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Original Research Article

Prevalence of obesity among undergraduate medical students in tertiary care hospital, Nandyal

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ABSTRACT

Background: Obesity is widely regarded as a major as a major global pandemic. It is associated with numerous comorbidities such as increased cardiovascular diseases and diabetes. Over 650 million adults of 18 years and older were obese.
Methods: A cross sectional study was done among 1st, 2nd, 3rd year undergraduate medical students of a tertiary care hospital, Nandyal during August 2022 to September 2022. Sample size was 300. Weight and height of the participants were measured and data was collected using predesigned semi structured questionnaire and data was analysed using SPSS version 2022.
Results: Out of 300 study participants,133 were males and 167 were females. 21 (7%) students had BMI<18.5 of which 16 students of age group 20-23 years were under weight, 5 students of age group 18-19 years were thin (BMI for age ≤2SD), 195 (65%) students were normal, 60 (20%) students were overweight and 24 (8%) students were obese.
Conclusions: The prevalence of overweight and obesity were high in medical students. Prevalence of overweight and obesity were higher in females compared to males.

Keywords: Females, Medical students, Obesity, Overweight

INTRODUCTION

A majority of individuals agree that obesity is a serious global pandemic.[1,2] Numerous comorbidities, including a rise in cardiovascular disease and diabetes, are linked to it.[3] Obesity negatively impacts one's physical and mental well-being.[4] Finally, it results in a reduced quality of life and life expectancy.[5] Globally, the prevalence of obesity has been rising, particularly among young people and people of all ages.[6] Since 1975, the global burden of obesity has nearly tripled.[7] Over 1.9 billion persons aged 18 years and older were overweight in 2016.[7] Over 650 million of these people were obese.[7] In 2016, 13% of people aged 18 years and older were obese and 39% were overweight.[7] In India the percentage of overweight or obese women in NFHS-5 (2019-21) is 24, up from 20.6% in NFHS-4 (2015-16). From 18.9% (NFHS-4), the prevalence in men got up to 22.9% (NFHS-5).[8]

Overweight and obesity are defined as abnormal or excessive fat accumulation that may impair health.[7] Body mass index (BMI) is a simple indicator of weight in relation to height that is frequently used to classify overweight and obesity in adults.[7]

WHO defines overweight and obesity for adults as: a BMI of 25 or above indicates being overweight, whereas a BMI of 30 or more indicates being obese.[7]

For children between the ages of 5 and 19 years, being overweight or obese is defined as: overweight is defined as having a BMI-for-age that is greater than one standard deviation above the WHO growth reference median.[7]

Obesity is defined as having a BMI-for-age that is greater than two standard deviations above the WHO growth reference median.[7]

In India the percentage of overweight or obese women in NFHS-5 (2019-21) is 24, up from 20.6% in NFHS-4 (2015-16). From 18.9% (NFHS-4), the prevalence in men got up to 22.9% (NFHS-5).[8] A number of factors contribute to obesity.[9] Obesity is associated with various behavioural risk factors, biological, psychosocial and familial factors.[10] Studies shown that there is low physical activity in medical students.[11] Studies show that students frequently skip meals like breakfast and opt for high-fat, high-energy snacks instead.[12] In addition, stress may impact people's eating habits.[13,14] Long-term stress may be linked to a rise in desire for high-energy foods such those high in sugar and fat.[15] Unfortunately, studies shown that perceived stress is very high among medical students.[16,17] Hence the study aimed to estimate the prevalence of obesity in 1st, 2nd and 3rd medical students in a tertiary care hospital, Nandyal.

METHODS

A cross sectional study was done among 1st, 2nd, 3rd year undergraduate medical students of a tertiary care hospital, Nandyal through convenience sampling. The study was conducted from August 2022 to September 2022. Sample size was 300.

Inclusion criteria

1st, 2nd, 3rd year undergraduate medical students in a tertiary care hospital, Nandyal who were willing to participate and gave written informed consent were included in study.

Exclusion criteria

1st, 2nd, 3rd year undergraduate medical students who have not given written informed consent and who were absent on the day of study were excluded from study.

Weight of the participants was measured by electronic weighing machine to the nearest of 0.01 kg. Height of the participants was measured by stadiometer in standing position without foot ware to the nearest of 0.01 cm. By dividing the weight in kilograms by the square of the height in meters, the body mass index (BMI) was determined and categorized into the following four categories: underweight (BMI 18.5), normal (BMI 18.5), overweight (BMI 25.9), and obese (BMI 30). Data was collected using pre designed semi structured questionnaire. Data was collected using pre designed semi structured questionnaire.

Perceived stress scale (PSS)

The PSS, developed by Cohen et al in 1983, for evaluating perceived stress in the preceding one month.[10] item perceived stress scale (PSS-10) was used in study. Each of the items on the PSS-10 are rated on a 5-point Likart scale, ranging from 0 (never) to 4 (very often). Total PSS scores ranges from 0-40. Higher scores indicate greater levels of perceived stress. Stress was stratified as, scores range from 0 to 13 indicated low stress level, 14 to 26 indicated moderate stress level and 27 to 40 indicated high stress level.[18,19]

WHO recommended physical activity for adults aged 18-64 years: adults aged 18-64 years: should engage in at least 150-300 minutes of moderate aerobic exercise; or minimum 75-150 minutes of aerobic exercise at a high intensity; or an equivalent combination of moderate- and high-intensity activity throughout the week.[20] Should also perform muscle-strengthening exercises that engage all of the major muscle groups twice a week or more as these provide additional health benefits.[20]

Data was analysed by SPSS version 22. Ethics committee clearance was obtained before conducting the study.

RESULTS

Table 1 shows that out of 300 study participants, 26 (8.7%) were of age group 18-19 years, 193 (64.3%) were of age group 20-21 years, 81 (27%) were of age group 22-23 years. 133 (44.3%) participants were males, 167 (55.7%) were females. 13 (4.3%) participants had mild perceived stress, 283 (94.3%) participants had moderate perceived stress, 4 (1.3%) participants have severe perceived stress. 246 (82%) of study participants did not meet WHO recommended physical activity.

Table 1: Socio demographic and life style characteristics study participants.

Variables		N	%
Age (years)	18-19	26	8.7
	20-21	193	64.3
	22-23	81	27
Gender	Male	133	44.3
	Female	167	55.7
Perceived stress	Mild stress	13	4.3
	Moderate stress	283	94.3
	Severe stress	4	1.3
WHO recommended physical activity criteria	Met	54	18.0
	Not met	246	82.0
Watching television while eating	Yes	220	73.3
	Absent	80	26.7
Skipping meals	Present	178	59.3
	Absent	122	40.7
Fast food intake	Present	234	78
	Absent	66	22
Family history of obesity	Present	73	24.3
	Absent	227	75.7

Skipping meals was seen in 178 (59.3%) study participants. Fast food intake was seen in 234 (78%) of study participants 220 (73.3%) participants watch television while eating, 73 (24.3%) study participants have family history of obesity.

Table 2 shows that 21 (7%) students were with BMI<18.5 of which 16 students of age group 20-23 years were underweight, 5 students of age group 18-19 years were thin (BMI for age ≤2 SD), 195 (65%) were normal weight (BMI 18.5-24.9), 60 (20%) were overweight (BMI 25-29.9), 24 (8%) were obese (BMI>30). 54 (18%) of study participants have met WHO recommended physical activity

Table 2: BMI of study participants.

BMI	Frequency	Percentage
<18.5	21	7.0
18.5-24.9	195	65.0
25-29.9	60	20.0
>30	24	8.0
Total	300	100

Chi square test of association was performed to test association between gender and BMI, which was not statistically significant with p value 0.104 with chi square value 6.16 with 3 degrees of freedom. Fisher's exact test was performed to test association between age and BMI and the p value was 0.145. Fisher's exact test was performed to test association between WHO recommended physical activity and BMI and p value was <0.001 which was statistically significant. To test association between perceived stress and BMI, Fisher's exact test was performed and p value was 0.348. Fisher's exact test was performed to test association between watching television while eating and BMI and p value was 0.007 which was statistically significant. Chi square test of association was performed to test association between skipping meals and BMI and p value was 0.146 with chi square value 5.38 with 3 degrees of freedom. Fisher's exact test was performed to test association between intake of fast food and BMI and p value was <0.001 which was statistically significant. To test association between intake of family history of obesity and BMI chi square test of association was performed, statistically significant with p value 0.018.

Table 3: Association between socio demographic and life style characteristics and BMI of study participants.

Variables		BMI				P value
		<18.5	**18.5-24.5**	**25-29.9**	**>30**	
Gender						
Male	Observed (% within row)	4 (3.0)	90 (67.7)	29 (21.8)	10 (7.5)	0.104
Female	Observed (% within row)	117 (10.2)	105 (62.9)	31 (18.6)	14 (8.4)	
Age (years)						
18-19	Observed (% within row)	5 (19.2)	14 (53.8)	5 (19.2)	2 (7.7)	0.145
20-21	Observed (% within row)	12 (6.2)	127 (65.8)	42 (21.8)	12 (6.2)	
22-23	Observed (% within row)	4 (4.9)	54 (66.7)	13 (16.0)	10 (12.3)	
WHO recommended physical activity						
Met	Observed (% within row)	0 (0.0)	46 (85.2)	3 (5.6)	5 (9.3)	<0.001
Not met	Observed (% within row)	21 (8.5)	149 (60.6)	57 (23.2)	19 (7.7)	
Perceived stress scale						
Mild stress	Observed (% within row)	0 (0.0)	11 (84.6)	2 (15.4)	0 (0.0)	0.348
Moderate stress	Observed (% within row)	19 (6.8)	180 (64.5)	57 (20.4)	23 (8.2)	
Severe stress	Observed (% within row)	2 (25.0)	4 (50.0)	1 (12.5)	1 (12.5)	
Watching television while eating						
Present	Observed (% within row)	18 (8.2)	141 (64.1%)	38 (17.3)	23 (10.5)	0.007
Absent	Observed (% within row)	3 (3.8)	54 (67.5%)	22 (27.5)	1 (1.3)	
Skipping meals						
Present	Observed (% within row)	8 (4.5)	116 (65.2)	37 (20.8)	17 (9.6)	0.146
Absent	Observed (% within row)	13 (10.7)	79 (64.8)	23 (18.9)	7 (5.7)	
Intake of fast foods						
Present	Observed (% within row)	20 (8.5)	138 (59.0)	55 (23.5)	21 (9.0)	<0.001
Absent	Observed (% within row)	1 (1.5)	57 (86.4)	5 (7.6)	3 (4.5)	
Family history of obesity						
Present	Observed (% within row)	4 (5.5)	39 (53.4)	19 (26.0)	11 (15.1)	0.018
Absent	Observed (% within row)	17 (7.5)	156 (68.7)	41 (18.1)	13 (5.7)	

DISCUSSION

In our study prevalence of overweight was calculated to be 20%, prevalence of obesity was 8% among medical students. Chabra et al reported a prevalence of 11.7% overweight and prevalence of obesity 2% among medical students of Delhi.[21] Gupta et al reported a prevalence of 17.4% overweight and 2.0% obesity among students in medical college, Midnapore, West Bengal.[22] In a study conducted by Padmasree and Ujwala among medical students in Vizianagaram, Andhra Pradesh, 1.44% of participants were obese and 18.18% were overweight.[23] In our study 82% students did not met WHO recommended physical activity which is higher than the study done by Yousif et al, 44.4% of medical students had low physical activity level, 32% had moderate and only 23.1% had vigorous activity level.[24] The association between physical activity and BMI was not statistically significant in our study which is similar to the study done by Yousif et al which showed no statistical significance between physical activity and BMI.[24]

Current study shown 1.3% medical students have severe stress. Study conducted by Seedhom et al in Egypt shown 18.8% of medical students have severe stress.[25] Study conducted in Saudi Arabia shown 19.6% of medical students had severe stress.[26] Study conducted among medical students in Saudi medical college had shown the prevalence of severe stress 33.8% and 25%.[27,28] In our study prevalence of overweight (21.8%) was high in males, in females, prevalence of obesity was high (8.4%). Whereas a study conducted by Gopalakrishna et al prevalence of overweight and obesity were high in males.[29] Skipping of meals was seen 59.3% students in our study, where as in a study done by Bede et al among medical students only 33.5% had three meals a day with breakfast as least consumed meal (18.7%).[30] Present study has shown the association between family history of obesity and BMI in study participants was statistically significant with p value <0.01 which is similar to the findings in study done by Anupama et al and Fernandez et al who found statistically significant association between family history of obesity and risk of overweight and obesity.[31,32] Current study has shown statistically significant association between BMI and fast food intake which is similar to the study done by Shah et al where they found significant association between BMI and frequency of fast food intake.[33] In our study we found statistically significant association between watching television while eating and BMI. In systematic review done by Avery et al to find the association between watching TV during meal or snack consumption and diet quality in children, positive association was found between watching television while eating and childhood obesity.[34]

Limitation of study was not including detailed history on type of meal that was skipped by the students frequently and frequency of fast-food intake. In this study we did not measure waist-hip ratio of students which is another limitation.

CONCLUSION

The current study concludes that overweight which increases the risk of obesity in future was more prevalent in medical students than obesity. Fast food intake, low physical activity, watching television while eating and family history of obesity increases the risk of overweight and obesity. It is advised that healthy habits be embraced as early as young adult hood in light of this study. Another effective strategy for preventing obesity is routine screening to identify young overweight people who have a tendency to become obese as adults. This study emphasised the need for health education about risk factors of obesity, healthy life styles and complications of obesity should begin from childhood to prevent obesity.

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