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Eating Habits of 7-12 Year-Old Children in Tabriz, Iran

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Abstract: This study aimed to identify the eating habits of second and fifth graders from Tabriz, Iran. A total of 160 pupils were selected through random sampling at Şehit Sobhani Elementary School in the Kutb district of Tabriz. The sample consisted of 80 girls and 80 boys; 83 second graders and 78 fifth graders. Pupils' BMI measures showed that 52.4% of the second graders and 46.2% of the fifth graders had normal physical structure. The results further suggested that the percentage of pupils who ate three meals per day was 60.6%. The most commonly skipped meal was breakfast (55.6%) and those who did have breakfast mostly preferred cheese and tea. Most pupils preferred meat dishes to vegetable dishes. It was thus concluded that pupils needed to be informed about the importance of breakfast and the requirements of a healthy diet.

Key words: Eating habits, nutritional behavior, skipping meal

Introduction

The first aim of every family and society should be to raise healthy and productive individuals who are physically, psychologically, socially and mentally well-developed (Baysal, 1999). Nutrition is the basis of such human health at all ages. Children, particularly, need appropriate nutrition and protein to meet their needs for energy, cell growth and development. They usually form their eating habits while at school and their eating habits and behavior depend largely on their age, friends and social relationships (Mitch, 2000). These habits acquired in childhood mostly continue into adolescence and adulthood as well (Bulduk, 2005).

During childhood, most behavior problems are related to eating. For example, those in their early adolescence may start to worry about their physical appearance and thus start to skip meals in order to lose weight. Alternatively, they may become addicted to low quality energy providers such as fast food. Such low quality and irregular nutrition leads to malnutrition and deficiency of trace elements, which may lead to a delay in growth and late adolescence in children. Another diet-related problem that children may have is obesity. This is seen mostly in children with low physical activity (Surlu and Özcebe, 2002; Bellman and Kenedy, 2002; Shahtehmasebi, 1996).

The present study aims to identify and improve the eating habits of Şehit Sobhani Elementary School pupils in Tabriz, Iran.

Materials and Methods

A total of 160 pupils were selected through random sampling at Şehit Sobhani Elementary School in the Kutb district of Tabriz. Of these, 80 were girls and 80 were boys; 83 were in the second grade and 78 were in the fifth grade.

Table 1: Demographic information about pupils' families

Age (years)	Mother n	Mother %	Father n	Father %
23-33	79	49.4	20	12.5
34-44	71	44.4	104	65.0
45-55	10	6.3	32	20.0
≥ 5	79	49.4	4	2.5
Education				
Uneducated	1	0.6	3	1.9
Literate	1	0.6	14	8.8
Primary school	36	22.5	26	16.2
Secondary school	11	6.9	12	7.5
High school	79	49.4	69	43.1
University	17	10.6	36	22.5
Work Situation				
Working	27	16.8	153	95.6
Not working	133	83.2	7	4.4

Data was collected through face to face interviews conducted by the researcher, using forms similar to those employed in similar studies (Devaney et al., 1995; Haciyan, 1999; Hoseinalizadeh, 1998; Önay, 2002; Yiğit 2006).

After measuring the children's height and weight, their BMI was calculated using the formula

Body Mass (kg)/Height (m²) and the resulting values were compared to NCHS body mass index reference values for 1-74 year-olds. Those in the = 15. percentile were classified as thin, those in the 16.-85. percentile as normal and those in the 85.< percentile as overweight.

In identifying nutrient consumption frequency, a point allocation system based on the formula $T = 5T1 + 4T2 + 3T3 + 2T4 + T5$ was used. Foods consumed every day were allocated 5 points, those consumed every other day were allocated 4 points, those consumed once or twice per week were allocated 3 points, those consumed once a fortnight were allocated 2 points and

Table 2: The physical condition of pupils

	weak ≤ 15 per.		Normal 16.-85 per.		Over weight 85< per.	
	n	%	n	%	n	%
2. class (n 82)						
Girls	12	14.6	24	29.3	4	4.9
Boys	17	20.7	19	23.2	6	7.3
Total	29	35.4	43	52.4	10	12.2
5.class (n 78)						
Girls	22	28.2	16	20.5	2	2.6
Boys	8	10.3	20	25.6	10	12.8
Total	30	38.4	36	46.2	12	15.4

Table 3: Pupils' daily number of meals

	Class				Gender					
	2		5		Girl		Boy		Total	
Number of meals	n	%	n	%	n	%	n	%	n	%
2	7	8.5	5	6.4	5	6.3	7	8.8	12	7.5
3	51	62.2	46	59.0	51	63.8	46	57.5	97	60.6
4	19	23.2	22	28.2	21	26.3	20	25.0	41	25.6
5	5	6.1	5	6.4	3	3.8	7	8.8	10	6.3
Total	82	100.0	78	100.0	80	100.0	80	100.0	160	100.0

$Chi^2 = 0.711$ sd = 3 p>0.05, $Chi^2 = 2.22$ sd = 3 p>0.05

those consumed once a month were allocated 1 point. The points were then added and Total Points (TP) were found for each food. In order to compare foods with respect to their consumption frequency, each existing total point was turned into a percentage of a hypothetical total point which the food would have got if it had been consumed every day (% TP).

The data was computed using SPSS 11.0 and represented in tables as numbers and percentages. Chi square significance analyses were conducted with variables of grade level and children's sex.

Results and Discussion

General information about pupils' families: The average age of mothers whose children participated in the study was 35.08±0.44 years and that of fathers was 40.99±0.48 years. The majority of mothers (49.4%) were in the 23-33 age group while the majority of fathers (65.0%) was in the 34-44 group.

The majority of mothers and fathers were high school graduates (49.4% and 43.1% respectively), followed by secondary school graduate mothers (22.5%) and university graduate fathers (22.5%).

While 83.2% of mothers were not working, 95.6% of fathers were working.

Of the participating families, 50.6% had four members, 24.4% had five or six and 25.0% had three. Those children with siblings made 76.3% of the sample.

Eating habits of pupils: For a healthier society, the mere awareness and transskipion of knowledge is not enough. A change of actual behavior is also needed because wrong eating habits have a negative effect on both eating behavior and health.

This study examined pupils' BMI and eating habits, such as their number of daily meals, frequency of skipping meals, consumption of nutrients in breakfast and food preferences.

An examination of the pupils' BMI showed that the 52.4% of second graders were normal weight (girls 29.3% and boys 23.2%), 35.4% were weak (girls 14.6% and boys 20.7%) and 12.2% were overweight (girls 4.9% and boys 7.3%). Average BMI was 16.71±3.87.

Among the fifth graders, 46.2% were normal weight (girls 20.5% and boys 25.6%), 38.4% were weak (girls 28.2% and boys 10.3%) and 15.4% were overweight (girls 2.6% and boys 12.8%). Average BMI was 18.24±4.74.

Energy and nutrition elements gained in one day needs to have a balanced distribution over the meals so that they can be used most efficiently by the body. This is possible by having three to five meals every day (Ersoy, 2001). The results showed that 60.6% of the pupils had three meals and 31.9% had four or more meals every day. When the variables of grade level and sex were considered, the same rank was observed again (i.e. second graders 62.2% and 29.3%; fifth graders 59.0% and 34.6%; girls 63.8% and 30.1%; boys 57.5% and 33.8%, respectively) (Table 3). This seems to suggest that the pupils had a healthy daily number of meals.

An important eating habit that needs to be acquired by children is having a healthy breakfast. The pupils in the study were asked if they had the habit of having breakfast and the responses shown in Table 4 were gathered.

Table 4: Pupils' frequencies of skipping breakfast

Frequencies of skipping breakfast	Class				Gender					
	2		5		Girl		Boy		Total	
	n	%	n	%	n	%	n	%	n	%
Always	5	6.1	7	9.0	5	6.2	7	8.7	12	7.5
3-4 per week	13	15.8	6	7.7	14	17.5	5	6.3	19	11.9
1-2 per week	6	7.3	4	5.1	6	7.5	4	5.0	10	6.2
rarely	23	28.1	25	32.1	25	31.3	23	28.7	48	30.0
Not skip	35	42.7	36	46.1	30	37.5	41	51.3	71	44.4
Total	82	100.0	78	100.0	80	100.0	80	100.0	160	100.0

Chi² = 3.031 sd = 4 p>0.05, Chi² = 6.78 sd = 4 p>0.05

Table 5: Pupils' frequencies of skipping lunch

Frequencies of skipping lunch	Class				Gender					
	2		5		Girl		Boy		Total	
	n	%	n	%	n	%	n	%	n	%
Always	5	6.2	4	5.1	3	3.7	6	7.5	9	5.6
3-4 per week	3	3.6	1	1.3	-	-	4	5.0	4	2.5
1-2 per week	3	3.6	5	6.4	6	7.5	2	2.5	8	5.0
rarely	16	19.5	22	28.2	21	26.3	17	21.3	38	23.7
Not skip	55	67.1	46	59.0	50	62.5	51	63.7	101	63.2
Total	82	100.0	78	100.0	80	100.0	80	100.0	160	100.0

Chi² = 3.262 sd = 4 p>0.05, Chi² = 7.43 sd = 4 p>0.05

Table 6: Pupils' frequencies of skipping dinner

Frequencies of skipping dinner	Class				Gender					
	2		5		Girl		Boy		Total	
	n	%	n	%	n	%	n	%	n	%
Always	3	3.6	5	6.4	3	3.7	5	6.3	8	5.0
3-4 per week	2	2.4	3	3.8	1	1.2	4	5.0	5	3.2
1-2 per week	4	4.9	3	3.8	5	6.3	2	2.5	7	4.3
rarely	15	18.3	17	21.9	14	17.5	18	22.5	32	20.0
Not skip	58	70.8	50	64.1	57	71.3	51	63.7	108	67.5
Total	82	100.0	78	100.0	80	100.0	80	100.0	160	100.0

Chi² = 5.43 sd = 4 p>0.05, Chi² = 4.12 sd = 4 p>0.05

Table 7: Consumption points for foods included in breakfast

Foods	Class				Gender					
	2		5		Girl		Boy		Total	
	CP	%	CP	%	CP	%	CP	%	CP	%
cheese	338	82.4	296	75.8	310	77.5	324	81.0	634	79.2
olive	25	6.0	9	2.3	16	4.0	18	4.5	34	4.2
Margarine	53	12.9	65	16.6	47	11.7	71	17.8	118	14.8
butter	195	47.5	156	40.0	182	45.5	169	42.2	351	43.9
honey	159	38.7	118	30.2	143	17.9	134	33.5	277	34.6
jam	153	37.3	125	32.0	108	27.0	170	42.5	278	34.7
Sesame oil-grape molasses	95	23.1	85	21.7	92	23.0	88	22.0	180	22.5
Cornflake	80	19.5	61	15.6	101	25.2	40	10.0	141	17.6
eggs	192	46.8	176	45.1	172	43.0	196	49.0	368	46.0
Sausage	62	15.1	58	14.8	67	16.7	53	13.2	120	15.0
milk	238	58.0	252	64.6	288	72.0	202	50.5	490	61.2
tea	322	78.5	330	84.6	319	79.8	333	83.2	625	78.1
Fruit juice	128	31.2	164	42.0	150	37.5	142	35.5	292	36.5

Table 8: Pupils' favorite dishes

Foods	class	Like		Don't like		Never eat		Statistic
		n	%	n	%	n	%	
Meatball/Kebab	2	73	89.0	8	9.7	1	1.3	Chi² = 1.30
	5	67	85.9	10	12.8	1	1.3	sd = 2
	Toplam	140	87.5	18	11.2	2	1.3	p>0.05
Fried chicken	2	70	85.4	12	14.6			Chi² = 0.11
	5	68	87.2	10	12.8			sd = 1
	Toplam	138	86.2	22	13.8			p>0.05
fish	2	46	56.1	34	41.5	2	2.4	Chi² = 7.16
	5	58	74.2	17	23.0	3	3.8	sd = 2
	Toplam	104	65.0	51	31.9	5	3.1	p<0.05*
meat and	2	57	69.5	25	30.5			Chi² = 1.07
vegetable dishes	5	54	69.2	23	29.5	1	1.3	sd = 2
	Toplam	111	69.4	48	30.0	1	0.6	p>0.05
dishes with meat	2	37	45.1	40	48.8	5	6.1	Chi² = 6.63
and rice filling.	5	51	64.4	24	30.8	3	3.8	sd = 2
	Toplam	88	55.0	64	40.0	8	5.0	p<0.05*
legume dishes with meat	2	31	37.8	39	47.6	12	14.6	Chi² = 5.91
	5	43	55.1	30	38.1	5	6.4	sd = 2
	Toplam	74	46.1	69	43.1	17	10.7	p>0.05
Cold vegetable	2.sınıf	19	23.7	44	50.0	17	21.3	Chi² = 1.21
dishes with olive oil	5.sınıf	22	27.4	39	48.8	19	23.8	sd = 2
	Toplam	41	25.6	83	51.9	36	22.5	p>0.05
Cold stuffed vegetable	2.sınıf	20	24.4	41	50.0	21	25.6	Chi² = 0.34
dishes with olive oil	5.sınıf	19	24.3	36	46.2	23	29.5	sd = 2
	Toplam	39	24.4	77	48.1	44	27.5	p>0.05
legume dishes with	2.sınıf	12	15.0	46	57.5	22	27.5	Chi² = 5.01
olive oil	5.sınıf	22	27.5	33	41.3	25	31.3	sd = 2
	Toplam	34	21.2	79	49.4	47	29.4	p>0.05
rice dishes	2.sınıf	72	90.0	8	10.0			Chi² = 0.60
	5.sınıf	75	93.8	5	6.2			sd = 1
	Toplam	147	91.9	13	8.1			p>0.05
pasta dishes	2.sınıf	77	93.9	5	6.1			Chi² = 2.60
	5.sınıf	68	87.2	9	11.5	1	1.3	sd = 2
	Toplam	145	90.6	14	8.1	1	0.6	p>0.05
savory dishes made with pastry	2.sınıf	60	73.2	16	19.5	6	7.3	Chi² = 5.03
	5.sınıf	49	62.8	27	34.6	2	2.6	sd = 2
	Toplam	109	68.1	43	26.9	8	5.0	p>0.05
puddings and	2.sınıf	51	62.2	28	34.1	3	3.7	Chi² = 0.91
custards	5.sınıf	54	69.2	22	28.2	2	2.6	sd = 1
	Toplam	105	65.6	50	31.2	5	3.2	p>0.05
sweet dishes made	2.sınıf	45	54.9	25	30.5	12	14.6	Chi² = 7.30
with pastry	5.sınıf	49	62.8	27	34.6	2	2.6	sd = 2
	Toplam	94	58.8	52	32.5	14	8.7	p<0.05*
Hamburger	2.sınıf	62	77.5	17	21.3	1	1.2	Chi² = 0.91
	5.sınıf	62	77.5	17	21.3	1	1.2	sd = 2
	Toplam	124	77.5	34	21.3	2	1.2	p>0.05

The majority of children were observed to skip breakfast (55.6%). It was seen that second graders skipped breakfast more than fifth graders (57.3% and 53.9%) and girls skipped it more than boys (62.5% and 48.7%). The underlying reason for this may be that second graders have difficulties getting up early and therefore skip breakfast whereas girls want to lose weight and therefore do not eat it. Previous studies have also found that children skipped breakfast (Ensari, 1998; Gaemmakami, 1989; Sormaz, 2006; Alaçam, 2002; Karayormuk, 2002; Yabanci, 2004).

Table 5 presents the pupils' frequencies of skipping lunch. It shows that 67.1% of second graders, 59.0% of fifth graders, 62.5% of girls and 63.7% of boys did not skip lunch. It can be seen that 83.7% of the pupils brought their lunch from home. Previous studies have suggested that lunch brought from home is less nutritious than that served at schools (Anonymous, 1998). Therefore, schools need to be supported so they become able to serve lunch.

When the frequencies of skipping dinner were analyzed, it was seen that dinner is the least skipped meal of the

day. Among second graders, 70.8% did not skip dinner and among fifth graders 64.1% did not. Among girls, 71.3% did not skip dinner and among boys 63.7% did not. Those who skipped dinner mostly said they skipped it "rarely" (20.0% of the whole sample). This is not surprising as the entire family usually comes together to share dinner.

In a different question, pupils were asked the components of their breakfast and the consumption points of foods were calculated.

As can be seen from the table, the first preference of second graders was cheese (82.4%), followed by butter (47.5%) and eggs (46.8%). They mostly drink tea (78.5%) followed by milk (58.0%). Among fifth graders, the most popular food was cheese (75.8%), followed by eggs (45.1%) and butter (40.0%). They also mostly preferred tea (84.6%), followed by milk (64.6%).

When the table is analyzed with respect to children's sex, the ranking in foods and drinks does not change. It can however be seen that boys consume more cheese than girls (81.0% and 77.5%), more honey (33.5% and 17.5%), more jam (42.5% and 27.5%), more eggs (49.0% and 43.0%) and more tea (83.2% and 79.8%) more than girls do. Yabanci (2004) and Yilmaz (2002) also found in their studies that Turkish pupils mostly consumed tea, cheese, honey, jam and eggs for breakfast.

When asked about their favorite dishes, the pupils in the study responded that they like rice dishes (91.9%), pasta dishes (90.6%), meatballs/kebab (87.5%), fried chicken (86.2%) and hamburgers (77.5%). The least favorite foods were vegetables cooked with olive oil and served cold (51.9%), Cold stuffed vegetable dishes with olive oil (48.1%) and legume dishes with olive oil (49.4%). The percentages of children who had never eaten these foods were higher when compared to other foods.

Conclusion: Children need to have 3 main and 3 side meals in one day to ensure healthy growth. Schools are responsible for making the stakeholders of education aware of this fact. In order to do this, school curricula need to include information about the importance of having three main meals, ensuring a balanced intake of nutrients over these three meals and not skipping breakfast. Schools should also offer healthy eating seminars so as to raise pupils' awareness.

Additionally, school control is needed in shops where students buy their foods. For example, school canteens should be made to sell high quality foods and drinks, such as fresh fruit juice, instead of low quality ones, such as crisps, chocolate or fizzy drinks. Similarly, shops which sell foods near elementary schools need to be controlled by authorities and pupils who buy their lunch in these places need to be informed about dietary issues.

Another area of concern nowadays is increased BMI in children due to their reduced physical activity.

Technological advances and modern life offer children new pastimes which do not require physical activity. In order to reduce the risk of obesity, children's amount of physical activity needs to be increased and their TV and computer viewing time needs to be limited.

Regular and close monitoring of children's growth also helps identify eating and health problems at early stages. Therefore teachers need to be educated by experts in making anthropometric measurements. Parents alike should be informed through the mass media about the importance of a healthy diet for their children.

Finally, school schemes, such as providing pupils with breakfast and lunch, are important for ensuring children's nutrition and their acquisition of healthy eating habits. Such schemes should therefore be supported by governments.

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