Original Research Article

Prevalence of obesity and assessment of knowledge regarding hazards of obesity and its preventive measures among students of Government Science college of North Gujarat region, India

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ABSTRACT

Background: Overweight and obesity are the fifth leading risk for global deaths. Objectives of this study was to know the prevalence of obesity and overweight among students and to assess the knowledge of these students pertaining to hazards of obesity and its preventive measures.

Methods: The interventional study was undertaken among students of Government Science college of Vadnagar city, Gujarat during March to October 2019. A universal sampling method was employed, and all 473 students of college were included as subjects in the study. After obtaining informed written consent all students were examined and BMI were calculated. The prevalence of overweight and obesity were determined based on the International Obesity Task Force criteria and a pre-tested semi-structured questionnaire was administered to each of the participants. Single educational training for 45 minutes was given to the students and their post- intervention knowledge for same was assessed after the training. Thus, collected data was analyzed using SPSS 17.

Results: The prevalence of obesity and overweight was 8.0% and 15.0% respectively. Baseline knowledge of the students regarding hazards of obesity like hypertension, cancer, heart attack and diabetes mellitus was 16.1%, 18.2%, 20.1% and 21.8% respectively which was significantly increased to 96.8%, 97.9%, 99.4% and 99.6% respectively. Baseline knowledge of the students regarding preventive measure of obesity like avoiding junk food/ healthy diet, exercise and meditation was 17.1%, 19.7% and 11.4% respectively which was significantly increased to 97.7%, 98.9 and 99.2% respectively.

Conclusions: Efforts should be directed towards educating these students regarding obesity to reduce the incidence of non-communicable diseases.

Keywords: Assessment, Early adulthood, Knowledge, Obesity, Overweight, Students

INTRODUCTION

Overweight and obesity are the fifth leading risk for global deaths. The disease profile has been changed in developing countries which catches the attention of medical professionals and policy makers. Epidemics of obesity, cardiovascular disease and diabetes have emerged worldwide. Among these entities, the prevalence of obesity has rising trends worldwide in almost every country in all the age groups and contributes to 2.6 million deaths worldwide every year.[1,2]

Once considered a high-income country problem, overweight and obesity are now on the rise in low- and

middle-income countries, particularly in urban settings. More than 30 million overweight children are living in developing countries and 10 million in developed countries.[3]

Demographic, economic, social, and nutritional transitions that occurred in the past decades shifted public health paradigms worldwide in the form of growing prevalence of overweight and obesity in virtually all age groups. Due to increased risk of morbidity and mortality obesity is recognized as a disease in its own right and its awareness is necessary.[4]

Sudden transitions from school life to the college life changes the dietary pattern among the college students which causes overweight and obesity.[5] It is important to develop effective preventive interventions among adults and children, as well as effective weight management strategies, in order to reduce levels of obesity.

Beliefs and views regarding obesity and the perceived benefits and barriers to health promotion strategies need to be understood if health promotion interventions are to be effective. The present study was undertaken to know the prevalence of obesity in students of Science College of Vadnagar city and to know impact of educational intervention regarding hazards of obesity and its preventive measures before and after training among them.

METHODS

The present study was an interventional study undertaken in Government Science College of Vadnagar city. The permission of principal of Government Science College was taken and informed written consent of the students was taken.

Inclusion criteria

Students who gave consent were included in the study.

Exclusion criteria

Students did not give the consent and those who were absent on the day of examination were excluded from the study.

Study population was 473 students. Total 473 students of 18-23 years age groups were examined and interviewed. Study duration was March to October 2019.

These adults were examined for prevalence of obesity. Height was measured in centimeters (cm) using a stadiometer. Weight was measured in kilograms (Kg) using a standardized weighing machine. Body mass index (BMI) was calculated using the formula weight (Kg) divided by height in square meters. Waist circumference

was measured in centimeters using a non-stretchable fiber measuring tape. The prevalence of overweight and obesity were determined based on the IOTF (International Obesity Task Force) criteria.

Before conducting the study, approval was obtained from institutional ethical committee for human research. Data safety and confidentiality was also given due consideration. The file containing identity related details was kept password protected and the filled Performa were kept in lock with key accessible only to researcher.

Baseline knowledge of students regarding obesity was assessed by pre-designed, pre-tested and semi structured questionnaire. Questionnaire was converted in vernacular language for assessment. Single educational interventional training for 45 minutes was given to selected students with lecture, demonstration and discussion. Post intervention knowledge of students for the same was assessed after training by same questionnaire.

Statistical analysis

Pre and post training assessment was done by scoring method. Data were analyzed using SPSS version 17 (trial version). Parameters such as rate, ratio and percentages were calculated. In order to have valid interpretation of rates, 95% confidence intervals (CI) were calculated. To test the significance of the difference among the statistical parameters in different subsets of population, suitable statistical tests like chi square were applied.

RESULTS

Out of 473 adults' males were 51 % and females were 49%. The prevalence of obesity and overweight was 8.0% and 15.0% respectively.

The prevalence of obesity and overweight was found to be highest among 22 years age group (10.0% and 23.8% respectively). The chi square test applied between different age groups and BMI category (Obese and Overweight taken together and Normal) was found not significant, indicating thereby no statistical association of increasing age with the prevalence of obesity and overweight (Table 1).

Baseline knowledge of the students regarding hazards of obesity like hypertension, cancer, heart attack and diabetes mellitus was 16.1%, 18.2%, 20.1% and 21.8% respectively which was significantly increased to 96.8%, 97.9%, 99.4% and 99.6% respectively after the intervention (Table 2). Baseline knowledge of the students regarding preventive measure of obesity like avoiding junk food/ healthy diet, exercise and meditation was 17.1%, 19.7% and 11.4% respectively which was significantly increased to 97.7%, 98.9 and 99.2% respectively after the intervention (Table 3).

Table 1: Age group and category of BMI wise distribution of college students.

Age group(in years)	Obese		Overweight		Normal		Total	
	Number	%	Number	%	Number	%	Number	%
18-	4	6.1	8	12.1	54	81.8	66	100
19-	5	6.3	9	11.4	65	82.3	79	100
20-	6	7.9	8	10.5	62	81.6	76	100
21-	7	8.6	7	8.6	67	82.7	81	100
22-	8	10.0	19	23.8	53	66.3	80	100
23-	8	8.8	20	22.0	63	69.2	91	100
Total	38	8.0	71	15.0	364	77.0	473	100

Chi square: 15.322 Degree of freedom: 10 p=0.12

Table 2: Pre and posttest knowledge of students regarding hazards of obesity before and after training.

	Pre test		Post test			
Types of hazards	No. of students (n=473)	Percentage	No. of students (n=473)	Percentage	Chi square	Significance (p value)
Hypertension	76	16.1	458	96.8	625.8	<0.0001
Cancer	86	18.2	463	97.9	616.2	<0.0001
Heart attack	95	20.1	470	99.4	617.7	<0.0001
Diabetes Mellitus	103	21.8	471	99.6	599.4	<0.0001

Table 3: Pre and posttest knowledge of student's preventive measure of obesity.

Preventive measures of obesity	Pre test		Post test			
	No. of students	Percentage	No. of students	Percentage	Chi square	p value (significance)
Avoiding junk food/Healthy diet	81	17.1	462	97.7	627.6	<0.0001
Exercise	93	19.7	468	98.9	614.0	<0.0001
Meditation	54	11.4	469	99.2	736.7	<0.0001

DISCUSSION

Overall prevalence of obesity and overweight was 8.0 % and 15.0% respectively. In Shah V et al, overall prevalence of obesity and overweight was 10.2% and 10.3% respectively.[1] In Ghonge S et al, the prevalence of obesity as well as overweight among adolescent students was found to be higher amongst children of Private schools (8.83% and 12.13 %, respectively) as compared to that of adolescent students of Government schools (2.98% and 8.23% respectively).[6] In Thaddanee R et al, out of 2562 adolescents males were 54.09% and females were 45.9%. Overall, the total number of obese adolescents identified in whole study population was 144 (5.62%) and numbers of overweight children were 256 (9.99%).[7] In a study conducted by S Kumar et al in Davangere, the prevalence of obesity in affluent schools were 5.74% and increased with increasing age.[8]

Baseline knowledge of the students regarding hazards of obesity like hypertension, cancer, heart attack and diabetes mellitus was 16.1%, 18.2%, 20.1% and 21.8% respectively which was significantly increased to 96.8%, 97.9%, 99.4% and 99.6% respectively after the intervention. Baseline knowledge of the students regarding preventive measure of obesity like avoiding junk food/ healthy diet, exercise and meditation was 17.1%, 19.7% and 11.4% respectively which was significantly increased to 97.7%, 98.9 and 99.2% respectively after the intervention.

In Shah V et al, baseline knowledge of the students regarding hazards of obesity like hypertension, cancer, heart attack and diabetes mellitus was 19.7%, 16.1%, 16.5% and 24.5% respectively which was significantly increased to 93.6%, 94.5%, 96.0% and 94.1% respectively after the intervention.[1] Baseline knowledge of the students regarding preventive measure of obesity like avoiding junk food/ healthy diet, exercise and meditation was 23.6%, 24.4% and 25.9% respectively which was significantly increased to 95.3%, 96.9 and 97.4% respectively after the intervention.

In a study conducted by Jagadeesan M et al, the most common reason cited by the college students for prevention of obesity was adequate physical activity (70%).[9] In a study conducted by Yerpude and Jogdand, an overwhelming majority (85.80%) of the college

students attributed diet for obesity.[10] Similar results was seen in a study conducted by Shrivastava et al, the findings were 77.5%.[11]

In Baig M et al, half of the participants of this study were either overweight or obese and 7% were hypertensive.[12] A huge gap exists in the knowledge, attitude and practice among the sample of young Saudi population regarding risk factors of cardio vascular diseases.

In Shrivastava S et al, the most common opinion cited by the medical college students for prevention of obesity was regular exercise by 107(77.5%) followed by dietary modifications and yoga/meditation by 74(53.6%) and 52(37.7%) of the respondents respectively.[11]

As this study was conducted in one city of Gujarat, the results are not generalized. There is definitely a need for well-planned, large-scale studies using standardized methodologies to estimate the prevalence and determinants of obesity and overweight in college students.

CONCLUSION

Results of the study implicate that there is an immense need to promote healthy lifestyles among the college students for avoiding the premature onset of the lifestyle disorders. The study result also shows there is a need for creating awareness not only among the college students and also among the family members and university management so that there will be coordinated efforts for reducing the prevalence of overweight and obesity among the college students.

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