

The Estimation Of Body Mass Index Among The Pharmacy Students Of Sindh, Pakistan.

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ABSTRACT:

Objectives: The purpose of this study is to estimate the obesity ratio among the student of College of Pharmacy belongs to urban and rural areas of Sindh, Pakistan. **Material & Methods:** A total of 210 questioners were analyzed. Data was collected during the period of Feb 2019 to Sep 2019 by means of structured questioner including demographic data, blood pressure measure by using sphygmomanometer and stethoscope and self taken weight (kg) and height (meters) data which were used to convert into BMI using formula weight in kg/height in meters (WHO,2006). Categorization of students were made according to WHO (2006) based cut off points as: underweight (i.e. BMI < 20), Normal weight (i.e. 20 < BMI < 25), overweight (i.e. 25 < BMI < 30) and obese (i.e. BMI > 30) (WHO 2006).out of 210 students 148 (70.47%) were females and 62(20.96%) were male students, 59 (28%) were belong to urban areas where as 151 (71.90%) were belong to rural areas of Sindh, Pakistan. **Results:** The majority of students from 2nd professional undergraduate were overweight. The higher rates of the underweight students were found in final professional undergraduate students. Only male students of 4th professional undergraduate were found higher in numbers in underweight. The high blood pressure was found in female students (20.94%) then in male students (16.12%). SPSS Version 22 was used to tabulate the data. **Conclusion:** World Health Organization shows that human health depends upon (60%) on behavior and living habits, (15%) by genetic factor, (8%) by medical condition and (7%)by climate, thus this study will led to an improved understanding of health status of studied population and will serve to notify university programs and policies.

Keywords: Body Mass Index (BMI), World Health Organization (WHO), Obesity, Blood Pressure (B.P)

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INTRODUCTION:

WHO recommended classifications related to bodyweight that include degrees of underweight and stages of surplusweight or overweight that are linked with increased risk of several non-communicable diseases. These classifications are based on body-mass index (BMI), calculated as weight in kilograms divided by height in meters squared (kg/m²). As a measure of relative weight, BMI is easy to obtain. It is an acceptable alternate for slimness and heaviness, and has been straightly related to health risks and death rates in

related Populations¹. BMI, used as most frequent and reliable measure, does not reflect body fat distribution, and some recent research concerning it as a suitable indicator of high body weight and obesity². BMI is also associated with blood pressure, Weight loss considerably reduces blood pressure (B.P), while BMI is not purely a marker of factors associated with high BP but is causally associated. One connotation of this association is that elevated BP, a major cardiovascular disease risks³. Earlier studies have established the main factors of hypertension including age, gender, smoking, exercise, family history, dietary habits, and

body mass index (BMI) ². Some studies have also shown that BMI have positive relation with type 2 diabetes ¹. In recent scenario, people are less concerned about their health because of the busy life pattern. Many Organizations in the world have focused their attention to find out this matter. With this global change overweight, underweight, and obesity have appeared as burning problems in the world ⁷. In case of university students the meal taking schedule is depend upon lecture schedule and availability of food inside the university campus due to unavailability of quality food students usually skipping their meals ⁴. The purpose of this study was to quantify the prevalence of overweight and obesity among a sample of students of College of Pharmacy belongs to urban and rural area of Sindh, Pakistan. This study will provide an improved understanding of health status of students and will serve to notify the university plans and policies.

METHODS:

The descriptive cross sectional study was conducted at College of Pharmacy, Liaquat University of Medical and Health Sciences, Jamshoro, Sindh, Pakistan. during the period of Feb 2019 to Sep 2019. A total of 210 students with usable data enrolled who were in 2nd, 3rd, 4th and final professional undergraduate program. The structured questionnaire with closed ended questions which include information based on the purpose of study i.e. demographic (gender, ethnicity and age), measures blood pressure by using sphygmomanometer and stethoscope and self taken weight (kg) and height (meters) data which were used to convert into BMI using formula weight in kg/height in meters (WHO, 2006). Categorization of students were made according to (WHO, 2006) ⁵ based cut off points as: underweight (i.e. BMI < 20), Normal weight (i.e. 20 < BMI < 25), overweight (i.e. 25 < BMI < 30) and obese (i.e. BMI > 30) (WHO 2006) ⁵. The data not readable were excluded from the study. The verbal consent was taken from each student by explaining them the objective of the study. Collected data were entered in SPSS version 22. Descriptive statistics was used to tabulate the data in terms of frequency and percentages.

RESULTS:

The survey was conducted to explore the BMI between the different years of undergraduate studies and figure out the association between their BMI and blood pressure. No any known comparative study has been yet conducted in other faculties of our university.

The descriptive statistics of variables is shown in above table 1. The table # 2 showed the demographic information included gender, ethnicity, general health and professional (years) of under graduation. A total of 210 students' data was used for this survey out of which 148 (70.47%) were females and 62 (20.96%) were male students. regarding their ethnicity, 59 (28%) were belong to urban areas where as 151 (71.90%) were belong to rural areas of Sindh, Pakistan. Their general health status was 47 (22.38%) had excellent, followed by 92 (43.80%) had very good, 53 (25.23%) had good and 18 (8.57%) had fair/poor health status. The students who were in 2nd professional undergraduate program were total number of 63 (30%) out of which 45 were females and 18 were male students. In the 3rd professional undergraduate program, the total number of 57 (27.14%) out of which 35 were females and 22 were male students. For the 4th professional undergraduate program, it comprises of 54 (25.71%) students out of which 41 were females and 13 were male students. And the final professional undergraduate program, the total number of 36 (17.14%) students out of which 27 were females and 9 were male students. The table # 3 have the detailed information about the analysis of the data showed the BMI levels of the students. It also showed the differences between each year of undergraduates. From 2nd professional undergraduate program, the highest number of females 21 (46.66%) has desired weight followed by 13 (28.88%) has overweight, 6 (13.33%) has underweight and 5 (11.11%) has obesity. The highest number in male students 8 (44.44%) has overweight, followed by 6 (33.33%) has desired weight and 2 (11.11%) has underweight and obesity. From 3rd professional undergraduate program, the highest number of females 15 (42.85%) has desired weight followed by 9 (25.71%) has under weight, 8 (22.85%) has overweight and 3 (8.75%) has obesity. The highest number in male students 10 (45.45%) has desired weight, followed by 5 (22.72%) has overweight and 4 (18.18%) has underweight and 3 (13.63%) has obesity. From 4th professional undergraduate program, the highest number of females 19 (46.34%) has desired weight followed by 13 (31.7%) has overweight, 5 (12.19%) has under weight and 4 (9.75%) has obesity. The highest number in male students 5 (38.46%) has desired weight, followed by 4 (30.76%) has under weight and 3 (23%) has overweight and 1 (7.69%) has obesity. From final professional undergraduate program, the highest number of females 11 (40.74%)

has desired weight followed by 8 (29.62%) has under weight, 6 (22.22%) has overweight and 2 (7.4%) has obesity. The highest number in male students 4 (44.44%) has desired weight, followed by 3 (33.33%) has overweight and 2 (22.22%) has overweight and no one has obesity. The result showed that there is no significant difference in BMI and Gender of the students as calculated Chi-square value of 2.750 was not significant as $P.00 < 0.05$ at 3 degree of freedom. In this case we excluded that our null hypothesis is accepted as calculated value (0.432) is less than the tabulated value (7.815). Table 4 shows the cross tabulation between gender and BMI which was not significant statistically. The table # 5 has the details about the evaluation of blood pressure associated with BMI. It showed that majority of the females 95

(64.18%) have normal blood pressure and in case of the male students majority 39 (62.9%) have the normal blood pressure, followed by 31 (20.94%) females have high range of blood pressure and 22 (14.86%) females have low range of blood pressure where as in male students 13 (20.96%) lies in low range of blood pressure and 10 (16.12%) have high range of blood pressure. The result showed that there is no significant difference in Blood pressure and Gender of the students as calculated Chi-square value of 3.745 was not significant as $P.00 < 0.05$ at 2 degree of freedom. In this case we concluded that our null hypothesis is accepted as calculated value (0.154) is less than the tabulated value (5.991). Table 6 shows the relationship of blood pressure and gender which was not statistically significant.

Table 1: Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
gender of students	210	1	2	1.30	.457
ethincity	210	1	2	1.72	.451
general health of students	210	1	4	2.20	.885
professional in years	210	1	4	2.30	1.076
Valid N (listwise)	210				

TABLE # 2 DEMOGRAPHIC INFORMATION (N= 210)	
VARIABLES	N (%)
GENDER	
Female	148 (70.47)
Male	62 (20.96)
ETHNICITY	
Urban	59 (28)
Rural	151 (71.90)
GENERAL HEALTH	
Excellent	47 (22.38)
Very good	92 (43.80)
Good	53 (25.23)
Fair/poor	18 (8.57)
PROFESSIONAL (in years)	
2 nd professional undergraduate	63 (30)
Female	45
Male	18
3 rd professional undergraduate	57 (27.14)
Female	35
Male	22
4 th professional undergraduate	54 (25.71)
Female	41
Male	13
5 th professional undergraduate	36 (17.14)
Female	27
Male	9

Variables	Underweight N (%)	Desired weight N (%)	Overweight N (%)	Obese N (%)
2nd prof.				
Female	6 (13.33)	21 (46.66)	13 (28.88)	5 (11.11)
Male	2 (11.11)	6 (33.33)	8 (44.44)	2 (11.11)
3rd prof.				
Female	9 (25.71)	15 (42.85)	8 (22.85)	3 (8.75)
Male	4 (18.18)	10 (45.45)	5 (22.72)	3 (13.63)
4th prof.				
Female	5 (12.19)	19 (46.34)	13 (31.7)	4 (9.75)
Male	4 (30.76)	5 (38.46)	3 (23)	1 (7.69)
5th prof.				
Female	8 (29.62)	11 (40.74)	6 (22.22)	2 (7.4)
Male	2 (22.22)	4 (44.44)	3 (33.33)	-

		BMI				Total
		underweight	normal weight	overweight	obese	
gender of students	female	31	60	41	16	148
	male	9	31	18	4	62
Total		40	91	59	20	210

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	2.750 ^a	3	.432
Likelihood Ratio	2.845	3	.416
Linear-by-Linear Association	.005	1	.943
N of Valid Cases	210		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 5.90.

VARIABLE	Female N (%)	Male N (%)
BLOOD PRESSURE		
Low (<120/80)	22 (14.86)	13 (20.96)
Normal (120/80)	95 (64.18)	39 (62.9)
High (>120/80)	31 (20.94)	10 (16.12)
Total	148 (100)	62 (100)

		blood pressure			Total
		low	normal	high	
gender of students	female	20	97	31	148
	male	15	37	10	62
Total		35	134	41	210

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	3.745 ^a	2	.154
Likelihood Ratio	3.569	2	.168
Linear-by-Linear Association	2.892	1	.089
N of Valid Cases	210		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 10.33.

DISCUSSION:

The lifestyle of the university students bring them to the unhealthy eating habits that will unfortunately lead to overweight, obesity or malnutrition⁶⁻¹⁰

BMI is actually comprises of two indicants: height and weight. The 75% height depends upon genetic factors (inheritance) and remaining 25% are acquired¹¹. But regarding weight it is totally concerned to eating habits, lifestyle and nutrition/calories that one is taken.

The majority of students from 2nd professional undergraduate were overweight as compared to the rest of the professionals. One of the Srilankan study revealed that 5.8% students were overweight¹². The higher rates of the underweight students were found in final professional undergraduate students i.e. 29.62% females and 22.22% male students as compared to the other professionals. Only male students of 4th professional undergraduate were found higher in numbers in underweight i.e. 30.76%.

As literature proves that overweight is the presage of obesity, so it should be a great concerned of overweight and obese university students. This could be because of the fact that 71.9% of students belong to different rural area of Sindh, Pakistan. They are lived in hostels and eating out unhealthy/unhygienic food and do less physical exercise. Long term use of such food and no physical workout could lead to the obesity. As we have found that high rate of obese students in 2nd and 3rd professional undergraduate i.e. (11.11% & 13.63%) male students (11.11% & 8.75%) female students respectively. As compared to 4th and final professional students i.e. (7.69% and 0%) male students and (9.75% & 7.4%) female students respectively. This showed that study will put stress and energy consumption is high as they become senior. Majority of the students from every professional undergraduate were found to be of desired weight which showed that nutrition/calories ingestion is sufficient to meet the demand for their growth and development. The underweight students can improve their physical condition by using reasonable diet. The students of different professionals undergraduate show no difference in their level of BMI. As they are of same age group approximately. The slightly differences showed because of gender, metabolic changes, living style, physical work and behavior.

The high blood pressure was found in female students 20.94% then in male

students 16.12%. The low blood pressure was found more in male students 20.96% then in female students.

World Health Organization shows that human health depends upon 60% on behavior and living habits, 15% by genetic factor, 8% by medical condition and 7% by climate¹³.

CONCLUSION:

It is concluded that there are more normal weight students in the college, but found some underweight scoring needs to be intervened and considerable count of overweight and obese students focused on reducing and preventing obesity.

RECOMMENDATIONS:

Periodic physical examination will be organized in future for university students as the undergraduate university students are at that stage of life where they are of great concerned about their healthy life style, eating habit and add physical workout to stay healthy for a long time period and enjoy the quality life.

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Conflict of interest: Nil

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