To Investigate the Dietary Pattern and Nutritional Status of Adolescent Girls and Boys of HIG And MIG in Indore City

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Abstract

To investigate the dietary pattern and nutritional status of adolescent girls and boys of HIG and MIG in Indore city; A total of 500 girls and boys, aged from 18-21 years, in Indore city were selected by systematic random sampling method. Nutrient intake was assessed using the 24-h recall method and the usual pattern of food intake was examined using a 7-day food frequency questionnaire. The result reveals that 99.2 % and 0.8 % of adolescent girls and boys were vegetarian and non-vegetarian or ova-vegetarian in MIG groups compared to 45.2 % and 54.8 % HIG group respectively. Also, 28.8 %, 46.4 % and 24.8 % of adolescent girls and boys of MIG were taking food in two, three and four times per day as compared to 2.4 %, 44.4 % and 53.2 % adolescent girls and boys in HIG respectively. It was observed that 57.6 %, 29.2 % and 13.2 % of adolescent girls and boys were taking food in 4hrs, 6hrs and 8 hrs intervals in a day in MIG group as compared to 65.2 %, 34.8 % in HIG group respectively. It was also observed that 47.2 % and 52.8 % of adolescent girls and boys were having certain and uncertain time of eating meals in MIG group as compared to 66.8 % and 33.2 % in HIG group. Also, nutrient intake of energy, carbohydrate, protein, fat, calcium and phosphorus of adolescent girls and boys was 1907.9 kcal, 234.1 g, 40.3 g, 33.4 g, 996.8 mg and 1110.7 mg in MIG group as compared to 2226.4 kcal, 252.2 g, 47.7 g, 44.9 g, 1061.3 mg and 1128.2 mg in HIG group.

Keywords: Adolescent; Dietary pattern; Socio income group.

Introduction

Regular breakfast eating (RBE) has been identified as an important factor in nutrition, especially during growth. Eating breakfast regularly is also an important contributor to a healthy lifestyle and health status. RBE has been shown to contribute significantly to children's daily nutrient intake and nutritional well-being and to affect the adequacy of their total daily intake. Over the past decade, public health institutions around the world have placed increased emphasis on the importance of healthy lifestyles.

Objectives

To investigate the dietary pattern and nutritional status of adolescent girls and boys of HIG and MIG in Indore city.

Hypothesis

There shall be no significant difference in the dietary pattern and nutritional status of adolescent girls and boys of HIG and MIG in Indore city.

Materials and Methods

This entire study was conducted in Indore City. In this research study 500 adolescent girls and boys of age 18-21 years were selected by purposive random sampling technique. Nutrient intake was determined by 24 hour recall method. In this study, a structured questionnaire was used regarding dietary

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Table 1: Distribution of Adolescent Girls and Boys of MIG and HIG Based on Food Belief

Food belief	MIG No	MIG %	HIG No	HIG %	'Chi' Value (λ^2)
Veg	248	99.2	113	45.2	
Non Veg/ Ova-veg	2	0.8	137	54.8	72.64**

df = 1

intake and the usual pattern of food intake was examined using a 7-day food frequency questionnaire. Statistical analysis was done by using statistical tools like Z-test, mean, standard deviation, percentage, chi square test etc.

Results

Table 4.8 reveals that 99.2 % of adolescent girls and boys were vegetarian and non-vegetarian or ova-vegetarian in MIG groups as compared to 45.2 % and 54.8 % HIG group respectively. Highly significant difference was observed between the two groups in their percentages with a Chi-value of 72.64 (P < 0.05), which implies that frequency of occurrence of the food pattern in adolescent girls and boys in both the groups was different. Non-Vegetarian foods are more costly as compared to vegetarian foods and it is the reason that more non- vegetarian adolescent girls and boys belonging to HIG groups consumed more fleshy foods as compared to MIG family. It was observed that income matters a lot in food choices.

Table 4.9 reveals that 28.8 %, 46.4 % and 24.8 % of adolescent girls and boys of MIG were taking food in two, three and four times

Table 2: Distribution of Adolescent Girls and Boys of both MIG And HIG Based on Number of Meals/Day

No. of meals/day	MIG No	MIG %	HIG No	HIG %	'Chi' Value (λ^2)
Two	72	28.8	6	2.4	
Three	116	46.4	111	44.4	32.72**
Four	62	24.8	133	53.2	

df =2

Table 3: Distribution of Adolescent Girls and Boys of both MIG and HIG Based on Time Gap between Meals in a Day

Time gap between meals in a day	MIG No	MIG %	HIG No	HIG %	Chi- Value (λ^2)
4 Hrs.	144	57.6	163	65.2	
6 Hrs.	73	29.2	87	34.8	14.16**
8 Hrs.	33	13.2	nil	nil	

df =2

per day as compared to 2.4 %, 44.4 % and 53.2 % adolescent girls and boys in HIG respectively. Highly significant difference was observed between the two groups in their percentages with a Chi-value of 32.72 (P < 0.05), which implies that frequency of number of meals in both the groups was different which is similar to Johns *et al* (2001); who found that the role of snacking as a causative factor in the increased prevalence of overweight in children is not clear. The most significant change in snacking behavior for children over the past two to three decades has been the greater number of snacking occasions per day, not the amount of energy consumed per snack. It was observed from the data that frequent consumption of meals may be one of the reasons behind slight increase in weight of HIG adolescent girls and boys. Though consumption of small and frequent meals help to maintain healthy weight but due to lack of activity this small and frequent meal consumption had shown slight negative impact on weight of HIG adolescents. So input and output of energy is very important in weight management.

Table 4.10 reveals that 57.6 %, 29.2 % and 13.2 % of adolescent girls and boys were taking food in 4hrs, 6hrs and 8 hrs intervals in a day in MIG group as compared to 65.2 %, 34.8 %

Table 4: Distribution of Adolescent Girls and Boys of both MIG and HIG Based on Meal Eating Time

Meal eating time	MIG No	MIG %	HIG No	HIG %	'Chi' Value (λ^2)
Certain	118	47.2	167	66.8	
Uncertain	132	52.8	83	33.2	4.84**

df =1

Table 5: Distribution of Adolescent Girls and Boys in MIG and HIG as Per Their Nutrient Intake

Nutrient	MIG		HIG		Z-Value
	Mean	SD	Mean	SD	
Energy (kcal)	1907.9	257.6	2226.4	198.3	15.49**
Carbohydrate (gm)	234.1	25.5	252.2	18.0	9.15**
Protein (gm)	40.3	7.0	47.7	6.6	11.34**
Fat (gm)	33.4	5.7	44.9	6.4	19.93**
Calcium (mg)	996.8	116.7	1061.3	113.5	5.73**
Magnesium (mg)	258.7	18.8	256.3	15.3	1.57 NS
Phosphorus (mg)	1110.7	90.9	1128.2	77.4	2.32**

in HIG group respectively. Highly significant difference was observed between the two groups in their percentages with a chi-value of 14.16 (P < 0.05), which implies that frequency of occurrence of the time gap between meals in both the groups was different. Availability of varieties of food products depends on economic condition as in above result it was observed that less gap between meals was more in HIG group as compared to MIG family's adolescent girls and boys.

Table 4.12 reveals that 47.2 % and 52.8 % of adolescent girls and boys were having certain and uncertain time of eating meals in MIG group as compared to 66.8 % and 33.2 % in HIG group. Highly significant difference was observed between the two groups in their percentages with a Chi-value of 4.84 (P < 0.05), which implies that frequency of occurrence of meal time in both the groups was different. Cutler GJ, Flood A *et al* (2011); conducted a research study to find the association between meal eating time and weight status in adolescents. Result reveals highly significant association. It was observed certainty in diet routine leads to proper digestion and absorption of food which leads to proper weight management.

Table 4.21 reveals highly significant difference (P < 0.05) for intake of energy,

carbohydrate, protein, fat, calcium and phosphorus of adolescent girls and boys with 1907.9 kcal, 234.1 g, 40.3 g, 33.4 g, 996.8 mg and 1110.7 mg in MIG group as compared to 2226.4 kcal, 252.2 g, 47.7 g, 44.9 g, 1061.3 mg and 1128.2 mg in HIG group, respectively, with a Z- value of 15.49, 9.15, 11.34, 19.93, 5.73 and 2.32 respectively. Whereas, non-significant difference (P > 0.05) for magnesium level was observed between adolescent girls and boys in MIG and HIG. Nicklas *et al* (2004); showed that larger portions provide more energy and encourage people to eat more calories. Quantity of each and every nutrient was comparatively high in HIG adolescents than MIG adolescents. It can be assumed that economy plays a very important role in our day to day life including our diet routine.

Conclusion

The findings indicate that the dietary pattern and nutritional status of adolescent girls and boys of HIG and MIG in Indore city shows highly significant difference (P < 0.05) for intake of energy, carbohydrate, protein, fat, calcium and phosphorus and Highly significant difference was observed between the two groups in their percentages with a Chi-value of 4.84 (P < 0.05), which implies that

frequency of occurrence of meal time in both the groups is different. Also, it was observed that frequency of number of meals in both the groups is different. Highly significant difference was observed between the two groups in their percentages with a Chi-value of 72.64 (P < 0.05), which implies that frequency of occurrence of veg, non veg and ovo veg of the adolescent girls and boys in both the groups is different. There was also a relationship between the family incomes with the nutritional status of the adolescents.

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