Food Groups Consumption and Macro and Micro-Nutrients Intake among Primary School Students in Torosk Village of Sabzevar

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Abstract: Assessment of dietary intakes among different groups and population is important for improving the health status. This study determines food group and nutrients intake among Primary School Students in Torosk Village of Sabzevar. This cross - sectional study was conducted on elementary students in Torosk village, sampling method was census. A validated semi quantitative food frequency questionnaire was used. Student's diets were analyzed by Nutritionist IV software . Collected data was analyzed by SPSS software and descriptive statistical tests. 78 primary school students in Torosk village were participated that 42 (53.8%) female and 36 (46.2%) were male. Age range 7-12 years, mean age 10.01 ±1.46 years, mean weight and height were 23.27 ± 4.41 kg and 124.64 ± 8.41 cm, respectively. Calcium, zinc, vitamin D and C intake lower than the Recommended Dietary Allowance(RDA) (P <0.05).This study showed that Students had lower amount of some micronutrients.

Keywords: Student, food groups, nutrients, Torosk, Iran

1. Introduction

Inadequate food intake and nutrition knowledge deficit is involved in the incidence of malnutrition in children. Children should consume enough food and varied diet to grow and be healthy(1,2).

More than 1/6 of diseases in the world is due to malnutrition and in some areas may reach to 1/3. Children are significantly at risk of developing malnutrition with special needs to meet food. Recent studies have shown that malnutrition is affected children's learning and their success in life (3). Hadian 's study on zahedanian children was shown that 100% of girls and 77.85% of men are affected withzinc deficiency(4).

Anthropometric study of school-aged children 12-6 years of Venezuelans have shown that only 7.18% of them had adequate nutritional status but 7/45% of them were obese children and 7.13% of them had some degree of malnutrition (5).

In a survey by Akaberi et al on the growth of rural children under 2 years of Torosk were observed in 26.7% of children had birth weights below the standard third percentile, while the rate is 3% and in 1 year, this rate was more than 50%. 5-13% of children were birth height less than the third percentile and this rate was more than 15-26% in one and a half years (6). Therefore, this disorder is a serious problem. According to the importance of the nutritional status of children in the school age, we determined the food groups and nutrients intake among Primary School Students in Torosk Village of Sabzevar.

2. Material and Methods

This cross - sectional study was conducted on elementary students of Torosk village, sampling method was census. They were in the age range of 7-12 years. Finally, 78 students were enrolled. Written informed consent was obtained from each participant. The study was approved by the Research Council and the Ethical Committee Sabzevar University of Medical sciences. For assessing the dietary intake, a 168-item semi quantitative food frequency questionnaire was used.

We used nutritionist IV software (N Squared Computing, San Bruno, Calif., USA). Validity and reliability of the FFQ was reported previously which showed good results in this regard.

16 Food habits were assessed by a separated food habit questionnaire.Anthropometric measurements were done according to the standard method. Descriptive statistics option was used for reporting the mean and standard deviation. Frequency test was used for reporting the prevalence (SPSS Inc., Chicago, III., USA).

3.Result

In this study, 78 primary school students in Torosk village were participated that 42 (53.8%) female and 36 (46.2%) were male. Age range 7-12 years, mean age 10.01 ± 1.46 years, mean weight and height were 23.27 ± 4.41 kg and 124.64 ± 8.41 cm, respectively.

The amount of different food group consumption in the present study were shown in Table 1. They had lower amount of dairy intake compared to the guidelines.

Table 2 shows the macro and micro-nutrients intake among the students of Torosk village . Calcium, zinc, vitamin D and C intake intake were lower than the RDA recommended.

Table 1: Food groups consumption of primary school students in Torosk village of Sabzevar in the study

Variable	Mean±SD
Cereals (serving/day)	7.34±3.49
Vegetables (serving/day)	1.97±0.84
Fruits (serving/day)	1.03±1.20
Dairy (serving/day)	0.93±0.7
Meats (serving/day)	3.95±1.93
Fats and Sugars (serving/day)	4.5±3.65

Discussion:

Our findings indicated that micronutrients such as calcium, zinc, vitamin D and vitamin C was deficient in schoolchildren of Torosk village which is consistent with the results of Nemati s study (12). Nemati and colleagues conducted a study on 10-14 year old youth in Ardebil and showed that calcium and zinc in children was lower than the recommended values. Another study by Ansari et al were performed on students, showed that students had vitamin B2 (77%), vitamin B6 (47%), vitamin B12(73%), calcium(97%) and zinc(98%) deficiency (13). A study in Thailand showed that students under 15 years were intake 24-53% less than the recommended amounts of vitamins A, B1, B2, C and calcium (14). Valente reported that 4,845 children (2,445 girls and 2,400 boys) 7-9 years old of Portuguese received nutrients such as vitamins A, B1, B2, B3, B6, B12, magnesium, zinc, iodine, phosphorus, selenium and iron was very low and approx 10% of recommended amounts by DRI (9). In conclusion, the key findings of the current

reportrevealed that the amount of vitamins A, D , calcium and zinc intake among students in Torosk village of Sabzevar lower than the recommended amounts by RDA. This population had lower amount of dairy intake compared to the guidelines. These problems are also seen in other parts of the world.

Table 2: Daily energy and nutrient intakes of primary school students in Torosk village of Sabzevar in the study

Variable	Mean±SD
Energy (kcal)	1489.8±543.56
Protein (gr)	37.80±17.5
Carbohydrate(gr)	185.08±84.43
Fat (gr)	73.34±36.15
Vitamin A (mcg)	427.48±184.91
Vitamin D(mcg)	1.76±0.85
Vitamin E(mg)	10.22±7.84
Vitamin B1(mg)	0.52±0.43
Vitamin B2(mg)	0.52± 0.39
Vitamin B3(mg)	7.86± 3.67
Vitamin B6(mg)	0.88± 0.35
Vitamin B9(mcg)	212.25± 0.835
Vitamin 12(mcg)	2.16± 0.69
Vitamin C(mg)	15.38± 4.19
Calcium(mg)	655.56± 32.52
Phosphorus(mg)	886.3±7 302.07
Iron (mg)	9.43± 4.37
Zinc(mg)	3.76± 2.67

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