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Research Article

Prevalence of overweight and obesity among medical students and their knowledge, attitude and practices about obesity

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ABSTRACT

Background: Overweight and obesity are recognized as an "escalating epidemic" affecting both developed and developing countries. Obesity is associated with a large number of debilitating and life- threatening disorders such as cardiovascular, metabolic and other non-communicable diseases. The childhood roots of adult obesity are widely recognized which calls for health promotion targeted at youth. Objectives: 1) To study the prevalence of obesity among medical students 2) To assess their knowledge, attitude and practices about obesity.
Methods: A cross sectional study was conducted among 300 medical students from all batches of MBBS course i.e. Ist, IInd, IIIrd and final MBBS in Feb 2009 to March 2009 in Grant medical college Mumbai. A predesigned and pretested questionnaire was used as data collection tool and height and weight were measured and BMI was calculated.
Results: Majority (52%) were in the age group of 18-20. 61% were males and 39% were female. 25% (75) were day scholars and 75% were hostellers. When assessed about knowledge about obesity, 100% students scored 50% and above. Majority of them had positive attitude but lack of appropriate behaviour and practices. Prevalence of overweight and obesity according to WHO classification was 14.7% and 3% respectively and according to Asia-Pacific guidelines it was 9.3% and 18.4% respectively.
Conclusions: Promotion of daily physical activity in the form of outdoor games, Yoga, walking are recommended. Nutritional education on dietary practices and life style change should be built in as supporting educational activity during student years.

Keywords: Obesity, Knowledge, Attitude, Practices, Medical students

INTRODUCTION

Overweight and obesity are the fifth leading cause for global deaths. At least 2.8 million adults die each year as a result of being overweight or obese.[1]

The prevalence of obesity has nearly doubled between 1980 and 2008. 65% of the world's population lives in a country where overweight and obesity kills more people than underweight.[2] A variety of factors, including diet, genetic predisposition, physical activities, physiological and behavioural factors, are implicated as contributing factors to obesity.[3,4]

It is a major risk factor for type 2 diabetes, hypertension, stroke, coronary heart diseases, gall bladder diseases, arthritis, colon cancer, psychological problems and so on. The social implications of obesity are a major problem area that is often neglected. The obese, do less well academically, have poorer job prospects and lower self-esteem.[5]

Overweight and obesity are defined as abnormal or excessive fat accumulation in the body but is impracticable for epidemiological use. The body mass index (weight/height^2) is widely used in adult populations to assess overweight and obesity. World Health Organization (WHO) defines overweight as a BMI equal to or more than 25, and obesity as a BMI equal to or more than 30.[1] The Western Pacific Regional Office of the World Health Organization (WHO) has recommended lowering the BMI cut off levels for Asian people to 23.0 for overweight and 25.0 for obesity.[6]

Medical students are more prone to obesity due to their lifestyle with less physical activity and disordered eating habits and thereby are prone to obesity related health hazards. Medical student was the target group of particular interest for this study as they are future physicians and if they are overweight or obese they would carry wrong impression on general population. With this background present study was conducted with objectives to study prevalence of obesity among medical students and to assess their knowledge, attitude and practices about obesity.

METHODS

A cross sectional study was conducted in 305 medical students from all batches of MBBS course i.e. Ist, IInd, IIIrd and final MBBS in Feb 2009 to March 2009 in Grant Medical College Mumbai.

All students ranged in the age group of 18-23 years. Out of 305, 80 were from 1st year, 95 were from 2nd year and 130 were from final MBBS part I and part II. Five refused to participate in the study, so actual population which participated in the study was 300.

No specific sampling technique was used, the students which were present at time of data collection and had given informed consent were included in study.

Data collection: A structured pretested questionnaire was given to each student which included questions about knowledge, attitude and practices about obesity. Weight and height were measured by standard techniques. Weight was measured using normal weighing scale with no shoes. Height was recorded using a measuring tape, with the individual standing straight next to the wall, with the heels, buttocks, shoulders and occipit touching the wall without shoes. The Body Mass Index was calculated using the formula

$$BMI = \text{weight (Kg)}/\text{Height}^2\ (m^2)$$

Adequate daily physical activity was defined as moderate to severe the physical activity of at least 60 min/day as recommended by Global recommendations on physical activity for Health, World Health Organization publication 2010.[7]

Informed consent was obtained from the participants and ethical approval obtained from institutional ethical committee.

Statistical analysis was done using SPSS-16. Mean, Standard Deviation (SD), Standard Error (SE), 95% confidence intervals were calculated. Normality of the data was checked by Kolmogorov Smirnov test. As the underlying distribution was non-normal Chi square test of significance was used, P value of <0.05 was taken as statistically significant. BMI was associated with sociodemographic variables, dietary and lifestyle factors.

RESULTS

Table 1 shows sociodemographic characteristics of study population. Out of 300 medical students, 60% (182) were males and 40% (118) were females. Majority (53.3%) were in the age group of 18-20 years and 46.7% were in the age group of 21-23 years. 25% (75) were day scholars and 75% were hostellers. 26.7% were from first MBBS, 30% were from second MBBS and 43.3% were from final MBBS.

Table 2 shows prevalence of overweight and obesity among medical students. According to WHO international classification prevalence of overweight and obesity was 14.33% and 3.34% respectively and according to Asia-Pacific guidelines it was 9.67% and 17.66% respectively.

Table 1: Sociodemographic profile of study participants.

Factors	Frequency (n=300)	Percentage
Age (years)		
18-20	160	53.3
21-23	140	46.7
Sex		
M	183	61
F	117	39
Religion		
Hindu	248	82.7
Muslims	36	12
Others	16	5.3
Residence		
Hostel	225	75
Day scholars	75	25
Year of MBBS		
Ist	80	26.7
IInd	90	30
IIIrd and final	130	43.3

When assessed about knowledge about obesity, all students scored 5 and above out of 10 with mean of 9.1 ± 1.06 SD.

Out of 300 students, 14% (42) were purely vegetarian and 86% (258) consumed mixed diet. 5.7% consumed non-veg daily, 55% consumed non-veg weekly, 12.7% consumed it once a month and 12.7% consumed it twice a month. 26% students didn't have fixed timing of meals.

Table 2: WHO classification according to BMI.[1]

Classification	BMI	Frequency	Percentage
Underweight	<18.5	39	13
Normal range	18.5-24.99	208	69.33
Over weight	>25.0-29.99	43	14.33
Obese class I	30.0-34.99	10	3.34
Obese class II	35.0-39.99	0	0
Obese class III	>40.00	0	0
BMI according to Asia-pacific guidelines of WHO[6]			
Underweight	<18.5	39	13
Normal range	18.5-22.99	179	59.67
Over weight	23-24.99	29	9.67
Obese class I	25-29.99	43	14.33
Obese class II	>30	10	3.33

Only, 23.3% (70) students carry tiffin to college and 76.7% (230) eat in canteen daily of which 17% eat weekly, 5.3% eat once a month. 63% (189) skip their breakfast 2-3 times a week while 37% (111) never skip their breakfast. 27.7% (83) skip lunch/dinner once a week, 0.7% (2) skip it twice a week and 71.7% (215) never skip lunch or dinner.

13.3% (40) consumed junk food and carbonated soft drinks daily, 80.3% (241) consumed it sometimes, 6.3% (19) never consumed junk food. 67.3% (202) drink 1-2 cups of tea or coffee per day, 27.3% (82) drink 2-4 cups per day 3.3% (10) drink >4 cups per day, 2% (6) never drink tea or coffee.

69.3% (208) takes meals while watching T.V. of which 18.7% (56) daily take meal while watching T.V., 55% (166) take it occasionally and 26.3% (79) never take it while watching T.V.

60% replace vegetables with pickles or chutney occasionally. 66% (198) eat chocolate/sweets/desserts after food, of which 8.3% (25) eat it daily, 57.3% (173) eat it occasionally, while 34% (102) don't eat it. 51.7% (155) have habit of munching between meals, of which 5% munch daily, 46.3% munch occasionally, while 48.3% (145) don't have this habit.

91.3% (274) don't participate in outdoor activity and only 8.7% (26) students participate in outdoor activity as walking (1%), swimming (1.3%), sports (3.7%) or gymnasium (2.7%). frequency: daily - 19 (6.3), occasionally - 3 (1%), weekly - 4 (1.3%). All 300 students were concerned about their weight, 96% were concerned about their weight for lifestyle aerobics, exercise should be practiced for maintaining weight but only 7% were actually practicing it.

Only 23 out of 300 agreed that they smoke, 10 started smoking since 1 year, 9 started it since 2 years and 4 students smoke since 3 years. 20 students smoke 3-4 cigarettes per day, 3 student smoke >4 cigarettes per day.

Only 9 out of 300 agreed that they consume alcoholic beverages, of these 7 consume beer occasionally, 2 consume wine occasionally. 80.3% take 6-8 hours of sleep, 19.7% take 8-10 hours of sleep.

Table 3 and 4 shows association of BMI with sociodemographic, dietary and life style factors.

When BMI was associated with various factors like age, sex, religion, place of residence (hostel/home), year of MBBS, type of food (veg/non-veg/mixed), timing of meals, eating in the canteen, skipping breakfast, eating junk food or carbonated soft drinks, drinking coffee, taking meals while watching T.V., eating chocolate/sweets/desserts after food, munching between the meals, participation in outdoor activity, smoking and alcohol consumption significant association was found between BMI and sex (P = 0.000), skipping breakfast (P = 0.016), eating junk food or carbonated drink (P = 0.001), drinking coffee (P = 0.000), taking meals while watching T.V. (P = 0.007), eating chocolates/sweets/desserts after food daily (P = 0.000), munching between meals (P = 0.000).

Table 3: Association of BMI with sociodemographic factors.

Factors	Under-weight	Normal	Over-weight and obese	$\chi 2$ value	P value
Age (years)					
18-20	23	89	48	18.37	0.826
21-23	18	87	34		
Sex					
M	16	101	65	23.40	**0.000***
F	25	75	17		
Religion					
Hindu	34	145	68	11.16	0.345
Muslims	6	21	9		
Others	1	10	5		
Residence					
Hostel	35	128	61	8.02	0.155
Day scholars	6	48	21		
Year of MBBS					
Ist	**12**	47	21	2.70	0.988
IInd	**12**	50	28		
IIIrd and Final	**17**	79	33		

***Statistically significant**

Table 4: Association of BMI with dietary and lifestyle factors.

	Underweight (n=300)	Normal	Overweight and obese	$\chi 2$ value	P value
Dietary habits					
Frequency of eating non-veg food					
Daily	4	8	5	29.59	0.077
Weekly	15	103	47		
Twice a month	7	21	9		
Once a month	9	22	7		
Never	6	22	14		
Frequency of eating in hotel or canteen					
Daily	36	136	60	10.49	0.398
Weekly	4	30	17		
Twice a month	1	10	5		
Once a month	2	6	5		
Never	33	137	60		
Frequency of skipping breakfast					
Daily	0	0	0	13.19	**0.022***
2-3 times a week	33	100	55		
Never	8	76	27		
Frequency of skipping lunch/dinner					
Once a week	24	42	16	30.44	**0.001***
Twice a week	1	1	0		
Thrice a week	0	0	5		
Never	16	133	62		
Frequency of eating junk food or carbonated soft drinks					
Daily	3	22	15	19.04	**0.040***
Sometimes	32	143	65		
Never	6	11	2		
Frequency of drinking coffee					
<2 cups per day	31	124	46	53.12	**0.000***
2-4 cups per day	5	47	30		
>4 cups per day	0	4	6		
Never drink	5	1	0		
Frequency of taking meals while watching T.V./reading					
Daily	0	18	39	77.60	**0.000***
Occasionally	22	110	42		
Never	17	51	11		
Frequency of Eating chocolate/sweets after food					
Daily	0	2	25	1.27	**0.000***
Occasionally	6	120	47		
Never	33	57	10		
Frequency of munching between meals					
Daily	1	1	15	1.01	**0.000***
Occasionally	29	63	47		
Never	9	115	20		
Life style factors					
Participation in outdoor activity					
Yes					
Daily	0	13	6	44.25	**0.000***
Occasionally	0	1	2		
Weekly	1	2	1		
No	38	163	73		

	Underweight (n=300)	Normal	Overweight and obese	χ2 value	P value
Smoking					
Yes	35	169	73	0.940	0.33
No	4	10	9		
Alcohol consumption					
Yes	35	173	82	2.04	0.727
No	4	3	2		
Hours of sleep					
<6 hours	0	0	0	96.93	0.000*
6-8 hours	38	166	37		
>8 hours	1	13	45		

*Statistically significant

DISCUSSION

Prevalence of overweight and obesity according to WHO international classification was 14.33% and 3.34% respectively and according to WHO classification for Asian population 9.67% and 17.66% 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.[8] In the study[9] the prevalence of overweight and obesity among medical students based on Asia-Pacific guideline was (31.10%) and 11 (5.26%) respectively. This clearly indicates that the prevalence of overweight/obesity in India is on a rise. Compared to these studies our study reported lesser prevalence. In our study BMI was significantly associated with sex, skipping breakfast, eating junk food or carbonated drink, drinking coffee, taking meals while watching T.V., eating chocolates/sweets/desserts after food daily, munching between meals. 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 perceptions which encourage females to be slender. This finding is consistent with Gupta S et al.[10] study wherein 21.43% of males and 20.45% of females were overweight and obese. The role of tea/coffee/fruit juice/soda based soft drinks as found out by systematic review by Malik et al.[11] show strong evidence for weight gain. The busy schedule of college hours with less time for lunch/breakfast contributes to the habit of drinking tea/coffee/fruit juices more frequently throughout the day. Our findings also correlate with the studies.[8,11,12] Lack of physical activity is known risk factor for obesity but in our study no significant association was found this may be because majority (91.3%) were having sedentary life style may be because of busy medical curriculum and the examination pattern and only 8.7% students participated in outdoor activity like walking (1%), swimming (1.3%), sports (3.7%) or gymnasium (2.7%) but in those students who participated in outdoor activity BMI was significantly associated with frequency of outdoor activity. Boo NY et al.[13] in their study also observed that physical exercise and outdoor sports did not have a significant influence on body weight.

When assessed about knowledge, attitude and practices about obesity, study revealed that majority of the medical students were aware about the risk factors of obesity but there were many gaps identified in their knowledge which needs to be bridged. Regular exercise was cited as the most common measure for prevention of development of obesity. Similar results were obtained from other studies.[14,15] Our study has limitations also, it was an institution-based study. We have not measured the lipid profile, Waist/Hip ratio of the participants.

CONCLUSIONS

Prevalence of overweight and obesity according to WHO classification was 14.33% and 3.34% respectively and according to Asia-pacific guidelines prevalence of overweight and obesity is 9.67% and 17.66 % respectively.

Students have good knowledge and positive attitude but lack of appropriate behaviour and practices. The 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 epidemic.

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