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Original Research Article

Prevalence and risk factors of overweight and obesity among MBBS students

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ABSTRACT

Background: Obesity is a life style disease. During college years students living away from home, are faced with many different food choices. So, this study was done to determine the prevalence of overweight and obesity and its risk factors among MBBS students.
Methods: A cross sectional study was conducted among 318 MBBS students of Gauhati Medical College and Hospital, Assam from June to July 2017 by purposive sampling using a pre-designed, semi-structured questionnaire.
Results: Prevalence of overweight and obesity was found to be 16.7% and 2.5% and higher among students who were non-vegetaranian, had irregular dietary habit, consume junk foods and carbonated drinks, used Motorized vehicle as a mode of transport, sleep >8 hrs per day and had family history of obesity, hypertension, diabetes mellitus and heart disease.
Conclusions: There is need to increase awareness among the students in order to reduce the future burden of obesity associated chronic diseases.

Keywords: BMI, Overweight, Obesity, Prevalence, Risk factors

INTRODUCTION

Obesity is one of the morbid conditions that continuously crippling mankind. It is increasing at an alarming rate in the affluent nations and in recent years in developing countries as well. Obesity is a lifestyle disease. Obesity increases the likelihood of various diseases, particularly heart disease, type 2 diabetes, obstructive sleep apnea, certain types of cancer, and osteoarthritis.

Obesity is most commonly caused by a combination of excessive food energy intake, lack of physical activity, and genetic susceptibility, although a few cases are caused primarily by genes, endocrine disorders, medications or psychiatric illness.[1,2] The strongest risk factor for obesity is urbanization. Obesity is at least three times more common in cities than in villages, although it is increasing rapidly even in villages because traditional villages are also becoming urbanized in their habits.[3]

The college years are often the first time that students, living away from home, are faced with many different food choices. Most students are transitioning to independent living and are thus making their own food choices, which often results in poor eating habits.[4] So, this study was conducted to determine the prevalence of overweight and obesity and identify risk factors associated with it among the students.

METHODS

Study area

A cross-sectional study conducted in the Gauhati Medical College and Hospital, Assam, India.

Study period

Study was conducted for the period of two months i.e. June to July 2017.

Study subjects

Total 318 subjects MBBS students (1st, 2nd & 3rd year) were included in the study by purposive sampling.

Inclusion criteria

Students attending classes in the Department of Community Medicine during the specified time period and who gave consent to participate.

Exclusion criteria

Students absent on the day of study.

Data collection tools

Data was collected using a pre-designed, semi-structured questionnaire in English language which consisted of socio-demographic profile, food intake pattern, physical activity of students, family history of hypertension, diabetes mellitus, heart disease and obesity, anthropometric measurements. The dietary history was assessed by asking the students about type of diet (vegetarian/non vegetarian), dietary habit (regular/irregular), consumption of junk food and carbonated drinks.

The physical activity was assessed by asking about exercise, participation in outdoor games, and mode of transport to college, and sedentary lifestyles was assessed by asking duration of day time sleep. In our study, we took junk food and carbonated drink consumption "yes" if the student was taking junk food and carbonated drink more than three times a week. Any student who skips breakfast/lunch/dinner >3 days /week was considered to be on irregular dietary habit. Similarly regular outdoor and physical exercise routinely >30 min/day was considered "yes."

Data collection method

Students were approached in their classrooms during their academic sessions. Purpose of the study was explained to the students and after obtaining informed verbal consent from the students, they were given the questionnaire which was self administered by each student. Height was measured to nearest 0.5 cm with stadiometer and weight to nearest 0.5 kg with weighing scale (bathroom type). BMI of 18.5-24.9 was considered normal, <18.5 underweight, ≥25 over-weight and ≥30 obese 5.

Data analysis

Data obtained was compiled, tabulated, analyzed using SPSS version 20 Software and statistically evaluated using percentage and chi square test.

RESULTS

Total 318 students, 128 (40.3%) female and 190 (59.7%) male students participated in the study with mean age of 19.81±1.18 (male 19.76±1.21 and female 19.89±1.12). Majority (75.2%) of students belonged to Hindu religion. Out of 318 students, 53 (16.7%) were overweight and 8 (2.5%) were obese. Among male students, 34 (17.9%) were overweight and 6 (3.1%) were obese compared to 19 (14.8%) and 2 (1.6%) among female students.

Table 1: Prevalence of overweight /obesity according to dietary habits.

Dietary Habits	Total (n=318)	Normal	Underweight	Overweight	Obese	P value
		N (%)	N (%)	N (%)	N (%)	
Diet preference						
Vegetarian	30	22(73.3)	4(13.3)	4(13.3)	0(0.0)	P>0.05
Non-vegetarian	288	194(67.4)	37(12.8)	49(17.0)	8(2.8)	
Dietary Habit						
Regular	210	154(73.3)	30(14.3)	23(11.0)	3(1.4)	P<0.05
Irregular	108	62(57.4)	11(10.1)	30(27.8)	5(4.6)	
Junk food consumption						
Yes	262	179(68.3)	37(14.1)	45(17.1)	7(2.7)	P>0.05
No	56	37(66.1)	4(7.1)	8(14.2)	1(1.8)	
Carbonated drink consumption						
Yes	229	162(70.7)	28(12.2)	40(17.5)	6(2.6)	P>0.05
No	89	54(60.7)	13(14.6)	13(14.6)	2(2.2)	

17.0% and 2.8% students on non-vegetarian diet were overweight and obese as compared to 13.3 % overweight on vegetarian diet.

Overweight and obesity was more among students who had Irregular dietary habit (27.8% and 4.6), consume junk foods (17.1% and 2.7%) and carbonated drinks (17.5% and 2.6%). Only dietary habit (regular/irregular) was statistically insignificant (Table 1).

Prevalence of overweight and obesity was less among those involved in physical exercise (16.1% and 2.0%), who participated in outdoor games (16.6% and 1.3%) and higher in students who used Motorized vehicle as a mode of transport (18.2% and 2.7%), sleep for >8 hrs per day (25.8% and 3.2%).

Association between physical activity of students and overweight/obesity was statistically insignificant (Table 2).

Table 2: Prevalence of overweight /obesity According to Physical activity.

Activity	Total (N=318)	Normal	Underweight	Overweight	Obese	P value
		No. (%)	No. (%)	No. (%)	No. (%)	
Physical Exercise						
Yes	149	102(68.5)	20(13.4)	24(16.1)	3(2.0)	P>0.05
No	169	114(67.4)	21(12.4)	29(17.2)	5(3.0)	
Outdoor Games						
Yes	145	100(69.0)	19(13.1)	24(16.6)	2(1.3)	P>0.05
No	173	116(67.0)	22(12.7)	29(16.8)	6(3.5)	
Mode of Transport						
Motorized Vehicle	258	167(64.7)	37(14.3)	47(18.2)	7(2.7)	P>0.05
Walking	55	44(80.0)	4(7.2)	6(11.0)	1(1.8)	
Walking & Vehicle	5	5(100.0)	0(0.0)	0(0.0)	0(0.0)	
Duration of Sleep						
<6 hours	34	23(67.6)	5(14.7)	6(17.6)	0(0.0)	P>0.05
6-8 hours	253	174(68.8)	33(13.0)	39(15.4)	7(2.8)	
>8 hours	31	19(61.3)	3(9.7)	8(25.8)	1(3.2)	

Table 3: Prevalence of overweight /obesity According to Familial characterictics.

Variables	Total (N=318)	Normal	Underweight	Overweight	Obese	P value
		No. (%)	No. (%)	No. (%)	No. (%)	
F/H/O Obesity						
Yes	61	38(62.2)	5(8.2)	14(23.0)	4(6.6)	P<0.05
No	257	178(69.3)	36(14.0)	39(15.2)	4(1.5)	
F/H/ODiabetes						
Yes	135	87(64.4)	11(8.1)	32(23.7)	5(3.7)	P<0.05
No	183	129(70.5)	30(16.4)	21(11.5)	3(1.6)	
F/H/OHypertension						
Yes	150	108(72.0)	12(8.0)	26(17.3)	4(2.7)	P>0.05
No	168	108(64.3)	29(17.3)	27(16.1)	4(2.4)	
F/H/O Heart Disease						
Yes	53	37(69.8)	5(9.4)	9(17.0)	2(3.8)	P>0.05
No	265	179(67.5)	36(13.6)	44(16.6)	6(2.3)	

Prevalence of overweight and obesity was more among those students who had family history of Obesity (significant), diabetes mellitus (significant), hypertension and heart disease (Table 3).

DISCUSSION

In our study, prevalence of overweight and obesity was 16.7% and 2.5%. (17.9% male students were overweight and 3.1% obese, 14.8% female students overweight and 1.6% obese). Comparable if not similar was reported by Khan ZN et al who found more number of male students (31.0%) obese than female students (16.0%) as also reported by Kalasker PS et al who found 16.2 % students overweight & 3.4% obese (male students 20.5% overweight than female students 18.3 %), and Deshpande K et al who also found (46.7% male vs 43.6% female) overweight/obesity.[6-8]

In our study 17.0% & 2.8% on non-vegetarian diet were overweight & obese as compared to 13.3% overweight on veg diet. Similar findings were reported by Kalasker PS et al as higher prevalence of overweight and obesity among students taking mixed diet (22.4%) and 16.7% in veg diet which was not statistically significant.[7]

In our study, prevalence of overweight and obesity was more among students consuming junk foods (17.1% & 2.7%) which is contrary to the findings by Kalasker PS et al where prevalence of overweight was more among students not consuming junk foods (23.1%).[7]

In our study , prevalence of overweight and obesity was less among those involved in physical exercise (16.1% & 2.0%) although statistically insignificant which is similar to findings by Deshpande K et al where prevalence of overweight/ obesity was less among those involved in physical exercise (42.6%) than those not involved in physical exercise (50.0%) although statistically insignificant.[8]

In our study, prevalence of overweight (16.6%) and obesity (1.3%) was less among those who participated in outdoor games which is similar to findings by Kalasker PS et al.[7]

In our study the prevalence of overweight and obesity was higher in students who used motorized vehicle as a mode of transport (18.2% & 2.7%) and sleep duration of >8hrs per day (25.8% & 3.2%) although statistically insignificant which is similar to findings by Kalasker PS et al who found that higher prevalence of overweight among students using motor-ised transport like motorcycle, four wheeler etc.(20.5%) and sleep duration of >8hours (26.3%) although statistically insignificant.[7]

In our study, family history of diabetes and obesity were found to be associated significantly with obesity which is similar to the findings by Kalasker PS et al, Deshpande K et al and Fernandez K et al.[7-9]

This study has few limitations. Waist circumference, hip circumference and waist to height ratio could not be assessed due to time and resource constraints.

CONCLUSION

Overweight and obesity was higher among students who were non-vegetarian, had Irregular dietary habit, consume junk foods and carbonated drinks, used Motorized vehicle as a mode of transport, sleep >8hrs per day and who had family history of Obesity, hypertension, diabetes mellitus and heart disease respectively. So, students should be encouraged to do regular physical activity and limit consumption of foods high in fat, sugar and calories; consume regular meals, fruits, vegetables, legumes, whole grains and nuts.

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