Research Article

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A study of food fads and overweight in adolescents from an urban area

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ABSTRACT

Background: Faulty dietary habits in modern era hamper the nutritional health of adolescents. Trend of consuming fast food have worse effect on children and youth often more than adults. This is because most of the fast foods are targeted towards children and there is a sustained pattern of eating fast foods and eating out. The objective of the study was to study the association between fast food consumption and development of overweight in adolescents from an urban area.

Methods: This is a cross-sectional study. 1500 students from 5th-10th class schools from urban area of Sangli-Miraj-Kupwad Municipal corporation area were selected for study. A study period was from July 2012-Sept 2014. Predesigned and pretested questionnaire were used as study tools. Statistical analysis was done by using Chi-square test.

Results: Among the 1500 children, overweight was seen more in boys, belonging to age group of 17 years and children living in nuclear families. The significant association was found between overweight & children consuming fast food always. Total 9.2% children found overweight.

Conclusions: Increase consumption of dry snacks and fast food hamper the nutritional status of adolescents and may lead to overweight.

Keywords: Fast foods, Overweight, Adolescents, Body mass index

INTRODUCTION

Adolescents represent around 20% of the global world population and around 84% of them are found in developing countries. Adolescence is a period, which forms the base of future health and social life. The health problems and habits acquired during this phase prove a lifelong hindrance in well-being.

Fast food culture is an emerging trend among the younger generation. The ready availability of fast food, its taste, low cost, marketing strategies and peer pressure make them popular with children and adolescents. Trend of consuming fast food has worse effect on children and youth often more than adults. This is because most of the fast foods are targeted towards children and there is a sustained pattern of eating fast foods and eating out.^{2,3} Faulty dietary habits in modern era hamper the nutritional health of adolescents.

Dietary patterns that include a higher intake of fruits and vegetables, which are good sources of complex carbohydrates, vitamins, and minerals, are associated with a decreased risk for obesity.⁴ Children and adolescents tend to consume low quantities of fruits and vegetables and to have a high intake of fast foods and

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carbonated drinks. Being overweight and obese increases the risk of development of conditions such as hypertension, diabetes mellitus, coronary artery disease, osteoarthritis and certain types of cancer.⁵

Most adolescents consume diets that are higher in fat and lower in fruits and vegetables than recommended.⁶

The problem of food fads and its resultant health issues, like overweight are amply highlighted in the western literature. However such studies from India are few and concentrated in metropolitan area.

Hence we planned the current study to investigate the magnitude of food fads and overweight in the non-metropolitan urban area of Sangli district, Maharashtra. We also planned to study the association between fast food consumption and development of overweight in adolescents.

METHODS

This was a cross-sectional study conducted in government and private, aided and unaided, co-education schools from Sangli-Miraj-Kupwad corporation area of Sangli city in Western Maharashtra. It was undertaken after Institutional Ethical Committee approval and permission from respective authorities. Consent was obtained from the parents and then the students were given a brief orientation regarding proforma and explained the purpose of the study. The study population was early adolescent school going children studying in classes Vth-Xth. The schools were chosen by simple random sampling with lottery method and then information from all students of the selected school was taken i.e. by using cluster random sampling method Sample size calculated by using the statistical formula, was 359 for each of 4 groups, like private unaided English school, private unaided Marathi school, corporation school and private aided school. Total sample size derived was 1500. The study duration was July 2012-Sep 2014.

Study tool was a self-administered questionnaire, with good validity and reliability. It was developed in English

and Marathi; with the help of published literature, language and subject experts. The questionnaire consists of general information like name, age, sex, address, class; nutritional assessment such as type of diet, frequency of fast food, consumption of cold drinks etc.

The criterion for Overweight is taken as: Children having BMI >85th percentile of weight for age as per the WHO child growth standards, 2006.⁷ WHO has recommended various indices based on anthropometry to evaluate the nutritional status of the school children. BMI was used for assessment of nutritional status i.e. overweight among adolescents.⁸

Analysis was done using SPSS 22 and Microsoft Excel 2007. Proportion, percentages, chi square test and multivariate analysis were applied.

RESULTS

The total students examined in the study were 1500; out of which 901 (60.06%) were boys and remaining 599 (39.93%) girls. The number of boys was significantly higher. The information of students was collected according to their socio-economic variables and various food items; by giving questionnaire to them. Range of age of students was 10-17 years and the mean±SD was 12.7±1.79. Mean BMI of students was 17.01 (SD±4.36).

Association of overweight with some of the sociodemographic characters, like age, gender and type of family was assessed as shown in Table 1. Overweight was noted in 102 (10.1%) children less than 14 years of age group; whereas 40 (8.2%) children more than 14 years of age show overweight. The prevalence of overweight was seen more in boys 96 (10.7%) as compared to girls 46 (07.7%).

Out of 1500 children, 703 (46.86%) children were living in joint families & 797 (53.13%) in nuclear families. Children living in nuclear families found to be more overweight 86 (10.8%).

Table 1: <i>A</i>	Association	of socio-	demograp	hic varia	bles wit	h overweight.

Variables		Overweight		Total	Significance	
variables		Absent	Present	Total		
Age group	<14	908 (89.90%)	102 (10.10%)	1010 (100%)	$\chi^2 = 1.443, p = 0.229$	
	>=14	450 (91.80%)	40 (8.20%)	490 (100%)	$\chi = 1.443, p = 0.229$	
Gender	Boys	805 (89.30%)	96 (10.70%)	901 (100%)	2 2717 0.052	
	Girls	553 (92.30%)	46 (7.70%)	599 (100%)	$\chi^2 = 3.717, p = 0.053$	
Family type	Joint	647 (92%)	56 (8%)	703 (100%)	2 2.477 0.062	
	Nuclear	711 (89.20%)	86 (10.80%)	797 (100%)	$\chi^2 = 3.477, p = 0.062$	
Total		1358 (90.50%)	142 (9.50%)	1500 (100%)		

Table 2: Association between various food items with overweight.

Variables		Overweight		TF-4-1	Chi-square	
		Absent	Present	Total		
	Rare	341	28	369	$\chi^2 = 2.015$	
Den angola		92.40%	7.60%	100.00%	P = 0.156	
Dry snacks	Always	1017	114	1131		
		89.90%	10.10%	100.00%		
	Rare	256	25	281	$\chi^2 = 0.131$	
Bakery products		91.10%	8.90%	100.00%	P = 0.717	
Bakery products	Always	1102	117	1219		
		90.40%	9.60%	100.00%		
	Rare	572	47	619	$\chi^2 = 4.318$	
Non veg food		92.40%	7.60%	100.00%	P = 0.038	
Non veg 100d	Always	786	95	881		
		89.20%	10.80%	100.00%		
	Rare	358	32	390	$\chi^2 = 0.979$	
Samosa & other fried foods		91.80%	8.20%	100.00%	P = 0.323	
Samosa & other fried foods	Always	1000	110	1110		
		90.10%	9.90%	100.00%		
	Rare	923	92	1015	$\chi^2 = 0.594$	
Pizza, burger etc		90.90%	9.10%	100.00%	P = 0.441	
Fizza, burger etc	Always	435	50	485		
		89.70%	10.30%	100.00%		
	Rare	751	68	819	$\chi^2 = 2.851$	
Carbonated Drinks		91.70%	8.30%	100.00%	P = 0.091	
	Alwaye	607	74	681		
	Always	89.10%	10.90%	100.00%		
Total		1358	142	1500		
1 Otal		90.50%	9.50%	100.00%		

Table 3: Binary logistic regression model-association of various variables with overweight.

Variables	В	S.E.	Wald	df	C:a	OR	95% C.I. for OR	
	Ь	S.E.	vv alu	aı	Sig.	OK	Lower	Upper
Gender	-0.397	0.189	4.429	1	0.035	0.672	0.464	0.973
Family type	-0.372	0.182	4.170	1	0.041	0.689	0.482	0.985
Cold drink	-1.082	0.596	3.299	1	0.069	0.339	0.105	1.089
Age	-0.292	0.197	2.195	1	0.138	0.746	0.507	1.099
Constant	-0.049	0.726	0.005	1	0.946	0.952		
B= Regression coefficient, SE=Standard error, OR=Odds ratio, CI=Confidence interval								

Table 2 shows association between various food items with overweight. These food items are like dry snacks, bakery products, non-vegetarian food, samosa, pizza and carbonated drinks. Frequency of eating these food items was considered on the basis of daily or occasionally eating. Overweight is computed as per various food items they consume. The children who consume these food items always shows more overweight as compared to children consume it rarely. Overweight was observed significantly more in 95 (10.8%) children who always consume non-veg food items (p=0.038), whereas for the other food items, this association was not significant.

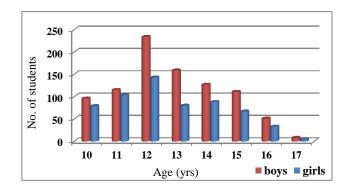


Figure 1: Age-sex distribution of students.

Binary logistic regression was applied with Wald's backward method, where over weight was considered as dependent variable and different socio-demographic factors as well as various food items as independent variables. Chance accuracy of the model is 90.5. Gender (p=0.035) and type of family (p=0.041) were the best predictors for overweight (Table 3).

DISCUSSION

There is an increasing trend of consumption of energy-dense foods, i.e. fast food, which is high in fat, sugar, salt and oil, seen in children. Fast food is easily available, yummy in taste and cheaper at cost; most of children attracted towards these food fads. These types of eating food habits causes overweight, which further leads to various health problems.

In our study, overweight decreases as age increases. It is more in school children whose age is less than 14 years of age. A study done by Kumar S et al showed, the prevalence of overweight increased with increasing age. Raj M et al in their study showed that there was increasing trend of BMI along with age in both sexes. 10

Overweight was seen more in boys than girls, but not statistically significant. The reason may be gender discrimination as females were often neglected and boys were exposed often outside home and easily accessible towards fast food and junk food. Similar study done by Anuradha RK et al in Tirupati town of Andhra Pradesh, India, shown that about 11.2% of the boys and 10.3% of the girls were overweight.

86 (10.8%) children from nuclear families found to be overweight as compared to children in joint families. There are chances that the child's nutritional diet may be neglected in the nuclear family, if mother and father both are busy in their jobs; whereas this may not happen with the children living in joint families. Similar results were also noted by Parrika et al. ¹²

We have studied various food items that are generally consumed by school children and these are available in and around the schools.

Now days, dry snacks are easily available around schools at affordable price and children are easily attracted. Consuming dry snacks and bakery products frequently along with regular diet may increase their weight and BMI status. Even eating dry snacks along with watching television leads to overweight and obesity in children.

Various non-vegetarian food items like mutton, chicken, eggs were generally consumed by school children. Some of children may eat them frequently. Frequent eating of non-vegetarian food items in children may lead to overweight. Aggarwal T et al done study in affluent adolescents from Ludhiana, Punjab found that 82.3% children were non-vegetarian and 8.8% vegetarians were

obese. ¹³ Meat intake has been found to be associated with obesity and its cardiovascular complications. Children in Switzerland showed a direct association between intake of meat products and overweight. In Rome, obesity was found to be significantly associated with hypertension, and hypertensive school children had a higher intake of meat and eggs in their diet. ¹⁴

Children who always consume fried foods like samosa, *kachori, alu wada, manchurian* etc. found to be more overweight. Fried foods are easily available on the streets, bakery, out lets in molls and even in restaurants. When they eat along with regular meals, it affects their nutritional status. A study done by Amin TT et al showed that frequent consumption of fast foods, low servings per day of fruits and vegetables were all predictors of obesity and overweight among the school children studied.¹⁵

Generally, children are attracted to junk food like pizza and eating in large amounts may result in over nutrition in children. The children who consume cold drinks always were more overweight. Ludwig DS, et al and For Shee et al noted that middle-school children who consumed more carbonated soft drinks were more likely to become at risk of overweight. Moreover, the reasons for consuming larger than average amounts of these beverages should be explored, especially among children and adolescents who are engaged in strenuous physical activity. The current study reflected these findings.

CONCLUSION

Increase consumption of dry snacks and fast food hamper the nutritional status of adolescents and may lead to overweight.

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Ethical approval: The study was approved by the

Institutional Ethics Committee

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