Facts and Statistics of Obesity in Indoor and Outdoor Apparently Healthy Individuals of Tertiary Care Hospital Lahore

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Introduction/Background:

According to WHO **"**obesity is abnormal and excessive fat accumulation in body that impairs the health of individual or has negative effect on health". It is a very damaging fact and it is increasing with the passage of time in all over the world due to varying life styles (WHO). Obesity occurs when BMI of individuals exceed from their normal range. BMI is the ratio of individual's weight by the square of their height and is calculated by a formula, BMI= (wt. in kg / height in m^2) (BMI Calculator,2017).The WHO has set different standards to classify individual's weight that is given below:

Classification	BMI (kg/m^2)
Underweight	< 18.5
Normal weight	18.5- 25.0
Over weight	25- 30.0
Obesity	30.0-35.0
Morbid Obesity	35.0-40.0
Severe Obesity	>40

Overweight indicates the presence of excess body weight. Obesity signifies the presence of excess body fat. All obese people are overweight, but all overweight people are not essentially obese as excess body weight may increase from muscle, bony structure or amount of water in body (NIH, 2017). Overweight and obesity is associated with adverse health outcomes which range from increased risk of mortality to non-fatal incapacitating disease. Obesity is a major risk factor for cardiovascular disease (CVD) and Type 2 diabetes mellitus (DM) and in the presence of other risk factors for non-communicable diseases such as smoking, hypertension, elevated blood cholesterol, has a damaging effect on health. As a result, obesity has been found to reduce life expectancy of individuals (AL-Nooh AA, 2011) .

Factors contributing weight gain: The rapid increase in the prevalence of overweight and obesity in both developed and developing countries shows that the drift is largely due to social, environmental and behavioral changing, rather than changes in hereditary factors (Bhurosy T, Jeewon R, 2014).

Modernization and globalization have had both positive and negative effects on populations. Increasing trends of urbanization, changes in traditional family structures, norms , electronic workplace, physical inactivity, globalization of world markets, and economic transition directly or indirectly affect our dietary and physical activity patterns. (Bhurosy T, Jeewon R, 2014).These changing patterns happen through government policy, media advertisement and due to changes in life pattern. Obesity is most commonly caused by heavy food intake, lack of physical activity, and due to minimum output of energy. The observation that over weight people eat little however gains weight due to a slow metabolism is not always applicable. On average, obese people have greater energy expenditure than their normal matches due to the energy required to maintain an increased body mass (Hill JO, Levine JS, 2003)

Taking into account the data of 1975 it can be concluded that all over the world the rate of obesity is tripled now. Overweight ratio, among more than 18 years older adults was 1.9 billion in 2016. Out of them over 650 million population aged 18 years 39% of population were overweight in 2016, and 13% were obese (WHO,2017).

Most of the world's population lives in countries where overweight and obesity kills more people than underweight. About 41 million children less than 5 years of age were overweight or obese in 2016.Over 340 million children and adolescents aged 5-19 were overweight or obese in 2016 (WHO,2017).Pakistan graded 9th out of 188 countries in relations of obesity, according to the Global Burden of Disease a Study published in The Lancet Medical Journal showed that no country has turned the flow of obesity since 1980 (Tribune, 2014).

 According to World Health Organization (WHO) estimates, 26 % of women and 19% of men in Pakistan are obese (Body Mass index (BMI) > 25) but only 4% of women and 1 % of men are recognized as obese using the standard criteria (BMI > 30). A devastating 671 million people fall within the obese category said the study – 78 million of them from United States, which accounts for 5% of the world's population, but more than a tenth of its totally overweight people. China and India, have larger population size, falls at 2nd and 3rd in the top 10 obese countries with 46 million population of china and 30 million people of India respectively, followed by Russia, Brazil, Mexico, Egypt, Germany, Pakistan and Indonesia.The main treatment of obesity includes diet control and physical workout. In result of different diet programs it can lead to weight loss for the short time duration, but maintaining this weight loss regularly is quite difficult and often requires doing exercise and making low energy diet a permanent part of a person's life style. In the short-term low carbohydrate diets prove better than low fat diets for weight loss programme. In the long term; however, all types of low-carbohydrate and low-fat diets seem equally beneficial.**Research Objective:** To identify the statistics of Obesity in indoor and outdoor apparently healthy individuals of Fatima Memorial Hospital Lahore. **Research Question:** What are the facts and statistics of Obesity in indoor and outdoor apparently healthy individuals of Fatima Memorial Hospital Lahore?**Methodology:**Descriptive cross sectional study design was used. An obesity awareness camp was organized in hospital to rule out the statistics of obesity. The study was conducted on apparently healthy individuals who were working at Fatima Memorial Hospital and on the outdoor individuals who come with their patients for routine medical checkup in Hospital.

The participants from any age group were included except children. Study was conducted on apparently healthy individuals. Individual suffering from any disease was excluded from study.Convenient sampling method was used for sample selection. All employs working in FMH & all the individuals who come from out-patient department of hospital were part of study and there were 131 who participate at camp. Data was collected through an assessment perfoma that is used in hospital by dietitians for nutrition assessment of patients. This perfoma consisted on different aspects of diet history and demographic variables of patients. **Ethical Consideration:** Participants were provided with enough information of research study including the purpose of study. Their information was kept confidential. In addition permission of study was taken by ethical review committee of the institute.**Data Analysis:** This study was conducted at Fatima Memorial Hospital Shadman Lahore. An Obesity awareness camp was organized and 131 people attended the camp. Data was collected by a survey form comprised of demographic variables and structured questions related to their eating habits.

Out of 131 study participants 52% were belong to 20-35 years age group, 34% were 36-50 years old, 12% were 51-65 years and only 16% participants were aged more than 65 years old. Ratio of female participants was higher than males 56% were females and 44% were males.
Following table 1.1 is showing the frequency percentage of demographic variables:

Table 1.1:*Socio-demographic variables of individuals (N=131)*

Variables	Frequency	Percent
Age		
20-35	68	52%
36-50	45	34%
51-65	16	12%
>65	2	02%
Sex		
Male	57	44%
Female	74	56%
Blood Pressure		
90/60-110/80	59	45%
111/81-130/90	44	33%
131/100-150/110	23	17%
>150/120	04	03%
Body Mass Index(BMI)		
18.5-25	32	24%
26-30	56	41%
31-35	39	30%
>35	06	04%
Waist Circumference		
25-30 cm	21	16%
31-35 cm	22	17%
36-40 cm	46	35%
>40	42	32%
Blood Sugar Level		
70-120	65	50%
121-170	38	29%
171-220	23	18%
>220	4	3%
Cholesterol		
<100		12%
101-129	16	33%
130-159	43	21%
160-189	28	13%
>190	18	20%
Weight History	26	
No change		19%
Increased	25	71%
Decreased	94	9%
	12	

Blood pressure of most of 45% participants was within normal range that was 90/60-110/80, 34% participants having slightly raised values of blood pressure between 111/81 to 110/150. Blood pressure of 17% of our participants was recorded high that was 131/100-150/110 and only 3% people were having very high blood pressure and they were sent to emergency department for further medical management.

Body mass index was calculated by measuring height and weight and 25% people were with normal BMI 18.5 to 25 ,41% were overweight 26-30 ,30% were obese and 4% study participants having the BMI more than 35 which means they were at morbid obesity level.

Waist was also measured in obesity camp only 16% participants were having waist between 25-30 cm and almost the same ratio was observed among 17% participants have 31-35 cm waist circumference, 35% were having 36-40 cm waist and 32% were with more than 41 cm waist. Blood Cholesterol level was checked only 12% population was observed having cholesterol level of <100 and 20% people were with very high cholesterol.

Survey report shows that there were 72% of people having history of increase in weight, only 9% told that they have lose their weight and 20% claimed that they have no change in their weight in recent six months.

Consumption of Dietary Products:
Table 1.2:*Consuption of dietary products*

Variables	Frequency	Percent
Milk Products/Glass		
0-3 Glass	25	19%
4-5 Glass	64	49%
>5 Glass	42	32%
Bread & Cereals/ Serving		
1-3 Serving	04	3%
4-6 Serving	38	29%
>6 Serving	89	68%
Fruits/Serving		
0-1 Serving	36	27%
2-3 Serving	69	52%
>3 Serving	26	20%
Vegetables/Serving		
1-2 Serving	61	47%
3-4 Serving	65	50%
>4 Serving	05	4%
Meat Consumption		
Chicken	63	48%
Beef	41	31%
Mutton	23	17%
Fish	04	3%
Fat		
Saturated	93	71%
Unsaturated	37	28%
Water Intake/Day		
3-5 Glass	95	72%
>6 Glass	36	27%

History was taken about dietary habits of 131 study participants. Table 1.2 showing that Participants were asked about consumption of different food groups and in response statistics has showed very good results they all were consuming milk & milk products, bread and cereals and fruits regularly.

They were taking good amount of vegetables almost 48% were taking 1-2 servings of vegetables and same ratio was consuming 3-4 servings of vegetables.

Majority of the people were chicken lovers and very few people were consuming fish in their diet. 72% people were using saturated fat and rest of the people was using unsaturated fat in their daily diet. 72% people were consuming 3-5 glasses of water a day and only 27% were consuming more than 6 glass of water.

Life Style:

Table 1.3: *Life Style*

Variables	Frequency	Percent
Life Style		
Active	52	39%
Sedentary	79	61%
Walk & Exercise		
Yes	20	15%
No	111	84%

When the participants were asked about their daily routine we found most of them were having sedentary life style and 40% were found active in their daily life. Walk and exercise was not the routine of them only 15% were doing walk and exercises.

Table 1.4:

Pearson correlation test was performed to see the correlation between B.P and cholesterol and it was found that this Correlation is significant at the 0.01 level (2-tailed).Similarly correlation analysis was done between BMI and life style of study participants and significant correlation was found that is at the
0.01 level (2-tailed).

Correlations		B.P	Cholesterol
B.P	Pearson Correlation	1	.284**
	Sig. (2-tailed)		.001
	N	131	131
Cholesterol	Pearson Correlation	.284**	1
	Sig. (2-tailed)	.001	
	N	131	131

Correlations		BMI	Life.style
BMI	Pearson Correlation	1	.326**
	Sig. (2-tailed)		.000
	N	131	131
Life. style	Pearson Correlation	.326**	1
	Sig. (2-tailed)	.000	
	N	131	131

Discussion: This study has showed 41% participants were overweight and almost 30% of study population was found obese. Waist circumference of 35% of population was 36-40 cm which is needed to be within normal range for them. 50% of study participants have blood sugar level within normal range. 72% of people having history of increase in weight this could be possible because it was observed by this survey that 61% of people have sedentary life style. **Conclusion:** According to survey study it is observed that the awareness, Access to information, dietary habits Blood pressure &cholesterol, life style &BMI, has significant association with Body Mass Index. While the amount of milk consumption has no significant association with BMI in apparently healthy individuals of Lahore.

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