

Original Research Article**Prevalence of Overweight and Obesity among MBBS Students of VIMSAR**

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Email: drsumitrabhoi09@gmail.com, Phone no: 919438271740**Abstract****Background:** *overweight and obesity are recognized as an escalating epidemic affecting developing countries. Obesity is associated with a large number of debilitating and life threatening disorders such as cardiovascular, metabolic and other non-communicable diseases.***Objectives:** *To estimate the prevalence of overweight and obesity among medical students in VIMSAR, Burla and to find out the effect of various risk factors with obesity.***Material and Methods:** *A cross sectional study was conducted in a selected sample of 150 students from all batches of MBBS courses from July 2017 to Dec 2017 in VIMSAR Burla. Height and weight were measured and BMI was calculated. Details of factors influencing overweight and obesity were obtained using a pretested and predesigned questionnaire.***Result:** *Majority (66%) was in the age group 21-25 years. 61.3% were males and 38.7% were females. Prevalence of overweight and obesity according to South-Asia pacific guidelines of WHO was 18% and 36.66% respectively. There were 83.33% of study population took snacks in between meal, 44.67% skipped their meals and 63.33% (95) showed physical activity in terms of exercise daily.***Conclusion:** *The increasing trend of modern day epidemic of obesity in medical students can be prevented by changing their day to day life style and diet pattern.***Keywords:** *Overweight, obesity, BMI, physical activity, medical students.***Introduction**

Obesity is a complex condition, one with serious social and psychological dimensions, that affects virtually all age and socioeconomic groups and threatens to overwhelm both developed and

developing countries.^[1] According to WHO global estimates, about 13% of world's adult population (11% men, 15% women) were obese in 2014.^[2] Even as India battles malnutrition, the country has developed another nutritional problem- obesity. In

past ten years, the number of obese people doubled in the country.^[3]

Of the factors contributing to obesity, stress seems to be particularly important as stressful conditions lead to irregularity in diet, lack of exercise and addiction, each being considered an independent factor leading to obesity.^[4] Medical education is stressful throughout the course of training. the amount of material to be absorbed, social isolation, pressure of examination, discrepancies, between expectation and reality all can be anticipated to bring psychological stress.^[5] Other modifiable factors such as increased fastfood consumption, increased soft drinks, watching television and playing games on the computer and lack of outdoor games are more important from prevention point of view.^[6]

A clear socioeconomic gradient in the prevalence of overweight and obesity was observed in a study, which was consistent with other studies.^[7]

One of the major reasons for childhood obesity was watching television or using computers.^[8]

The professional students, medical students are in a high risk side when obesity is concerned. Medical students are exposed to various factors, known, unknown for overweight/obesity.

Hence this study was undertaken to find out the prevalence of underweight and obesity among undergraduate medical students. An attempt was made to find out the association of factors influencing overweight.

Aims and Objectives

- To estimate the prevalence of overweight and obesity among medical students in VIMSAR
- To find the effect of the following risk factors with obesity: physical inactivity, sleeping habits, diet, stress and association with other diseases.

Materials and Methods

A cross sectional study was conducted in VIMSAR, Burla from July 2017- December 2017 and ethical clearance was obtained from

institutional ethical committee. Assuming prevalence of obesity of 12%^[9], taking precision 5%, the sample size (168) was calculated by the formula $4pq/d^2$. 18 students had history of fever, typhoid, diarrhea or other medical condition in last two months which could have affected their body weight were excluded from the study. Data was collected from first year to final year medical students including male and female both, 30 from each batch according to the ratio of boys and girls in each batch as per stratified random sampling. A pre designed semi structured questionnaires were distributed to students. There was no potential risk to participants as the study did not involve any intervention.

Weight and height of the students were taken by the use of electronic weighing scale and measuring tape. Body mass index (BMI) was calculated using quetelet's index as; Weight (kg) divided by square of height (meters). Asian cut off for body mass index was used for defining overweight and obesity.^[10]

Physical activity was assessed based on the hours spent for brisk walking/jogging, use of vehicle for routine travel in campus, physical activity. Adequate physical activity was defined as moderate to severe physical activity of at least 60min/ day as recommended by global recommendations on physical activity for health, WHO.^[11]

Software Statistical Package for Social Sciences, (version 21.0) was used for data analysis. Non obese and overweight & obese group were compared by using the chi-square test.

Results

Table 1 shows socio-demographic characteristics of study population. We conducted the study on 150 subjects. Out of them 61.3% (92) were males and 38.7% (58) were females. Majority (66%) were in the age group 21-25 years. Among their fathers, 116 were service holders, 25 were businessmen and 9 were involved in agriculture activities. Among their mothers, 116 were housewives and 34 were service holders.

Table 2 shows prevalence of overweight and obesity among medical students. According to Asia-Pacific guidelines prevalence of overweight and obesity was 18% and 36.66% respectively.

Out of 150 students, 69.3%(104) were taking food 4 times a day, 17.3%(26) were eating 3 times a day, 10%(15) were taking food 5 times a day, 2.7%(4) were taking food 2 times a day and 0.7%(1) were taking food 6 times a day.

27.33 % (41) consumed fast food daily, 59.33 % (89) consumed fast food sometimes and 13.33 % (20) never consumed fast food.

66.6%(100) consumed vegetables <10 times a week, 24%(36) consumed 10-20 times a week, 2%(3) of students consumed vegetables \geq 20 times a week and 7.3%(11) took vegetables very rarely.

61.33%(92) did not take tea/coffee, 24%(36) took once daily, 9.3%(14) took twice daily, 2%(3) took thrice daily, 3.33%(5) took tea/coffee 4 times daily.

83.33%(125) took snacks in between meals, out of which 27.2%(34) took home-made food, 64.8%(81) took packed food and 8%(10) took other foods. 16.67%(25) did not take snacks in between meals.

44.67 % (67) skipped their meals, 55.33 % (83) did not skip meals.

18.7 % (28) watched T.V. while eating whereas 81.3 % (122) did not watch T.V. while eating.

63.33 % (95) showed physical activity in terms of exercise daily. Out of 150, 6%(9) revealed aerobics, 0.7%(1) did aerobics and others, 4.7% (7) did jogging, 0.7%(1) performed jogging and aerobics, 26%(39) revealed walking, 0.7%(1) walking and aerobics together, 2%(3) did walking and jogging, 2%(3) did walking and other exercises, and 20.7%(31) practiced other types of exercises.

2.7 % (4) had endocrine disorders (Hypothyroidism)

2.7 % (4) had addiction towards alcohol, smoking etc.

29.3% (44) had family history of obesity.

Out of 150, everybody used electronic gadgets like mobile phones/laptops etc. 63.3 % (95) used for 1-3 hours, 32 % (48) used for 4-6 hours, 2 % (3) used for 7-9 hours and 2.7 % (4) used for 10-12 hours.

50.7% (76) of students used bike as mode of transport, 4.7% (7) used cycle, 0.7%(1) used public transport, for 38.7%(58) mode of transport was walking, 3.3%(5) sometimes used bike and sometimes walked, 0.7%(1) did walking and cycling, 1.3% (2) used walking and public transport.

14 % (21) slept <6 hours, 48 % (72) slept for 6-8 hours and 38 % (57) slept for \geq 8 hours.

The prevalence of overweight and obesity in the age group 16-20 years was 17% and 27.6% respectively in 21-25 years age group it was 19% and 40% respectively and in 26-30 years age group it was 0% and 66.67% respectively.

The prevalence of overweight and obesity among males was 22.82% and 42.39% and among females it was 10.34% overweight and 27.58% obese. The overall prevalence of overweight and obesity was higher in males (65.21%) than in females (37.92%).

76.8% of overweight and obese students have a habit of eating \geq 4 times daily.

84.14% of overweight and obese students have a habit of eating fast-food.

The prevalence of overweight and obesity was high i.e. 62.16% among students taking vegetables <10 times a week as compared to those taking \geq 10 times a week. The association between taking vegetables and overweight and obesity was statistically significant (p value: 0.002).

Prevalence of overweight and obesity was marginally high among students taking tea/coffee i.e. 56.9%.

86.58% of overweight and obese students have a habit of taking snacks in between meals which is higher than those not taking snacks at all.

54.43% have a habit of skipping meals, thus association of BMI is significant with skipping meals. (P value: 0.03)

In this study, among those who watch to while eating, prevalence of overweight and obesity is 57.14% which is marginally higher than those who do not watch to while eating (54.09%).

Among those who did not perform exercise, 58.18% had overweight and obesity.

75% of students having addiction to alcohol/smoking etc. had overweight and obesity.

The prevalence of overweight and obesity among students having family history of obesity was

84.09%. The association between family history of obesity and prevalence of overweight and obesity was found to be highly significant. (p value: 0.000)

70.73% of overweight and obese students used vehicles as mode of transport. (p value: 0.009)

82.9% of overweight and obese students slept for ≥ 6 hours.

Table 1: Distribution of Socio-demographic characteristics of the study participants

FACTORS	FREQUENCY	PERCENTAGE
AGE(YEARS)		
16-20 yrs	48	32%
21-25 yrs	99	66%
26-30yrs	3	2%
SEX		
MALE	92	61.3%
FEMALE	58	38.7%
OCCUPATION OF FATHER		
SERVICE	116	77.33%
BUSINESS	25	16.66%
AGRICULTURE	9	6%
OCCUPATION OF MOTHER		
SERVICE	34	22.67%
HOUSEWIFE	116	77.33%

Table 2: BMI according to Asia-pacific guidelines of WHO

CLASSIFICATION	BMI	FREQUENCY	PERCENTAGE
Underweight	<18.5.	5	3.33
Normal range	18.5-22.9	63	42
Overweight	23-24.9	27	18
Obese I	25-29.9	43	28.66
Obese II	>30	12	8

Table 3: Relation of BMI withsocio-demographic factors

FACTORS	NORMAL (n=68)	OVERWEIGHT & OBESE (n=82)
AGE		
16-20	26	21
21-25	41	59
26-30	1	2
SEX		
Male	32	60
Female	36	22

Table 4: Association of Overweight and Obesity with Dietary habits

DIETARY FACTORS	NON-OBESE n=68	OVER WEIGHT & OBESE n=82	CHI SQUARE	P VALUE
FREQUENCY OF FOOD/DAY				
<4 times	11	19	0.79	0.37
≥4 times	53	63		
FASTFOOD				
Yes	61	69	0.99	0.31
No	7	13		
FREQUENCY OF EATING VEGETABLES /WEEK				
<10	42	69	9.67	0.002
≥10	26	13		
DRINKING TEA-COFFEE/DAY				
Yes	25	33	0.19	0.66
No	43	49		
SNACKS IN BETWEEN MEALS				
Yes	54	71	1.37	0.24
No	14	11		
SKIPPING MEALS				
Yes	24	43	4.42	0.03
No	44	39		

Table 5: Association of Overweight & Obesity with various Lifestyles

FACTORS	NON-OBESE n=68	OVERWEIGHT & OBESE n=82	CHI SQUARE	P VALUE
WATCHING T.V. WHILE EATING				
Yes	12	16	0.08	0.77
No	56	66		
HOURS OF USING ELECTRONIC GADGETS				
<6	66	77	0.83	0.36
≥6	2	5		
EXERCISE				
Yes	45	50	0.43	0.51
No	23	32		
ADDICTION				
Yes	1	3	0.1	0.74
No	67	79		
ENDOCRINE DISORDER				
Yes	2	2	0.1	0.74
No	66	80		
FAMILY HISTORY OF OBESITY				
Yes	7	37	21.75	0.000
No	61	45		
MODE OF TRANSPORT				
Walking	34	24	6.73	0.009
Vehicles	34	58		
HOURS OF SLEEP				
<6	7	14	1.41	0.23
≥6	61	68		

Discussion

Prevalence of overweight and obesity according to Asia-Pacific guideline of WHO, in our study is 18% and 36.66% respectively. Study conducted by Manojan KK et al. reported prevalence of

24.57% overweight and 25.71% obesity using Asia-Pacific guidelines among medical students of Trivandrum district of Kerala, India.^[12]

In our study proportion of obesity was significantly higher among males as compared to

females, this may be because of females are more cautious about their weight status than males, due to society perception which encourage females to be slender. This finding is consistent with Gupta S et al.^[13] where in 21.43% of males and 20.45% of females were overweight and obese.

Regular exercise was cited as the most common measure for prevention of development of overweight and obesity. Similar results were obtained from other studies^[14, 15].

The role of tea/coffee based soft drinks as found out by systematic review by Malik et al.^[16] show strong evidence for weight gain, and our results do not correlate with this study. Consumption of junk food and snacking is associated with overweight /obesity as seen by various investigators.^[4, 17, 18] which is consistent with our study.

Lack of physical activity is a known risk factor for obesity but in our study no significant association was found. Study conducted by Boo NY et al.^[19] observed that physical exercise and outdoor sports did not have a significant influence on body weight.

Obesity and overweight are the major risk factors for a number of chronic diseases including diabetes, cardiovascular diseases and cancer. Risk factors for overweight and obesity including skipping meals, family history of obesity, lack of physical activity, age, sex and consumption of junk food.

Conclusion

Prevalence of overweight and obesity in our study is 18% and 36.67% respectively. From the present study it can be concluded that, overweight, obesity was much more common among medical students .Certain factors such as physical activities like exercise, yoga as well as participation in outdoor sports will have a protective effect against these problem among the medical students. Due to medical curriculum and the examination pattern, the students have less time to concentrate for extracurricular activities which ultimately lead them to sedentary lifestyle.

Irregular diet, fast food more than once a week and a family history of obesity increased the risk of overweight and obesity

Thus this study reinforces the need to encourage healthy lifestyle, healthy food habits and a physically active daily routine, among medical students to prevent obesity related disease like diabetes, increased blood pressure, stroke, etc. It is high time to think about it and make changes in their lifestyles to have a healthy future.

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