



A Study of Life Style Profile and Dietary Pattern in School Going Children of Nagpur District

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Abstract

Background - Eighty percent of over weight 10-14 year old adolescents are at risk of becoming over weight adults compared to 25% of over weight pre school children (<5years old) and 50% of 6-9year old over weight children. The diets of children and adolescents are of public health concern due to evidence relating poor nutrition in childhood to subsequent obesity and the metabolic syndrome, all of which are increasing in prevalence. Low participation rates in sports and physical education, particularly among adolescent girls, are also associated with increased obesity prevalence.

Material and methods - The present cross sectional study was carried out in a school of Nagpur district which was randomly selected. A total of 410 mid adolescent school going children were taken between the age group of 12-15 years. All detailed information regarding consumption of food and types of fast food consumed one week before there interview were noted. All the students were personally interview by the investigator. Detailed history was obtained regarding present illnesses; personal habits like physical activity, sports activity, mode of conveyance to school and tuitions were also recorded.

Results - Maximum number of study subjects 394 (96%) consumed junk food while only 16 (4%) did not consume junk food. Among the study subjects, 89.2% belong to either upper or upper middle socioeconomic class and 83.41% belong to nuclear families. Maximum study subjects that are 214(52.2%) consumed at least single junk food (candy, chocolate, pizza, burger etc) followed by multiple junk food (more than one type of junk food) observed in 180 (43.9%).

Conclusion - Over the last decades, due to the rise in per capita income, junk food has become status symbol in many of the Indian families due to which concept of food has changed from a means of nourishment to a marker of life style and a source of pleasure.

Keywords – Adolescence, Obesity, Life style, Dietary pattern

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Introduction

Adolescents comprise approximately one fifth of the world's population and most of them (85%) live in developing countries¹. According to National Family Health Survey – II, India, 1989-99 mid adolescent boys constitute about 5.2 % of total population and mid adolescent girls constitute 5.1 % of total population². Eighty percent of over weight 10-14 year old adolescents are at risk of becoming over weight adults compared to 25% of over weight pre school children (<5years old) and 50% of 6-9year old over weight children³. Obesity in childhood and adolescence has been related to an increase in mortality in adulthood on follow up⁴. The diets of children and adolescents are of public health concern due to evidence relating poor nutrition in childhood to subsequent obesity and the metabolic syndrome⁵, all of which are increasing in prevalence⁶. Total energy intake is difficult to measure accurately at a population level. However, a small caloric imbalance over a long period of time is sufficient to lead to obesity⁷. Some small studies also found similar energy intake among obese children and their lean counter parts which clearly suggests that physical inactivity is evidently more important cause of obesity than increased calorie consumption⁸. Although fat eaten in excess leads to obesity there is not strong evidence that fat intake is the chief reason for the ascending trend of childhood obesity. Many studies have demonstrated rise in the prevalence of obesity in spite of the decrease in mean dietary fat consumption in both males and females⁹. It has been hypothesized that a steady decline in physical activity among all age groups has heavily contributed to rising rates of obesity all around the world. Low participation rates in sports and physical education, particularly among adolescent girls, are also associated with increased obesity prevalence¹⁰. With this background in mind, the present study was undertaken in Nagpur district to find the life style profile and dietary pattern in school going children.

Material and methods

The present study was undertaken in the department of community medicine of NPK Salve institute of medical science and research centre, Nagpur from July 2010 to March 2011. After obtaining ethical clearance from the institution, the present cross sectional study was carried out in a school of Nagpur district. Out of ten zones in Nagpur Municipal Corporation Laxminagar Zone was randomly selected. From this zone our study school was selected by lottery method. After explaining the objectives of this study and method of data collection to the concern authority written permission from the principal of the school was sought. All the students from 7th, 8th and 9th standard who consented for their participation for this study was included as study subjects. A total of 410 mid adolescent school going children were taken between the age group of 12-15 years. General information and socioeconomic details of study subject were obtained. Food intake was assessed as servings per day by the frequency of intake. Inquiries regarding food habits using closed ended questions were added which included intake at breakfast, lunch and dinner. All detailed information regarding consumption of food and types of fast food consumed one week before their interview were noted. All the students were personally interviewed by the investigator. Detailed history was obtained regarding present illnesses; personal habits like physical activity, sports activity, mode of conveyance to school and tuitions were also recorded. Anthropometric measurements like weight, height, waist circumference and blood pressure measurements were taken and recorded. Anthropometric indicators like Body Mass Index (BMI) were subsequently calculated and entered in the Performa.

Statistical analysis

Data was entered in Microsoft excel sheet and analyzed using SPSS version 12 software (SPSS Inc. Chicago Illinois, USA). Where necessary the data was presented in percentage

and mean \pm SD values. Both the descriptive and inferential data analyzes were applied using the appropriate statistical test.

Results

There are total 410 study subjects of which 237 (57.80%) were males and 173 (42.20%) were females. Maximum no of study subjects were in the age group of 12-13years followed by 157 (38.3%) in the age group of 13 -14 years. The least no of study subject were in the age group of 14-15 years. The mean age of study subjects was 13 ± 0.71 years.

Table 1- Distribution of study subjects on the basis of junk food consumption

	No junk food	Junk food		Total
		Single	Multiple	
Number	16	214	180	410
Percentage	4	52.1	43.9	100

Table no 1 shows distribution of study subjects according to junk food consumption. Maximum number of study subjects 394 (96%) consumed junk food while only 16 (4%) did not consume junk food. Above findings shows high prevalence of junk food consumption in school children. This high prevalence is partly attributed to their socioeconomic status and partly for other factors. Among the study subjects, 89.2% belong to either upper or upper middle socioeconomic class and 83.41% belong to nuclear families. The other reason could be advertisement and delicious taste of such food particularly in this age group. Table no 1 also shows study subjects according to frequency of junk foods. Maximum study subjects that are 214(52.2%) consumed at least single junk food (candy, chocolate, pizza, burger etc) followed by multiple junk food (more than one type of junk food) observed in 180 (43.9%). No junk food consumption is seen in 16 (4%) of study subjects.

When the distribution of study subjects was studied according to their per day calorie consumption, it was seen that out of total study subjects 227 (55.37%) had excess calorie consumption per recommended norms for the adolescents. The mean calorie consumption among study subjects was 2255 ± 203 kcal per day. The expected daily calorie requirement in the age group of 13-15 years is 2750 kcal for boys and 2330 kcal for girls (a report of expert group of ICMR, 2010). This high percentage of study subjects (55.37%) consuming excess calories on a daily basis and high prevalence of study subjects (96%) consuming fast foods could be the reason for high prevalence of overweight (17.3 %) and obesity (3.2%) among them.

Table 2 - Distribution of study subjects according to sport activity

	Number	Percent (%)
No sport activity	48	12
Sport activity of < 1 hour	251	61
Sport activity of > 1 hour	111	27

Table no 2 shows that 12% of the subjects were having no sport activity, while 61% were doing sport activity for less than one hour and 27% were doing sport activity for more than one hour. Table 3 shows distribution of study subject according to mode of conveyance to tuition. Out of total 410 study subjects 384 (93.7%) were going to tuition of which maximum that is 268 (65.36%) were using cycle as a mode of conveyance followed by parental automobile 74(18.05%). Least study subjects used bus as mode of conveyance for going to tuition

Table 3 shows distribution of study subject according to mode of conveyance to tuition. Out of total 410 study subjects 384 (93.7%) were going to tuition of which maximum that is 268 (65.36%) were using cycle as a mode of conveyance followed by parental automobile 74(18.05%). Least study subjects used bus as mode of conveyance for going to tuition

Table 4 - Distribution of study subjects according to socio-economic status (SES) by modified Kuppuswamy scale

SES subjects	Number	Percentage
Upper (26-29)	131	31.9
Upper-middle (16-25)	235	57.3
Lower-middle (11-15)	30	7.4
Upper-lower (5-10)	14	3.4
Upper-lower(5-10)	0	0
Lower(<5)	410	100

Table no 4 shows distribution of families according to socio-economic status by modified kuppuswamy scale. Maximum number of families lies in Upper –Middle class followed by Upper (31.9%). Least number of families lies in Upper- Lower Class. No families belong to lower class. Above table shows pre-dominance of families in affluent class.

Table 5 - Distribution of study subjects according to type of all morbid conditions

Type of morbidity	ICD-10 Code	Number	Percentage
Severe academic anxiety	F06.4	94	22.9
Overweight	E66.3	71	17.3
Obesity	E66	16	3.9
Pre hypertension	I10-I15	65	15.8
Stage I hypertension	I10-I15	47	11.4
Stage II hypertension	I10-I15	10	2.4
Refractive Error	H52.7	39	9.5
A.R.I	J00-J06	30	7.3
Asthma	J45.9	02	0.4
Musculoskeletal problem	M25.5	12	2.9
Dental caries	K02.9	09	2.1
Enteric fever	A01.0	03	0.7
Diarrhoea	A00-A09	03	0.7
Viral fever	B34.9	07	1.7
Appendicitis	K36	02	0.4

Table no 5 shows distribution of study subjects according to morbidity. Out of total 410 study subjects maximum no of morbidities were of non infectious type with severe academic anxiety (22.9%) overweight (17.3%), pre hypertension (15.8%), stage I hypertension (11.4%), acute respiratory illness (7.3%) and refractive errors (9.5%) being the major portion. Rest others were in low percentage. The overall low prevalence of morbidity among study subjects could be due to the fact that majority belong to upper (31.9), upper middle (57.3%) socioeconomic status and majority of them had professional father (46.1) or mother (14.9%).

Discussion

The obesity at present is not only the problem of developed countries but the incidence of

obesity at all ages is on the rise in the developing countries also, including India. According to a report from urban south India, 21.4% of boys and 18.5% of girls aged 13-18 years were overweight or obese. The prevalence of obesity among school children in India has been reported between 5.74% and 8.82%. In India, many studies¹¹⁻¹⁴ have shown that the prevalence of overweight among adolescents (10-19 years) varies between 10% and 30%. The percentage of overweight and obesity is highest in Punjab (30%) followed by Kerala (28%) and Delhi (26%)¹⁵. In our study we observed that the children preferred high calorie rich junk foods like French fries, sweet and salty snacks, soft drinks and fast foods as compared to fruits and vegetables which are in accordance with study of Olivares et al¹⁶. We also found that the prevalence of morbidities is higher in males than females, however this difference is not statistically significant ($X^2 = 0.685$, $df = 1$. $P = 0.408$ NS). This was in accordance with the study of Sorof JM et al¹⁷ performed school based screening in 5102 children to report the prevalence of elevated blood pressure after first screening as 19.4% which was highest among Hispanics (25%) and lowest among Asians (14%). The relative risk of hypertension was significant for gender (RR-1.50) and overweight (RR-3.26). McNiece KL et al¹⁸ in their cross sectional study among 6970 adolescent (11-17years) reported prevalence of pre hypertension as 15.7%, stage I Hypertension as 2.6% and stage II hypertension as 0.6%. They found that overweight and increasing BMI were independently associated with pre hypertension and hypertension among adolescent school children. Grover SB et al¹⁹ also found similar results in their studied morbidities of 1100 rural children in Delhi, they observed disorders of respiratory system (22.7%) and ENT disorders (2.8%) as common morbidities among them. Jain DC et al²⁰ studied dental disorders and observed that most common dental disorder was caries (16.2%) among them followed by stomatitis (4.7%). We also found that the dental caries are around (1.22%) in our study subjects. Arya RK et al²¹ carried a cross sectional study in village of Kheda district, Gujrat and observed that 11.5% had refractive errors followed by upper respiratory tract infection (11.2%), dental caries (6%). Behl RK et al²² carried a cross sectional study to determine the prevalence of asthma in Shimla and reported overall prevalence of asthma to be 2.3%. Among the study subjects boys had higher prevalence (3.1%) than girls (1.4%).

Conclusion

The prevalence of obesity is now increasing in developing countries also as most of the children prefer western diet that is diet rich in refined sugar and low in fruit and vegetables. Over the last decades, due to the rise in per capita income, junk food has become status symbol in many of the Indian families due to which concept of food has changed from a means of nourishment to a marker of life style and a source of pleasure.

To reverse the rising of global prevalence of obesity especially in young children prevention is the best approach as these children are the future of our country and if they will not be healthy how the country will progress.

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