HEIGHT, WEIGHT, BODY MASS INDEX AND PREVALENCE OF OBESITY AMONG THE ADULT POPULATION IN MAHAKAUSHAL REGION

Anatomy

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ABSTRACT

Aim – To study the Height, weight, body mass index and prevalence of obesity among the adult population in mahakaushal region.

Material and Method - A cross sectional study was carried out on 124 subjects (70 Males and 54 Females) in Mahakoushal region. The subjects studied were within the age group of 20 to 29 years. Stature was measured as the vertical distance between the floor and the vertex by a "Standard height measuring instrument". Weight was measured by "Standard weight measuring instrument".

Result - In male 25.71% were in underweight, 67.14% were in normal weight and 5.71% were in over weight and 1.4% was in obese. In female 33.33% were in underweight, 64.81% were in normal weight and 3.7% were in over weight and 0% was in obese.

Conclusion - All studies, including the present study go on to suggest that the prevalence of overweight and obesity appear to be increasing among urban adults of this country

KEYWORDS

Height, Weight, Body Mass Index, Obesity

Anthropometric measurements (like weight, height and obesity) provide universally applicable, inexpensive, non invasive and most portable technique for assessment of size, proportion and composition of the human body of different age groups.

Height and weight are the two most easily obtained anthropometric measures and have been used extensively in screening and monitoring programs because abnormal weights categories (underweight, overweight and obesity) have been considered as risk factors for various diseases.

Stature or standing height one of the most important elements in the identification of an individual. It is the most often used anthropometric dimension and it is a quantitative measure of physique and indicative of physical growth and development of an individual and also useful for calculating body surface area and predicting pulmonary function during childhood. Estimation of individual's stature is an important parameter in forensic examinations. It is defined as "the vertical distance between the highest point of vertex and the heel touching the floor"

Body mass index [BMI, weight kg/height m^2] is presently the most often used and widely satisfactory methods of distribution of bodyweight and classification of medical risk .Obesity has been defined as an abnormal accumulation of fat in the adipose tissue throughout the body. It is the most common nutritional disorder in humans from wealthy societies. It is a medical condition in which excess fat has been accumulated to an extent that it may have an adverse effect on health. Overweight is defined as body weight that exceeds the acceptable weight for a particular person and it is based on the individual's age, height and/or frame size. Over weight is determined by BMI value of 25-29.9 kg/m^2 while obesity is defined by BMI value of greater than or equal to 30 Kg/m^2. Excess body weight categories have been associated with physical discomfort, psychological trauma and disposes the individual to a complex health condition termed metabolic syndrome characterized by diabetes, lipid disorders, sleep apnea, certain type of cancer, osteoarthritis and hypertension leading to accelerated aging and cardiovascular diseases.

Certain types of medications, lack of physical exercise, excessive intake of dietary calories, genetic susceptibility and endocrine disorders are some of the commonly causes of obesity .Obesity has reached epidemic levels not only in developed nations but also in developing nations .The marked increase in the prevalence of obesity has been ascribed to an exposure to a toxic environment which implicitly discourages physical activity and explicitly encourages excessive intake of dietary calories Genetic susceptibility, endocrine disorders and certain types of medications are also causes of obesity. Underweight, on the other hand, is defined as lack of sufficient body weight it is usually associated with deficient nutritional reserves in the body and high risk of mortality in times of ill-health.

MATERIALS AND METHODS:

A cross sectional study was carried out on 124 subjects (70 Males and 54 Females) in Mahakoushal region. The subjects studied were within the age group of 20 to 29 years as stature attains its maximum at around 21 years of age and senility related changes of stature start appearing after 30 years. In the present study, the subjects included are of different castes and religion and of different socioeconomic status. The subjects having any disease or skeletal deformity have been excluded. Stature was measured as the vertical distance between the floor and the vertex by a "Standard height measuring instrument". Weight was measured by "Standard weight measuring instrument".

Body mass index (BMI) was calculated for each subjects as weight (kg) / height (m^2). Body weight categories were defined according to WHO BMI cut off as follows under-weight as 18.4 kg/m2 or below normal weight as 18.5-24.9 kg/m2; over-weight as 25.0-29.9kg/m2, and obese as BMI of 30.0 kg/m2 or greater.

The present study was carried out to investigate the relationship between body weight and stature among group of male and female of age groups between 20 to29 years in Mahakushal region and examined the trend of Height, weight, body mass index and prevalence of obesity among the adult population in mahakaushal region".

RESULTS

Study was carried out on 124 subjects (70 Males and 54 Females) were included in the study with rang of age from 20-28 years. Mean age of males was 21.1 with standard deviation (SD) of 1.25 were as mean age of Females was 20.81 with standard deviation (SD) of 1.42.

TABLE - 1
Staure and Body Weight and Body Mass Index in different sex

Variables	Male		Female		Significance
	Mean	S.D.	Mean	S.D.	
Stature in meter	1.69	0.081	1.55	0.070	0.001
Body Weight in kg	57.86	9.59	47.28	7.90	0.001
Body mass Index (Kg/m^2)	20.34	3.02	19.57	2.85	0.149

As shown in table no.1 mean height was found 1.69 ± .081 m in male subjects and 1.55 ± .070 m in female subjects. The mean body weight was found 57.86 ± 9.59 kg in male subjects and 47.28 ± 7.90 kg in female subjects. The mean body mass index was found 20.34 ± 3.02 kg/m2 in male subjects and 19.57 ± 2.85 kg/m2 in female subjects. The differential trends as assessed by mean of t-test reveal highly

significant sex differences (p<0.05) for Stature, and for body weight.

Table 2 Percentage distributions of Body weight categories of study population based on BMI

	Under-weight	Normal Weight	Over Weight	Obese
Male	25.71%	67.14%	5.71%	1.4%
Female	33.33%	64.81	3.7%	0%

Table 2 shows the percentage distribution of the body weights of the subjects. In male 25.71% were in underweight, 67.14% were in normal weight and 5.71% were in over weight and 1.4% was in obese. In female 33.33% were in underweight, 64.81% were in normal weight and 3.7% were in over weight and 0% was in obese.

DISCUSSION:
The study shows the prevalence of abnormal weight among age between 20-28 year and correlation between body weight and Height.

Author	City	Year	Age Group In years	No of subject	Sex	Weight In Percentage(%)			
						Under weight	Normal Weight	Over weight	Obese
Gopinath et al	Delhi	1994	25-64	13414	Male	-	-	-	21.3
					Female	-	-	-	33.4
Varghese et al	Kerala	2008	≥ 20	3423	Both	14.3	55.4	24.8	5.5
Masoodi SR et al	Kashmir Vally	2010	20-40		Both	-	-	16.3	5.10
J.O.Olusanya	Nigeria	2011	16-27	151	Male	4.3	37.2	4.6	1.3
				220	Female	7	74.8	10	5.1
Jaydip Sen	Jalpaguri	2013	20-60	600	Male	33.3	66.6	23.6	9.67
					Female	49.6	50.3	20.3	29.3
ShalomNCet al	Nigeria	2013	20-70	489	Both	11	40	31	18
Kokila S et al	Kanchipuram	2013	19-23	458	-	-	-	-	24.3	8.6
Present study	Mahakaushal region	2018	20-28	70	Male	25.7	67.1	5.71	1.4
				54	Female	33.3	64.8	3.7	0

The findings in the study indicated that majority of subjects in the early among age between 20-28 years have normal weight (Table 2). This is consistent with the reports of other researchers in Lebanon and Nigeria which indicated that most early adults have normal weight. Prevalence of obesity was found to be 0% among women and 1.4 among men in our study. Obesity was found to be more among females (33%) than males (17%) in the study by Sugathan et al., in Kerala. The incidence of obesity in the present study The prevalence of normal weight in this age group was more in male (67.14%) than the female (64.81%). And overweight in males (5.71%) than the female (3.7%) (Figure 1). Gopinath et al. reported a higher prevalence of obesity among urban males and females from Delhi (males: 21.30%; females: 33.40%).Varghese et al. in their study in Kerala found overall prevalence of obese and overweight as 5.5% & 24.8% respectively considering BMI values >=30 as obese and BMI 25-29.9 as overweight. Very recently, Garget al. Compared the results of two National Family Health Surveys (NFHS), one being NFHS-2 conducted in 1998-1999 while the other being NHFS3 conducted in 2005-2006. It was observed that the overall prevalence of obesity among Indian women had risen from 10.60% to 12.60%. The reported prevalence of overweight-obesity in the present study was observed to be lower than those reported by Masoodi et al. among adults of North India (Kashmir valley) (overweight-obesity: 16.30%; obesity: 5.10%). very recent large Indian survey reported a lower prevalence of overweight and obesity among individuals aged 15 years to 49 years (overweight: 9.80%; obesity: 2.80%). Kokila S. conducted a study among 458 students and found prevalence of overweight was 24.3%, prevalence of obesity was 8.6% obese and overweight individuals had significant family history. A study has been carried out by Jaydeep Sen among 600 adult belonging to BHCP in age group of 20-60 years and residing in the district of jalapaiguri, West Bengal ,India and found the prevalence of overweight and obesity to be high among both in male (23.67% and 9.67%) and female (20.33% and 29.33%) .

All these studies, including the present study go on to suggest that the prevalence of overweight and obesity appear to be increasing among urban adults of this country.

CONCLUSION:
The findings in the study indicated that majority of subjects in the early among age between 20-28 years have normal weight. The prevalence of obesity more in male. All studies, including the present study go on to suggest that the prevalence of overweight and obesity appear to be increasing among urban adults of this country. The prevalence of underweight was relatively high in the study population, especially in the periurban localities. The overall prevalence of overweight in our study was relatively low compared with other studies reported from

different parts of India. The multicentric nature of our study and the inclusion of periurban areas partly explain the reason for this difference.

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