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A study on daily dietary intake of adolescents in Aligarh District U.P.

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Abstract
Adolescents who have good nutritional status would grow to be healthy adults with high work efficiency and productivity. Nutritional status of adolescents is directly affected by their dietary intake and its pattern. Adolescent in present scenario have their own choices related to food. These choices are not governed by their nutritional requirements. Present study was conducted to assess the Daily Dietary Intake of Adolescents. Hence the researchers conducted a cross sectional survey to assess the dietary intake and pattern of adolescents studied in Vijay Vidhyalaya Inter College, Tochhigarh, Aligarh, Uttar Pradesh. 230 adolescents in the age group of 13 to 15 years were selected as samples using random sampling method. Equal consideration was given to both genders. Well-designed set of questionnaires was used to collect personal information of the students. Daily Dietary intake of students was assessed by using 24-hour dietary recall method and food frequency questionnaire. By using these retrospective methods of dietary survey dietary diversity scores obtained by researchers. The research study found a significant deficiency of approximately 48% in the food groups of fruits, vegetables. Protective Food Consumption is very much less in both genders of students. It was found that nearly 23.4% Adolescents skips breakfast, 13.91% skips their lunch and 3.48% skipped their dinner during the research study.

Keywords: Adolescents, daily dietary intake, retrospective method

Introduction

Adolescent period is characterized by rapid increase in height and weight, hormonal changes, sexual maturation and wide swings in emotion. It is spread almost over a decade. Adolescent growth spurt starts at about 10-12 years in girls and two years later in boys. The annual peak rates for height and weight are 9-10 cm and 8-10 kg. Development of critical bone mass is essential during this period as this forms the ground for maintaining mineral integrity of the bone in later life. The pattern and proportion of various body components like body water, muscle mass, bone and fat increase during the entire childhood and adolescence to reach adult values by about 18 years of age.
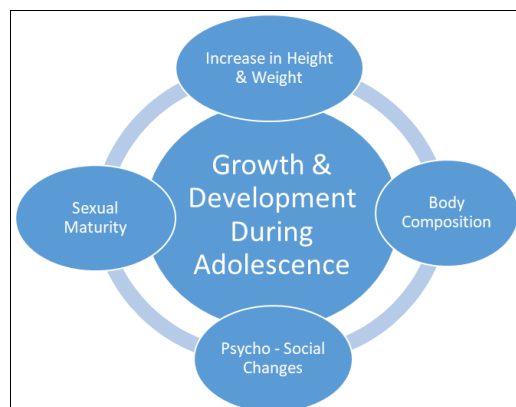

Fig 1: Important Changes during Adolescence

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Human development happens in stages and each stage has its discrete characteristic. According to WHO, adolescence is one of the stages of life which occurs between the ages of ten and nineteen and it is a unique stage of human development and an important time for laying the foundations of good health. (WHO, 2022) [12].

It is the transition from childhood to adulthood. According to Elizabeth B. Hurlock adolescence is the age during which the individual becomes integrated into the society of adults, the age when the individual no longer feels he is below the level of his elders but equal, at least in right. (Hurlock, 60th reprint 2017)

Diet and Feeding Pattern of Adolescents
Adolescent girls are in greater physiological stress than boys because of menstruation. Their nutritional needs are of particular importance as they have to prepare for motherhood. Food preferences are not made and abolished by whims and fancies. More often, the adjustments are generated by social and economic changes that take place throughout the community or society. The issue is often not what food are eaten but rather how much of each food is eaten and how the consumption is distributed within the society or within the family. A diet which contains adequate amounts of necessary nutrients required for healthy growth and activity is called balanced diet.

Review of Related Literature
(Jawaldeh, Taktouk, & Nasreddine, 2020) [6] Review contributed towards the characterization of food consumption pattern and dietary intakes amongst children and adolescents in the Eastern Mediterranean Region (EMR). Findings of research highlighted poor dietary habits characterized by low intakes of fruits, vegetables and dairy with high intakes of sweet and savory snacks.

(Balan V, 2016) [1] Concluded that the prevalence of underweight was found to be common among the adolescents irrespective to gender. Researcher suggested that curriculum of the adolescents should clearly focus on the healthy eating habits and lifestyles.

(Indu, Kumari, Kumari, & Kumar, 2010) [5] Findings of their studies concluded that daily dietaries of pre-school children were significantly deficient in all the food stuff except cereals.

(Moy, Ming, Ying, Kasim, & Zaleha, 2006) [9] Reported the findings of survey on the eating pattern of the school children and adolescents in Kuala Lampur. It was found that students mostly skipped their meals. Most frequently skipped meal is breakfast followed by lunch and dinner. Fast food and food sold by local hawker were also consumed by about 60% students.

Method
Researchers conducted a cross sectional survey to assess the dietary intake and pattern of adolescents studied in Vijay Vidhyalaya Inter College, Tochhigarh, Aligarh, Uttar Pradesh. 230 adolescents in the age group of 13 to 15 years were selected as samples using random sampling method. Out of which 121 adolescents were boys and 109 adolescents were girls.

Equal consideration was given to both genders. Well-designed set of questionnaire was used to collect personal information of the students include their age, Family income, dietary habit, food allergy etc. Daily Dietary intake of students was assessed by using 24-hour dietary recall method for seven days and food frequency questionnaire of 30 food items. A set of standard utensils was used to estimate the consumption of food. 30 food items were distributed across different 7 time intervals of the day.

Table 1: Personal information

Personal Information		Boys (N=121) (%)	Girls (N=109) (%)
Age	13 years	34 (28.10)	48 (44.04)
	14 years	46 (38.02)	42 (38.53)
	15 years	41 (33.88)	19 (17.43)
Type of Family	Joint Family	78 (64.46)	74 (67.89)
	Nuclear Family	43 (35.54)	35 (32.11)
Religion	Hindu	76 (62.81)	75 (68.81)
	Muslim	36 (29.75)	29 (26.61)
	Others	9 (7.44)	5 (4.58))
Family Income (Per Month)	Less than Rs 5000/-	38 (31.41)	47 (43.12)
	Less than Rs 10000/-	47 (38.84)	35 (32.11)
	Less than Rs 15000/-	28 (23.14)	21(19.27)
	More than Rs 15000/-	8 (6.61)	6 (5.50)
Weight	Underweight (<18.5)	48 (39.67)	36 (33.02)
	Normal Weight (18.5-24.9)	62 (51.24)	58 (53.21)
	Overweight (25-29.9)	9 (7.44)	12 (11.01)
	Obese (BMI of 30 or >30)	2 (1.65)	3 (2.76)

In food frequency questionnaire only those items were selected which are consumed frequently and available in the village. In this only those street foods included which are sold in village. For data analysis food items are distributed according to food groups.

Table 2: Food frequency score

Frequency of food	Scores
Daily	15
Weekly	10
Occasionally	0

Food Frequency Scores were given from 0-15 (Table no. 2). After this total diet diversity scores were calculated from the frequency of food taken to estimate the average intake (Table No. 4).

Findings and Discussion
By using these retrospective methods of dietary survey dietary diversity scores obtained by researchers. The research study found a significant deficiency in the food groups of fruits, vegetables. Protective Food Consumption is very much less in both genders of adolescents. The growing independence of

adolescents, increased participation in social life and generally busy schedule of activities have great impact on food intake. The data shown in table no. 3 highlighted that 97.52% boys and 95.41% girls consumed cereals daily. This result was in confirmation with the study by (Lakshmi, 2021) [8]. The study revealed that Adolescents were ignorant about healthy food habits. Data showed high frequency of street food consumption among adolescent. Researchers found that 80.99% boys and 62.38% girls consumed street food daily. 8.81% boys and 28.44% girls consumed street food weekly as well. It was found that this was a relatively high percentage of adolescents who were consuming street foods daily. The street food sold on street are still cheap that's why consumed

at high frequency. In order to study the BMI of the samples researchers found that more than 50% of boys and girls have normal body weight with respect to their age and height. Prevalence of underweight is common among the samples. This also a matter to concern that 7.44% boys and 11.01% girls are at risk of obesity due to their eating behavior i.e., high intake of street food and less intake of fruits and vegetables. Similar studies showed (Faizi & Mittal, 2018) [3] that this is also worrisome because obesity-related eating behaviors such as increased junk food intake, decreased fruit and vegetable intake, as well as breakfast skipping frequently occur together.

Table 3: Dietary diversity scores

| Food Consumption frequencies of adolescents (N=230)							
Food	**Daily (%) score=15**		**Weekly (%) score=10**		**Occasionally (%)**		**Total Score (15)**
	Boys % (N=121)	**Girls % (N=109)**	**Boys % (N=121)**	**Girls % (N=109)**	**Boys % (N=121)**	**Girls % (N=109)**	**Boys**	**Girls**
Cereals and Products	97.52 (118)	95.41 (104)	2.48 (03)	4.58 (05)	-	-	14.04	14.59
Pulses and Legumes	61.16 (74)	55.96 (61)	37.19 (45)	44.03 (48)	1.65 (02)	-	12.89	12.8
Milk and Milk Products	96.69 (117)	93.58 (102)	3.31 (04)	5.50 (06)		0.92 (01)	14.83	14.58
Vegetables	48.76 (59)	56.88 (62)	33.88 (41)	36.69 (40)	17.35 (21)	6.42 (07)	10.7	12.2
Fruits	46.28 (56)	49.54 (54)	49.59 (60)	43.12 (47)	-	7.33 (08)	11.9	11.74
Meat, Fish and Poultry	26.45 (32)	20.18 (22)	9.09 (11)	14.68 (16)	64.46 (78)	65.14 (71)	4.88	4.49
Fats and Oils	63.64 (77)	62.38 (68)	36.36 (44)	29.36 (32)	-	8.26 (09)	13.17	12.29
Street Foods	80.99 (98)	67.89 (74)	8.81 (16)	28.44 (31)	5.78 (07)	3.67 (04)	13.47	13.02
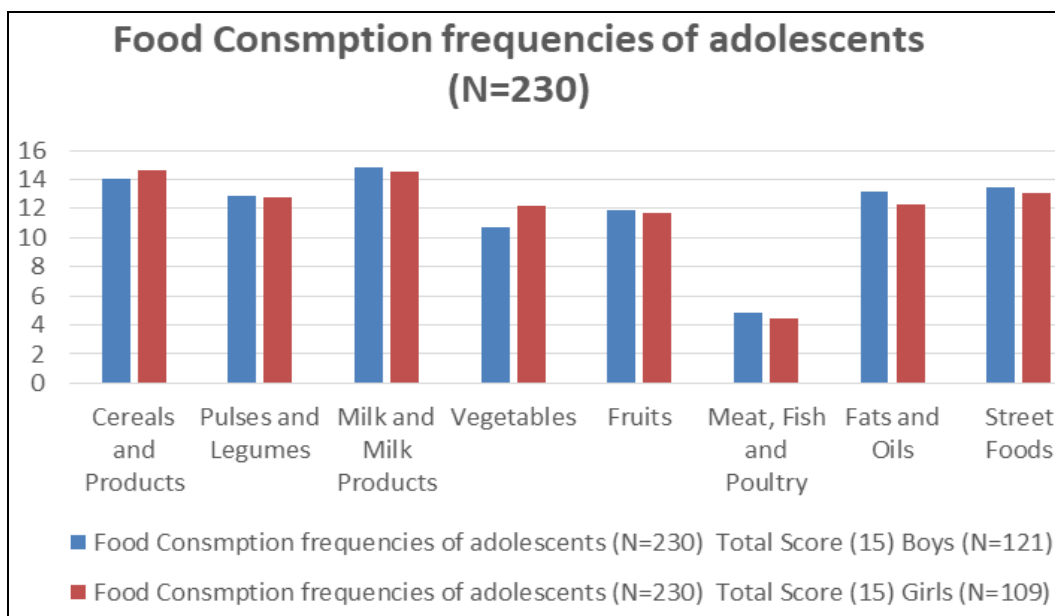
Chart 1: Dietary diversity scores in graphical representation

It had been realized during the study that adolescents usually omit their breakfast. (Khanna, 2017). It was found (Table No. 2) that nearly 23.4% Adolescents skips breakfast, 13.91%

skips their lunch and 3.48% skipped their dinner during the research study.

Table 4: Prevalence of skipping meals in adolescents

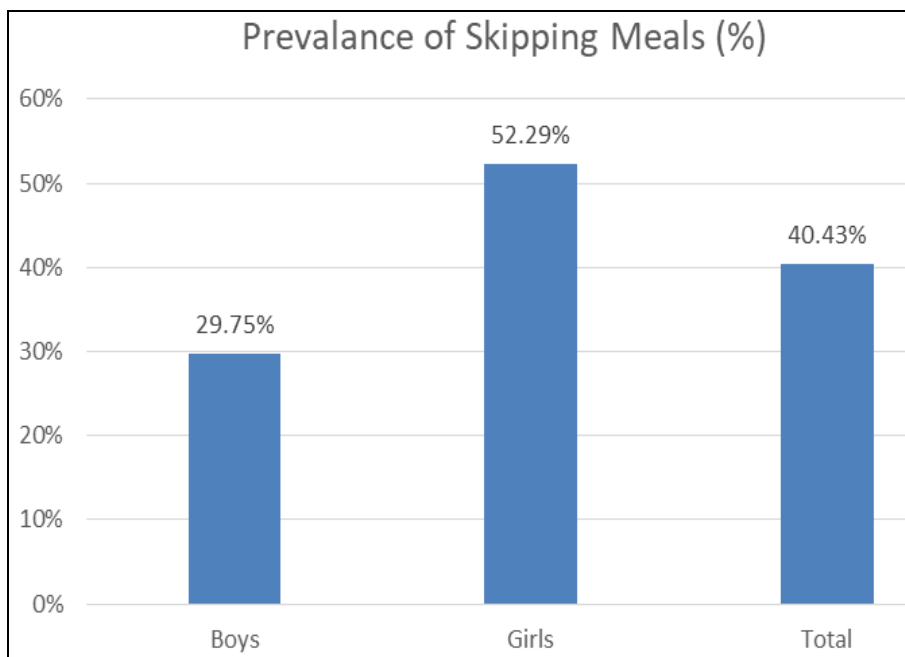|	**Total No. of Adolescents**	**Breakfast**	**Lunch**	**Dinner**	**Total No. of Adolescents Skipping Meal**	**%**
Boys	121	19	14	3	36	29.75
Girls	109	34	18	5	57	52.29
Total Adolescents	230	53	32	8	93	40.43
%		23.4	13.91	3.48		

Chart 2: Graphical representation for prevalence of skipping meals

Conclusion
From the findings of the research it can be concluded that large No. of adolescent in sample had a healthy habit of consuming food. But eating habits of some adolescent boys as well as girls are not healthy. Hence 39.67% boys and 33.02% girls of sample are underweight with low BMI (Table No.1).

Having an adequate diet and especially the importance of having meal at proper time and in required quantity and quality is very essential for a healthy and sound body. Adolescent should be given proper awareness about healthy eating habits.

Few Adolescents consume protein rich diet, vitamin and mineral rich diet. They are consuming fast food and carbohydrates in good amount. It is also suggested that street food consumption should not exceed more than limit. They should consume healthy and balanced home cook food. If they include above healthy dietary pattern in their life it become their habits well because adolescence is a habit-forming stage. (Faizi & Mittal, 2018) [3].

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