



TELEVISION WATCHING HOURS, ADVERTISEMENTS ON TELEVISION AND NUTRITIONAL BEHAVIORS AMONG 11 -YEAR- OLD STUDENTS IN ANKARA-TURKEY

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ABSTRACT

Background and Aim: It has been put forward that self-care behaviors involving the food preferences become quite permanent immediately after the age of 10. The purpose of this study was to investigate the relation between the food preferences, the time spent in watching television (TV) and most viewed programs on TV among the children at the age of 11.

Methodology and Materials: The population of the study is the 11-year-old children living in Ankara who are in their first grade of the secondary school education and a total number of 55655 students was identified in this respect.

A sample group was selected by using three-stage cluster sampling and random sampling methods from the regions with the highest student density.

All statistical analysis were carried out by means of SPSS 22.0 for Windows software (SPSS Inc., Chicago, IL, USA). Data were presented as the number of cases and “%” for categorical variables. Chi-square test and Fisher’s exact test were used to determine whether there was a relationship between BMI levels (slim, normal and overweight), the weekday TV watching hours, most viewed programs, most recognized commercials and gender. A p-value of less than 0.05 was regarded statistically crucial.

Results: Half of the students are boys and half are girls. The intense TV watching periods were from 1 to 3 hours a day on weekdays and at the weekends. While the boys had a tendency to watch the commercially advertised programmes in the first order, the girls appeared to watch them in the third order among all the programmes. The most recognized commercials were about food. Most of the students consumed an advertised fast-food product at least once a day.

Conclusion: It has been found out that there is a direct relation between the food preferences and the time spent on TV among the children at the age of 11. It should be the priority of the health workers to warn and direct school administrations as well as their families about the reduction of the time spent on watching TV and the development of a realistic perspective on the food advertisements.

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INTRODUCTION

Nowadays, it is an undeniable fact that children are inclined to spend a rather considerable time watching television (TV). The advertising industry has been interested in the children as a major factor to influence the purchasing decisions of the family among the consumable sectors. Accordingly, TV has been used as an important tool in shaping the children's nutritional behaviors with the food advertisement industries. The influencing and convincing power of the advertisements is mainly broadcasted by the television that consuming typically unhealthy food and beverages might be much more effective on children.

While children's eating behaviors are affected by their present physical and social environment, it is known that self-care behaviors involving the food preferences develop between 3-8 years and might become permanent after the age of 10.^[1,2]

Thus, the aim of this very current study was to examine the time spent watching TV, the preferred programs and embedded advertisements, and to find out the preferences of the promoted food and beverages of the children at the age of 11 as well as a comparison made between the girls and boys in this respect.

Methodology and Materials of the Study

Ethics

The protocol of the very current study was approved by the Clinical Studies Ethical Committee of Ankara University

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School of Medicine and was carried out in accordance with the guidelines specified for the conduction of non-interventional studies for humans. Furthermore, the research was conducted in accordance with the Declaration of Helsinki and the Guideline for Good Clinical Practice. Moreover, the study was approved by the Provincial Directorate for National Education (The registration number: 14588481/605.99/ 3865756).

The Design of the Study

The population of the study is the 11-year-old children living in Ankara and studying in the first grade of the secondary school education. A total number of 55655 students were identified in Ankara at this level. While determining the sample group, three-stage cluster sampling and random sampling methods were applied for the regions with the highest student density and the municipal region with the highest student density was selected first. The 53 schools in this area are the first sampling unit of the current students. Later, three schools with the highest student density to represent them were determined. And, additionally these students were found out to constitute the second sampling unit. Moreover, the students who were randomly selected from these schools constituted the third sampling unit which was the ultimate sampling unit for junior high school freshmen educated in secondary schools as a result of gore cluster sampling. Consequently, the lists of students and sampling framework were created in these schools. The optimum sample volume was also determined by random sampling using this framework. As a result of these steps, the formula of the optimum sample volume for 90% confidence interval is as follows:

$$n = \frac{Nz^2pq}{Nd^2 + z^2pq}$$

$$n = \frac{(55655)(1.65)^2(0.5)(0.5)}{(55655)(0.03)^2 + ((1.65))^2(0.5)(0.5)} = 746.11$$

The optimum sample size was 746 students who were selected in 3 schools.

In Turkey "Nutrition Friendly School Project" was designed and implemented by the Ministry of Health and the Ministry of National Education in 2010 among some project schools. However, the schools in which we chose the students by random sampling method were not among the project schools. Shortly before setting out for this very current study, a kind of consent letter was obtained not only from the participants, but also from their parents. Those who were diagnosed and/or monitored with a nutritional disease were not included to this very current study. The aim of the study was to investigate the TV watching hours in a day, the most preferred programs on TV and TV advertisement watching situations among 11-year-old children in Ankara, the capital of Turkey.

A questionnaire was carried out as a tool to get some personal information regarding their television / advertisement watching hours and nutritional habits between the months of April 2015 and June 2015. A weight measurement instrument made of cast material and electrostatic oven-drying with a 100gr precision scale and height measurement instrument made of plastic frame with mechanical measuring rod and 1mm precision scale was applied to get further information (Seca, Medizinische Waagen Hamburg, Germany).

All statistical analysis were performed by means of SPSS 22.0 for Windows software (SPSS Inc., Chicago, IL, USA). Data were presented as the number of cases and "%" for categorical variables. Chi-square test and Fisher's exact test were applied to determine whether there was a relationship between BMI levels (slim, normal and overweight), weekday TV viewing, most viewed programs, most recognized commercials and gender (girls and boys). A p-value of less than 0.05 was considered statistically significant.

RESULTS

Of the 746 participants taking part in this study, 49.5% were girls and 50.5 were boys, 63.5% had normal BMI, 32.6% were slim, 3.9% were over weighted. No crucial difference between the BMI levels of the children and their gender ($p = 0.874$) (Table 1) was observed.

The intense television watching periods of the participants, that is to say, students have been determined as 1 to 3 hours / day on weekdays and at the weekends (Table 2).

No statistically significant difference has been observed between gender and television watching periods during weekdays/weekends ($p > 0.05$) (Table 3).

A statistically significant difference has been observed among the responses of the boys and the girls regarding their favorite programs on TV ($p = 0.000$). The animated movies and news broadcasts have higher watching rates among the girls whereas the boys have higher watching rates in the commercials and sports programs. The girls expressed their preference for the commercials in the third order while the boys preferred in the first among all programs (Table 4). For both girls and boys, the most viewed commercial programmes were about food and garment (Table 5). Of the girls' 57.3% and of the boys' 59.9% have stated that it is not possible for them find the commercials convincing enough. The rates of considering the commercials convincing were not found to be significantly different according to gender of the participants ($p = 0.482$).

The participants of this very current study were asked to respond whether they consume an advertised fast-food product such as chips, chocolate, wafer, hamburger or fizzy drink, at least once a day or not. Of the girls 68.4%, and 62.3% of the boys responded this question positively. There was no difference comparing the responses of the male and female students ($p = 0.081$). The frequency of the consumption of the commercially advertised products in both genders is as follows: chocolate-wafer at the first frequency, chips at the second frequency, burgers and carbonated drinks at the third frequency.

When they were asked "Do your parents buy the products you ask for after seeing in the commercials?" boys' 45.3% and girls' 33.1% replied "yes". There was a statistically significant difference in the responses of "yes" according to gender ($p = 0.001$).

A rather statistically significant difference have been found out between the consumption of at least one commercial product per day and the television watching hours / periods at the weekends ($p < 0.01$). The students watching TV more than 6 hours at the weekends had a significantly higher rate of consuming at least one commercial product per day than those not watching TV, viewing 1-3 hours or viewing for 3-6 hours.

No statistically crucial difference was found ($p = 0.080$) comparing at least one commercial product consumption per day and the time spent by the participants watching television on weekdays.

The participant of the study were asked to answer whether the teachers were talking about healthy eating during the school lessons or not. Of them 604 (81%) answered "yes, they are talking". Then the students were asked if they were careful to eat healthy for themselves or not. Of them 46.2% answered "yes". Of the students 49% who said their teachers were talking about healthy eating in the lessons answered positively in this question. When it comes to those participants of the current study claiming that "we are not taught to be careful with our eating habits and improve it in a healthier way in our classrooms", 41% of them have stated that they are already careful with their eating habits. Upon these questions and answers, it has been discovered that there is a quite curial difference between these two parties claiming that "they are taught about eating healthy" and "they are not taught about eating healthy in the classes" statistically. ($p=0.002$).

When checked whether the nutritional rules played any roles for the families to determine their children's diet or not, it came out that there was no statistically significant difference between the participants who ranked "yes" to this question and the children who ranked "no". Among those participants thinking that they do not have nutritional rules, 40.6% of them think that "they are paying attention to the choice of healthy nutrition".

When the daily consumption of at least one commercial food was checked in light of no nutritional rules in the family, no statistically crucial differences were found out in the results ($p = 0.881$). Of the children, 65,4% who stated that there were nutritional rules in the family and 64,9% of those with no nutrition rules in the family consumed a kind of food / drink as a commercial product at least once a day.

When the daily consumption of at least one commercially advertised product food was investigated depending on the educational status of the students' mothers, the highest consumption (corn-potato chips, chocolate-wafer, hamburger-fried potatoes, fizzy drinks) was found among the children of the university graduate mothers ($p = 0.049$).

In this respect, when it is observed with the fathers of the participants, it was discovered and it is possible to state that as the educational status of the fathers increases, even if not very meaningful statistically, a little bit of increase of the consumption of commercial food is also observed in the end of the analysis. ($p=0,496$).

When the participants of the study were asked whether they have breakfast or not before school, 89,2% of them replied as "yes". A statistical significance was discovered here between having breakfast and the existence of nutritional rules in the family ($p<0, 05$). Although the "having breakfast" status was not statistically significant, it is slightly higher in the students informed about healthy nutritional rules at school.

DISCUSSION

Immediately after the analysis of the statistical data gathered from the participants by means of SPSS 22.0 for Windows software (SPSS Inc., Chicago, IL, USA), it might be stated that

most of the participants of the current study watch TV for 1-3 hours a day both on weekdays (86.7%) and at the weekends (65.5%). These studies carried out on the elementary school students in different regions of our country, the duration of watching TV during the day was found to be in similar ranges as the time we found in our study.^[3-5] Furthermore, Turkey took part in a cross-sectional survey called -"Health Behaviors of School-Aged Children" in 2009-2010, run by a multinational research team cooperating with the World Health Organization and the data of our country were evaluated among 5552 students. Depending on the results of this very current research, it is possible to state that the majority of the children in our country spend at least two or three hours watching TV a day or on the computers.^[6] Such similar results have been obtained from the foreign studies carried out on this subject. In a study conducted in the USA, it is discovered and reported that the children and adolescents spend an average of 3 hours and 19 minutes watching TV per day in 2005.^[7] Another study reported that the children between 2 to 11 years spend an average of 3 hours a day on TV.^[8]

The children taking part in our research have been asked about the programs that they mostly watch on TV, while the boys ranked the commercials in the first order, the girls ranked it in the third. In a survey conducted in our country aiming at evaluating the frequency of the duration of watching commercials on TV by the children, as monitored by their families, 24.2% of them watch the commercials much, 10.1% of them watch excessively.^[9] In another research carried out in our country, it has been reported that the participants, children like watching all commercials; however they are mostly interested in the food commercials and the most recognized advertisements -for both girls and boys- were the food commercials.^[10] It has also been reported in the studies that were carried out on this subject, the food ads mostly occupy the commercials during the children's programs on TV.^[11] This situation may be the reason why the food commercials are the mostly recognized commercials for the children. Even more, there are studies carried out to reveal that a food commercial of 30 seconds embedded in any TV program may change the children's food preferences.^[12] However, it has also been reported that the majority of advertised food products have unhealthy and high sugar, fat or salt ingredients.^[13] Therefore, the food commercials to be broadcasted during the TV programs lead the children to consume excessive amounts of calories by exposing them to unhealthy food choices; which in turn is known to cause these children to be overweight and to have obesity in both childhood and older ages.^[14-24]

In our study, when the daily consumed commercial products by the children were examined, it was discovered that "chocolate / wafer bars" are in the first order, followed by fast foods such as chips, hamburgers and fizzy drinks. Based on the analysis of the study, a direct correlation between the consumption of one commercial food product per day and the time spent watching television, especially at the weekends was seen. When made a comparison between the consumption of at least one commercial product per day and the existence of nutritional rules in the family, it was discovered that the majority of the students claimed the existence of a rule in consuming the commercial products at least once a day, which also led us to think that the parents' nutritional guidelines were inadequate. When we compared the situation of consuming at

least one commercial product food per day with the educational status of the mothers, the highest consumption was found among the university-graduate mothers' children. The same situation was also observed with the fathers of the participants, however as the educational status of the fathers goes up, it was seen that consuming at least one commercial product food per day also increases, which means that it was particularly very high among those who are high school and university graduates ($p > 0.05$).

It is an unavoidable fact that a linear correlation between the educational level of the mothers and their conscious purchasing decision is not always possible to observe. Moreover, the findings of this very current study are in this direction.^[25] The employment of the mother in any job, providing a certain income, might increase the overall purchasing power of the family. Besides, the restricted free time of the mother may increase the consumption of fast-food and dining out.^[26] In another study carried out in our country, the prevalence of the obesity in children has been reported to increase significantly as the education level of the mothers increases.^[13] This could be a reflection of the family's social status since the overall purchasing power of the parents would be better enhanced. When all these reasons taken into consideration, it is obvious that the TV programs and commercials are of a great importance with regard to the nutritional habits of the children.

No obese children were discovered among the participants taking part in this very current study and the case of overweight was detected in a low percentage (3.9%). In the longitudinal studies investigating the relationship between the time spent watching television and obesity, a linear correlation has been reported. Additionally, it has revealed that each additional hour spent with television increases the obesity rate by 2%.^[22,26] There are also some other studies showing that children watching TV more than 4-5 hours/day are considerably heavier than the children who watch less than 2 hours/day.^[15,16,21-24]

The obesity is mostly observed in the first year of life, 5-6 years and puberty. It is a well-known that 42% to 63% of obese school children are detected with the obesity during adulthood.^[23] It is encouraging that the obesity is not detected among the children in this study. In a research done in Ankara has indicated an increase in the frequency of the obesity with the adolescents between the ages of 12-17, according to 6-11 age group of the students in the same school.^[27] The guidance of 11 years old students in this study to healthy nutritional habits through television, family and school will be of great importance to avoid the risk of the obesity.

The majority of the participants taking part in this study were having breakfast before the school, and this was statistically higher in the students from the families with nutritional rules and though not statistically significant, higher in those given nutritional training at school. And this emphasizes the importance of school once again in this respect. Researches indicate that there is an inverse relationship between the frequency of having breakfast at home and the frequency of the obesity.^[28] According to the results of the "Health Behaviours of Children in School" study, more than half of the school-age students in our country were regularly having breakfast on weekdays.^[6]

In Turkey, the protocol for "Nutrition Friendly School Project" was signed between the Ministry of Health and the Ministry of National Education in 2010 and the implementation of the project was started in some schools.^[12]

The schools involved in this research are not among the schools in which the project was implemented because the number of the students was very few in these schools so they were not among the random sampling.

The students were asked if they were specifically informed about the nutrition during the lessons at school and if related rules are set by the teachers or not. Even if not statistically really crucial and meaningful, a low degree of difference of the consumption of at least a kind of commercially advertised product food was observed between those participants who are taught about the healthy food choices and those participants who are not informed about the healthy food preferences.

Depending on this finding, it seems to be possible to state that the school education of the students in this study about the healthy nutrition is more impressive than the rules in the family.

When the participants taking part in this study were asked whether they pay a regular attention to the healthy nutrition preferences or not, approximately half of the overweight students answered as "yes". The declaration of the participants about paying attention to the healthy nutrition preferences was inversely as to the time spent watching TV at the weekends.

Of the children 39% in this study group asked and forced their parents to buy the commercial food products they saw. This situation is higher in the boys than the girls. This is possible to be attributed to the boys being more insistent or to a tendency to offer more opportunities for the boys in our society. In a study investigating the demands of the children for commercial products, it was discovered that 40.3% of children aged 3-8 years asked their parents to buy a commercial product during the shopping. 8.9% of them were very persistent and crying, 13.5% of respondents pointed out and commented on the commercial products and 2.6% did not express any reactions about any commercial products. Interestingly enough, among the findings of this study, it has been reported that these children of the parents discussing with children about the commercially advertised products are much more persistent than the children of the parents not-speaking with children about the products.^[29]

In these and other similar studies carried out in this respect, it is reported that as children grow older, their demands to buy the products that they see on television commercials decreases, and this is related to the fact that the children perceive the ads conceptually better as they grow older.^[26,31,32] Although the students in this study group are relatively older, are in a pre-puberty age group and they said that they do not believe in the commercials, it has been found that their requests for such products are quite high. Considering the children's perception, information assessment and impressionability characteristics, it is also possible to be stated that the commercials directly addressing them will cause to other misleading health behaviors and unnecessary consumption as well as some nutritional errors and malnutrition. In addition to this, malnutrition is also related to the undesirable conditions such as dental caries, low bone density, low psychosocial and mental health, retardation in academic skills and behavioral

problems apart from the risks associated with being overweight and obesity in childhood.^[33,34]

It is known that self-care behaviors involving the food preferences become rather permanent after the age of 10. The students taking part in this study group were at the age of 11 so it is expected that eating behaviors were seated. It is also discovered that they spend 2-3 hours a day watching TV, with the most popular commercials and most of them consume the commercial food products. These behaviors do not differ according to gender.

Taking these into consideration, it is possible to state that school managements and the teachers are responsible at least equally or more than the parents considering the management of the time spent inactively watching TV at home after the school hours from the younger ages. Although it seems pleasant not having obese children among the students of this study, it is an undeniable fact that the frequency of the obesity increases, especially during adolescence, and it is expected that children and adolescents should be physically more active than adults in order to avoid this situation. The level of physical activity in childhood and adolescence can be a determinative factor of the level of physical activity in the adulthood. Thus, the time that children and adolescents spend watching TV becomes even more important. Promoting physical activity to support children and adolescent health is a condition with a special importance both in the family and in the schools. It is supposed to be the priority of health workers to warn and direct school administrations and their families about the reduction of time spent on television and the development of a realistic perspective on the food advertisements.

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