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Original Article

Eating Habits of Adolescent Students

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Abstract

Background: To assess eating habits of adolescent students of Rawalpindi.

Methods: In this descriptive study 276 students of both genders, aged between 13-16 yrs were selected through two stage cluster sampling technique. Data was collected by means of structured questionnaire. Questionnaire asked information regarding demographics and eating habits i.e. the type of the food group being consumed and the frequency of consumption of these foods, based on United States Department of Agriculture (USDA) food guide pyramid.

Results: Majority(75.7%) had unhealthy eating habits, while 19.9 had satisfactory and only 4.4% had healthy eating habits. Majority of the students(40.6%) ate fruits and vegetables 2-3 times a week, while 32.6% never drank milk and 13% never ate meat.

Conclusion: Majority of the adolescent students had unhealthy eating habits and did not take the food groups as recommended by United States Department of Agriculture (USDA) food guide pyramid (FGP).

Key Words: Eating habits, Students, Adolescent

Introduction

The healthy eating habits of the adolescents lead to healthy and speedy growth of the individuals and decrease the disease risk in adulthood. Adolescence (10-19 years) is the period of transition from childhood to adulthood .It is a phase of rapid growth and maturation in which final growth spurts occurs. This phase requires high nutrient and energy to cope up with the accelerated physical and intellectual development of the adolescents.[1,2] Ample energy and macronutrients intake is required during adolescents for proper muscle and brain development, hemoglobin production, bone mineralization (calcium), and growth (zinc).[3]The well-established healthy eating habits include regular fruit, vegetable, and whole-grain and dairy food consumptions.[4]

A lot of research work has been done across the globe to assess the eating habits of the adolescents, one of the studies of South Mediterranean country has shown that most of the adolescents are inclined to unhealthy eating habits, which ultimately affect their nutritional status.[5] In another study done on Brazilian adolescents, 23.26% were found to have unhealthy eating habits while only 6.9% had healthy eating habits.[6] In a study done on Pakistani adolescents it was found that dietary intake of majority of adolescents is inadequate in terms of meeting the standards of adequacy.[7]

Irregular eating pattern and poor food choices are badly affecting the health of our adolescents leading to micronutrient deficiencies on one hand and obesity on the other, resulting in impairment of physical and mental growth, ultimately affecting their nutritional status. Understanding the characteristics of adolescents consuming specific dietary patterns is important as this knowledge will help determine what subgroups and specific modifiable characteristics should be targeted in dietary interventions, to enhance better growth.

Subjects and Methods

This descriptive cross-sectional study was conducted on students of government high schools of Rawalpindi city for duration of 6 months from August 2016 to February 2017. The sample size was calculated by using World Health Organization's (WHO) statistical sample size calculator, reference population was 6.9[6], margin of error 3% , the calculated sample size was 276. Two stage cluster sampling technique was adopted. Students of both genders between ages 13 to 16 years were included. Students' age more than 16 years, students less than 13 years, those from other than sampled schools and students having any acute or chronic sickness i.e. chronic tonsillitis, tuberculosis etc. were excluded. Two strata one of boys' and another of girls' school were made. From these two strata a total of 6 schools, 3 of boys and 3 of girls were selected by simple random sampling. Students were approached by visiting the selected government high

schools and equal number of boys and girls (46 from each school) were included using the simple random sampling technique,done by using (World Health Organization) WHO random number generator

Table 1: Types of foods consumed

	One Serving
Fruits	1 medium fruit/size of base ball/half cup chopped
Vegetables	1 cup of raw green vegetables&1/2 cup of other vegetables
Chapatti	CDsize
Bread	1 small slice
Cereals	½ cup
Rice	½ cup
Butter	1 tea spoon
Cheese	1 ounce/3 dices
Egg	1
Fish	2-3 ounces
Chicken	1 ounce
Nuts	One hand full
Beans	½
Legumes/lentils	¼ cup cooked
Milk	1 cup
Yogurt	1 cup

Executive Director Education (EDO) was approached for ethical permission of carrying out study. Before filling the questionnaire, information regarding serving size of the food items was given to them by displaying and explaining through poster display. Any queries regarding the questionnaire were addressed. Confidentiality of information was maintained and assured. Questions regarding eating habits i.e. the type of the food group consumed and number of servings per food group (Table 1). For qualitative variables like gender, type of eating habits, socioeconomic status, frequency and percentages were calculated. $P \leq 0.05$ taken as significant

Results:

Majority (53.33%) had body mass index less than 18.5 (Table 2).Most (48.1%) of the students were from lower socioeconomic group, 35.14% were from lower middle while 16.67% were from middle socioeconomic class.

Table 2. Body mass index (BMI) of students

BMI	Frequency	Percentage
<18.5	161	58.33%
18.5 – 29.9	107	38.77%
>30	8	2.90%

The mean number of meals eaten per day by the students was 3.46 with standard deviation of 0.667, and the mean number of food groups eaten were 3.1920 with standard deviation of 0.75 (Table 3). Only 4% (n=11) of the students have healthy eating habit (Table 4). Satisfactory easting habits were found in 19.9% (Table 5). Unhealthy eating habits were found in 75.7% (Table 6).

Table 3: Frequency of eating different foods

Food	Once a day	1-2 times a day	3-4times a day	>4times a day	Once a week	2-3times a week	4-6 times a week	Never
	No (%)	No (%)	No (%)	No(%)	o (%))	No(%)	No(%)	No(%)
Fruit	53 (19.2%)	32(11.6)	14(1.4)	0(0)	49(17.8)	112(40.6)	19(6.9)	7(2.5)
Chapati	79(28.6)	85(30.8)	92(33.3)	0(0)	3(1.1)	1(0.4)	4(1.4)	12(4.3)
Bread	77(27.9)	5(1.8)	0(0%)	0(0)	31(11.2)	34(12.3)	5(1.8)	124(44.9)
Rice	16(5.8)	16(1.8)	4(1.4)	0(0)	92(33.3)	113(40.9)	31(11.2)	15(5.4)
Butter	43(15.6)	2(0.7)	0(0)	0(0)	37(13.4)	27(9.8)	3(1.1)	164(59.4)
Egg	99(35.9)	6(2.2)	1(0.4)	0(0)	54(19.6)	59(21.4)	14(5.1)	43(15.6)
Fish	67(24.3)	0(0)	6(2.2)	0(0)	0(0)	0(0)	1(0. 4)	202(73.2)
Chicken	8(2.9)	3(1.1)	4(1.4)	1(0.4)	80(29)	139(50.4)	5(1.8)	36(13)
Legumes	9(3.3)	1(0.4)	0(0)	0(0)	73(26.4)	129(46.7)	13(4.7)	51(18.5)
Beans	4(1.4)	0(0)	0(0)	0(0)	88(31.9)	60(21.7)	7(2.5)	117(42.2)
Milk	124(44.9)	5(1.8)	0(0)	0(0)	22(8)	29(10.5)	6(2.2)	90(32.6)
Yogurt	108(39.1)	6(2.2)	2(0.7)	0(0)	33(12.7)	51(18.5)	17(6.2)	57(20.7)

Table 4:Students with healthy eating habits

Gender of students	Healthy eating habits		Total	P value
	Yes	No		
M	4(1.44%)	134(48.55%)	138(50%)	0.356
F	7(2.53%)	131(47.46%)	138(50%)	
Total	11(3.98%)	265(96.01%)	276(100%)	

Table 5: Students with satisfactory eating habits

Gender of students	Satisfactory eating habits		Total	P value
	Yes	No		
M	34(12.31%)	104 (37.68%)	138 (50%)	0.050
F	21(7.6%)	117(42.39%)	138(50%)	
Total	55(19.92%)	221(80.07%)	276(100%)	

Table 6: Students with unhealthy eating habits

Gender of the students	Unhealthy eating habits		Total No(%)	P value
	Yes	No		
M	100(36.23%)	38(13.76%)	138(50%)	0.206
F	109(39.49%)	29(10.50%)	138(50%)	
Total	209(75.72%)	67(24.26%)	276(100%)	

Discussion

Nutritional needs of the adolescence are different, due to the fast growth rate during this period. In a developing country like Pakistan it is one of the most neglected segments of public health, resulting in a number of nutritional deficiencies in our adolescent population. During adolescence a healthy diet according to the physical requirements can play a role in the prevention of several chronic diseases, including obesity, coronary heart disease, and certain types of cancer, stroke, and type 2 diabetes later in life.

A study done in public schools of Karachi has shown that undernourishment was more prevalent in male students (33%) than female students(23%).[8] Contrary to the present study a study done on the adolescents of Karachi and Lahore,the BMI of the majority of the participants was found to be around 20.84±4.75 and 20.78±2.89 respectively.[9]The reason of difference in the results of these two studies could be the difference in socioeconomic status of the respondents as most of the students of public schools of our study were from lower socioeconomic status. Students whose parents' monthly income was below fifteen thousand Pakistani rupees were categorized as low socio economic group.

A study carried out on Asian students presented that the prevalence of being underweight is more common in boys within the South and West Asian countries, while in the East Asian countries it was more prevalent among girls.[10] The gender in Southeast Asia is the deciding factor concerning independence, ability to work and even health. The inferior position of women in this region impacts women's health and a male child is given priority over female child in all aspects including health because he is considered as the future bread winner and head of the family. The reason of difference in our study could be that the girls do not participate in physical activities and sports like boys so their weight for age is better than boys. [11]

In our research, 58.33% participants were undernourished with their BMI <18.5, which is in accordance with the results of the study conducted by Dambhar et al. ,who had comparatively similar findings with the present study, i.e. 51.7% of adolescents of his study were undernourished while only 48.3% of the adolescents were normal.[12] Most of the studies reveal a low BMI in girls. [13,14]Studies also revealed a direct association between socioeconomic status and BMI. [15,16]

In the current study majority of participants consumed chapatti (92.75%) as daily food which is same as in a study done on Indian adolescents where 94.5% of the adolescents consumed it on daily basis.[16] The reason of similarity being the same cultural and geographical environment of these South Asian countries ,where wheat is considered as the staple food which is consumed on daily basis by the majority of the population in the form of chapati. Wheat is the main staple food in Pakistan too and constitutes about 80 to 90 per cent of the food consumed by each individual in every meal. Although it can be consumed in many ways such as in the form of chapatti, bread, biscuits, porridge, macaroni and sweets, its use as 'chapati' is the most common and popular among the majority of the population. Since it constitutes the main bulk of the food intake especially for the low income classes and is a key and major source of energy and protein requirements to them, who cannot afford protein-rich foods like meat, beans and pulses.

Most of the adolescent students did not consume green leafy vegetables, milk products fruits and eggs and meat.Only 29.7% of boys and 20.65% of girls reported eating meat 2-3 times a week . On the contrary ,a study done in Karachi public school showed that a higher proportion of the respondents i.e. 67% of boys 37% of girls ,consumed meat at least twice weekly[8]. The reason being the better socioeconomic status of the respondents of the Karachi public schools. It has been shown in many researches that diet quality follows a socioeconomic gradient. Whereas higher-quality diets like lean meat and fish are associated with better privileged circumstances and affluence , diets with empty calories that are nutrient-poor are preferentially eaten by persons of lower socioeconomic

status (SES) and of more limited financial means. In these days of inflation and economic instability it is not easy for a person from lower socioeconomic group to incorporate meat in his daily meals, therefore the respondents of our study consumed meat rarely as compared to the respondents from affluent families.

In our study it has been revealed that milk was consumed on an average by 67.39% of the respondents and yogurt was eaten by 79.35% of respondents which is the same as the results of a study conducted on eating habits of adolescents of Poland, where on average 66% of the adolescents consumed milk on daily basis .[17] The reason of the similarity in results is that the milk is considered the basic and essential nutrient for growth and bone health in all cultural setups, thus milk and milk products are consumed almost daily by the adolescents and children across the globe.

In present study , the consumption of fruits and vegetables was a bit low, as fruits were eaten daily by 32.24 %and vegetables by 30.08% of pupils ,while in a study done in Poland and Czech Republic fruits and vegetables were being consumed daily in a higher proportion i.e. by 49.% and 36% of the adolescent pupils respectively.[18] Both lower socioeconomic status and lower educational status of the parents can be the factors responsible for low consumption of fruits and vegetables in our study population . Lack of nutritional knowledge regarding the importance of the nutrients can also be one of the factors.

Conclusion

1.The overall nutritional status of the adolescents was not satisfactory. The health and nutritional status among the adolescents was found to be low, more in girls than in boys.

2.The prevailing dietary practices of adolescents have not been up to the mark. Such practices may be due to differences in the food allocation at the family level and because of individual likes and dislikes.

3. In study population both macro- and micronutrients deficiencies were found. These deficiencies lead to a decrease in the growth spurt, for both physical and mental health

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