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Vinita Moriyani
M.Sc. Scholar, Department of
Food Science and Nutrition,
College of Community and
Applied Sciences, MPUAT,
Udaipur, Rajasthan, India

Dr. Sumitra Meena
Assistant Professor, Department
of Food Science and Nutrition,
College of Community and
Applied Sciences, MPUAT,
Udaipur, Rajasthan, India

Assessment knowledge regarding healthy food and actual eating habits of adolescent students (13-16 years)

Vinita Moriyani and Dr. Sumitra Meena

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Abstract

Present research work was carried out to assess knowledge regarding healthy food and actual eating habits of adolescent students (age 13-16 years). Total 120 students (30 from each school) with equal representation of girls and boys of adolescents age group 13-16 years were selected by using random sampling 4 schools was selected as per Google map from the East, West, South, North region of Udaipur city. The data were collected by using self developed questionnaire; the data was analyzed by using statistical analysis mean, standard deviation and t-test. The result regarding personal information most of the students were age group of 14, belongs to Hindu religion and general category had nuclear and 1 to 4 family members, one earning member in family and income was less than 2 lack, majority of student's father had own business and mother was home maker, food habit was found vegetarian. Knowledge regarding healthy food was assessed on different aspects of nutrition like functions of food, healthy food, food groups and balance diet nutrient deficiencies and their prevention, Overall knowledge of respondents was good (38.3%), (28.3%) were found average, (29.2%) were in poor and only (3.3%) had excellent knowledge regarding healthy food. The results show that the nutrient intakes for both genders in both age groups were not sufficient and it was lower than recommended dietary allowances. Intake of nutrients such as energy, protein, iron, fiber, calcium, vitamin C, B1, B2, niacin, zinc was found to be very low than RDA because the daily consumption of fruits and vegetables, milk and milk product, whole grain cereals, pulses, nuts were inadequate by them in their daily diet.

Keywords: Knowledge, healthy food, adolescent students, eating habits

1. Introduction

According to World Health Organization (WHO) Adolescence is a period of rapid growth and development, second only to infancy, with drastically biological, psychological changes often shaped by socio-cultural factors. It is usually divided into two phases: early adolescence (10–14 years) and late adolescence (15–19 years). It is a key decade in the life course with implications on adult health, socio-economic well-being of a country and even the health of the future life span. Adolescents including 16% of the total world's Population. Asia has more than half of the world's adolescents while according to the Census 2011, 20% of India's population are adolescents.

Adolescence is the only time following infancy when the rate of growth actually increases. This sudden growth spurt is associated with hormonal, cognitive, and emotional changes that make adolescence an especially vulnerable period of life. Nutritionally, if we see eating pattern of adolescents or teenagers, after-school activities and active social lives, busy schedules may lead to meal skipping or eating away from home. Their diet includes Junk food /fast food like burgers, pizza, hotdogs, and cold - drinks. However by eating Junk food, a teenager will not get any nutrient required for proper functioning of the body. Adolescents develop food habits that affect both their present and future health (N Rathi 2020) [22].

Adequate knowledge about healthy food choices and food safety can be predisposing factors for improving eating habits and adopting a good healthy diet, motivations required for adolescents to adopt healthy eating habit are essential Benazeera *et al.* (2014) [3]. Nutrition and physical growth are integrally related; optimal nutrition is a requisite for achieving full growth potential. Failure to consume an adequate diet at this time can result in delayed sexual maturation and can arrest or slow linear growth. Nutrition is also important during this time to help prevent adult diet-related chronic diseases, such as cardiovascular disease, cancer, and osteoporosis. (Sireesha, 2017) [27].

Corresponding Author:
Vinita Moriyani
M.Sc. Scholar, Department of
Food Science and Nutrition,
College of Community and
Applied Sciences, MPUAT,
Udaipur, Rajasthan, India

Healthy dietary practices begins early in life - breast feeding promotes healthy growth and improves cognitive development and may have long term health benefits such as reducing the risk of becoming overweight or obese and developing Non-communicable Diseases (NCDs) later in life. Adolescence defined as the transition period between childhood to adulthood, they are the youth of the future. The adolescent is maturation process involves physical, mental and emotional development. The adolescent's period is characterized as rapid sexual growth so that adolescents need more nutrients during this period than they will ever need again in their lives. Adolescents with bad dietary and eating habits are lead to malnutrition, micro nutrient deficiencies, poor physical and cognitive development that's why good nutrition knowledge and healthy eating habits of adolescents is playing a crucial role in maintaining future health and wellbeing of future generation. Healthy eating habits are associated with the proper knowledge of healthy food.

Objectives

1. To find out the knowledge regarding healthy foods
2. To know the actual eating habits of adolescent students

2. Methodology

The research work was conducted in the Udaipur city of Rajasthan. A list of schools of Udaipur city was prepared, out of this list, 4 schools were selected as per Google map from the East, West, South, North region of Udaipur city to represent the whole population of the city for this study, Total 120 students (30 from each school) with equal representation of girls and boys of adolescents age group 13-16 years were selected by using random sampling. According to the list, request for seeking permission was sent to various schools. The researcher received permission from 4 schools namely Kendriya vidhyalay No-1, Pratap Nagar located at North region of Udaipur city, Central Academy School, Ambamata located at West region of Udaipur city, Jawahar Jain School, HiranMagri Sector-11 located at South region of Udaipur city, Guru Nanak Public School, HiranMagri Sector-3, located at East region of Udaipur city, (Rajasthan). Considering the nature and objectives of the study, self developed questionnaire was developed. The Performa was prepared including 3 sections, The first section contain the personal information of respondent like name, age, gender, date of birth, education status, address, contact number, father's name, religion, caste, father's occupation, mother's occupation, type's of family, total family members, family income (annual), total earning members, life style, food habits. In the second section contains questions regarding all aspects of nutrition i.e. healthy food, functions of food, food groups, and balanced diet, nutritional deficiencies and their prevention, to check the knowledge regarding healthy food of respondent's five categories were prepared i.e. very poor, poor, average, good and excellent on the basis of score obtained by subjects, the scoring of each component was done on two point continuum i.e. correct or incorrect. in the knowledge test and each respondent's overall score was calculated totaled for each aspect separately.. In the third section contains Dietary Intake of Subjects (Food consumption pattern using 24 hours recall method for 1 day). Information on the cooked amount of each preparation was noted in terms of standardized cups and further converted in terms of their raw ingredients and quantify of raw food was reported in grams. The mean nutrient intake was calculated using Indian Food Composition Table (IFCT, 2017) with the

help of computerized software "Diet Cal". Energy, protein, carbohydrate, fat, calcium, iron, thiamine, riboflavin, niacin, folic acid, vitamin C and zinc intake were calculated. The mean nutrient intake was compared to the RDA (Recommended Daily Allowances) given by ICMR (2020). For the analysis of data, the frequency, percentage, mean, standard deviation and t-test were used.

3. Result and Discussion

The data collected was transferred in work table and excel sheets than processed, analyzed for appropriate statistical analysis to get the results. The result regarding personal information most of the students were age group of 14, belongs to Hindu religion and general category had nuclear and 1 to 4 family members, one earning member in family and income was less than 2 lack, majority of student's father had own business and mother was home maker, food habit was found vegetarian. In 2nd section found that knowledge regarding healthy food both girls and boys respondent were 1.7 Percent subjects were in the category of very poor knowledge, 5 Percent subjects were in the category of poor knowledge, 79.2 percent was in good knowledge and no respondents had excellent knowledge about healthy food. Knowledge of respondents about functions of food mostly 44.2 percent respondents were category of good knowledge, 17.5% found were in poor knowledge. Knowledge of respondents regarding food groups and balanced diet 10 percent found very poor categories, 16.7 percent had good knowledge and only 13.3 percent had excellent knowledge. Knowledge about Nutrition deficiencies and their prevention of respondent's 39.2 percent was in very poor and 33.3% were poor, only 8.8 and 3.3% respondents were in good and excellent categories. Table 1 depict that overall knowledge of respondents was good (38.3%). In 3rd section assessed the actual food intake of adolescent students, the results show that the nutrient intake for both genders in both age groups was not sufficient and it was lower than recommended dietary allowances. Nutrient intake of energy by adolescent boys in the age group of 13-15 years and 16-18 years was 43.31 and 40.98 percent which was 56.69 and 59.02 lower than RDA (2020), while the nutrient intake of energy of adolescent girls in the age group of 13-15 years and 16-18 years was 50.52 and 49.54 percent which was 49.35 and 50.46% lower intake than RDA value given by ICMR (2020). Nutrient intake of protein by adolescent boys in the age group of 13-15 years and 16-18 years was 84.49 and 80.66 percent which was 15.51 and 19.4 lower than RDA (2020), while the nutrient intake of protein of adolescent girls in the age group of 13-15 years and 16-18 years was 72.08 and 70.69 percent which was 27.92 and 29.31% lower intake than RDA value given by ICMR (2020), Inadequacy of protein among both the age was due to non-inclusion of pulses, nuts, milk and milk product in their daily diet. Nutrient intake of fat by adolescent boys in the age group of 13-15 years and 16-18 years was 101.38 and 135.88 percent which was 1.38 and 35.38 higher than RDA (2020), while the nutrient intake of fat of adolescent girls in the age group of 13-15 years and 16-18 years was 133.59 and 133.82 percent which was 33.59 and 33.82% higher intake than RDA value given by ICMR (2020), the intake of fat was high in both age groups due to high consumption of fry items like potato chips and biscuits intake in their diet in between school time. Nutrient intake of CHO by adolescent boys in the age group of 13-15 years and 16-18 years was 185.98 and 122.64 percent which was 85.98 and 22.64% higher than RDA (2020), while the nutrient intake of CHO of adolescent girls in the age group of 13-15 years and 16-18 years was

118.92 and 126.89 percent which was 18.92 and 26.89% higher intake than RDA value given by ICMR (2020), the intake of carbohydrate was high in both age group due to high consumption of junk food, wafers and biscuit intake in their diet. Nutrient intake of calcium by adolescent boys in the age group of 13-15 years and 16-18 years was 45.61 and 34.31 percent which was 54.39 and 65.69% lower than RDA (2020), while the nutrient intake of calcium of adolescent girls in the age group of 13-15 years and 16-18 years was 30.54 and 31.31 percent which was 69.46 and 68.69% lower intake than RDA value given by ICMR (2020), calcium intake was found to be very low in both age groups because intake of milk and milk products, green leafy vegetables was inadequate as per their daily requirement. Nutrient intake of fibre by adolescent boys in the age group of 13-15 years and 16-18 years was 49.53 and 52.88 percent which was 50.47 and 47.12% lower than RDA (2020), while the nutrient intake of fibre of adolescent girls in the age group of 13-15 years and 16-18 years was 54.49 and 52.78 percent which was 45.51 and 47.22% lower intake than RDA value given by ICMR (2020), fibre intake in both age groups was not found sufficient due to low intake of whole cereals, green leafy vegetables and other vegetables in their daily diet. Nutrient intake of iron by adolescent boys in the age group of 13-15 years and 16-18 years was 32.45 and 31.00 percent which was 67.55 and 69% lower than RDA (2020), while the nutrient intake of iron of adolescent girls in the age group of 13-15 years and 16-18 years was 27.92 and 24.47 percent which was 72.08 and 75.53% lower intake than RDA value given by ICMR (2020), lower intake of iron found in both age groups girls and boys due to low intake of green leafy vegetables in their daily diet. Nutrient intake of vitamin c by adolescent boys in the age group of 13-15 years and 16-18 years was 53.03 and 60.06 percent which was 46.97 and 39.4% lower than RDA (2020), while the nutrient intake of vitamin c of adolescent girls in the age group of 13-15 years and 16-18 years was 92.95 and 87.49 percent which was 7.05 and 12.51% lower intake than RDA value given by ICMR (2020), the intake of vitamin c was inadequate in boys for both age groups due to low intake of citrus fruit like tomato, lemon, orange and amla in their daily diet. Nutrient intake of thiamin (vitamin B1) by adolescent boys in the age group of 13-15 years and 16-18 years was 35.79 and 32.95 percent which was 64.21 and 67.05% lower than RDA (2020), while the nutrient intake of thiamin (vitamin B1) of adolescent girls in the age group of 13-15 years and 16-18 years was 43.56 and 52.93 percent which was 56.44 and 47.07% lower intake than RDA value given by ICMR (2020), the intake of thiamin was low in both respondents due to poor intake of whole grains, legumes, eggs in their daily diet. Nutrient intake of riboflavin (vitamin B2) by adolescent boys in the age group of 13-15 years and 16-18 years was 12.56 and 15.48 percent which was 87.44 and 84.52% lower than RDA (2020), while the nutrient intake of riboflavin (vitamin B2) of adolescent girls in the age group of 13-15 years and 16-18 years was 20.27 and 24.37 percent which was 79.73 and 75.63% lower intake than RDA value given by ICMR (2020), the intake of riboflavin was low in both respondents due to poor intake of milk in their daily diet. Majority of subjects were vegetarian and they had not consume egg, fish which are richest source of riboflavin. Nutrient intake of niacin by adolescent boys in the age group of 13-15 years and 16-18 years was 25.44 and 22.23 percent which was 74.56 and 77.77% lower than RDA (2020), while the nutrient intake of niacin by adolescent girls in the age group of 13-15 years and 16-18 years was 37.23 and 34.93 percent which was 62.77 and 65.77% lower intake than RDA

value given by ICMR (2020), niacin was found inadequate in both respondents due to lower intake of whole grains, nuts and oil seeds in their daily diet. Nutrient intake of zinc by adolescent boys in the age group of 13-15 years and 16-18 years was 34.10 and 30.57 percent which was 65.9 and 69.43% lower than RDA (2020), while the nutrient intake of zinc by adolescent girls in the age group of 13-15 years and 16-18 years was 37.97 and 37.85 percent which was 62.03 and 65.15% lower intake than RDA value given by ICMR (2020).

As the result reveals that out of total 120 respondents only 46 respondents had good knowledge and 34 students had average knowledge regarding healthy food, although they were not consuming enough nutrient as per their need, they skipped meal morning breakfast and evening snacks due to so much school workload and busy school schedule. The consumption of wafers, biscuit, tetra pack were very high in between school time. Some of the students consuming imbalanced intake of food, they consumed very low level of protein and other micro nutrient like vitamin c, vitamin B1, vitamin B2, vitamin B3, zinc and calcium in their daily diet as per their daily physical activity and as per Recommended Dietary Allowances because of lack of proper guidance/awareness. Overall, students had average awareness of or little knowledge regarding healthy food, some students had good knowledge about healthy food and nutrition but

Intake of nutrients such as energy, protein, iron, fiber, calcium, Vitamin B1, B2, niacin, zinc was found to be very low than RDA because the daily consumption of fruits and vegetables, milk and milk product were inadequate by them in their daily diet. Intake of vitamin c lower in boys while vitamin c in girls was sufficient as per RDA(2020) requirement, On the other side the intake of fats, carbohydrate was high due to high consumption of junk food and snacking in their diet.

Table 1: Overall knowledge levels of respondents

Knowledge Level	N	%
Very Poor (<35)	1	8
Poor (35-50)	35	29.2
Average (50-60)	34	28.3
Good (60-75)	46	38.3
Excellent (≥75)	4	3.3
Total	120	100

Demographic Representation

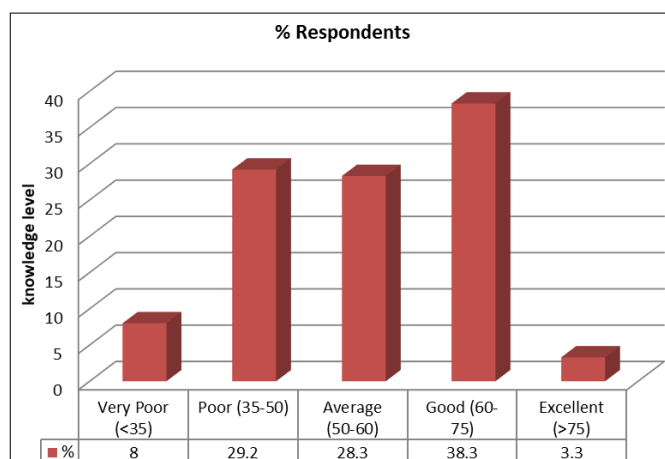


Fig 1: Percentage distribution of overall knowledge of both respondents

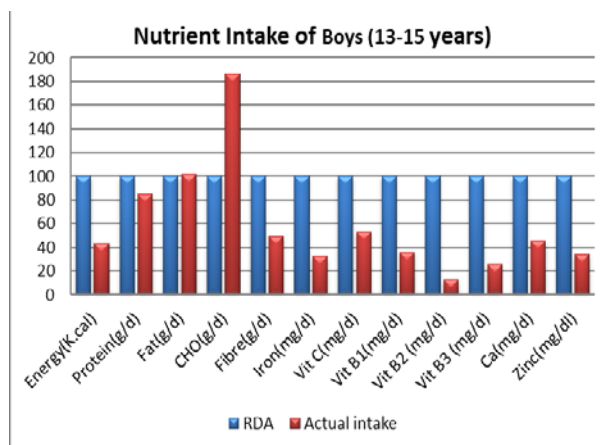


Fig 2: Percent adequacy of nutrient intake among adolescent boys (13-15 years)

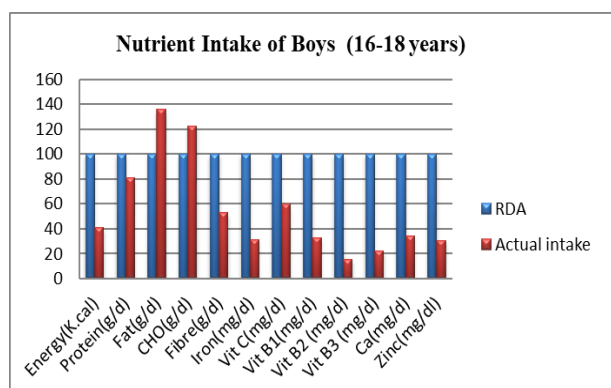


Fig 3: Percent adequacy of nutrient intake among adolescent boys (16-18 years)

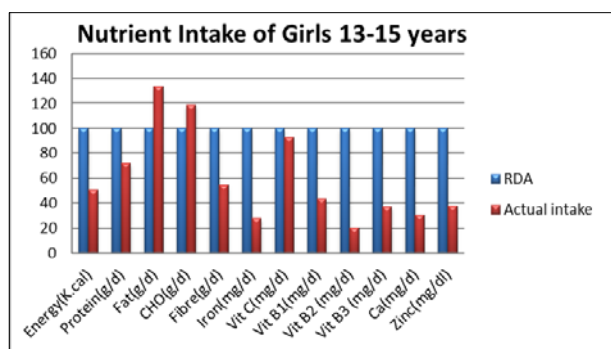


Fig 4: Percent adequacy of nutrient intake among adolescent girls (13-15 years)

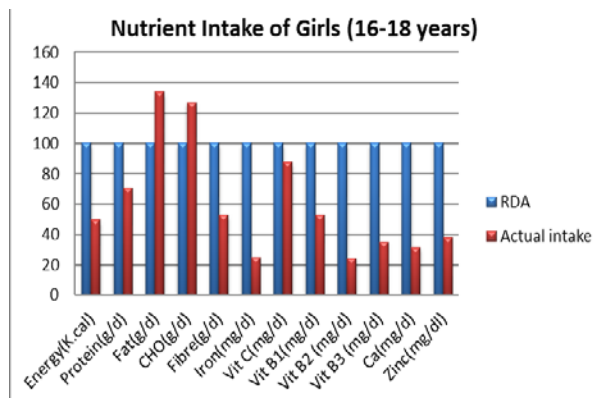


Fig 5: Percent adequacy of nutrient intake among adolescent girls (16-18 years)

4. Summary and Conclusion

According to the findings of this investigation, it has been concluded that overall knowledge of respondents was good (38.3%). It is clear problem of Adolescents students suffering from mal nutrition. They had good knowledge about food and nutrition but due to lack of guidance and awareness, busy school schedule and due to ignorance, some of them have poor economic status, their daily nutrient intake were very poor mean intake of food and nutrient was found to be lower than reference value. Majority of adolescent students failed to meet recommendations of RDA. Only the mean intake of carbohydrate and fat was higher than RDA so, we can say that the consumption of unhealthy junk food was high among adolescent students. The respondents found lower intake of food which may be due to poor practice of healthy food intake although most of the respondents found to had good knowledge about healthy food and all aspects of nutrition.

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