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Original Research Article

EVALUATION OF CHANGING TRENDS OF FOOD CONSUMPTION IN INDIAN ADOLESCENTS – A CROSS SECTIONAL STUDY

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ABSTRACT

Background: The dietary habits and food preferences in the adolescent age group can influence their physical growth. The importance of healthy eating habits cannot be ignored. Faulty eating habits among adolescents contribute towards under nutrition, over nutrition and micronutrient deficiency. **Objectives:** Aim of this study to evaluate the changing dietary habits and nutritional status of school-going adolescents. **Methods:** This was a questionnaire based cross-sectional observational study, conducted in the department of paediatrics in a tertiary care center, India. A total of 350 schools going adolescent were analysed. The socio-demographic profile, anthropometric measurements and dietary habits using simplified dietary gap assessment tool was recorded. The data collected was analysed using the statistical analysis SSPS version 22.
Results: Out of total study participants 45.1% were males and 54.9% females. 42.3% adolescents' father occupation was unskilled workers and 90.9% adolescent mothers had house wife. Majority of the adolescent (58.3%) have normal weight and 69.2% had a normal stature. Majority of the participants (56.9%) were vegetarian diet, 61.4% eat twice a day, 76.6% had one snack daily, 77.4% eat 1-3 servings per day. 57.1% adolescent never eat meat. most of them (66.3%) eat fast food sometimes, 60.6% drank milk daily. Only 2.3% of adolescent had food allergies, 58.6% of adolescent sometimes choose fast food over healthy and 65.1%) drinks 6-7 glass of water per day. **Conclusion:** The inadequate dietary habits significantly affect the physical development among adolescents. This will help to plan for nutritional supplementation and create awareness to develop healthy food choices among adolescents

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Keywords: Adolescent; dietary habits; food, physical health

1. INTRODUCTION

'Eat healthy and live healthy' is one of the essential requirements for long life. Unfortunately, today's world has been adapted to a system of consumption of foods which has several adverse effects on health. Lifestyle changes has compelled us so much that one has so little time to really think what we are eating is right! Globalization and urbanization have greatly affected one's eating habits and forced many people to consume fancy and high calorie fast foods, popularly known as 'Junk foods'.

Adolescence, a critical period and a bridge between childhood and adulthood, is the most important and sensitive period in life. It is also a period of curiosity in which adolescents can engage in different risky activities (e.g., alcohol consumption, smoking, drug abuse, and unprotected sex). Adolescence is also a period of transition in which dietary patterns are built [1]. During adolescence, children try to assume responsibility for their eating habits, health attitude, and behavior, with adequate nutrition and physical activity being important factors that influence their health and quality of life [2]. School-age children make up a considerable portion of the world's population [3], and more than three quarters of these children live in developing counties. Similarly, 18% of the world's population are adolescents, with the vast majority (88%) living in developing countries [4]. School-age children and adolescents have an increased need for nutrients [5]. The health, physical growth, development and educational performance of schoolchildren depend largely on good nutrition. Undernourished children are prone to poor health because of the synergism between malnutrition and infection [6]. In one of the prospective cohort studies, poor breakfast habits were the predictors of obesity in adulthood [7]. It is important to identify the correlates of adolescent dietary behaviors to assist in development of successful interventions to address adolescent obesity. Consumption of energy dense snacks was most common among Indian adolescents [8]. Due to the rapid urbanization, there is a change in dietary pattern which contributes to chronic diseases and obesity in the urban areas [9]. The habit of skipping meals and preference for eating junk food is present among the dietary behavior of adolescents [10].

Aims & objective: The aim of this study was to assess the changing trend of eating habits in adolescent and their impact on physical health.

2. MATERIALS AND METHODS

This was a cross sectional study carried out in the S.S. Medical College, Rewa, M.P, using a questionnaire based interview. Participants are randomly selected from higher secondary schools including Public school, Government school, and Central Government School were enrolled in the present study. A detailed explanation of the survey methods was presented to the school authorities in person. A recruitment pack was sent to the students homes for parental approval and written consent was taken from the parents. Students completed the survey in the presence of teachers and researchers on the school premises.

Inclusion Criteria:

- Age 10 to 19 Years, both sexes.

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- Those students who were willing to participate in the study and whose parents gave consent

Exclusion Criteria:

- Age <10 or > 19 years
- Participants with known psychiatric diseases, chronic kidney diseases, Heart and Tubercular disease
- Those students who were willing to participate in the study and whose parents gave consent

A predesigned, pretested, self-administered questionnaire in English and Hindi (local languages) was given to the participants according to their preference. All the questions included in the socio-demographic profile and simplified dietary gap assessment tool

All the students asked to fill the questionnaire including their basic socio-demographic and anthropometry data; blood pressure and random blood sugar were noted.

The levels of consumption of fruit, vegetables, sweets and sweetened soft drink were measured by items with the same wording: To elicit the eating habits and related behavior, frequency of major meals/day (1–2/3 />3 times), frequency of snacking (≤3/4/>4 times), history of skipping meals (never/sometimes/often) and history of eating outside their homes (never/sometimes/often) were recorded.

Statistical Analysis: Data was tabulated in Microsoft Excel Sheet. SPSS software version 22 was used for analysis of data. Most of the data were categorical analysed by Chi-square test with the Fisher exact approximation when needed. P value <0.05 were considered statistically significant.

3. RESULTS

A total of 350 adolescents participants were enrolled in this study, of which 158 (45.1%) were males and 192 (54.9%) females. Most of the (42.3%) adolescents Father occupation is unskilled workers, followed by clerical work, shop owners or farmer (32%) and 90.9% adolescent mothers had house wife. Majority of the adolescent have normal weight (58.3%) and 69.2% had a normal stature. Details of socio-demographic variables shown in table: 1.

Table 1: Socio-demographic variables of study participants

Socio-demographic variables		Number	Percentage
Gender	Male	158	45.1%
	Female	192	54.9%
Father's Occupation	Unskilled Worker	148	42.3%
	Semiskilled Worker	31	8.8%
	Skilled Worker	52	14.9%
	Clerical, Shop Owner, Farmer	112	32%
	Professional	7	2.0%
Mother's Occupation	Working	32	9.1%
	House wife	318	90.9%

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Weight	Normal Weight	204	58.3%
	Under weight	130	37.1%
	Over weight	8	2.3%
	Obesity	8	2.3%
Height	Short Stature	104	29.7%
	Normal Stature	242	69.2%
	Tall Stature	4	1.1%

Among dietary pattern of adolescent, majority of the participants (56.9%) were vegetarian diet, 61.4% eat twice a day, 76.6% had one snack daily, 77.4% had one to three fruit or vegetables servings per day. 57.1% adolescent never ate meat.

When asked about the frequency of eating fast food, most of them (66.3%) ate fast food sometimes, 60.6% drank milk daily. Only 2.3% of adolescent had food allergies, 58.6% of adolescent sometimes choose fast food over healthy. Detailed dietary pattern shown in table: 2.

Table 2: Distribution of study adolescents according to dietary pattern

Dietary Pattern		**Number**	**Percentage**
Diet	Vegetarian	199	56.9%
	Non Vegetarian	151	43.1%
Meal/Day	2 times/day	215	61.4%
	3 times/day	122	34.9%
	>3 times/day	13	3.7%
Snacks/Day	1 times/day	268	76.6%
	2 times/day	72	20.5%
	>2 times/day	10	2.9%
Fruits and Veg /Day (Number of Serving)	0 times/day	75	21.5%
	1-3 times/day	271	77.4%
	4-6 times/day	4	1.1%
Meat/Week	1-3 day/week	150	42.9%
	Never	200	57.1%
Fast Food Consumed/Week	Never	70	20%
	Sometimes	232	66.3%
	Most of the times	48	13.7%
Drink Milk	Yes	212	60.6%
	No	138	39.4%
Food Allergy	Yes	8	2.3%
	No	229	65.4%
	Status unknown	113	32.3%
	Never	12	3.4%

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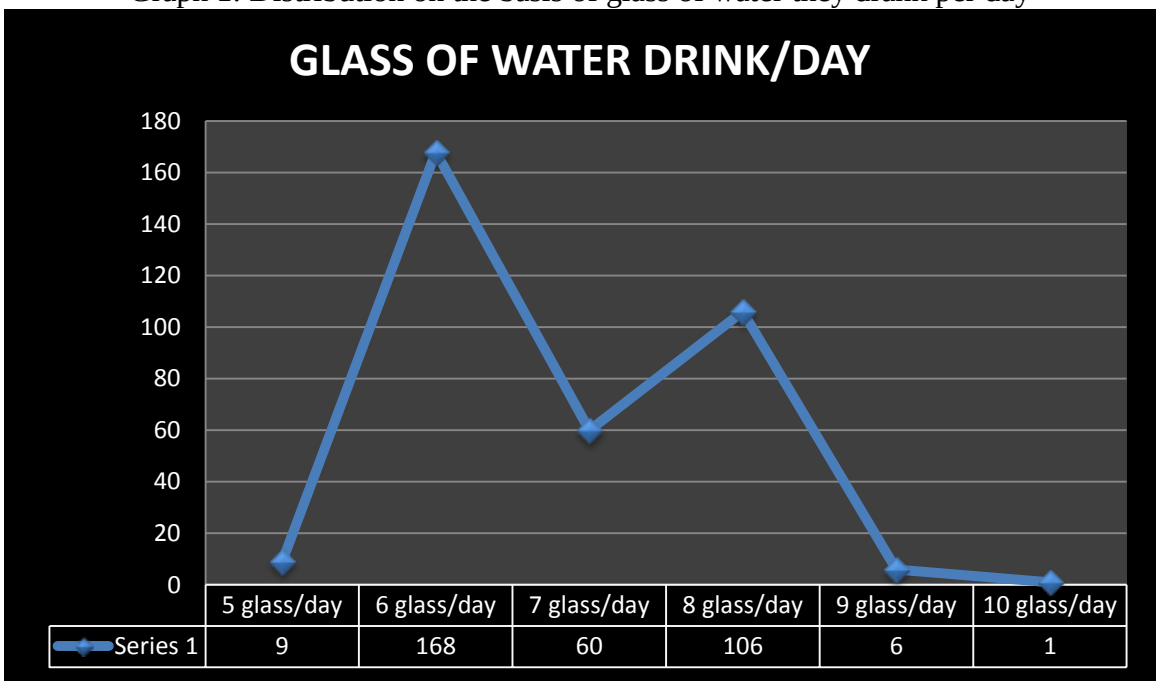
Chose fast food over Healthy Food	Sometimes	205	58.6%
	Most of the times	114	32.6%
	Always	19	5.4%

Most of the study adolescent (65.1%) drinks 6-7 glass of water per day.

Graph 1: Distribution on the basis of glass of water they drank per day



Most of the adolescent (77.7%) consumed a dessert sometimes, about half of the adolescent liked salty and savory snacks and most of them (63.1%) skipped, their breakfast on meal.

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Graph 2: Distribution of adolescents on the basis of meal skipped, dessertpreferred, and types of snacks they liked

4. DISCUSSION

Adolescence is a critical period characterized by changes in body composition, morphological changes (e.g., increase in lean mass in boys and body fat in girls), hormonal changes, increased rhythm of growth, and a tendency toward independence and preoccupation with one's self-image [11].

In the present study female adolescent were predominant than male, our finding are comparable with the Amelia A.et al [12] and Anderson AS, et al [13], whereas a survey conducted by the National Family Health Survey 2015-16 where the prevalence of boys and girls was estimated as 58.1% and 46.8%, respectively [14].

The majority of the adolescent boys and girls had adequate weights in current study, only 4.6% were overweight or obese, our results correlates with the many other studies study conducted by Ahmad S, et al [15], Mizia et al [16] and Lestari et al [17] reported the prevalence of obesity were 5.9%, 2.3% and 6.5% respectively.

There is a lack of population-specific dietary assessment tools in many developing countries. The duration of recall time, collection techniques and quantification of food intake data were observed to differ to a large extent across different studies. Food frequency questionnaires are the most commonly used method of assessing dietary intake in schoolchildren and adolescents in developing countries [18].

The present study observed that majority of the adolescents ate meal 2 times/day and dietary habit not differ between the boys and girls, concordance finding observed by S Nicklaus, et al [19]. A study done by Jones JM, et al [20] observed that girls had significantly less tendency to eat main meals as compared to boys. The behavior behind not taking the main meals among

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adolescent girls is their desire to be thin and the unhappy feeling about their weight and another reason can be the lack of appetite or time or interest in the die.
It was observed that most of the adolescents were studied in school, taking one morning snack per day; half of these chose salty savory snacks, our findings was consistent with the Kanjilal et al [21].
Current study found that many adolescent eat 1-3 serving (fruits & vegetables) per day, accordance to the Kołota, A, et al [22]. A study done by Meenakshi J, et al [23], also claimed that low intake of fruits and vegetable lead to micronutrient deficiencies in Indian population. It is a kind of triple burden of malnutrition among adolescents where the hidden hunger of micronutrient deficiency also exists.
In our study most of the adolescents students (63.1%) skipped breakfast, 9.7% skipped lunch, 5.7% skipped dinner and 21.4% do not skip any meal, similar results also obtained by Rodrigues P et al [24] and Drenowatz, C, et al [25], skipping a meal is often associated with a low-quality diet and high intake of low nutritious food items. The habit of skipping meals a common phenomenon among adolescents contributes to dietary inadequacy and increased body weight, as the foods commonly consumed and may even be replaced by unhealthy food.
In the current study, majority of the participants had the habit of taking milk and milk products daily. The study results are also aligned with the study done by Rathi N et al [26], where two-fifth of the participants did not consume milk products.
We considered the most frequently evaluated junk food items in the included studies: snacks, fast foods, French fries or chips, processed food, and sweets. Sweets consumption is very popular among adolescents, as are fast food products. Skipping one meal, more frequently breakfast, determines a high consumption of other foods like sweets [27].
Most of the study adolescent (65.1%) drinks 6-7 glass of water per day in the present study, in agreement with the A Paduraru, et al [28].
An assessment of food and beverages is necessary for highlighting the association between diet and health. Poor eating habits in adolescence can lead to the appearance of some diseases. The correct nutrition is important in the prevention of some diseases (e.g., obesity, type 2 diabetes, anemia, cardiovascular diseases, cancers, endocrines disorders, and psychological diseases

5. CONCLUSION

The assessment of dietary habit in adolescent provides support for the development of prospective nutrition promotion strategies targeting the eating behaviors of adolescents. Generally adolescents did not quite follow the good dietary pattern because of the social factors on one side and less-perceived importance of the regular and quality food on the other. Therefore, awareness about the consequences of faulty dietary habits must start during childhood and nutritional interventional programs should be designed based on the gap in the diet.

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