# MEASUREMENT OF OBESITY BY DIFFERENT METHODS (BODY MASS INDEX AND BODY FAT PERCENT) IN KARACHI MEDICAL & DENTAL COLLEGE.

ARSHIA BILAL[1], FARAH ASAD MANSURI[2]

Worldwide, at least 2.8 million people die each year as a result of being overweight or obese. Overweight and obesity lead to adverse metabolic effects on blood pressure, cholesterol, triglycerides and insulin resistance. Risks of coronary heart disease, ischemic stroke and type 2 diabetes mellitus increase steadily with increasing body mass index (BMI). Raised body mass index also increases the risk of cancer of the breast, colon, prostate, endometrium, kidney and gall bladder. Mortality rates increase with increasing degrees of overweight, as measured by body mass index.[1] In a study conducted on Turkish adults, the overall prevalence of obesity was 9.7% and overweight was 34.8%[2]. In south east of Iran, prevalence of obesity and overweight were 11.6% and 38.2%, respectively. In addition 164 (37.5%) of women and 118 (36.9%) of men were overweight. Seventy eight (18.2%) of women and 15 (4.7%) of men were obese[3]. In a study on obesity in students of Isra university, 146 [86.9%] had normal Body Mass Index [16 to 25], while 16 [9.5%] had Body Mass Index in range of 25 to30 and considered overweight while, 6 [3.6%] students had body mass index between [30 to 40] and considered obese.[4] In a university of Karachi, BMI (Expressed as mean ± SD) in males and females was 23.82±3.88 and 20.98±4.12 respectively. %BF was 22.32±6.27 in males and 28.73±6.65 in females, with an overall 60.8% females and 44.4% males found to be overweight or obese. Obesity was under predicted by BMI when compared to skin fold calipers method used for %body fat. [5]

Prevalence of obesity is getting increased day by day not only in America & European countries but also in Asia. Its existence has impact not only onto the wellbeing but also on the productivity of the society. Considering its complications, it is important to know the actual extent of the problem and finding out the proper way of its measurement. Our study will highlight the magnitude and different method of measurement regarding obesity, thus resources could be allocated appropriately to resolve the problem.

An analytical cross sectional study was conducted in different institutes of Karachi during January–June 2011. The result of Karachi Medical & Dental College is showing here. A total of 66 persons were participated. BMI & body fat % was calculated with the help of body fat monitor (model # BF 500). We used WHO classification of BMI to categorize the sample into underweight (BMI<18.5), normal (18.5-24.99), pre-obese (25-29.9) & obese (=30.0)(6).Participants were also classified having %body fat level low, normal, high & very high varying with age & gender based on American journal of clinical nutrition[7].

Out of total 64 persons, 52% were male while rests (48%) were female. Mean age of participants were found to be 35±12 years. Mean weight & height were 65±14kg & 160±8cm respectively. Mean BMI & % BF were found to be 25.07±5.3 kg/m2 & 29.84±10.1% respectively. Based on BMI level 12.5%, 35.9%, 35.9% & 15.6% participants were found to be underweight, normal, pre-obese & obese respectively. All the underweight (12.5%) were found to be female While 70% of all the obese persons were female while calculating BMI . Male were more found to be more overweight (55%) as compared to female (16%), but the difference is found to be statistically insignificant. Proportions of

[1-2] Dept.of Community Health Sciences, KMDC, Karachi.

persons had %BF level low, normal, high & very high were found to be 4.7%, 31.3%, 25.0% & 39.1% respectively. About 70% of male were found to have high %BF as compared to female(55%) and this difference was found to be statistically significant($p<0.05$). Pearson,s correlation was significant at 0.01 level between BMI & %BF.

These results belong only to one institution; actual figures will be calculated later from the data taken from multiple institutions. Body fat % method was found to be more sensitive for measuring obesity than BMI. As obesity is found to be a prevalent problem among the given sample, further research on large scale is required to explore the actual magnitude of the problem.

**REFERENCES:**

1. World Health Organization. Global Health Observatory. Obesity; trends and situation. WHO 2011.available at http://www.who.int/gho/ncd/risk-factors/obesity-text/en/index.html. Accessed August 12, 2011.
2. Yabanci N, Gocgeldi E, Simsek I, Kilic S. Prevalence of obesity, abdominal obesity and the associated factors among a group of Turkish adults. Pak J Med Sci Jan-Mar 2010; 26(1): 21-5.
3. Rezaeian M, Salem Z. Prevalence of obesity and abdominal obesity in a sample of urban adult population within South East of Iran. Pak J Med Sci Apr-Jun 2007; 23(2): 193-7.
4. Sheikh IA, Shaikh AJ, Perveen N, Ujjan ID, Burny AA, Memon RA, et al. frequency of obesity among students of Isra University Hyderabad. Pak J Med Health Sci Jun 2007; 1(2): 54-6.
5. Hingorjo MR, Syed S, Qureshi MA. Overweight and obesity in students of a Dental College of Karachi:lifestyle influence and measurement by an appropriate anthropometric index. J Pak Med Assoc Aug 2009; 59(8): 528-32.
6. World Health Organization. Global Database on body mass index. BMI classification. Available at apps.who.int/bmi/index.jsp?intropage =intro 3.html. Accessed August 17, 2011.
7. Gallagher D, Heymsfield SB, Heo M, Jebb SA, Murgatroyd PR, Sakamoto Y. Healthy percentage body fat ranges: an approach for developing guidelines based on body mass index. American J of Clinical Nutrition Sep 2000; 72(3): 694-701.