

ORIGINAL ARTICLE**A STUDY ON OVERWEIGHT PROMOTING DIETARY FACTORS AMONG SCHOOL CHILDREN IN AN URBAN AREA OF ANDHRA PRADESH****Pravin N Yerpude¹, Keerti S Jogdand¹****Authors' Affiliation:** ¹Associate Professor, Dept of Community Medicine, Gujarat Adani Institute of Medical Sciences, Bhuj
Correspondence: Dr Pravin Yerpude, Email: drrajupravin007@yahoo.com**ABSTRACT**

Introduction: Now a day, obesity has become a chronic disorder affecting the large population than any other disease in the world. It mostly affects the adult population but children and adolescent are also prone to develop obesity. the present study was undertaken among school children with the objective of finding out the relative proportion of underweight and overweight among study subjects on the basis of BMI and influence of some selected dietary factors on BMI status.

Methods: The cross sectional study was done in 4 public schools located in Guntur city selected by random selecting technique using purposive sampling procedure keeping in view the operational feasibility. Total 570 male students in the age group of 13-15 were included in the study .The study was conducted during October and November 2008.

Results: The proportion of overweight (13.86%) among study subjects was more than underweight (11.93%). The daily consumption rates of different energy dense foods found to vary from 17.54 % for butter to 25.44% for fast food while the rate of daily and week The practices of eating until plate is finished and eating more fried food showed wide variation among different BMI categories. The difference were statistically highly significant. The rate of daily and weekly consumption together varied between 59.65% for butter and 67.72 % for sweets.

Conclusion: The result of the present study shows that the diet habit like eating sweets and eating behaviour like snacking and eating more fried food were significantly associated with high prevalence of overweight among school children. So nutrition education should be given in schools regarding this to prevent occurrence of life style diseases in future

Key words: Overweight, Dietary factors, school children

INTRODUCTION

This has been a century of great changes. In the 21st century, changes were noted not only in the science and technology but also in the life style of its inhabitants. Changes in life style made life easier and marked the beginning of certain chronic ailments such as osteoarthritis, cardiovascular disorders, hypertension and obesity.¹ Now a day, obesity has become a chronic disorder affecting the large population than any other disease in the world. It mostly affects the adult population but children and adolescent are also prone to develop obesity. According to the World Health Organization (WHO), nearly 20-40 % of the adult population and 10 to 20% of children are affected by obesity.²

There is convincing evidence that increase in the energy density of the diet by fat or sugar together with concomitant eating behaviours like snacking, binge eating and eating out promote unhealthy weight gain

through passive over-consumption of energy.^{3,4} Consequent upon the economic development and market globalization, traditional energy dilute foods are being replaces by widely advertised highly processed energy dense foods. There has also been a steady increase in the consumption of foods prepared outside the home. Therefore; there is an imperative need for restriction of consumption of energy dense foods both at home and outside home setting in order to check further progress of the epidemic of obesity. Educational institutions can play an important role in this regard; the present study was undertaken among school children with the objective of finding out the relative proportion of underweight and overweight among study subjects on the basis of BMI and influence of some selected dietary factors on BMI status.

MATERIALS AND METHODS

The cross sectional study was done in 4 public schools located in Guntur city, Andhra Pradesh, selected by purposive sampling procedure keeping in view the operational feasibility. Total 570 male students in the age group of 13-15 were included in the study .The study was conducted during October and November 2008.Height and weight of the study subjects were measured using the standard procedure suggested by Jelliffe ⁵.WHO grading of BMI ^{3,4} was used for determination of relative proportion of underweight and overweight. Dietary factors that were studied include frequency of consumption of energy dense foods from outside ,and some concomitant eating behaviours as shown in table II. Energy dense foods in this study was defined as processed foods that are high in fat and/or sugar in contrast to energy dilute foods like whole grain cereals ,fruits and vegetables that are high in dietary fibre and water^{3,4}.The relevant information was collected by a self administered

questionnaire prepared for this purpose and put to respondents in a class room. SPSS 10 was used for statistical analysis.

RESULTS

Table 1 shows that the proportion of overweight (13.86%) among study subjects was more than underweight (11.93%).74.21% study subjects have normal weight. The daily consumption rates of different energy dense foods found to vary from 17.54 % for butter to 25.44% for fast food while the rate of daily and weekly consumption together varied between 59.65% for butter and 67.72 % for sweets. The difference in frequency of consumption of sweets and butter among different BMI categories was found to be statistically significant.

Table 1: Frequency of consumption of energy dense foods from outside in different BMI categories (n=570)

Food items & frequency of consumption	Underweight BMI < 18.5 (kg/m ²)	Normal weight BMI 18.5-24.99(Kg/m ²)	Overweight BMI ≥25 (Kg/m ²)	Total	p-Value
Fast food					
Daily	19 (27.94)	107 (25.30)	19 (24.05)	145(25.44)	0.067
Weekly	28 (41.18)	156 (36.88)	26 (32.91)	210(36.84)	
Occasionally	21 (30.88)	160 (37.82)	34 (43.04)	215(37.72)	
Sweets					
Daily	18 (26.47)	79 (18.68)	33 (41.77)	130(22.81)	0.003
Weekly	31 (45.59)	198 (46.81)	27 (34.18)	256(44.91)	
Occasionally	19 (27.94)	146 (34.51)	19 (24.05)	184(32.28)	
Butter					
Daily	14 (20.58)	63 (14.89)	23 (29.11)	100(17.54)	0.021
Weekly	23 (33.83)	188 (44.45)	29 (36.71)	240(42.11)	
Occasionally	31 (45.59)	172 (40.66)	27 (34.18)	230(40.35)	
Total	68 (11.93)	423 (74.21)	79 (13.86)	570(100)	

Figures in parenthesis indicate percentage

Table 2: Eating behaviour among different BMI categories

Eating behaviour	Underweight BMI < 18.5 (kg/m ²)	Normal weight BMI 18.5-24.99(Kg/m ²)	Overweight BMI ≥25 (Kg/m ²)	Total	p-Value
Snacking (Eating while doing some other activity)					
Yes	31(45.59)	184(43.50)	28(35.44)	243(42.63)	0.36
No	37(54.41)	239(56.50)	51(64.56)	327(57.37)	
Eating until plate is finished					
Yes	17(25)	128(30.26)	48(60.76)	193(33.86)	0.0001
No	51(75)	295(69.74)	31(39.24)	377(66.14)	
Eating more fried food					
Yes	09(13.24)	152(35.93)	23(29.11)	184(32.28)	0.0008
No	59(86.76)	271(64.07)	56(70.89)	386(67.72)	
Total	68	423	79	570	

Figures in parenthesis indicate percentage

Table 2 shows eating behaviour among different BMI categories. Snacking habit was prevalent among 42.63% respondents but the difference in this behaviour among different BMI categories was not statistically significant

.The practices of eating until plate is finished and eating more fried food showed wide variation among different BMI categories. The difference were statistically highly significant.

DISCUSSION

The proportion of overweight (13.86%) among study subjects was more than underweight (11.93%). The reason for this may be that these schools are located in urban area. Augustine et al ⁶ in their study on urban college girls of Ernaculum had found the prevalence of underweight and overweight as 21.5 % and 10.5 % respectively. Kapil et al ⁷ had obtained 7.4% prevalence of obesity among affluent adolescents in Delhi. The daily consumption rates of different energy dense foods found to vary from 17.54 % for butter to 25.44% for fast food while the rate of daily and weekly consumption together varied between 59.65% for butter and 67.72 % for sweets. The difference in frequency of consumption of sweets and butter among different BMI categories was found to be statistically significant. The reason for high BMI among study subjects eating sweets daily may be due to high calorie content present in it. Snacking habit was prevalent among 42.63% respondents but the difference in this behaviour among different BMI categories was not statistically significant. The practices of eating until plate is finished and eating more fried food showed wide variation among different BMI categories. The difference were statistically highly significant. The reason for high BMI among study subjects eating until plate is finished may be plate containing more food.

CONCLUSION

The result of the present study shows that the diet habit like eating sweets and eating behaviour like snacking and eating more fried food were significantly associated with high prevalence of overweight among school children. So nutrition education should be given in schools regarding this to prevent occurrence of life style diseases in future.

Awareness regarding the impact of fried food and fast food on health should be spread among school students through health education session.

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