Original Article

Assessment of the Body Mass Index of Medical Students of Bannu Medical College, Bannu-KPK Pakistan

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ABSTRACT

Objectives: To determine body mass index of the medical students of Bannu medical College & measure the rate of various categories of body mass index.

Study Design: Transverse study based on questionnaire.

Place and Duration of Study: The study was conducted at the Bannu Medical College Bannu from Jan 2018 to June 2018.

Materials and Methods: The weight of the body and height was calculated and the measurement of BMI carried out with the help of formula of weight divided by the square of height. The definition of fatness & overweight placed according to the international criteria of body mass index cutoffs defined by World Health Organization.

Results: The total frequency of the underweight students was about thirty percent out of which more than nine percent were in the group of strictly underweight with a BMI of less than 16.5. In obese group, the frequency was eight percent. The rate of the students lying in fat class 1, 2 & 3 was 2.7%, 0.6% and zero percent accordingly. The result showed that more females were underweight in contrast with the male students. In obese groups, there was an eminence of the males. A pure association was present between the concept of fatness in parents & fat students of the college.

Conclusion: This case study concluded that underweight persons particularly females should be thought a severe abnormality of health and this issues requires to be tackled.

Key Words: Adiponectin, Fatness, Hypertension, Adolescent, Menses, frequency, rate.

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INTRODUCTION

Fat is an important ingredient of human body. Fat is performing many functions in the body of humans. It is an important source of energy as well as an insulator of heat & absorber of the shocks and it is able to produce many hormones asadiponectin, resisting etc. High or low amount of fat initiates complications. Fatness is closely relating to the amount of the fat [1,2].BMI is in use for the identification of the fatness, different methods used are computed tomography, circumference of waist, MRI & tables of life insurance [3-7].

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Body mass index defines relative weight for a specific height and it is not for particular gender. In different indices utilized to evaluate the fatness, body mass index has displayed great correlation with the regular hypertension in all sexes [8].Fatness is the cause of many horrible diseases as heart diseases, diabetes mellitus, hypertension, complications in menses & sometimes it leads to the cancers of breast [8-10].Low weight in is very common in adolescent people of our country but opposite opinion is common for the adult population of Pakistan[5,6]. To confirm the outcome of this research work, there is a requirement to conclude BMI with a large amount of samples in this age group of populations[11]. This research work will help in the creation of basic data for the group of adolescent of our country.

MATERIALS AND METHODS

This was a transverse research work based upon questionnaire. The study was carried out in Bannu medical college, Bannu from Jan 2018 to June 2018. All the students of medical college were the participants of this study. The filling of questionnaire carried out by each student and their mass and height was noted. Motivation of the students carried out to participate in

the research work. Ethical committee gave the approval for the conduction of the research work. Body weight and height were measured to the closest 0.1 kilogram and half centimeter with the utilization of standard calibration scale and measuring tape.

To reduce the error in calculations, the preciseness of the scales calculated. Statistical analysis of the collected information carried out with the help of SPSS software version 16. Student's T-test was in use for the analysis of the variables. Chi square method was in use for the measurement of disparities. ANOVA was in use for the evaluation of the disparity in the occurrence rates of the fatness in students and their parents. The calculation of body mass index was conducted by dividing the weight of the person in kilograms with the square of the height of person.

Some WHO body mass index points of cutoffs are;

- less than sixteen kg/m2 (highly underweight)
- 16 to 16.99 kg/m2 (normal underweight)
- 17 to 18.49 kg/m2 (mild underweight)
- 18.50 to 24.99 kg/m2 (ordinary range)
- twenty-five kg/m2 (heavy)
- 25 to 29.99 kg/m2 (pre fatness),
- thirty kg/m2 (fat)
- 30 to 34.99 kg/m2 (fat class 1),
- 35 to 39.99 kg/m2 (fat class 2),
- greater than fortykg/m2 (fat class 3)

RESULTS

Seven hundred ninety-two students completely filled their questionnaire were the part of this research work. Twenty-eight percent were the male participants &seventy-two percent were female participants. The average student's height was 164.3 ±9.9 centimeters. The average height of male student was 174.7 ±7.8 centimeters. The disparity was significant statistically. The average student's weight was 56.2 ±11.9 kilogram. The weight of female students was less than the male students. The average body mass index of students was 20.8 ±3.8. The BMI of the males was greater than the female students. About sixty percent students were in the normal category of body mass index. About thirty percent students were underweight in which about ten percent were severely underweight.

Eight percent students were overweight. The rates of the students making fat class 1, 2 and 3 were 2.7%, 0.6% and zero percent accordingly. Fifty-seven females were in the group of severely underweight while nineteen males were present in this class. Obesity was most common in males than females according to the results. The disparity among the values analyzed with the help of Chi square test as mentioned in Table-1.

Sixty-nine students mentioned fatness in their fathers while one hundred and seventy-four students stated their mother as fat &sixty-nine percent students mentioned fatness in both parents as described in Table-2.

Hypertension was present in one hundred and ninety-eight patients. Hypertension in the case of both parents was available in thirty-one students. The results of analysis of the values of BMI of students with their concept of fatness in their parents showed that students of obese parents have high values of BMIs as mentioned in Table-3.

Table No.I: Segregation of BMI categories according to gender

Gender * BMI Categories Cross tabulation								
Gender		BMI Categories						Total
		Severely Underweight	Underweight	Normal	Over Weight	Obese Class I	Obese Class II	
Male	Count	19.0	31.0	132.0	28.0	12.0	0.0	222.0
	% within Gender	8.600%	14.000%	59.500%	12.600%	5.400%	0.000%	100.000%
Female	Count	57.0	130.0	334.0	35.0	9.0	5.0	570.0
	% within Gender	10.000%	22.800%	58.600%	6.100%	1.600%	0.900%	100.000%
Total	Count	76.0	161.0	466.0	63.0	21.0	5.0	792.0
	% within Gender	9.600%	20.300%	58.800%	8.000%	2.700%	0.600%	100.000%
P value		<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010

Table No.2: Presence of obesity, hypertension & diabetes among parents.

	Corpulence		HTN		Diabetes Mellitus	
	No	%	No	%	#	%
Father	69.0	8.70	198.0	25.00	134.0	16.90
Mother	174.0	22.00	128.0	16.00	76.0	9.60

Table No.3:: BMI of Students in relation to obesity among their parents.

Obesity in Parents	Mean BMI of Students	No of Students	SD
None	20.00	480.0	3.40
Father	21.60	69.0	3.50
Mother	21.70	174.0	4.00
Both	22.50	69.0	4.70

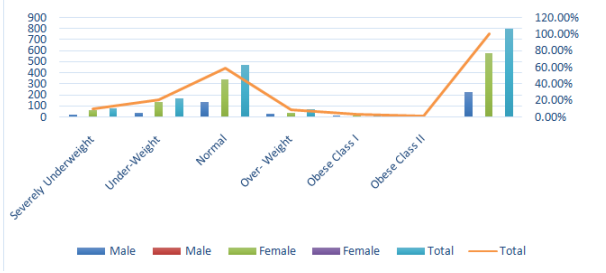

Figure No.1: BMI classifications of both genders.

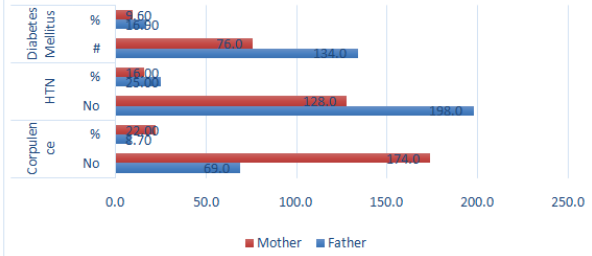

Figure No.2: Prevalence of Obesity, HTN & DM among Parents

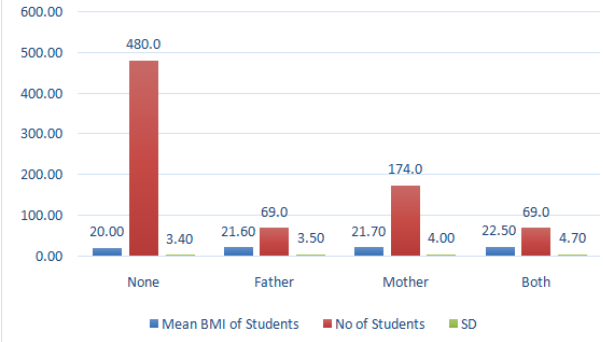

Figure No.3: BMI of students in relation to BMI of their parents

DISCUSSION

This research work displayed an important quantity of students in the category of underweight with thirty percent students fulfilling this category while fatness was just in three percent students and it was not a serious issue.A previous research work stated the same amount of underweight of twenty-nine percent but they got the cutoff values of BMI as less than nineteen kg/m2& they did not conclude the analysis of the subgroup category[11].They also concluded fatness at more than twelve percent with BMI cutoff of greater than twenty-six kg/m[12].This research work concluded that most of the females were falling in the category of underweight; this was just because of the inclination toward slimness not because of malnutrition.

The fatness was mostly occurring in male participants of this study & same results were concluded in adolescents of Greek[13]. The preciseness in the reporting of categories of body mass index is suitablein this research work [14].In this research work, we got the views of the medical students about the availability of fatness in their parents & we observed a pure association of fatness in their parents with also its availability in the students included in research [15]. The occurrence of underweight in young age is also reported by many other research works [16-19].This is a serious problem of health which leads to the mental and physical abnormalities as well as [20-23].

The experts of WHO states that the BMI standard is not correct for the populations of Asia because these people have different relationship with risks of health, body fat percentages & body mass index as compared to the populations of Europe. There is no approval of new BMI standard for the populations of Asia [24]. It is suggested that recent cutoff of body mass index should be maintained on international level [25]. The prevalence of the high amount of females in underweight category is very threatening. Case works have displayed that there is an association among variables of somatic &psychological in these individuals and a decreased amount of serum leptin is present in them [26].There is a clear cut disparity in the concepts for underweight conditions in the populations facing this issue [27-28].

CONCLUSION

This research work put light on the reality that fatness is not a frequent issue among the students of medical field but the main abnormality in them is low weight especially in females. In recent days about eighty percent medical students are females; this is an important outcome which needs to be tackled with good awareness & qualification.

Author's Contribution:

Concept & Design of Study:	Abdul Razaq
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Data Analysis:	Bakht Jehan, Aden Razaq, Wasim Ahmad
Revisiting Critically:	Abdul Razaq, Shabir Hussain
Final Approval of version:	Abdul Razaq

Conflict of Interest: The study has no conflict of interest to declare by any author.

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