

Research Article

Impact of educational intervention regarding hazards of obesity and its preventive measures among students of commerce colleges of Ahmedabad city, Gujarat, India

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Received: 24 July 2016

Accepted: 20 August 2016

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ABSTRACT

Background: The prevalence of obesity has increased worldwide in almost every country in all the age groups. A college is a key location for educating students about health, hygiene and nutrition, and for putting in place interventions to promote the health of them. Objective of the study was to know the prevalence of obesity and overweight among students of commerce colleges of Ahmedabad city and to assess knowledge of these students regarding hazards of obesity and its preventive measures before and after educational interventional training.

Methods: The present interventional study was undertaken during September 2011 to December 2011 in randomly selected 3 commerce colleges of Ahmedabad city, Gujarat. Total 627 students between the age group of 18 to 23 years were examined after taking written informed consent of their parents using pre-designed, pre-tested, semi-structured proforma. Anthropometric measurements were taken and BMI were calculated. The prevalence of overweight and obesity were determined based on the IOTF (International Obesity Task Force) criteria. 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 (Trial version).

Results: Overall, the total number of obese adults identified in whole study population was 64 (10.2%) and numbers of overweight adults were 65 (10.3%). 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. 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.

Conclusions: There was significant improvement in the knowledge regarding hazards of obesity and its preventive measures among college students after our single educational session.

Keywords: Prevalence, Obesity, Non-Communicable Diseases, College students, Knowledge

INTRODUCTION

Worldwide, disease profile are transforming at a rapid pace catching the attention of medical

professionals and policy makers alike. This is particularly true in low and middle-income countries that form the major chunk of global population. The emerging epidemics of obesity, cardiovascular disease

and diabetes form the crux of this phenomenal change. Among these entities, obesity has become a colossal epidemic causing serious public health concern and contributes to 2.6 million deaths worldwide every year.¹ The prevalence of obesity has increased worldwide in almost every country in all the age groups. The steep increase has prompted this development to be called an epidemic and because it is worldwide, a pandemic.²

Indian data regarding current trends in childhood obesity are emerging. Available studies of Delhi and Chennai has shown the prevalence of 7.4% and 6.2% respectively. A study conducted among adolescent school children in South Karnataka has shown the prevalence of overweight and obesity to be 9.9% and 4.8% respectively.³

Non Communicable diseases (NCDs) have emerged as major public health problem in India, due to increase in ageing population and environmental driven changes in behaviour. The premature morbidity and mortality in most productive phase of life is posing a serious challenge to Indian society and economy. It is estimated that in 2005 NCDs accounted for 53% of all deaths in India. The estimated burden of NCDs in India is: 2.4 million Ischemic heart disease, 37.8 million diabetes, 2.4 million cancers and 0.93 million stroke.⁴

The schools and colleges are key locations for educating students about health, hygiene and nutrition, and for putting in place interventions to promote the health of children, adolescents and adults.⁵ Many adult health problems e.g. obesity, hypertension have their early origins in early adulthood, because this is the time when lifestyles are formed. In primordial prevention, efforts are directed towards discouraging adults from adopting harmful lifestyles. The main intervention in primordial prevention is through individual and mass education.⁶ With this background in mind, the present study was undertaken to know the prevalence of obesity in students of Commerce College of Ahmedabad 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 3 commerce colleges, which were selected purposively from list of all colleges in Ahmedabad city during September 2011 to December 2011. All adults between the age group of 18-23 were included after written informed consent. 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, charts, demonstration and discussion. Post-intervention knowledge of students for the same was assessed after training by same questionnaire. Pre and post training assessment was done by scoring method and also mean, standard deviation, Wilcoxon sign rank test were applied. Thus collected data was analyzed using SPSS 17 (Trial Version).

RESULTS

Out of 627 adults males were 52.1% and females were 47.9%. Overall, the total number of obese adults identified in whole study population was 64 (10.2%) and numbers of overweight adults were 65 (10.3%).

Table 1: Distribution of students according to age group and category of BMI.

Age group (in years)	Obese		Overweight		Normal		Total	
	Number	%	Number	%	Number	%	Number	%
18	5	5.1	6	6.1	87	88.7	98	100
19	6	5.4	8	7.2	96	87.2	110	100
20	11	10.8	6	5.9	84	83.1	101	100
21	12	11.8	8	7.9	81	80.1	101	100
22	16	15.2	15	14.2	74	70.4	105	100
23	14	12.5	22	19.6	76	67.8	112	100
Total	64	10.2	65	10.3	498	79.5	627	100

Chi square: 29.56 Degree of Freedom: 10 p<0.01

The prevalence of obesity was found to be highest among 22 years age group (15.2%). The prevalence of overweight was maximum in 23 year age group (19.6%). The chi square test applied between different age groups and BMI category (Obese and Overweight taken together and Normal) was found to be highly significant, indicating thereby the 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 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 (Table 2).

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 (Table 3).

Table: 2 Distribution of the students according to knowledge of hazards of obesity before and after training.

Pre test			Post test		Chi square	Significance (p value)
Types of hazards	No. of students	Percentage	No. of students	Percentage		
Hypertension	124	19.7	587	93.6	696.6	<0.0001
Cancer	101	16.1	593	94.5	778.9	<0.0001
Heart attack	104	16.5	602	96.0	804.4	<0.0001
Diabetes Mellitus	154	24.5	590	94.1	628.7	<0.0001

Table: 3 Distribution of the students according to knowledge of preventive measure of obesity.

Preventive measures of obesity	Pre test		Post test		Chi square	p value (significance)
	No. of students	Percentage	No. of students	Percentage		
Avoiding junk food/Healthy diet	148	23.6	598	95.3	668.01	<0.0001
Exercise	153	24.4	608	96.9	689.9	<0.0001
Meditation	163	25.9	611	97.4	677.3	<0.0001

DISCUSSION

In our study overall prevalence of obesity and overweight was 10.2% and 10.3% respectively. Similar prevalence of obesity and overweight in students were found in studies done by Ghonge S et al, Thaddanee R et al, Kapil et al, Kotian et al, Premnath et al and Kadilkar et al.^{2,6-10}

Early adulthood is an age of transition and clearly recognized for its vulnerability to adoption of behavior predisposing to NCD (Non Communicable Diseases) development. Hence their knowledge scope and behavioral pliability makes them an attractive group for intervention. The basic tenet of public health regarding primary prevention (health promotion and specific protection) thus acquires contextual value. As a long term measure for NCD prevention health education is a priority in this population. Health education should reflect in increased awareness resulting in adoption of healthy behavior. The present study intended to assess the awareness level regarding NCDs and their risk factors among rural intermediate school children. The awareness level of the study participants regarding NCDs and their risk factors was unsatisfactory.¹¹

Many studies have been conducted on students for awareness of NCDs from different parts of India and

abroad. While comparability of these studies could obviously be limited (awareness has multiple determinants), some may be quoted for their scope. A study conducted by Shaikh RB et al among entry year students of a medical university highlighted that majority of the students (more than 70%) were aware about stress, high cholesterol, and obesity as the risk factors of hypertension.¹² Goel S, et al reported that 65.3% and 58.3% senior secondary school students of Chandigarh had knowledge about hypertension and diabetes, respectively.¹³ In ThawornLorga et al the lifestyle-related risk factors which were common to all cardiovascular diseases were not well known among the students. The present study also highlighted that only one fourth of the students had knowledge of hazards of obesity.¹⁴

In Anju Ade et al reported that 62.6% of the students had no knowledge about the prevention of NCDs.¹⁵ Only 127 (37.4%) students felt NCDs are preventable. A school based study by Taha AZ et al on intermediate and secondary school male students in Saudi Arable reported that few (<50%) of the students knew about the beneficial effects of physical activity in the prevention of heart disease, hypertension, diabetes mellitus.¹⁶ In our study 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.

CONCLUSION

High prevalence of obesity and overweight in students of colleges indicate an urgent need to increase awareness via education and motivation of all stakeholders. There was significant improvement in the knowledge regarding NCDs of students after our single educational session. Such education interventions are to be done on a regular basis to improve their knowledge and to discourage them from adopting harmful lifestyles which cause non-communicable diseases such as diabetes and cardiovascular diseases. 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.

Funding: No funding sources

Conflict of interest: None declared

Ethical approval: The study was approved by the Institutional Ethics Committee

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Cite this article as: Shah V, Jain UJ, Thakor N. Impact of educational intervention regarding hazards of obesity and its preventive measures among students of commerce colleges of Ahmedabad city, Gujarat, India. *Int J Res Med Sci* 2016;4:3820-3.