Original Article

The Activity of Nutrition Education Given to the "Cumhuriyet" Elementary School Students at Ozkonak Town in Nevsehir Province of Turkey

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Abstract

Background: A balanced diet is for everybody important together especially for persons during the period of growth, namely for children and adolescents it is even more crucial.
Objective and Methodology: The study was conducted quasi-experimentally between 2nd March and 26th October 2011 for the purpose of investigating the effect of nutrition education provided to 77 students studying at the third, fourth, fifth, sixth and seventh grades in the Cumhuriyet Primary School in the countryside of Avanos operating under the National Education Directorate of Nevsehir, Turkey.
The study data were collected by using the questionnaire forms and the BMI was calculated by measuring the height and weight of the students. In the education, in-class teaching and the via the literature developed nutrition brochure were used. In evaluating the obtained data, the score, percentage, and arithmetic mean, chi-square significance tests were used.
Result: Of the students 44.2% were boys, and 55.8% girls. After the education the information score was 13.3% whereas prior to the education this was 11.5%. As a conclusion the information score was statistically consistent with the training ($p<0.05$). It is stated that before the training, nearly half of the students were skipping meals (%46.8), the breakfast was typically skipped compared to the other meals (%29.9), and the students ate candy, chocolate, wafers, chips, biscuits and consumed acid containing beverages while watching TV. The study indicated that after the education, the students took more regularly main meals including the breakfast and lunch (%85.7), their nutrition habits changed positively, nutrition knowledge points showed an increase ($p<0.05$), but it was not dependent on gender ($p>0.05$).
Conclucions: Consequently, it could be stated that the nutrition education was effective in the study. It has to be underlined that nutrition education provided to students, teachers, administrators, and families should be regarded within school health services.

Key words: Nutrition Training, Primary School Student, School, Pediatric Nursing.

Introduction

A balanced diet is for everybody important together especially for persons during the period of growth, namely for children and adolescents it is even more crucial (Perez-Rodrigo & Aranceta, 2001; Sherman & Muehlhoff, 2007).

One of the 'for Everyone Health' goals of the European Region WHO in the 21st century is "to make youth become healthier until 2020 and fulfill their role in society in a healthy way". This goal indicates the importance and necessity of school health care that protects the health of children and youth (Kutlu et al, 2008).

Among the major part of adults, it is known that the onset of obesity has its roots in childhood (Birch & Davison, 2001; Simsek et al, 2005; Boone-Heinonen & Gordon-Larsen, 2012; Waters et al, 2014). In Turkey among children

and adolescents weight excess and obesity occurrence is rising (Cosansu et al, 2005). In the in our country carried out studies the obesity frequency was analyzed in several regions. In Ankara the obesity prevalence was determined as 2.3% in a group of 6462 adolescents and children in the age of 9-16 with using BMI (Simsek et al, 2005). The application of health programme services at schools may play an important role in the reduction of childhood obesity (Veugelers & Fitzgerald, 2005; Story et al, 2006; Story et al, 2009; Bergman et al, 2014).

With healthcare services carried out by well educated healthcare personnel members who are professional, the given comprehensive school healthcare services may play a contribution to improve the health of a large group including especially students, and families, teachers and other personnel. In determining healthcare risks peculiar to this period, school healthcare nurses play a key-role in minimizing these risks and attaining positive health behaviours (Birch & Davison, 2001; Whitehead, 2006; Maenpaa & Astedt-Kurki, 2007).

The purpose of this study is to identify the effectiveness of the nutritional education programme given to the 3.-7. grades, which aims to improve their nutrition knowledge and to adopt the transferred healthy nutrition information as a behaviour at Cumhuriyet Primary School in the town Ozkonak in the province of Nevsehir in Turkey.

Methods

The research is a one group pre-test after-test quasi-experimental study. The research consisted of 140 students studying at the Cumhuriyet Primary School in the town Ozkonak in the province of of Nevsehir in Turkey. And the sampling of the research was composed by the 96 students in the 3.-7. classes. Two students who were on sick leave during the study days for health reasons, 5 students who were for several reasons absent during the study days and and 12 students who filled in the questionnaires incorrectly were not included in the research. The research was completed with 77 students. In this research the observed power was determined as 100 % (Ozdamar, 2003).

The limitations of the Research: for the 1 and 2 class students' literacy skills are not fully developed and the 8 class students feel the effect of the stress of the so-called 'Secondary Education Institutions Selection and Placement Examinations' more intense they are not included in the research.

The data collecting tool *the student questionnaire*, was prepared from the relevant literature and consists of three parts. The first part consists of 21 assessing questions about its personal characteristics, its family's socio-demographic properties, the physical activity of the children, television-computer using times, consuming food habit whilst watching television and its height and weight. The second part consists of fourteen multiple choice questions about nutritional information. The third part is where anthropometric measurement information is found and is filled in by researchers. The nutritional information points have been calculated by giving the 14 questions in this section each one point. After the questionnaire was applied to 10 non-sampling selected students the questionnaire was given final shape.

The data collection tools were applied to the students at the Cumhuriyet Primary School, who both were matching the inclusion criteria of the research and accepting to participate. The data were collected during the regular weekdays between 02/03/2011 and 10/06/2011 without affecting the student's syllabus, with also the approval of the school administration for the appropriate considered times and days.

The questionnaires were applied under supervision while on the days the data were collected the heights and weights of the students were collected too. In the first week of March the questionnaire was applied as a pre-test, and by carrying out the height & weight measurements the Body-Mass Index (BMI) was calculated and a nutritional education was held.

During the study with the usage of anthropometric methods, the BMI of the students was calculated by determining the weight follow-up and height measurements of them. For all of the students the same measuring devices were used. By the measuring of the weight of the students one paid attention to the students to carry light and few clothes, the shoes were taken out. The measurements were performed with the susceptible to 0.5 kg Sinbo called brand bathroom scale, able to measure 1-120 kg weights. The height was taken with a non-stretchable susceptible to 1 cm tape measure,

whilst the height measuring was done standing, the feet closed and upright stance. The students were unshod standing against a straight Wall, as head, body, hips and heels too were against the wall the height measurement was performed in "cm" from the very top point of the head. BMI is defined as the individual's body mass divided by square of his or her height (kg/m^2).

The students' BMI-Z score values were determined referencing the WHO 2007 values (WHO, 2006). The nutritional education was provided by dividing the students into three groups. The education was planned and carried out by making the next division: the third classes one group, the 4th and 5th classes one group, and the 6th and 7th classes one group. In every group the same day the same subjects were told about. For the nutritional education slides that are suitable to the age of the students were prepared. In the education applied to the students beside the straight narration, methods such as the students' participation, role play, and brainstorming were used. Also the presence of course teachers in the classrooms and their participation to the education was provided.

In the first week, on 02/03/2011, the pre-education data collecting (pre-test) was carried out. One was introduced with the students, and then the childhood and early adolescence period characteristics, the importance of a sufficient and balanced diet during school age and the benefits of nutrients to our body and growth development were discussed by practicing the brainstorming method.

During the arguing both correct and false statements were noted on the board, by drawing attention to the right and correcting the wrong the correct information was transferred by means of visual materials. By telling, it was ensured that the nutrients and their quantities for a healthy diet were opened for discussion. At the end of the education, according to the food groups, a 10 minutes lasting video film about how a primary school student daily takes nourishment was shown (internettv.meb.gov.tr). In the second week, on 09/03/2011, the first week's subject was summarized and the nutrient items were told. In order to make the subjects become permanent in the mind of the students deliberately coloured pictures were used in the presentation slides. For example when the subject of proteins was told about, pictures of milk, meat, chicken, eggs, legumes and so on were used. It was realized, that when one would ask the students "what foods contain proteins?" wise questions, they could answer by looking at the pictures.

In the third week, on 16/03/2011, the second week's subject was summarized and the principles of a healthy diet among primary school age children, breakfast and the importance of the daily three meal consuming was through explaining discussed. In the fourth week, on 23/03/2011, the third week's subject was summarized and the importance of hygiene and physical activity was through explaining discussed. The data collection and education lasted four weeks in which every week once one lecture hour (45 minutes) was spent. Three weeks after the education, on 10/06/2011, the same questionnaire was as the final test applied and the measurements were repeated. For the research the permission of the Avanos (municipality) National Education Directorate was obtained. To the participating students and their families the purpose of the research was explained, additionally on the first page of every questionnaire a short explanation was noted and a verbal consent was taken. For the statistical analysis of the data the SPSS 15.0 package programme was used. In all tests the statistical importance level was taken as 0.05.

Results

Of the students participating to the study respectively 12(15.6%) were nine, 23(23.9%) were ten, 17(22.1%) were eleven, 12(15.6%) were twelve and 13(16.8%) were thirteen years old. The number of male students was 34(44.2%), and the number of female students was 43(55.8%). It was determined that 55(71.4%) students belonged to the nuclear family, 20(26%) students belonged to the extended family and 2(2.6%) students belonged to the broken family. It was observed that 8(10.4%) families had a single child, 34(44.2%) families had two children, 23(29.8%) families had three children and 12(15.6%) families had four children.

Table 1. The Dispersion of the Students according to their Nutrition Habits Prior to and After Education

	Before Education		After Education		P+
Properties	**Number**	**Percentage**	**Number**	**Percentage**	
Daily meal number					
Two meals	6	7.8	0	0	
Three meals	56	72.7	66	85.7	**<0.001**
Four meals	11	14.3	8	10.4	
Five meals and more	4	5.2	3	3.9	
Skipping of meals					
Skipping	36	46.8	9	11.7	**0.010**
Non-skipping	41	53.2	68	88.3	
Meal skipping time					
Morning	15	41.7	6	66.7	
Noon	8	22.2	2	22.2	
Evening	5	13.9	1	11.1	--#
Morning-Noon	1	2.8			
Morning-Evening	4	11.1			
Morning-Noon-Evening	3	8.3			
Meal skipping cause					
Can't wake up	2	5.55	1	11.1	
Do not want to	28	78.0	8	88.9	
Can't find time	2	5.55	0	0	--#
Fast food seem more attractive	2	5.55	0	0	
Disliked food	2	5.55	0	0	
Shopping frequency in school's canteen					
Daily several times	7	9.1	7	9.1	
Once a day	7	9.1	5	6.5	
Weekly 3-4 times	20	26.0	14	18.2	**<0.001**
Weekly 1-2 times	23	29.8	29	37.7	
Once in 15 days	8	10.4	13	16.6	
Once monthly	12	15.6	9	11.7	
Food-beverage types taken from the canteen					
Biscuits-crackers	43	55.7	42	54.5	
poOaca-bagels	1	1.3	2	2.6	
chocolate	8	10.4	6	7.8	--#
chips	2	2.6	2	2.6	
cake	3	3.9	8	10.4	
wafers	5	6.5	2	2.6	
tea-oralet	3	3.9	4	5.2	
fruit juice	4	5.2	5	6.5	
cola-sodas	2	2.6	1	1.3	
Other*	6	7.8	5	6.5	

 # for the total number of children is fluctuating the p value could not be calculated.
*** under Other title food-beverage combinations are given.**
+ Chi square test

Table 3. The Dispersion of the Answers to the Questions of the Students about Nutrition Knowledge Prior to and After Education

	Before education		After Education		P+
	N	%	N	%	
Which of the following is a balanced nutrition example?					
Eat whatever you see	3	3.9	2	2.6	
Eat only vegetables	13	16.9	3	3.9	0.878
Eat from all kinds of food	61	79.2	72	93.5	
How can sufficient and balanced nutrition affect our health?					
Become easily ill, become weak	6	7.8	4	5.2	
According to our age normal body weight	65	84.4	72	93.5	0.708
Our hair becomes lifeless and weak	6	7.8	1	1.3	
Which of the following belongs to the meat group?					
Tomato	6	7.8	2	2.6	
Milk	3	3.9	2	2.6	0.968
Fish	68	88.3	73	94.8	
Which of the following is a good source of proteins?					
Bread	7	9.1	2	2.6	
Eggs	59	76.6	70	90.9	0.214
Carrots	11	14.3	5	6.5	
Which food is necessary for bones and teeth?					
Chicken meat	2	2.6	0	0	
Milk	72	93.5	75	97.4	0.931
Sugar	3	3.9	2	2.6	
Which of the following should we eat during breakfast meal?					
Milk	65	84.4	74	96.1	
Hazelnut paste	2	2.6	1	1.3	0.614
Jam	10	13.0	2	2.6	
Which food is the healthiest snack food?					
Chips	3	3.9	1	1.3	
Apple	73	94.8	75	97.4	0.998
Wafers	1	1.3	1	1.3	
To which nutrition group belongs cheese?	76	98,7	77	100,0	---*
Milk group	1	1,3	0	0	
Meat group					
Which of the following isn't a healthy beverage?					
Cola	73	94.8	75	97.4	
Yoghurt drink	2	2.6	1	1.3	0.998
Fresh fruit juice	2	2.6	1	1.3	
How much should we daily consume of the milk group?					
Two glasses of milk/yoOurt drink	40	51.9	66	85.7	
Three-four spoons of yogurt	28	36.4	5	6.5	**0.006**
One tea glass of yogurt drink	9	11.7	6	7.8	
What happens when we regularly sport?					
Become easily ill	2	2.6	2	2.6	
In comparison to life become weak	9	11.7	3	3.9	0.052
Our bones and muscles become strong	66	85.7	72	93.5	
Which of the following should we not consume for teeth health?					
Bananas	17	22.1	3	3.9	
Sugar	45	58.4	69	89.6	0.746
Leek	15	19.5	5	6.5	
Which of the following affects the well seeing of our eyes?					
Carots	71	92.2	77	100.0	---*
Coffee	4	5.2	0	0	
Sugar	2	2.6	0	0	
How skipping meals affect our health?					
Become healthier	18	23.4	3	3.9	
Become unhealthier	54	70.1	71	92.2	**0.007**
Does not affect	5	6.5	3	3.9	

+ **Chi square test**

Table 2. The dispersion of the students according to their physical activity having and number of physical activity Prior to and After Education

	Before Education		After Education		P+
Properties	**Number**	**Percentage**	**Number**	**Percentage**	
Physical activity					
Having	38	49.4	70	90.9	**<0.001**
Having not	39	50.6	7	9.1	
Number of Physical activity *					
1 activity having	14	36.8	18	25.7	
2 activities having	11	28.9	19	27.2	**<0.001**
3 activities having	5	13.2	22	31.4	
4 and more activities having	8	21.1	11	15.7	

***Basketball, soccer, volleyball, tennis, swimming, athletics, folklore, bicycle activity combinations**

+ Chi square test

Table 4. The dispersion of the Z scores results of the BMI of the students for their gender and their parents' education level, both B.E. and A.E.

	Before education measured Z scores of BMI								**After education measured Z scores of BMI**							
	N %		**N %**		**N %**		**N %**			**N %**		**N %**		**N %**		
	Weak		Normal		Overweight		Obese	**P+**		Weak		Normal		Overweight		Obese	**P+**
Gender																	
Male	2	5.9	25	73.5	5	14.7	2	5.9		2	5.9	24	70.6	6	17.6	2	5.9	
Female	0	0	31	72.1	11	25.6	1	2.3	0.171	0	0	30	69.8	12	27.9	1	2.3	0.190
Mother Education Level																	
Primary school	2	4,5	30	68.2	11	25	1	2.3		2	4.5	29	65.9	12	27.3	1	2.3	
Secondary school	0	0	16	80	2	10	2	10	0.417	0	0	16	80	2	10	2	10	0.458
High school	0	0	8	88.9	1	11.1	0	0		0	0	7	77.8	2	22.2	0	0	
Universite	0	0	2	50	2	50	0	0		0	0	2	50	2	50	0	0	
Father Education Level																	
Primary school	2	7.7	17	65.4	6	23.1	1	3.8		2	7.7	16	61.5	7	26.9	1	3.8	
Secondary school	0	0	19	82.6	4	17.4	0	0	**0.016**	0	0	18	78.3	5	21.7	0	0	**0.016**
High school	0	0	19	86.4	3	13.6	0	0		0	0	19	86.4	3	13.6	0	0	
Universite	0	0	1	16.7	3	50.0	2	33.3		0	0	1	16.7	3	50.0	2	33.3	

+ **Chi square test**

When we look at the dispersion of the age of the mothers, 24(31.1%) were 30 years old or younger, 33(42.9%) were 31-40 years old and 20(26%) were 41 years old or older. And the level of education of the mothers was as following: 44(57.1%) primary school, 20(26%) secondary school, 9(11.7%) high school and 4(5.2%) university. Whilst the dispersion of the age of the fathers was as following: 3(3.9%) 30 years old and younger, 46(59.7%) 31-40 years old and 28(36.4%) 41 years old or older. And the level of education of the fathers was as following: 26(33.8%) primary school, 23 (29.9%) secondary school, 22(28.5%) high school and 6(7.8%) university.

As 71(92.2%) of the mothers were housewives, 4(5.2%) were workers and 2(2.6%) were public servants, of the fathers 8(10.4%) were retired and 1(1.3%) didn't work. Of the fathers 16(20.7%) were farmers, 30(39%) were workers, 7(9.1%) were public servants and 15(19.5%) were tradesmen.

The mean weight of the children who participated in the study was 37.837±8.707 kg, their mean height was 144.155±10.270 cm and their mean BMI was 18.020±2.460 kg/m^2. According to the BMI-Z score there was no excessively weak student together with 2(2.6%) were weak, 56(72.7%) were normal, 16(20.8%) were overweight and 3(3.9%) were obese.

In table 1 the students B.E. (Before Education) and A.E. (After Education) nutrition is given according to the habits of the students. In the comparison of the B.E. and A.E. the difference in the number of meals daily was found significant ($p<0.05$). When one was looking at the skipping of meals in the pre-test 46.8% and in the final test 11.7% of the children skipped meals, this difference was significant ($p<0.05$). While the B.E. students were reporting to buy at least one time something in the canteen among the A.E. students this was 15.6%. It was determined that the shopping frequency from the canteen was diminishing together with the education ($p<0.05$)(Table 1).

The physical activity and the number of physical activity distribution of the students for B.E. and A.E is given in table 2. As 38(49.4%) students who before having education were covered in the research claimed to be physically active, after the education 70(90.9%) students claimed this, and this was found significant ($p<0.05$)(Table 2).

It has been determined that before the education the students' television watching period during the week was 1.688±1.178, and after the education 1.733±1.005 hours. And when for leisure, periods spent at the computer were regarded, during the week averagely 0.968 hours, and in the weekend 1.539 hours was determined. And after the education this was found as respectively 0.906±0.849 and 1.390±0.961. In none of these changes there wasn't found a considerable difference ($p>0.05$).

In table 3 the distribution of the answers of the students given to the questions B.E. and A.E. about nutrition knowledge is given.

As before education the percentage of students who don't consume food when watching television and using computer was 11.7%, after education this was determined as 19.5%, and was found significant ($p<0.05$). When the distribution of those who consume food when watching television and using computer is analyzed according to what sort of food they consume; whilst B.E. the percentage of fruit and freshly squeezed juice consuming students was 17.6% this A.E. had risen to 80.7%.

As the students' B.E. knowledge score was 11.532±1.560 this A.E. was found to be 13.337± 0.882. There was determined a significant difference between the together with the education given mean knowledge ($p<0.05$). According to gender there wasn't found a significant correlation between the B.E. and A.E. knowledge scores ($p>0.05$).

In the study according to the Z-score of the BMI numbers, there are no students who fit the excessively weak range. It has been determined that 56(72.7%) of the prior to the education students were in the normal BMI range, and after the education as 54(70.1%). Among the students in the B.E. and A.E. periods 3(3.9%) were obese. B.E. and A.E. 2(2.6%) of the students were weak.

According to anthropometric measurements of the female students B.E. 72.1% and A.E. 69.8% were normal, B.E. 25.6% and A.E. 27.9% were

overweight, B.E. and A.E. 2.3% were obese (Table 4).

It was determined that B.E. 50% of the weak skipped meals, that 50% didn't skip meals, that 66.7% of the obese skipped meals, and that 33.3% didn't skip. As for A.E. it was determined that 66.7% of the weak students did not skip meals, and that 33.3% skipped meals. In the skipping percentages A.E. there was decrease but the correlation between the BMI-Z score results and the skipping of meals wasn't significant ($p>0.05$).

When looked at the physical activity states of the students, 53.7% of the students who B.E. have a normal weight state not to sport, this percentage A.E. is observed to drop to 5.6%. The correlation between the BMI-score results and the regularly doing physical activity states wasn't significant ($p>0.05$).

Discussion

Incorrect behaviours learnt about nutrition are difficult to change in advanced age, correct behaviours should be developed in the earliest possible age. Interventions conducted at school in this regard may play an important change (Perez-Rodrigo & Aranceta, 2003; Pearlman et al, 2005; Story et al, 2006; Lioret et al, 2014).

The daily nutrition programme should be planned as 4-6 meals. Frequently nutrition, may prevent unnecessarily much eatin, may delay hunger and may decrease nutrition in the next meal (Atesoolu, 2011; O'Neil et al, 2011; Williams et al, 2014). In the study it was determined that daily of the students B.E. 72.7% versus A.E. 85.7% three meals; and that B.E. 19.5% versus A.E. 14.3% consumed four-five meals, it was determined that the correlation is significant with the level of education ($p<0.05$) (Table 1). A similar research conducted in two orphanages in the city of Konya to determine the nutrition states of the housed adolescents revealed that daily of the males 4% 1-2 meals, 86% 3 meals, and 10% 4-5 meals; and that of the females 16.4% 1-2 meals, 79.5% 3 meals, and 4.1% consumed 4-5 meals (Eser et al, 2000). One may state that the number of meals through the research conducted in the city of Konya is similar to the outcome here.

The skipping of the main meal is among school children a very frequently occurring negative nutrition behaviour. B.E. 46.8% of the students states to skip meals, A.E. this percentage has shrunk to 11.7% and the difference between them was found significant ($p<0.05$). Many studies conducted in our country and in the world have revealed that the most frequently skipped meal is the breakfast. It is stated that children who do not have breakfast cannot concentrate to the lectures, that their perception is poor, that their attention span is poor, and that they have difficulty in learning (Garipaoaoolu & Ozgunes, 2008). In this study it has been determined that 41.7% of the students who skipped meals before the education only skipped the breakfast, and that 22.2% together with the lunch meal skipped also other meals (Table 1). Yioit (2006) determined in a study held on 6.-8. grade students that 68.9% of them did not skip the breakfast. Also in the study Sanlier and Ozgen (2011) carried out there has been a decline in the number of those who skipped meals. Nicklas et al. (2000) determined, that 19% of the students who participated the research skipped the breakfast, that 90% of the adolescents who did not skip the breakfast had their breakfast at home, that 14% with the breakfast had a supplementary nutrient. As observed and as is common in all of the studies there are children and adolescents who skip the breakfast together with this these percentages can be reduced a little more with education.

When one school year period and full-day education period is considered it is observed that primary school students spend a major part of their time at school. The most important socializing environment of primary school age children that is influencing their nutrition selection are schools. After the family primary schools are children's first environments where they independently shop. Because primary school children are in growth and development age they may feel hunger in short periods and they usually meet their needs from the school canteens. In the study B.E. of the students 9.1% stated daily once, 26% stated weekly 3-4 times to shop in the canteen, as A.E. these percentages respectively drop to 6.5% and 18.2%, at the same time the difference in the shopping frequency in the canteen with the given education was found to be significant ($p<0.05$) (Table 1). It is ascertained that when one is looking to what sort of food and beverage is taken from the canteen biscuits, crackers, chocolate, wafers, fruit juice

like high calory containing nutritions are more bought (Table 1). Atesoolu found out that 14.5% of the students participating to his study did not shop in the canteen, that 48.6% once in a week, 14% once in two days, and that 22.9% daily shopped in the canteen and that his students consumed, mainly to be water, bagels-pooaca, biscuits-crackers-cakes, fruit juice, chocalate-candy, chips and other products more instead of other products (Atesoolu, 2011). As observed in the study results of Atesoolu the nutrition shopping frequency from the canteen is similar, the shopping frequency percentages are not in favour of the study.

Regular physical activity, may create important changes in children's and youths' healthy growth and development, in getting rid of undesired habits, in socializing, in lifelong increasing the quality of life. It ought to be the best way to stimulate children and youth to take part in various sports disciplines (Balcali, 2008). Insufficient physical activity and an inactive lifestyle is one of the childhood and adolescence obesity formation enhancing causes (Guler et al, 2009). Hence the increasing of physical activity, is for the long term success of weight control pretty important. In this study B.E. 50.6% of the students declared not to have regularly physical activity, A.E. this decreased to 9.1% and the difference between the nutrition education and the state of having physical activity was found significant ($p<0.05$) (Table 2). When numerical data are observed it is seen that as the physical activity state is increasing there is also a rise in the BMI values. However, students who when having a normal weight pass to the overweight group may have been affected by another factor or it is thought that the students may not be having these activities frequently enough. Brook and Tepper (1997), have determined that 42.9% of the students they have included in the research after school do sportive activities. Alacam (2002), has discovered that 93% of the students who go to private schools and 80% of students who go to public schools do sports. As the research findings are similar with the work of Alacam, it can be said that the percentages are higher than the mentioned other studies.

One of the main activity decreasing causes in the adolescence period is longtime television watching. Whereas television watching is a cause for sedentary life it also stimulates nutrition consumption. The time spent across television and the at the same time eaten high calory food will affect becoming obese (Parlak & Cetinkaya, 2007). With the given nutrition education there wasn't found a significant difference between the time spent across television and computer ($p>0.05$). This result shows us that the given education doesn't form a change in the students television watching and computer use time. And similar in Tolluoolu's study (2009) the television watching and computer using time in the weekend have been found to be longer periods of time than during the weekdays. In this way the study of Tolluoolu and the results of the research are similar. For the reason that the students are at home in the weekend, they may have been spending a longer period of time across television and computer.

For with the study is aimed it is observed that after the education with all of the nutrition knowledge questions the correct answer rates have increased. The of fourteen questions consisting and over fourteen points performed evaluation while B.E. the nutrition knowledge points are 11.53, A.E. they were determined as 13.34 and the difference between them was significant ($p<0.05$). When to the relation of the nutrition knowledge points with gender is regarded there wasn't found a peculiar to gender evident difference and statistically it was determined not to be important ($p>0.05$). Westenhoefer (2005) states that unhealthy nutrition choice among males, can let become correlated with the being poorer of their nutrition knowledge level. In another, the in Greece by Manios and friends about this subject carried out research among primary school students whose data was collected over the periods September-October 1992 and September-October 1995, the nutrition knowledge of the students in the intervention group had risen more in comparison to the control group (Manios et al, 2010). Obali (2009) has determined that in his study after the application the children who were having education had scored more in comparison to the children in the control group. As viewed the other researchs' results support the results of this carried out research.

In the research the BMI-percentile standards were used. The BMI-percentile value is a by the WHO for the use for choolchild period age group recommended evaluation scale (Aslan et al,

2003; Lazzeri et al, 2008). In the research of the students 72.7% were of normal weight, 2.6% were weak, 20.8% were overweight and 3.9% were obese. It is reported that obesity affects 10.9-20% of all the children's and adolescents group. In the in our country carried out studies the obesity frequency was analyzed in several regions. In Ankara the obesity prevalance was determined as 2.3% in a group of 6462 adolescents and children in the age of 9-16 with using BMI (Simsek et al, 2005). In another study according to the BMI with 1647 adolescent Turkish children the obesity incidence was determined as 3.6% (Uckun-Kitapci et al, 2004). In Edirne with 989 children in the age of 12-17 the obesity prevalence was determined among the females 2.1% and among the males 1.6% (Simsek et al, 2005). In a study done in Brazil it was found that 8.9% of the male children and 4.3% of the female children were obese, that 19.4% of the male children and 16.1% of the female children were overweight (Kusgoz, 2005). The in this study found overweight values are in comparison with the in Muola by Suzek and friends (2005) carried out study high (16.7%), while it is observed that the obesity prevelance is lower (%6.3).

The first environment with childhood obesity is the family environment. The condition of being obese of the family, its socio-economic condition, the level of education of the family and the type of family and the child's gender like factors are related with childhood obesity (Parlak & Cetinkaya, 2007; Lazzeri et al, 2008). In the 3 months after the education there was observed an increase in the body weight, the overweight rate had increased. This increase of 2.3% in the overweight group, may let one think that the given education and the choice of the amount and type of food for a balanced diet for the students might have been not sufficient. But these students who are in the age of growth and development may have been affected by a different factor like hormonal change. When of the students whose values were determined in the weak and obese ranges the state of education of their mothers is regarded both in the B.E. and A.E. periods, it was determined that they were primary and secondary school graduates, the difference between them wasn't significant ($p>0.05$). The fathers' education level and the difference in Z score results of the BMI of the students both for B.E. and A.E. was significant ($p<0.05$) (Table 4). So as the level of education of the fathers increases it can be said that the obesity and overweight incidence rate increases too. When it is thought that when the level of education increases that their income will increase; this result than may let one think that the fathers with a high level of education allow the children to consume high energy nutrition what may cause weight gain.

Conclusion

In the study, of the students 72.7% were of normal weight, 2.6% were weak, 20.8% were overweight and 3.9% were obese. The BMI values according to the Z score, there were no students who coincided with the excessively weak interval.

B.E. approximately half of the students were skipping meals and that the skipped meal in comparison to the others is more often the breakfast, A.E. there were found improvements in these percentages. Whereas B.E. near to half of the students were having regular physical activity, A.E. nearly all of them were having regular physical activity and the difference was statistically found to be significant.

It has been observed that with the given education the students' television watching and across the computer time spending periods have not changed. As B.E. and A.E., there is no clear change in the across the television nutrition consuming percentages, it has been determined that the consumed types of nutrition have changed from unhealthy nutrition towards healthier nutrition.

A.E. it was found that there was an increase in the given correct answers to all of the Nutrition Knowledge Questions and that the knowledge score averages with the given education had risen.

When this research was being implemented there was recognized that to measure the nutrition knowledge level at schools for different age groups and to use a good measuring technique it would be good to develop scales.

By looking at the results of the research; in the framework of the at schools applied social events and guidance services it can be recommended to give greater emphasis to activities about

nutrition. Students at schools should be made aware about the subject of sufficient and balanced nutrition, when they are using their leisure time, by organizing shows, films and theatre like activities at certain time intervals about the subject of sufficient and balanced nutrition.

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