ASSESSMENT OF DIETARY INTAKE AND HEALTH STATUS OF SCHOOL GOING CHILDREN (6-9 YEARS) FROM MUSLIM COMMUNITY

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ABSTRACT

Nutritional status during school age is a major determinant of nutritional and health status in adult life. Health hazards associated with under nutrition and micro nutritional deficiencies remain major public health problems. The present study was conducted to assess nutritional status of school going boys and girls (6-9 years) from a Muslim Community School. 100 school going children (50 girls and 50 boys) were studied. Nutritional status of subjects was assessed in terms of dietary intake. Dietary assessment was done by 3 days dietary recall method. Diets of subjects were deficient and found lacking in major macronutrients like energy and carbohydrate. The subjects also showed deficient intake in vitamins and minerals. Thus, it is concluded that balanced diet is essential to meet the requirements of nutrients of school going children and there is need to educate the parents about the intake of right food in growing years to inculcate good food habits.

Keywords: Nutritional status, Dietary intake, Muslim Community School.

INTRODUCTION

"Today's children are tomorrow's citizens and healthy citizens are the nation's pride"

Children are considered to be the most important natural resource and biggest human investment for development in every community. School age is the active growing phase of physical growth as well as mental development of the child. The school age period is nutritionally significant because this is the prime to build up body stores of nutrients in preparation of rapid growth of adolescence. School going children constitute one-fifth of the total population and are the future of the nation.

Nutrition plays a vital role in growth and development of children. The nutritional needs of children are unique and demands

special attention. These conditioned primarily by building and maintenance of new body tissue, a high order of physical activity and to some extent by inter related intrinsic and environmental factors as the growing child reacts to his maturation and surroundings. The growing children require high intake of energy because of their great activity and an abundance of good quality protein and minerals because of their rapid growth. The need for vitamins is enhanced because of their characteristic high metabolic activity of this period in life cycle.

Development of good food habits and nutritional practices in early childhood establishes the foundation for adult health. It is strongly influenced by the family, particularly by parents. As children are born without innate ability to choose a nutritious diet, they learn their food habits through experience and education. Dietary choices made by the children and their families influence their health and may

contribute towards both malnutrition and over nutrition. The dietary habit of individuals / families / communities varies according to socio economic factors, regional customs, traditions, seasonal availability of food items etc. A number of diet and nutrition surveys have revealed that majority of school children consume inadequate amount of food stuffs especially protective foods such as pulses, green leafy vegetables , milk and milk products lower than recommended level, skipping breakfast, not eating plenty fruits, vegetables, grains . Thus, their nutritionally inadequate diet makes them more vulnerable.

Aim: To assess the Dietary habits and Health Assessment of School going children aged between 6-9 years from Muslim Community.

Objectives:

- To study the food habits of school going children.

- To assess the nutrient intake of the children.

- To elicit the information related to health of the selected children.

METHODOLOGY

The present study deals with the dietary habits and health assessment of school going children of Muslim community. 100 school going children were selected for the present study-50 girls and 50 boys of Muslim community. Questionnaire – cum – Interview schedule was constructed to collect the data.

Along with the information about child's age , parent's occupation, type of family, family income, family size information about dietary intake of the subjects was done by 24 hours dietary recall. Based on the information of the quantity and type of foods eaten, following nutrients were calculated by using food tables given by Gopalan et.al (2012).Energy, Carbohydrate, Protein, Fat, Total dietary fibre, Thiamine, Riboflavin, Niacin, Folic acid, Calcium and Iron. Nutrient adequacy was tested by comparing actual intake of subjects with Recommended Dietary Allowance (RDA) given by ICMR/NIN (2010).

Statistical Analysis: The data was gathered and classified. Means, standard deviation, minimum to maximum range and percentage values was taken. Student's "t test" was used to analyse the data statistically. The level of significance at both 5% and 1% was considered to derive conclusion.

RESULTS AND DISCUSSION

Childhood is an age of development and growth and dietary habits imbibed in this age are carried through other stages of life too. The data on food habits of girls and boys is given in **Table 1**.

The table shows that majority of girls (78%) consumed non-vegetarian food. Comparatively only62% boys have shown preference for non-vegetarian food. Whereas, the consumption of vegetarian food in boys (32%) was more as compared to girls (18%).Similar results were reported by **Anitha.G (2016) and Mukherjee.R.et.al (2017)**.

It was also observed that 92% of girls used to consume non-vegetarian once in a week as compared to 90% of boys. 98% of the girls have their meals on regular time as compared to 86% of the boys.

The table 2 shows that the mean energy intake of boys was found to be 1001.1±254.4 kcal whereas mean energy intake of girls was 1028.8±249.4kcal. A varied range was seen in both boys (520.7-1282.6) and girls (546-1626.5). The % of deficit seen in girls and boys was -39.12 and -40.7 respectively.

A significant difference in mean energy intake was observed in both the sexes at all ages as compared to RDA. Results of statistical analysis indicate that the mean intake of calories in girls and boys was found to be significantly lower than the standard value.

The mean Carbohydrate intake of boys 124.4±26.29g was less as compared to girls' 130.4±55.62g. A wide range was seen in boys and girls.i.e. 66.6-254.5 and 61.4- 178.5. Energy derived from carbohydrate in boys was 50% whereas in girls it was 46 %.

The mean protein intake of boys was 30.2±7.63g whereas in girls it was found to be 31.54±9.2g. Discrete range was observed in both boys and girls. Energy derived from protein in boys was 12% and in girls it was 11.1%. The % of excess was seen in girls i.e 6.91 whereas inboys 2.37 was observed.

The mean fat intake of boys was less as compared to girls i.e. 42.5±10.06g in boys and 54.2±15.02g in girls. Adiscrete range was observed. Energy derived from fat was 38% in boys whereas 42.9 % was in girls. % of excess was observed in both girls and boys i.e. 80.6 and 41.6 respectively.

Macronutrients in girls and boys was significantly less than the reference value except fat which was found to be significant then the reference value in both boys and girls. Similar study was conducted by **Dipika Murugkar.et.al (2013)**, **Hakeem**

et.al. (2002) and **Mitra et.al. (2007)**and contradictory result was observed in **Sati.V et.al (2012)** where protein intake was significant than the reference value. It was also observed that the nutrient intake of the school going girls was higher than boys.

Data from the table 3 showed that mean intake of vitamin B1 was 1.98±6.5mg in girls whereas in boys the mean intake was 0.9±0.63mg. The wide range was seen in boys and girls. The % of excess was seen in both boys and girls i.e.143.7 and 12.5.

The mean intake of Vitamin B2 was 0.48±0.8mg in girls and in boys 1.25±6.55mg was seen. The wide range was seen in both girls and boys i.e. 0.26- 3.5 and 0.23-3.62 respectively. The % of deficit seen in girls was -62.8 and in boys 25.0% of excess was observed.

The mean intake of Iron was 9.32±5.6mg in girls whereas in boys the mean intake was found to be 9.14± 10.1mg. A discrete range was seen in both boys and girls. % of deficit seen in boys-42.8 and in girls -41.7 was observed.

Mean intake of calcium in girls was 449.1±175.2mg and 437.6±145.6mg in boys. A wide range was observed. The % of deficit was observed -25.15 in girls and -27 in boys.

The mean intake of Niacin was 5.16±2.5mg in girls and 3.71±1.91mg in boys. The % of deficit seen in girls and boys was -60.3 and -71.4.

A mean intake of folic acid was observed less in boys 110.92±46.3mg as compared to girls 112.9±41.4mg. % of deficit seen in both girls and boys was -5.8 and -7.56 respectively.

The mean intake of Vitamin C in girls was 73.48±44.8mg whereas in boys 74.67±50.37mg was seen.% of excess was seen in both girls and boys (83.7and 86.6) respectively.

All the micro-nutrients were insignificant as compared to reference value except Vitamin C in both girls and boys. Similar results were stated by **Srihari et.al (2007)**, **Glynn.et.al (2005)** and **Mitra et. al (2007).**

B. Health Assessment-

From the table 4 it was observed that maximum girls (66%) used to have fever as compared to boys i.e.(42%). 24% of girls were having constipation problem as compared to boys.

Majority of the girl (62%) had cough and cold problem as compared to 44% boys. In girls 70% were having headache problem in comparison to 52% of the boys. The least was observed in 30% of girls both in nausea and worm infection health problem as compared to boys i.e. 54% and 56%. The dental problem was observed more in girls i.e. 42% while 28% boys had dental problems. Similar results were obtained in case of vomiting.

The results of the present study showed that insignificant difference was seen in mean intake of energy, carbohydrate and protein except fat as compared to RDA standards. The micronutrients in comparison to macronutrients also showed similar insignificant difference than RDA standards except Vitamin C and Vitamin B1 which was found to be highly significant. Results of the nutrient intake of both boys and girls differed insignificantly from the RDA standards and therefore the hypothesis is accepted. However, the intake of Fat, Vitamin C and B1 differed significantly in both boys and girls and Vitamin B2 in boys.

CONCLUSION

From the results of the study it is concluded there is urgent need to counsel school children about the intake of right food in growing years and its importance in maintaining good health. This is essential because food habits acquired during childhood persist into adulthood for the basis of either good health or ill health.

Hence, there is need to educate parents especially in the middle and higher socio economic groups regarding correct dietary habits for the children to ensure that they can live healthy and productive lives as adults.

Table 1- Data on Dietary Information of Girls and Boys

S.No.	Parameters	Girls	Boys
1.	**Food Habits**		
	Vegetarian	9 (18%)	16 (32%)
	Non-Vegetarian	39 (78%)	31 (62%)
	Eggetarian	2 (4%)	3 (6%)
2.	**Frequency of Non-Vegetarian**		
	Weekly	36 (92%)	28 (90%)
	Fortnightly	3 (8%)	3 (10%)
3.	**Meal Timings**		
	Regular	49(98%)	43(86%)
	Irregular	1(2%)	7(14%)
4.	**Skip Meals**		
	Yes	5(10%)	12(24%)
	No	45(90%)	38(76%)

Table 2-Data on Daily Mean Intake of Macronutrients

Sr.No.	Macronutrients	Girls (N = 50)	Boys (N = 50)
1.	Energy (Kcal)		
	Mean ± SD	1135.5 ± 254.4	1001.1 ± 207.6
	RDA*	1690	1690
	Min – Max	546 – 1626.5	520.7 – 1282.6
	Z-Value	18.74	23.69
	% deficit / excess	-32.8	- 40.7
2.	Carbohydrate (g)		
	Mean ± SD	130.4 ± 55.62	124.4 ± 26.69
	Min – Max	66.6 – 254.5	61.4 – 178.5
	% energy derived from CHO	46%	50%
3.	Protein (g)		
	Mean ± SD	31.54 ± 9.2	30.2 ± 7.63
	RDA*	29.5	29.5
	Min – Max	13.1 – 61.6	16.4 – 39.2
	Z-Value	1.56	0.835
	% deficit / excess	6.91	2.37
	% energy derived from Protein	11.1%	12%
4.	Fat (g)		
	Mean ± SD	54.2 ± 15.02	42.5 ± 10.06
	RDA*	30	30
	Min – Max	20.4 – 65.5	29.2 – 68.5
	Z-Value	3.23	8.97
	% deficit / excess	80.6	41.6
	% energy derived from Fat	42.9 %	38 %

*RDA-Recommended Dietary Allowance(ICMR 2010)

Table 3-Data on Daily Mean Intake of Micronutrients

Sr.No.	Micronutrients	Girls (N = 50)	Boys (N = 50)
1	Vitamin B1(mg)		
	Mean ± SD	1.98±6.5	0.9±0.63
	RDA*	0.8	0.8
	Min – Max	0.38-1.6	0.3-1.1
	Z Value	1.27	0.04
	% deficit / excess	143.7	12.5
2	Vitamin B2 (mg)		
	Mean ± SD	0.48±0.8	1.25±6.5
	RDA*	1.0	1.0
	Min-Max	0.26-3.5	0.23-3.62
	Z Value	4.14	0.278
	% deficit/ excess	-62.8	25
3	Niacin (mg)		
	Mean ± SD	5.16±2.5	3.71±1.91
	RDA*	13	13
	Min – Max	0.08-8.1	1.9-8.46
	Z Value	21.3	34.7
	% deficit / excess	-60.3	-71.46
4	Folic Acid (mg)		
	Mean ± SD	112.9±41.4	110.92±46.3
	RDA*	120	120
	Min- Max	4.8-184.3	21.6-245.3
	Z Value	1.2	1.4
	% deficit/ excess	-5.8	-7.56
5	Vitamin C(mg)		
	Mean ± SD	73.48±44.8	74.67±50.37
	RDA*	40	40
	Min- Max	26.5-249.5	13.9-167.8
	Z Value	5.27	4.91
	% deficit/ excess	83.7	86.6
6.	Iron(mg)		
	Mean ± SD	9.32±5.69	1.98±6.5
	RDA*	16	16
	Min –Max	3-29.6	3-16.8
	Z Value	8.35	4.18
	% deficit/ excess	-41.7	- 42.8
7	Calcium(mg)		
	Mean ± SD	449.1±175.2	437.6±145.6
	RDA*	600	600
	Min – Max	107.2 - 925.3	102.3 – 640.9
	Z Value	6.08	7.97
	% deficit/ excess	-25.15	-27.0

*RDA- Recommended Dietary Allowances (ICMR 2010)

Table 4-Data Analysis on Health Problems of Girls and Boys.

Sr.No.	Health Problems	Girls		Boys	
		No.	%	No.	%
1	Constipation	12	24%	8	16%
2	Vomiting	20	40%	13	26%
3	Dental	21	42%	14	28%
4	Cough and Cold	31	62%	22	44%
5	Fever	33	66%	21	42%
6	Indigestion	17	34%	13	26%
7	Headache	35	70%	26	52%
8	Nausea	15	30%	27	54%
9	Stomach ache	31	62%	34	68%
10	Worm Infection	15	30%	28	56%

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