 35.97 % were obese which is comparable to our study which showed that 30 % patients were overweight and 28.5 % were obese.[12]

In another study by Salazar-Sepulveda LL et al in department of internal medicine during 2016-2017 on 316 Patients and obesity was found to be in 18.8 % patients which is comparable to our study showing 28.3 % obesity in 400 patients.[13]

In a study by Ali Z et al was conducted on 387 patients with mean ages 52 years in Diabetic Clinic of medical Unit 3 Jinnah Postgraduate medical Centre Karachi. In this study, males were 128 (33%) and females were 259 and (80%) of females patients were found to having obesity which is comparable to our finding with 70.4% of females patients.[14]

In another study conducted by Huang J et al in public hospital in Louisiana state university health science center. In this study 1507 patients were included and 81 % of patient were found to have overweight or obese which is slightly higher than our 58.3 % of patients with obesity and this may be regional difference and may be due to a reason that large population of more than 1500 patients were included in this study.[15]

CONCLUSION

We can conclude that obesity is common finding in patients outdoor patients in tertiary care hospital and screening should be done in all patients because 58.3% is an important finding.

LIMITATIONS

The data collected from only medicine department. Patients may have presented in other departments as well. Frequency of obese patients may vary in other departments.

SUGGESTIONS / RECOMMENDATIONS

More than half of patients were overweight or obese in our study and we recommend to take measures for prevention and management of obesity in all patients. So that we can prevent the future complications of overweight and obesity.

CONFLICT OF INTEREST / DISCLOSURE

None.

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AUTHORSHIP CONTRIBUTION

Muhammad Adrees	Data Collection, Manuscript writing
Muhammad Zeeshan Riaz	Data Collection
Hafiz Mughees Ather	Statistical Analysis
Muhammad Aamer	Data Interpretation
Marjaan Noor	Discussion writing
Afnan Noor	Results and References