INTRODUCTION

Obesity is an ever-growing 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 not just 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% overweight and 25% obese during their life span.

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 who followed up to 44 years of age. With significant increase in obesity in last decade, prevalence of hypertension has also increased significantly.

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.

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. 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. 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 circumferences, 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.
Obesity is a major factor in the development of hypertension, diabetes, and other cardiometabolic conditions. Other than cardiometabolic conditions, obesity is associated with psychological issues even in the absence of musculoskeletal conditions. Newer research is showing obesity is associated with 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 patients have other disorders but with obesity, obesity is also burden on the economy of countries and adversely affect country performance of different departments due to obesity-related issues. Research is showing obesity from 12% to 40% in different parts of the world in our study, is found to be 30% which is comparable to the European and Asian population and overweight patients are more. They are potential patients for future obesity and its related disorders.

The aim of this study is 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 were 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%         | 47.3%           | 71.6%           |
| 41 - 50         | 95             | 23.7%         | 71.0%           | 102.7%          |
| 51+             | 112            | 28.0%         | 100.0%          | 100.0%          |
| Total           | 400            | 100.0%        | 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%         | 100.0%          | 100.0%          |
| Total         | 400            | 100.0%        | 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%          | 100.0%          |

| Table 4: Relationship between BMI Group and age group |
|----------------|----------------|----------------|----------------|
| **BMI Group** | **Age group** | **Count** | **Frequency** | **Percent** | **Valid Percent** | **Cumulative Percent** |
| Under weight  | <= 30          | 4          | 2             | 1             | 1             | 8             |
|              | 31 - 40        | 2          | 1             | 1             |               |               |
|              | 41 - 50        | 1           | 1             |               |               |               |
| Normal weight| <= 30          | 51         | 13%           | 13%           |               |               |
|              | 31 - 40        | 31         | 77%           | 77%           |               |               |
|              | 41 - 50        | 29         | 73%           | 73%           |               |               |
| Over weight  | <= 30          | 19         | 4.7%          | 4.7%          |               |               |
|              | 31 - 40        | 34         | 85%           | 85%           |               |               |
|              | 41 - 50        | 35         | 87.5%         | 87.5%         |               |               |
| Grade I obesity | <= 30     | 17         | 4.25%         | 4.25%         |               |               |
|              | 31 - 40        | 23         | 57.5%         | 57.5%         |               |               |
|              | 41 - 50        | 23         | 57.5%         | 57.5%         |               |               |
| Grade 2 Obesity | <= 30     | 5          | 1.25%         | 1.25%         |               |               |
|              | 31 - 40        | 7          | 17.5%         | 17.5%         |               |               |
|              | 41 - 50        | 7          | 17.5%         | 17.5%         |               |               |
| Morbid Obesity | <= 30     | 9          | 2.25%         | 2.25%         |               |               |
|              | 31 - 40        | 8          | 2.0%          | 2.0%          |               |               |
|              | 41 - 50        | 8          | 2.0%          | 2.0%          |               |               |
| Total        | <= 30          | 97         | 24.3%         | 24.3%         |               |               |
|              | 31 - 40        | 96         | 24.0%         | 48.3%         |               |               |
|              | 41 - 50        | 95         | 23.7%         | 72.0%         |               |               |
|              | 51+             | 112        | 28.0%         | 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)
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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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Data Collection
Statistical Analysis
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Results and References