

## Parental Modelling in Child's Nutrition Behaviours and Attitudes

Murat Korkmaz<sup>1</sup>, Ali Serdar Yücel<sup>2</sup>, Çetin Yaman<sup>3</sup>, Gülten Hergüner<sup>4</sup>,  
Fatih Catikkas<sup>5</sup> and Bülent Kilic<sup>6</sup>

<sup>1</sup>*Güven Group Inc., Finance Management*

<sup>2</sup>*Firat University Faculty of Sports Sciences, Elazığ, Turkey*

<sup>3</sup>*Sakarya University School of Physical Training and Sports, Sakarya, Turkey*

<sup>4</sup>*Sakarya University School of Physical Training and Sports, Sakarya, Turkey*

<sup>5</sup>*Celal Bayar University School of Physical Training and Sports, Manisa, Turkey*

<sup>6</sup>*Orthopaedist, Tekirdağ, Turkey*

*E-mail: alsetu\_23@hotmail.com*

**KEYWORDS** Eating Habits. Health. Nutrition. Parent. Psychology. Obesity

**ABSTRACT** While there are many factors influencing obesity, it can be said that the risk of obesity in children is increased by the nutrition behaviours and attitudes of parents as well as negative relationships within the family. In this regard, the aim of this study is to identify obesity and eating habits of children, parents' attitudes for such behaviours, and factors influencing nutrition. A questionnaire with 4 parts was administered to the parents of 650 children. Non-parametric and parametric statistical tests were applied on the collected data. At the end of the study, it was found that child nutrition is influenced by psychological and environmental factors, and that the child's attitudes for healthy nutrition are influenced by the age and gender in children as well as the age, gender, the number of children, and education in parents. Furthermore, it was found that the behaviours of parents that influence the child's nutrition include especially following the nutrition habits of the child, preventing the child to consume hazardous foods and guiding the child in nutrition.

### INTRODUCTION

Obesity is a critical health problem that develops as a result of environmental, genetic and neurological factors and may cause many chronic diseases (Altunkaynak and Özbek 2006: 138). In recent years, obesity has become a crucial health problem for children as well as adults (Süzek and Ari 2010: 22). Childhood obesity is ever increasing around the world, including low and middle income countries (World Health Organization 2012). Obesity is a global problem concerning public health. In MONIC a research conducted for 12 years by WHO in 6 different parts of Asia, Africa and Europe, it was found that obesity prevalence has increased by 10-30 percent in 10 years (cited from Molarius et al. 1999: Turkey Obesity Control Program 2010).

As in other developing countries, obesity has become widespread in Turkey (Süzek and Ari 2010: 22) and children experience obesity as a result of imbalanced and unconscious nutrition (Karacabey 2009). Moreover, it is closely related to urbanization, family income, education and other socio-economic factors. Chronic diseases caused by obesity are the main reason of deaths (Süzek and Ari 2010: 22). Obesity prevalence has

been increasing in all age groups. Childhood obesity has an increasing prevalence all around the world, especially including developed countries (Gürel and Inan 2001).

Eating habits can vary from society to society and from country to country. Becoming aware of such changes in nutrition, and identifying their relationships with economical and socio-demographic factors and health will contribute considerably to understanding the reasons and results of eating habits (Köksal 1995).

Nutrition during infancy influences the child's nutrition in subsequent years (Parlak and Çetinkaya 2007). One of the most common reasons of obesity is the idea that healthy nutrition means eating only three complete meals a day. Moreover, such factors as death of a relative, severe disease, stress or mental depression and so on are among the reasons to gain weight. Eating is seen as a relief to avoid tension (Guyton and Hall 2001).

There are many reasons influencing obesity. With the impact of environmental factors beginning from childhood; consuming plenty amounts of energising foods, increasing the out-of-home consumption of meals, and inactivity are factors that increase the development of obesity. Activ-

ity and eating habits especially continuing in adulthood play an important role in childhood obesity (Klesges et al. 1991; cited from Birch and Davison 2001; Camci 2010). Eating habits of parents are nutrition models for the child. The degree of parents' physical activity also influences the activity of children. Children with inactive parents have a high chance to become inactive (Köksal and Özel 2008: 11).

It is acknowledged that there is a relationship between obesity and psychological factors. Negative relationships between the mother, father and child can damage the mental structure of children and cause excessive eating (Babaoglu and Hatun 2002). Furthermore, the children of working mothers, who prepare for themselves, are also under the risk of obesity. Regulating and improving the nutrition of school-age children should become a national policy including the training of parents and community (cited from Aköz et al. 2007; Menten et al. 2011: 965).

Healthy nutrition is possible by creating a process in which child and parent actively participate, parent decides for the child which food, where and when to eat and the child determines how much to eat (Yilmazbas and Gökçay 2013), namely by forming a relation between infant and parent in which verbal and non-verbal signs are received and interpreted. Development of mutual trust and commitment is in question in this relation. An infant not receiving a response from the parent, not reacting to the parent or not responding to the efforts of the parent experiences problems about sleep, nutrition or game hours. A parent not understanding the reactions of infant well (being hungry-full), not following the infant's emotions feeds the infant more or less (Hergüner and Gökçay 2007; Livingstone 1997).

Some of the previous research indicated that parents' way of nourishing children is related to the weight of children (Yeley 2003). The idea that obese infants are healthier and rewarding with foods is a good reinforcement increases severely the risk of obesity in children (Baughcum et al. 1998).

Interaction between the parent and child and surrounding environment influence obesity-related behaviours (Ebbeling et al. 2002). Family environment of the child influence many factors from food selection to development, from regular eating to diet and activity types. It also influences directly the weight of individual during childhood and adolescence (Nicklas et al. 2001).

These factors are important in that they influence diet and retain beginning from early years (Laing 2002). If the mother or father is choosy in eating and behaves queasily around food (if the child is continuously warned about not to spill the meal over herself/himself and not to spatter around), it becomes hard for the child to develop positive habits (Merdol 2008).

Nutritional habits of children are affected from various attributes of the family, social and cultural factors, economic situation, media and teacher factors (Osmanoglu 2011:106-110). In their study, Strauss and Knight argued that independent from demographic and socio-economic factors, children of obese mothers with low income and low cognitive stimulus have a higher risk of obesity. Strauss and Knight pointed out that future efforts for the prevention of childhood obesity should include adult education programs so that parents and surrounding environment can be influenced to reach children (cited from Strauss and Knight 1999; Camci 2010). Educational background of the mother and being in employment positively affects the infant and child nutrition as independent from the knowledge regarding the child nutrition. Types of strict nutrition not considering the inner dynamic of the child causes loss of appetite in children. Domestic problems, being stubborn and oral-motor problems of muscle development also cause problems in children as to starting complementary foods (Gökçay and Garipoglu 2002).

While there are many factors in the development of healthy nutrition behaviours, it is known that the most important effective group is socio-economic status. Social and economic indicators including education level, income level, and occupation influence nutrition facilities and behaviours, and subsequently health condition. While behaviours causing obesity include especially excessive nutrition, malnutrition and insufficient physical activity (cited from Peterson et al. 2007; Ministry of Health, Preliminary Report 2013), there are also wealth and social conditions such as increased marketing of out-of home convenience food called "fast food" and easy access to this type of food, and spread of sedentary form of entertainment including watching television and video and playing computer games (French et al. 2009).

If individuals taking care of and feeding the child pays attention to appropriate nutritional behaviors, this will be important in prevention of

negative nutritional behaviors in the child (Gökçay and Garipoglu 2002). According to Hamberlin et al. parents use foods as a mechanism to deal with their children (Hamberlin et al. 2002). Some families often use foods to strengthen the appropriate behaviours of their children. Apart from this, there are mother who use foods as bribe to calm down "cry-baby", relieve tantrum or improve good behaviours. Another case is to present sweets as reward in order to control child's behaviours. As a result, hypotheses are developed to support that such a way of nourishing children will cause problems in the perception of hunger or fullness signals (Baughcum et al. 2000).

Experimental research studies show that parents tend to control children's diet by limiting their access to food, increasing pressure on eating, and observing strictly the child's nutrition (cited from Camci 2010). Families influence the eating habits of children not only through the food they make available but also child nourishing strategies (such as telling the child what and how much to eat, finishing up the dish, and so on) (Golan and Weizman 2001).

While concerned and limitative attitudes of families cause children to have guilt, anxiety and limitation on their eating habits, scholars suggest that although excessive intervention by families is motivating for children, it may have negative influences on their development (cited from Camci 2010).

Therefore, children should be kept under supervision while eating their meals. Children shouldn't be warned about food at all while they are eating, the required warnings must be made before or after the meal. Stinging and offending words shouldn't be told to children when they don't eat. They shouldn't be punished about meal. While giving information or asking a question to mothers about the nutrition of children, it should be paid attention that the child is not there (Merdol 2008).

Another misbelief that parents have is that obesity passes to the child from family. The idea that the child will become like his/her mother/father or relatives decreases the chance to see this case as a disease (Davis et al. 2000). Families' attitudes for nutrition influence obesity. High prevalence of children adopted by obese families to become obese is a finding as evidence to the impact of family environment (cited from Tezcan 2009).

Many scholars acknowledge the need to develop a model in order to ensure that families

provide healthy types of food to their children, to create a balanced nutrition environment, or to gain healthy eating habits (cited from Camci 2010). Parents and teachers, as adults, should eat together with children, give information to them about the meal rules and set an example. Children should be taught to wash their hands before and after the meal, to wipe mouth and hands with napkin, to clean up the plate, to close the mouth while eating, to make a request if s/he wants something on the table and how to hold spoon and fork etc. (Cited from Yilmaz 1999 by Özyürek et al. 2013).

Obesity and psychological factors should not be considered as being separate from each other. Reasons such as negative relationships within the family, parent living apart, and negative behaviours and attitudes can have negative implications on the mental health of children. Such cases can also result in negative developments in their social environment, and they may become isolated, which may cause the child to increase eating behaviours and ultimately obesity. The fact that obesity has become widespread as a critical problem accelerated works for obesity control and research on this issue around the world and Turkey.

## MATERIAL AND METHODS

The aim of this study is to identify obesity and eating habits of children as well as parents' attitudes to such behaviours. To this end, a questionnaire with 4 parts was administrated to the parents of 650 children. The questionnaire used in this study was adapted from the one having been used in a Master's thesis at the Graduate School of Health at Baskent University in 2010. Another part covering the psychological factors was added to the questionnaire, which is the Turkish version of the Child Feeding Questionnaire (CFQ) scale, and it was subject to a pre-test. While preparing the psychological questions, its applicability for both parents and children was evaluated by experts, and it was decided that implementation would not cause any problems. Questions were asked to identify demographic characteristics of the participant parent in the first part of the questionnaire, demographic characteristics of the given child in the second part, the parent's behaviours and attitudes for his/her child's eating behaviours, and the mood of the participant during the given period in the fourth part. Non-parametric and parametric statistical tests were applied on the col-

lected data. At the end of the reliability analysis, it can be said that given Alpha = 0.790, 93 items have a high level of reliability.

For analysis; descriptive statistics, reliability analysis, independent sampling t-test, ANOVA factor analysis and Regression analysis were used. PASW 18.0 package program was used to analyze data obtained from the research. A significant level of 0.05 was taken as basis for the relationship and difference between variables.

## RESULTS

When we look at the demographic statistics of the participants; 2 percent are aged between 18-25; 13 percent, 26-30; 17 percent, 31-35; 34 percent, 36-40; 18 percent, 41-50; and 16 percent, over 50. While 59 percent of them are female, 41 percent are male. 32 percent have one child, 44 percent two, 16 percent three, 7 percent four, and 2 percent more than four. While 2 percent qualify themselves as literate, 13 percent graduated from primary school, 18 percent, high school; 10 percent, college; 41 percent, university; 17 percent, Master's and Doctorate. A total of 20 percent of the participants are academicians, 41 percent, civil servants; 3 percent, retired; 2 percent, workers; and 34 percent have other occupations (Table 1).

Participants were asked to state their opinions on body weight and index. According to

**Table 1: Demographic statistics of participants by age, gender, education and the number of children**

| Variables              | N                    | %   |    |
|------------------------|----------------------|-----|----|
| Age                    | 18-25                | 11  | 2  |
|                        | 26-30                | 84  | 13 |
|                        | 31-35                | 112 | 17 |
|                        | 36-40                | 223 | 34 |
|                        | 41-50                | 115 | 18 |
| Gender                 | 50 and over          | 105 | 16 |
|                        | Female               | 385 | 59 |
| The Number of Children | Male                 | 265 | 41 |
|                        | 1                    | 208 | 32 |
|                        | 2                    | 284 | 44 |
|                        | 3                    | 104 | 16 |
| Education level        | 4                    | 44  | 7  |
|                        | Over 4               | 10  | 2  |
|                        | Literate             | 11  | 2  |
|                        | Primary school       | 84  | 13 |
|                        | High school          | 115 | 18 |
| Occupation             | College              | 64  | 10 |
|                        | University           | 264 | 41 |
|                        | Master's - Doctorate | 112 | 17 |
|                        | Academician          | 132 | 20 |
|                        | Civil servant        | 265 | 41 |
|                        | Retired              | 22  | 3  |
| Worker                 | 10                   | 2   |    |
| Other                  | 221                  | 34  |    |

the results obtained; while 18 percent weigh between 51-60 kilograms, 15 percent, 61-65; 11 percent, 66-70; 20 percent, 71-75; 8 percent, 76-80; 19 percent, 81-90; 6 percent, 91-95; and 3 percent over 100. Of the population, 14 percent have a length of 150-160 cm, 31 percent, 161-168 cm; 35 percent, 169-175 cm; 16 percent, 176-180 cm; 3 percent, 181-190 cm. Results revealed that 3 percent are quite skinny, 10 percent, skinny; 52 percent, normal; 26 percent, overweight; 9 percent, obese. While the rate of those who stated that their ideal weight is between 40-50kg is 5 percent, 25 percent stated 51-60kg, 28 percent stated 61-70kg, 23 percent stated 70-75kg, 17 percent stated 76-80kg, and 3 percent stated 81-85kg. While 62 percent think of gaining/losing, 38 percent do not do so. While 40 percent are thought to be overweight by others, 60 percent are not thought to be so. While 53 percent have attempted to lose weight at least once, 47 percent have not done so (Table 2).

**Table 2: Demographic characteristics of participants by weight and length**

| Variables                                 | N            | %       |    |
|---|--------------|---------|----|
| Weight                                    | 51-60        | 114     | 18 |
|   | 61-65        | 95      | 15 |
|   | 66-70        | 74      | 11 |
|   | 71-75        | 128     | 20 |
|   | 76-80        | 52      | 8  |
|   | 81-90        | 125     | 19 |
|   | 91-95        | 42      | 6  |
|   | 100 and over | 20      | 3  |
|   | Length       | 150-160 | 91 |
| 161-168                                   |              | 201     | 31 |
| 169-175                                   |              | 230     | 35 |
| 176-180                                   |              | 107     | 16 |
| 181-190                                   |              | 21      | 3  |
| What do You Think of Your Weight?         | Skinny       | 21      | 3  |
|   | Slim         | 64      | 10 |
| What is Your Ideal Weight?                | Normal       | 336     | 52 |
|   | Overweight   | 169     | 26 |
| Do You Think of Gaining or Losing Weight? | Obese        | 60      | 9  |
|   | 40-50        | 30      | 5  |
| Are You Told to be Overweight by Others?  | 51-60        | 165     | 25 |
|   | 61-70        | 179     | 28 |
|   | 71-75        | 147     | 23 |
|   | 76-80        | 108     | 17 |
|   | 81-85        | 21      | 3  |
| Have You Ever Attempted to Lose Weight?   | Yes          | 406     | 62 |
|   | No           | 244     | 38 |
| Are You Told to be Overweight by Others?  | Yes          | 260     | 40 |
|   | No           | 390     | 60 |
| Have You Ever Attempted to Lose Weight?   | Yes          | 347     | 53 |
|   | No           | 303     | 47 |

When we look at the weight habits of the participants; in order to gain or lose weight in a month, while 53 percent consumed less food, 13 percent consumed less fat, 5 percent consumed less calories, 20 percent did exercise, 5 percent used weight-loss pills, and 3 percent did not consume food after 20:30. Of the population, 71 percent did not consume any vitamin, mineral or other supplements, 16 percent consumed these less than two times a week, 10 percent consumed these two to four times a week, and 3 percent consumed these five to seven times a week. While 31 percent smoke, 69 percent do not smoke. While 21 percent of those who smoke consume 1 to 5 cigarettes a day, 27 percent 6 to 10, 21 percent 11 to 15, 21 percent 16 to 20, 5 percent 21 to 30, 5 percent over 50. Of the population, 21 percent consume cigarette since it pre-

**Table 3: Statistics of participants by their weight habits**

| Items  | F   | %  |
|--|-----|----|
| <i>What Did You do to Gain or Lose Weight in the Last Month?</i>                         |     |    |
| Consumed less food   | 342 | 53 |
| Consumed less fat  | 86  | 13 |
| Consumed less calories   | 31  | 5  |
| Consumed less calories   | 11  | 2  |
| Did exercise   | 128 | 20 |
| Used weight-loss pills   | 31  | 5  |
| Did not consume food after 20:30   | 21  | 3  |
| <i>How Many Times a Week do You Consume Vitamin, Mineral or Other Supplements?</i>       |     |    |
| Never  | 460 | 71 |
| Less than 2 times  | 106 | 16 |
| 2-4 times  | 62  | 10 |
| 5-7 times  | 22  | 3  |
| <i>Do You Smoke?</i>   |     |    |
| Yes  | 201 | 31 |
| No   | 449 | 69 |
| <i>How Many Cigarettes do You Consume a Day?</i>   |     |    |
| 1-5  | 42  | 21 |
| 6-10   | 54  | 27 |
| 11-15  | 42  | 21 |
| 16-20  | 43  | 21 |
| 21-30  | 10  | 5  |
| 50 and over  | 10  | 5  |
| <i>I Consume Cigarette Since it Prevents Gaining Weight</i>                              |     |    |
| Yes  | 73  | 11 |
| No   | 577 | 89 |
| <i>How Often Do You Consume Alcohol</i>  |     |    |
| Everyday   | 33  | 45 |
| No specific period   | 20  | 27 |
| Not frequently/seldom  | 20  | 27 |
| <i>Could You Describe Your Activity Level Compared to Other Individuals at Your Age?</i> |     |    |
| More active  | 314 | 48 |
| At the same level  | 233 | 36 |
| Less active  | 103 | 16 |
| <i>Do You do Exercise Regularly?</i>   |     |    |
| Yes  | 107 | 16 |
| No   | 543 | 84 |

vents gaining weight while 11 percent consume alcohol. While 45 percent of those who consume alcohol drink every day, 27 percent stated that there is no specific period, 27 percent stated that they do not drink frequently. 48 percent stated that they have an active life compared to peers, 36 percent stated that they are at the same level, 16 percent stated that they are more active. While 16 percent exercise regularly, 84 percent do not exercise (Table 3).

When we look at the characteristics of children of the participants; 37 percent are aged between 3-8, 24 percent 9-10, 20 percent 11-15, 3 percent 16-18, and 14 percent over 18. Of the population, 49 percent are girls, and 51 percent, boys. Also, 20 percent weigh 10-20 kilograms, 16 percent, 16-20kg; 13 percent, 21-25kg; 8 percent,

**Table 4: Statistics of the characteristics of children of the parents included in the study**

| Items   | F   | %   |
|---|-----|-----|
| <i>Age</i>  |     |     |
| 3-8   | 243 | 37  |
| 9-10  | 159 | 24  |
| 11-15   | 133 | 20  |
| 16-18   | 21  | 3   |
| Over 18   | 94  | 14  |
| <i>Gender</i>   |     |     |
| Girl  | 316 | 49  |
| Boy   | 334 | 51  |
| <i>Weight</i>   |     |     |
| 10-15   | 127 | 20  |
| 16-20   | 105 | 16  |
| 21-25   | 85  | 13  |
| 26-30   | 54  | 8   |
| 31-40   | 84  | 13  |
| 41-50   | 51  | 8   |
| 51-60   | 60  | 9   |
| 61-70   | 63  | 10  |
| 71-80   | 10  | 2   |
| 81-90   | 11  | 2   |
| <i>Length</i>   |     |     |
| 80-100 cm   | 105 | 16  |
| 101-120 cm  | 127 | 20  |
| 121-130 cm  | 74  | 11  |
| 131-140 cm  | 75  | 12  |
| 141-150 cm  | 43  | 7   |
| 151-160 cm  | 51  | 8   |
| 161-170 cm  | 81  | 12  |
| 171-180 cm  | 62  | 10  |
| 181-190 cm  | 22  | 3   |
| 190 cm and over   | 10  | 2   |
| <i>Does S/He Have A Natal or Metabolic Disease Such as "Heart, Cystic, Fibrosis, Phenylketonuria"</i> |     |     |
| No  | 650 | 100 |
| <i>Does S/He Follow a Specific Nutrition Schedule or Diet?</i>  |     |     |
| Yes   | 21  | 3   |
| <i>Is There a Drug S/He Uses Regularly?</i>   |     |     |
| No  | 629 | 97  |

**Table 5: Factor loads of the scale**

| Items   | Component |      |      |
|---|-----------|------|------|
|   | 1         | 2    | 3    |
| 3. When I punish my child, s/he changes eating behaviours.  | .904      |      |      |
| 2. If my child is angry and feels under psychological pressure, s/he consumes more food.  | .781      |      |      |
| 12. I believe that my child should definitely receive psychological help as well as seeing a nutritionist to ensure healthy nutrition.                              | .588      |      |      |
| 13. I think that sweets cause psychological addiction.  | .467      |      |      |
| 10. If I follow my child for healthy nutrition, this causes unconfidence in him/her.  |           | .692 |      |
| 1. If I put pressure on my child, s/he changes eating behaviours.   |           | .597 |      |
| 11. I think that the psychological condition of my child in terms of eating is influenced negatively by the environment and relationships with surrounding people.  |           | .561 |      |
| 6-. Eating and drinking advertisements on television and audiovisual aids influence negatively the psychological habits of my child for eating.                     |           | .522 |      |
| 8. I think that there are psychological problems behind the eating behaviours of my child.  |           | .510 |      |
| 14. I believe that adding statements on some unhealthy foods and drinks about their inconvenience for the health will be useful psychologically for the individual. |           | .394 |      |
| 9. I observe that when I change the nutrition habit of my child or want him/her to eat healthier foods, s/he loses respect for me.                                  |           |      | .745 |
| 7. When I attempt to replace the foods that my child likes with the ones that are healthier, this causes inconveniences in his/her attitude to me.                  |           |      | .614 |
| 4. When I hide the foods my child likes to eat most, this causes violence and aggressiveness in his/her attitudes to me.  |           |      | .474 |
| 5. If I eat or drink something while my child is not with me, s/he gets a feeling that I do not like him/her.   |           |      | .451 |

26-30kg; 13 percent, 31-40kg; 8 percent, 41-50kg; 9 percent, 51-60kg; 10 percent, 61-70kg; 2 percent, 71-80kg; and 2 percent, 81-90kg. Also, 16 percent have a length of 80-100 cm, 20 percent, 101-120 cm; 11 percent, 121-130 cm; 12 percent, 131-140 cm; 7 percent, 141-150 cm; 8 percent, 151-160 cm; 12 percent, 161-170 cm; 10 percent, 171-180 cm; 3 percent, 181-190 cm; and 2 percent over 190 cm. None of the children of the parents who participated in the study has a natal or metabolic disease to impact growth or food consume. While 3percent of them use drugs regularly, 97 percent do not use drugs (Table 4).

### Factor Analysis

Fourteen questions with scale intended to explain the factors that influence psychologically the nutrition behaviours of the children of the participants were subjected to factor analysis, in order to be used for further analysis. As a result

**Table 6: Factors and item groups**

| Item group (variables)                    | Factor name |
|---|-------------|
| Psychological factors in child nutrition  | Factor 1    |
| Environmental factors in child nutrition  | Factor 2    |
| Child's attitude toward healthy nutrition | Factor 3    |

of the factor analysis, 14 questions were reduced to 3 different aspects. Below are these aspects (Tables 5 and 6).

### *H1: Factors Do Not Differ According to the Age of Children Included in This Study*

When the factors obtained according to the age of children included in this study are analyzed, it is seen that Sig. Tail probability values are lower than 0.05. Thus, H0 hypothesis for these factors will be rejected. The age of children plays a role in the psychological and environmental factors of child nutrition as well as their attitudes toward healthy nutrition (Table 7).

### *H2: Factors Do Not Differ According to the Gender of Children Included in This Study*

When the factors obtained according to the gender of children included in this study are analyzed, it is seen that Sig. Tail probability values are lower than 0.05 for numbers 1. and 3. factors. Thus, H0 hypothesis for these factors will be rejected. The age of children plays a role in the psychological factors of child nutrition as well as their attitudes toward healthy nutrition (Table 8).

**Table 7: Anova test of the psychological and environmental factors in child nutrition as well as nutrition attitudes by age variable**

| Factors                                   |                | Sum of squares | Df  | Mean squares | F      | Sig. |
|---|----------------|----------------|-----|--------------|--------|------|
| Psychological Factors in Child Nutrition  | Between groups | 47.226         | 4   | 11.807       | 12.655 | .000 |
|   | Within groups  | 601.774        | 645 | .933         |        |      |
|   | Total          | 649.000        | 649 |              |        |      |
| Environmental Factors in Child Nutrition  | Between groups | 17.392         | 4   | 4.348        | 4.440  | .002 |
|   | Within groups  | 631.608        | 645 | .979         |        |      |
|   | Total          | 649.000        | 649 |              |        |      |
| Child's Attitude Toward Healthy Nutrition | Between groups | 27.136         | 4   | 6.784        | 7.036  | .000 |
|   | Within groups  | 621.864        | 645 | .964         |        |      |
|   | Total          | 649.000        | 649 |              |        |      |

**Table 8: Anova test of the psychological and environmental factors in child nutrition as well as nutrition attitudes by gender variable**

| Factors                                   |                             | Levene's Test for Equality of Variances |      | t-test for Equality of Means |         |                 |                 |            |
|---|-----------------------------|---|------|------------------------------|---------|-----------------|-----------------|------------|
|   |                             | F                                       | Sig. | T                            | Df      | Sig. (2-tailed) | Mean difference | Std. error |
| Psychological Factors in Child Nutrition  | Equal variances assumed     | 19.364                                  | .000 | -1.517                       | 648     | .130            | -.11890207      | .07839806  |
|   | Equal variances not assumed |   |      | -1.522                       | 645.127 | .129            | -.11890207      | .07813353  |
| Environmental Factors in Child Nutrition  | Equal variances assumed     | .076                                    | .783 | 4.109                        | 648     | .000            | .31861770       | .07753329  |
|   | Equal variances not assumed |   |      | 4.108                        | 645.001 | .000            | .31861770       | .07756060  |
| Child's Attitude Toward Healthy Nutrition | Equal variances assumed     | 6.377                                   | .012 | -2.111                       | 648     | .035            | -.16523493      | .07826838  |
|   | Equal variances not assumed |   |      | -2.099                       | 606.025 | .036            | -.16523493      | .07872333  |

**Table 9: Anova test of the psychological and environmental factors in child nutrition as well as nutrition attitudes by the age of parents variable**

| Factors                                   |                | Sum of squares | Df  | Mean squares | F      | Sig. |
|---|----------------|----------------|-----|--------------|--------|------|
| Psychological Factors in Child Nutrition  | Between groups | 81.506         | 5   | 16.301       | 18.499 | .000 |
|   | Within groups  | 567.494        | 644 | .881         |        |      |
|   | Total          | 649.000        | 649 |              |        |      |
| Environmental Factors in Child Nutrition  | Between groups | 43.988         | 5   | 8.798        | 9.365  | .000 |
|   | Within groups  | 605.012        | 644 | .939         |        |      |
|   | Total          | 649.000        | 649 |              |        |      |
| Child's Attitude Toward Healthy Nutrition | Between groups | 45.450         | 5   | 9.090        | 9.699  | .000 |
|   | Within groups  | 603.550        | 644 | .937         |        |      |
|   | Total          | 649.000        | 649 |              |        |      |

**H3: Factors Do Not Differ According to the Age of Participants**

When the factors obtained according to the age of participants are analyzed, it is seen that Sig. Tail probability values are lower than 0.05. Thus, H0 hypothesis for these factors will be rejected. The age of participants plays a role in the

psychological and environmental factors of child nutrition as well as their attitudes toward healthy nutrition (Table 9).

**H4: Factors Do Not Differ According to the Gender of Participants**

When the factors obtained according to the gender of participants are analyzed, it is seen

**Table 10: Anova test of the psychological and environmental factors in child nutrition as well as nutrition attitudes by the gender of parents variable**

| Factors                                   |                | Sum of squares | Df  | Mean squares | F      | Sig. |
|---|----------------|----------------|-----|--------------|--------|------|
| Psychological Factors in Child Nutrition  | Between groups | 54.937         | 1   | 54.937       | 59.925 | .000 |
|   | Within groups  | 594.063        | 648 | .917         |        |      |
|   | Total          | 649.000        | 649 |              |        |      |
| Environmental Factors in Child Nutrition  | Between groups | .829           | 1   | .829         | .829   | .363 |
|   | Within groups  | 648.171        | 648 | 1.000        |        |      |
|   | Total          | 649.000        | 649 |              |        |      |
| Child's Attitude Toward Healthy Nutrition | Between groups | 9.929          | 1   | 9.929        | 10.067 | .002 |
|   | Within groups  | 639.071        | 648 | .986         |        |      |
|   | Total          | 649.000        | 649 |              |        |      |

**Table 11: Anova test of the psychological and environmental factors in child nutrition as well as nutrition attitudes by the number of children of participants variable**

| Factors                                   |                | Sum of squares | Df  | Mean squares | F      | Sig. |
|---|----------------|----------------|-----|--------------|--------|------|
| Psychological Factors in Child Nutrition  | Between groups | 22.198         | 4   | 5.549        | 5.711  | .000 |
|   | Within groups  | 626.802        | 645 | .972         |        |      |
|   | Total          | 649.000        | 649 |              |        |      |
| Environmental Factors in Child Nutrition  | Between groups | 41.955         | 4   | 10.489       | 11.145 | .000 |
|   | Within groups  | 607.045        | 645 | .941         |        |      |
|   | Total          | 649.000        | 649 |              |        |      |
| Child's Attitude Toward Healthy Nutrition | Between groups | 45.513         | 4   | 11.378       | 12.161 | .000 |
|   | Within groups  | 603.487        | 645 | .936         |        |      |
|   | Total          | 649.000        | 649 |              |        |      |

**Table 12: Anova test of the psychological and environmental factors in child nutrition as well as nutrition attitudes by the education level of participants variable**

| Factors                                   |                | Sum of squares | Df  | Mean squares | F      | Sig. |
|---|----------------|----------------|-----|--------------|--------|------|
| Psychological Factors in Child Nutrition  | Between groups | 83.566         | 5   | 16.713       | 19.036 | .000 |
|   | Within groups  | 565.434        | 644 | .878         |        |      |
|   | Total          | 649.000        | 649 |              |        |      |
| Environmental Factors in Child Nutrition  | Between groups | 17.615         | 5   | 3.523        | 3.593  | .003 |
|   | Within groups  | 631.385        | 644 | .980         |        |      |
|   | Total          | 649.000        | 649 |              |        |      |
| Child's Attitude Toward Healthy Nutrition | Between groups | 46.094         | 5   | 9.219        | 9.847  | .000 |
|   | Within groups  | 602.906        | 644 | .936         |        |      |
|   | Total          | 649.000        | 649 |              |        |      |

that Sig. Tail probability values are lower than 0.05 for numbers 1. and 3. factors. Thus, H0 hypothesis for these factors will be rejected. The gender of participants plays a role in the psychological and environmental factors of child nutrition as well as their attitudes toward healthy nutrition (Table 10).

##### **H5: Factors Do Not Differ According to the Number of Children the Participants Have**

When the factors obtained according to the number of children the participants have are ana-

lyzed, it is seen that Sig. Tail probability values are lower than 0.05 for all factors. Thus, H0 hypothesis for these factors will be rejected. The number of children the participants have plays a role in the psychological and environmental factors of child nutrition as well as their attitudes toward healthy nutrition (Table 11).

##### **H6: Factors Do Not Differ According to the Education Level of Participants**

When the factors obtained according to the education level of participants are analyzed, it is

**Table 13: Regression analysis of the psychological factors in deciding child nutrition by the responsibility level of participants**

| <i>Model</i> |   | <i>Unstandardized coefficients</i> | <i>Standardized coefficients</i> | <i>T</i> | <i>Sig.</i> |             |
|--------------|---|------------------------------------|----------------------------------|----------|-------------|-------------|
|              |   | <i>B</i>                           | <i>Std. error</i>                |          |             | <i>Beta</i> |
| 1            | 1- How often do you feel responsible to nourish your child when s/he is at home?                | -.223                              | .030                             | -.895    | -7.426      | .000        |
|              | 2- How often do you feel responsible while deciding the size of the portion your child eats?    | .252                               | .033                             | .930     | 7.716       | .000        |
| 2            | 1- How often do you feel responsible to nourish your child when s/he is at home?                | -.136                              | .037                             | -.547    | -3.704      | .000        |
|              | 2- How often do you feel responsible while deciding the size of the portion your child eats?    | .324                               | .037                             | 1.195    | 8.752       | .000        |
|              | 3- How often do you feel responsible while deciding whether your child consumes the right food? | -.148                              | .037                             | -.623    | -3.978      | .000        |

**Table 14: Regression analysis of the environmental factors in deciding child nutrition by the responsibility level of participants**

| <i>Model</i> |   | <i>Unstandardized coefficients</i> | <i>Standardized coefficients</i> | <i>T</i> | <i>Sig.</i> |             |
|--------------|---|------------------------------------|----------------------------------|----------|-------------|-------------|
|              |   | <i>B</i>                           | <i>Std. error</i>                |          |             | <i>Beta</i> |
| 1            | 2- How often do you feel responsible while deciding the size of the portion your child eats?    | .076                               | .036                             | .279     | 2.101       | .036        |
|              | 3- How often do you feel responsible while deciding whether your child consumes the right food? | -.065                              | .032                             | -.274    | -2.063      | .039        |

**Table 15: Regression analysis of the child's attitude toward healthy nutrition factor by the responsibility level of participants**

| <i>Model</i> |   | <i>Unstandardized coefficients</i> | <i>Standardized coefficients</i> | <i>T</i> | <i>Sig.</i> |             |
|--------------|---|------------------------------------|----------------------------------|----------|-------------|-------------|
|              |   | <i>B</i>                           | <i>Std. error</i>                |          |             | <i>Beta</i> |
| 1            | 1- How often do you feel responsible to nourish your child when s/he is at home?                | -.100                              | .031                             | -.400    | -3.209      | .001        |
|              | 2- How often do you feel responsible while deciding the size of the portion your child eats?    | .118                               | .034                             | .434     | 3.478       | .001        |
| 2            | 1- How often do you feel responsible to nourish your child when s/he is at home?                | -.112                              | .039                             | -.449    | -2.903      | .004        |
|              | 2- How often do you feel responsible while deciding the size of the portion your child eats?    | .108                               | .039                             | .396     | 2.772       | .006        |
|              | 3- How often do you feel responsible while deciding whether your child consumes the right food? | .021                               | .039                             | .088     | .537        | .592        |

**Table 16: Factor analysis of the scale questions regarding the follow-up of the healthy or unhealthy foods the children of participants consume**

| Items | Component  | 1    | 2    | 3    | 4     |
|-------|--|------|------|------|-------|
| 13-   | How often do you follow the sweets such as “candy, ice cream, cake and so on” your child consumes?                 | .865 |      |      |       |
| 14-   | How often do you follow the snacks such as “chips, doritos, and so on” your child consumes?                        | .831 |      |      |       |
| 15-   | How often do you follow the excessive foods your child consumes?   | .757 |      |      |       |
| 12-   | If I do not arrange my child’s foods or guide him/her, s/he will eat less than necessary.                          | .606 |      |      |       |
| 2-    | I have to ensure that my child does not eat excessively fatty foods.   |      | .784 |      |       |
| 3-    | I have to ensure that my child does not eat the foods s/he likes much.   |      | .745 |      |       |
| 1-    | I have to ensure that my child does not eat excessively the foods such as candy, sweet, ice cream, cake and so on. | .694 |      |      |       |
| 4-    | I deliberately keep some foods out of the reach of my child.   |      | .600 |      |       |
| 8-    | If I do not arrange my child’s foods or guide him/her, s/he will eat plenty of the foods s/he likes most.          | .723 |      |      |       |
| 7-    | If I do not arrange my child’s foods or guide him/her, s/he will eat plenty of snacks.                             |      |      | .679 |       |
| 10-   | I have to ensure that my child eats enough.  |      |      | .619 |       |
| 5-    | I present sweets such as “candy, ice cream, cake and so on” as reward for a good behaviour.                        | .481 |      |      |       |
| 11-   | I insist my child to eat more even if s/he says s/he is not hungry.  |      |      |      | .730  |
| 6-    | I present the foods my child likes as reward for a good behaviour.   |      |      |      | .659  |
| 9-    | My child always eats all the foods on his/her dish.  |      |      |      | -.607 |

seen that Sig. Tail probability values are lower than 0.05 for all factors. Thus, H0 hypothesis for these factors will be rejected. The education level of participants plays a role in the psychological and environmental factors of child nutrition as well as their attitudes toward healthy nutrition (Table 12).

#### ***Regression Analysis of the Psychological Factors in Child Nutrition According to the Responsibility Level of Participants***

When the factors are analyzed according to the interest and responsibility level of participants for their children;

##### *In Model 1:*

- An increase of one unit in the responsibility feeling to nourish the child when s/he is at home results in a decrease of 0.895 unit in psychological factors

- An increase of one unit in the responsibility feeling while deciding the size of portion that their children eat results in an increase of 0.930 unit in psychological factors.

##### *In Model 2:*

- An increase of one unit in the responsibility feeling to nourish the child when s/he is at home results in a decrease of 0.547 units in psychological factors

- An increase of one unit in the responsibility feeling while deciding the size of portion that their children eat results in an increase of 1.195 units in psychological factors

- An increase of one unit in the responsibility feeling while deciding whether their children consume the right food results in a decrease of 0.623 units in psychological factors (Table 13).

#### ***Regression Analysis of the Environmental Factors in Child Nutrition According to the Responsibility Level of Participants***

In the model where the factors are analyzed according to the interest and responsibility level of participants for their children:

- An increase of one unit in the responsibility feeling while deciding the size of portion that their children eat results in an increase of 0.279 unit in environmental factors

- An increase of one unit in the responsibility feeling while deciding whether their children consume the right food results in a decrease of 0.274 unit in environmental factors (Table 14).

#### ***Regression Analysis of the Child’s Attitude Toward Healthy Nutrition Factor According to the Responsibility Level of Participants***

When the factors are analyzed according to the interest and responsibility level of participants for their children;

*In Model 1:*

- An increase of one unit in the responsibility feeling to nourish the child when s/he is at home results in a decrease of 0.400 unit in the child's attitude toward healthy nutrition

- An increase of one unit in the responsibility feeling while deciding the size of portion that their children eat results in an increase of 0.434 unit in the child's attitude toward healthy nutrition.

*In Model 2:*

- An increase of one unit in the responsibility feeling to nourish the child when s/he is at home results in a decrease of 0.449 unit in the child's attitude toward healthy nutrition

- An increase of one unit in the responsibility feeling while deciding the size of portion that their children eat results in an increase of 0.396 unit in the child's attitude toward healthy nutrition

- An increase of one unit in the responsibility feeling while deciding whether their children consume the right food results in an increase of 0.88 unit in the child's attitude toward healthy nutrition (Table 15).

**Factor Analysis 2**

15 questions with scale intended to explain the factors that are related to the follow-up of the healthy or unhealthy foods the children of participants consume were subjected to factor analysis, in order to be used for further analysis. As a result of the factor analysis, 15 questions were reduced to 4 different aspects. Below are these aspects (Tables 16 and 17).

**Table 17: Factors and item groups**

| <i>Item group (variables)</i>                   | <i>Factor name</i> |
|---|--------------------|
| Following the nutrition habits of the child     | Factor 1           |
| Preventing the child to consume hazardous foods | Factor 2           |
| Guiding the child in his/her nutrition          | Factor 3           |
| Rewarding the child for healthy nutrition       | Factor 4           |

***H7: Factors Do Not Differ According to the Age of Children Included in This Study***

When the factors obtained according to the age of children included in this study are analyzed, it is seen that Sig. Tail probability values are lower than 0.05. Thus, H0 hypothesis for these factors will be rejected. The age of children plays a role in the factors of preventing the child to consume hazardous foods, guiding the child in his/her nutrition, and rewarding the child for healthy nutrition (Table 18).

***H8: Factors Do Not Differ According to the Gender of Children Included in This Study***

When the factors obtained according to the gender of children included in this study are analyzed, it is seen that Sig. Tail probability values are lower than 0.05. Thus, H0 hypothesis for these factors will be rejected. The gender of children plays a role in the factors of following the nutrition habits of the child, preventing the child to consume hazardous foods, guiding the child in his/her nutrition, and rewarding the child for healthy nutrition (Table 19).

**Table 18: Anova test of the following healthy or unhealthy foods that the children of the participants consume factor by age variable**

| <i>Factors</i>   |                | <i>Sum of squares</i> | <i>Df</i> | <i>Mean squares</i> | <i>F</i> | <i>Sig.</i> |
|--|----------------|-----------------------|-----------|---------------------|----------|-------------|
| <i>Following the Nutrition Habits of the Child</i>     | Between groups | 5.292                 | 4         | 1.323               | 1.326    | .259        |
|  | Within groups  | 643.708               | 645       | .998                |          |             |
|  | Total          | 649.000               | 649       |                     |          |             |
| <i>Preventing the Child to Consume Hazardous Foods</i> | Between groups | 167.315               | 4         | 41.829              | 56.011   | .000        |
|  | Within groups  | 481.685               | 645       | .747                |          |             |
|  | Total          | 649.000               | 649       |                     |          |             |
| <i>Guiding the Child in His/Her Nutrition</i>          | Between groups | 24.727                | 4         | 6.182               | 6.387    | .000        |
|  | Within groups  | 624.273               | 645       | .968                |          |             |
|  | Total          | 649.000               | 649       |                     |          |             |
| <i>Rewarding the Child for Healthy Nutrition</i>       | Between groups | 89.603                | 4         | 22.401              | 25.829   | .000        |
|  | Within groups  | 559.397               | 645       | .867                |          |             |
|  | Total          | 649.000               | 649       |                     |          |             |

**H9: Factors Do Not Differ According to the Age of Participants**

When the factors obtained according to the age of participants are analyzed, it is seen that Sig. Tail probability values are lower than 0.05. Thus, H0 hypothesis for these factors will be rejected. The age of participants plays a role in the factors of following the nutrition habits of the child, preventing the child to consume hazardous foods, guiding the child in his/her nutrition, and rewarding the child for healthy nutrition (Table 20).

**H10: Factors Do Not Differ According to the Gender of Participants**

When the factors obtained according to the gender of participants are analyzed, it is seen that Sig. Tail probability values are lower than 0.05 for the numbers 2. and 4. factors. Thus, H0 hypothesis for these factors will be rejected. The gender of participants plays a role in the factors of preventing the child to consume hazardous foods, and rewarding the child for healthy nutrition (Table 21).

**Table 19: Anova test of the following healthy or unhealthy foods that the children of the participants consume factor by gender variable**

| Factors   | Levene's Test for Equality of Variances | t-test for Equality of Means |      |        |         |                 |                 |            |
|---|---|------------------------------|------|--------|---------|-----------------|-----------------|------------|
|   |   | F                            | Sig. | T      | Df      | Sig. (2-tailed) | Mean difference | Std. error |
| Following the Nutrition Habits of the Child     | Equal variances assumed                 | 16.344                       | .000 | 3.256  | 648     | .001            | .25362241       | .07790255  |
|   | Equal variances not assumed             |                              |      | 3.273  | 636.798 | .001            | .25362241       | .07749908  |
| Preventing the Child to Consume Hazardous Foods | Equal variances assumed                 | 58.156                       | .000 | 3.772  | 648     | .000            | .29300911       | .07768901  |
|   | Equal variances not assumed             |                              |      | 3.802  | 614.663 | .000            | .29300911       | .07707476  |
| Guiding the Child in His/Her Nutrition          | Equal variances assumed                 | 3.985                        | .046 | -1.039 | 648     | .299            | -.08149822      | .07847180  |
|   | Equal variances not assumed             |                              |      | -1.034 | 619.654 | .302            | -.08149822      | .07881894  |
| Rewarding the Child for Healthy Nutrition       | Equal variances assumed                 | 18.395                       | .000 | 5.718  | 648     | .000            | .43816948       | .07662759  |
|   | Equal variances not assumed             |                              |      | 5.683  | 602.101 | .000            | .43816948       | .07710098  |

**Table 20: Anova test of the following healthy or unhealthy foods that the children of the participants consume factor by the age of parents variable**

| Factors   |                | Sum of squares | Df  | Mean squares | F      | Sig. |
|---|----------------|----------------|-----|--------------|--------|------|
| Following the Nutrition Habits of the Child     | Between groups | 50.145         | 5   | 10.029       | 10.785 | .000 |
|   | Within groups  | 598.855        | 644 | .930         |        |      |
|   | Total          | 649.000        | 649 |              |        |      |
| Preventing the Child to Consume Hazardous Foods | Between groups | 101.095        | 5   | 20.219       | 23.765 | .000 |
|   | Within groups  | 547.905        | 644 | .851         |        |      |
|   | Total          | 649.000        | 649 |              |        |      |
| Guiding the Child in His/Her Nutrition          | Between groups | 12.325         | 5   | 2.465        | 2.493  | .030 |
|   | Within groups  | 636.675        | 644 | .989         |        |      |
|   | Total          | 649.000        | 649 |              |        |      |
| Rewarding the Child for Healthy Nutrition       | Between groups | 218.486        | 5   | 43.697       | 65.366 | .000 |
|   | Within groups  | 430.514        | 644 | .668         |        |      |
|   | Total          | 649.000        | 649 |              |        |      |

**Table 21: Anova test of the following healthy or unhealthy foods that the children of the participants consume factor by the gender of parents variable**

| Factors   |                             | Levene's Test for Equality of Variances |      | t-test for Equality of Means |         |                 |                 |            |
|---|-----------------------------|---|------|------------------------------|---------|-----------------|-----------------|------------|
|   |                             | F                                       | Sig. | T                            | Df      | Sig. (2-tailed) | Mean difference | Std. error |
| Following the Nutrition Habits of the Child     | Equal variances assumed     | 1.573                                   | .210 | 1.604                        | 648     | .109            | .12786136       | .07972195  |
|   | Equal variances not assumed |   |      | 1.613                        | 579.256 | .107            | .12786136       | .07924907  |
| Preventing the Child to Consume Hazardous Foods | Equal variances assumed     | 7.217                                   | .007 | 6.684                        | 648     | .000            | .51642702       | .07726092  |
|   | Equal variances not assumed |   |      | 6.797                        | 599.179 | .000            | .51642702       | .07597324  |
| Guiding the Child in His/Her Nutrition          | Equal variances assumed     | 1.315                                   | .252 | -.850                        | 648     | .395            | -.06788744      | .07983550  |
|   | Equal variances not assumed |   |      | -.869                        | 608.024 | .385            | -.06788744      | .07809357  |
| Rewarding the Child For Healthy Nutrition       | Equal variances assumed     | 5.878                                   | .016 | 4.668                        | 648     | .000            | .36678922       | .07856974  |
|   | Equal variances not assumed |   |      | 4.798                        | 616.244 | .000            | .36678922       | .07645184  |

**Table 22: Anova test of the following healthy or unhealthy foods that the children of the participants consume factor by the number of children of the participants variable**

| Factors   |                | Sum of squares | Df  | Mean squares | F      | Sig. |
|---|----------------|----------------|-----|--------------|--------|------|
| Following the Nutrition Habits of the Child     | Between groups | 129.086        | 4   | 32.271       | 40.036 | .000 |
|   | Within groups  | 519.914        | 645 | .806         |        |      |
|   | Total          | 649.000        | 649 |              |        |      |
| Preventing the Child to Consume Hazardous Foods | Between groups | 36.732         | 4   | 9.183        | 9.674  | .000 |
|   | Within groups  | 612.268        | 645 | .949         |        |      |
|   | Total          | 649.000        | 649 |              |        |      |
| Guiding the Child in His/Her Nutrition          | Between groups | 128.401        | 4   | 32.100       | 39.771 | .000 |
|   | Within groups  | 520.599        | 645 | .807         |        |      |
|   | Total          | 649.000        | 649 |              |        |      |
| Rewarding the Child for Healthy Nutrition       | Between groups | 82.209         | 4   | 20.552       | 23.388 | .000 |
|   | Within groups  | 566.791        | 645 | .879         |        |      |
|   | Total          | 649.000        | 649 |              |        |      |

**H11: Factors Do Not Differ According to the Number Of Children of the Participants**

When the factors obtained according to the number of children of the participants are analyzed, it is seen that Sig. Tail probability values are lower than 0.05 for all factors. Thus, H0 hypothesis for these factors will be rejected. The number of children of the participants plays a role in the factors of following the nutrition habits of the child, preventing the child to consume hazardous foods, guiding the child in his/

her nutrition, and rewarding the child for healthy nutrition (Table 22).

**H12: Factors Do Not Differ According to the Education Level of Participants**

When the factors obtained according to the education level of participants are analyzed, it is seen that Sig. Tail probability values are lower than 0.05 for all factors. Thus, H0 hypothesis for these factors will be rejected. The education level of participants plays a role in the factors of following the nutrition habits of the child, pre-

**Table 23: Anova test of the following healthy or unhealthy foods that the children of the participants consume factor by the education level of participants variable**

| Factors  |                | Sum of squares | Df  | Mean squares | F      | Sig. |
|--|----------------|----------------|-----|--------------|--------|------|
| <i>Following the Nutrition Habits of the Child</i>     | Between groups | 35.072         | 5   | 7.014        | 7.358  | .000 |
|  | Within groups  | 613.928        | 644 | .953         |        |      |
|  | Total          | 649.000        | 649 |              |        |      |
| <i>Preventing the Child to Consume Hazardous Foods</i> | Between groups | 46.082         | 5   | 9.216        | 9.844  | .000 |
|  | Within groups  | 602.918        | 644 | .936         |        |      |
|  | Total          | 649.000        | 649 |              |        |      |
| <i>Guiding the Child in His/Her Nutrition</i>          | Between groups | 149.155        | 5   | 29.831       | 38.434 | .000 |
|  | Within groups  | 499.845        | 644 | .776         |        |      |
|  | Total          | 649.000        | 649 |              |        |      |
| <i>Rewarding the Child for Healthy Nutrition</i>       | Between groups | 31.821         | 5   | 6.364        | 6.641  | .000 |
|  | Within groups  | 617.179        | 644 | .958         |        |      |
|  | Total          | 649.000        | 649 |              |        |      |

venting the child to consume hazardous foods, guiding the child in his/her nutrition, and rewarding the child for healthy nutrition (Table 23).

## DISCUSSION

While carrying out the evaluation with regard to feeding habits of children, the environment, circle of friends, and conditions of their daily lives are significantly important. Especially when they are evaluated in terms of age, sex, and the number of children, it is an inevitable fact that children are influenced by each other. Nowadays, the most important health problem caused by disorders or lacks in feeding habits of children is obesity. Individuals whose activities are limited by excessive weight gain can face severe health problems in parallel with this.

Obesity is an energy metabolism disorder emerging with excessive fat storage in the body. Obesity emerged in early childhood and continued through adulthood can cause risks for health (Simsek et al. 2005).

For healthy generations, the reasons of obesity should be widely analysed and solution offers should be presented. Although obesity in childhood is not paid much attention by parents, it should be known that this can cause severe health problems in future periods (Ulutas et al. 2014).

Over-weight and adiposity prevalence in children have rapidly increased throughout the world. Adiposity in children bring along the risk of having chronic diseases in future including cardiac diseases, hyperlipidaemia, hyperinsulinemia, hypertension, and early atherosclerosis (Pala et al. 2003).

In a study conducted with the aim of determining the influence of mothers, fathers, and other members of the family in the process of feeding habits of children, the rates of participants to be overweight and adipose are found as 17.8 percent and 3.8 percent. Factors with regard to being overweight/adipose are entering puberty, having overweight mother and siblings, educational background of mother, occupation of father, and economic conditions of family (Uguz and Bodur 2007).

Definition of the nutrition problems among children, identification of it by mothers and fathers, and developing an attitude for the solution of this problem are quite significant. Obesity being in the first place, acquisition of feeding habits lies at the bottom of many health problems. Therefore, by helping their children to acquire correct feeding habits, mothers and fathers can prevent many problems that they may face in the future.

Özmert (2006) draws the attention that, as also observed in other circumstances, the earlier the nutrition problems emerge, the more they will influence emotional, social, and physical development of the children in their future lives.

Conditions of life and working hours of the parents cause school children to have more snacks and hence to consume more high-calorie and sugared drinks. The children who meet the school canteens and social life are tested by the attraction of convenience foods called fast food. In developed countries where such negativity is considered as a common problem, there are serious struggles against the behaviours that violate healthy diet (Özgenc 2008).

Feeding habits and the chance of children to encounter the risk of being overweight or obese appear to be a situation, which is in relation with family, social environment, school environment, and the duration of watching television. Especially the time that children spend in front of television forms a basis for a passive life; and it would not be wrong to state that this behaviour will be reflected in their all life behaviours.

In a study conducted by Parlak and Çetinkaya (2008), it is observed that among the students, who daily spend more than three hours in front of television, obesity prevalence is quite high; and among the children in 1-3 age group, duration of watching television is significantly high.

In the study conducted by Altinok et al. (2006), it is determined that most of the students have the right beliefs and attitudes with regard to nutrition; however, it is identified that the female students have more true knowledge than the male students. In the light of this information, regular and permanent nutrition education programs are needed to be regulated for helping people to acquire positive feeding habits; and also, it should not be forgotten that acquisition of positive feeding habits, meaning positive nutrition education, is a long process beginning from the early childhood (Altinok et al. 2006).

With reference to the results of the research, it should not be ignored that especially parents have a significant influence on their children. Teachings and monitoring of families in the acquisition and maintenance of healthy feeding habits are extremely decisive. Most particularly, since mother and father are seen as role models in childhood, it is important for parents to pay attention to their feeding and life habits.

Küçükali (2006) draws attention that families have significant influence on the acquisition of feeding habits among children; highlights the importance of that families should pay attention that their children do not get used to foods with little nutrition value such as chocolate, sweet, cake, and coke; and indicates that meal hours should be regular.

When the research results are evaluated, the factors that affect rewarding factor of the children for healthy diet are determined as the age of the child, sex of the child, age of the participant, sex of the participant, number of children that the participant has, and educational background of the participant. It can be said that

rewarding attitudes and behaviours encourage children especially for healthy and regular feeding habits.

In the research conducted with regard to this situation by Oguz and Derin (2013), when the methods applied to children when they do not eat their meals are analysed; it is observed that girls and boys are encouraged to eat their meals mostly through rewarding method (respectively 39.8% and 36.5%); 28.5 percent of the girls and 22.9 percent of the boys are forced to eat; 8.0 percent of the boys and 7.0 percent of the girls are forced to eat through punishment method.

## CONCLUSION

When the psychological factors that influence nutrition behaviours are analysed; psychological and environmental factors in child's nutrition as well as child's attitude toward healthy nutrition are remarkable.

1. Psychological factors influencing child nutrition were identified as age of the child, gender of the child, age of the participant, gender of the participant, the number of children of the participant, and education level of the participant.
  2. Environmental factors influencing child nutrition were identified as age of the child, age of the participant, the number of children of the participant, and education level of the participant.
  3. Child's attitude toward healthy nutrition were identified as age of the child, gender of the child, age of the participant, gender of the participant, the number of children of the participant, and education level of the participant.
- In the regression model of psychological factors:

### In Model 1:

1. An increase of one unit in the responsibility feeling to nourish the child when s/he is at home results in a decrease of 0.895 unit in psychological factors
2. An increase of one unit in the responsibility feeling while deciding the size of portion that their children eat results in an increase of 0.930 unit in psychological factors.

**In Model 2:**

1. An increase of one unit in the responsibility feeling to nourish the child when s/he is at home results in a decrease of 0.547 unit in psychological factors
  2. An increase of one unit in the responsibility feeling while deciding the size of portion that their children eat results in an increase of 1.195 unit in psychological factors
  3. An increase of one unit in the responsibility feeling while deciding whether their children consume the right food results in a decrease of 0.623 unit in psychological factors.
- In the regression model of environmental factors;
1. An increase of one unit in the responsibility feeling while deciding the size of portion that their children eat results in an increase of 0,279 unit in environmental factors
  2. An increase of one unit in the responsibility feeling while deciding whether their children consume the right food results in a decrease of 0.274 unit in environmental factors.
- In the regression model of child's attitude toward nutrition;

**In Model 1:**

1. An increase of one unit in the responsibility feeling to nourish the child when s/he is at home results in a decrease of 0.400 unit in the child's attitude toward healthy nutrition
2. An increase of one unit in the responsibility feeling while deciding the size of portion that their children eat results in an increase of 0.434 unit in the child's attitude toward healthy nutrition.

**In Model 2:**

1. An increase of one unit in the responsibility feeling to nourish the child when s/he is at home results in a decrease of 0.449 unit in the child's attitude toward healthy nutrition
2. An increase of one unit in the responsibility feeling while deciding the size of por-

tion that their children eat results in an increase of 0.396 unit in the child's attitude toward healthy nutrition

3. An increase of one unit in the responsibility feeling while deciding whether their children consume the right food results in an increase of 0.88 unit in the child's attitude toward healthy nutrition.

When the factors influencing the nutrition behaviours of the children of the participants included in the study are analyzed; the factors of following the nutrition habits of the child, preventing the child to consume hazardous foods, guiding the child in his/her nutrition, and rewarding the child for healthy nutrition are remarkable.

1. Factors influencing the following the nutrition habits of the child were identified as gender of the child, age of the participant, the number of children of the participant, and education level of the participant.
2. Factors influencing the prevention of the child from consuming foods were identified as age of the child, gender of the child, age of the participant, gender of the participant, the number of children of the participant, and education level of the participant.
3. Factors influencing the guiding the child in his/her nutrition were identified as age of the child, gender of the child, age of the participant, the number of children of the participant, and education level of the participant.
4. Factors influencing the rewarding the child for healthy nutrition were identified as age of the child, gender of the child, age of the participant, gender of the participant, the number of children of the participant, and education level of the participant.

Acquisition of healthy and regular feeding habits, especially among pre-school children and children who are in schools, is the keystone for them to have a more healthy life in their future. In addition to regular diet, physical activities are one of the most important precautions that can be taken against the increasing risk of obesity.

While parents play the primary role for the guidance and awareness raising of the children, they should avoid force in their guidance and avoid forcing their children to eat specific kind of foods. They should make children feel comfortable through rewarding and encouraging methods; and should exhibit behaviours such that children should willingly eat.

Informing and creating awareness to help children to stay away from fast food; not to be influenced negatively by their social environment; and to avoid unhealthy foods in their school environment, should be supported by families and schools.

Consequently, for healthy generations, children's acquisition of a healthy and regular feeding habit is crucial, because by this means, many health problems will be prevented and the ground will be established for a healthy society.

### RECOMMENDATIONS

- ♦ In the process of children's nutrition, sense of responsibility of parents with regard to right and healthy nutrition should be extensive and inclusive,
- ♦ Parents should be directive and encouraging for the acquisition of right and healthy feeding habits,
- ♦ Parents should contribute to feeding habits of their children through a rewarding method rather than a punishment method,
- ♦ Parents should improve themselves and reach the true information to enable their children to take right nutrition,
- ♦ Parents should properly guide their children by considering the variables such as age, sex, circle of friends, and social environment,
- ♦ Consequently, parents should avoid forceful and insistent attitudes and behaviours; instead, they should have informative and encouraging attitudes.

### REFERENCES

- Aköz E, Dallar Y, Tasar MA 2006. Okula Giden Çocuklarda Beslenme Aliskanliklarinin ve Sosyoekonomik Düzeyin Büyüme-Gelisme ve Obezite Üzerine Etkileri Ankara Eğitim ve Araştırma Hastanesi. *1<sup>st</sup> National Congress on Adolescent Health*, Ankara, pp. 256, 280.
- Altınok YA, Günes G, Karaoglu L 2006. Malatya il merkezinde lise öğrencilerinin besinlerle ilgili inanc, tutum ve endişeleri ve bunları etkileyen faktörler. *Yönü Üniversitesi Tıp Fakültesi Dergisi*, 13(1): 25-30.
- Altunkaynak BZ, Özbek E 2006. Obezite: Nedenleri ve tedavi seçenekleri. *Van Journal of Medicine*, 13 (4): 138.
- Babaoglu K, Hatun S 2002. Çocukluk çaında obesite. *STED*, 11: 8-10.
- Baughcum AE, Burklow KA, Deeks CM, Powers SW, Whitaker RC 1998. Maternal feeding practices and childhood obesity: A focus group study of low-income mothers. *Arch Pediatr Adolesc Med*, 152: 1010-1014.
- Baughcum AE, Chamberlin LA, Deeks CM, Powers SW, Whitaker RC 2000. Maternal perceptions of overweight pre-school children. *Pediatrics*, 106(6): 1380-1386.
- Birch LL, Davison KK 2001. Family environmental factors influencing the developing behavioral controls of food intake and childhood overweight. *Pediatrics Clinics of North America*, 48 (4): 893-907.
- Camci N 2010. *Çocuk Besleme Anketi'nin (Child Feeding Questionnaire-çfq) Geçerlilik ve Güvenilirliğinin Saptanması ve Türk Ebeveynlerine Uygulanması*. Master's Thesis. Graduate School of Health. Ankara: Baskent University.
- Davis SP, Northington L, Kolar K 2000. Cultural considerations for treatment of childhood obesity. *Journal of Cultural Diversity*, 7 (4): 128-132.
- Ebbeling CB, Pawlak DB, Ludwig DS 2002. Childhood obesity: Public-health crisis, common sense cure. *Lancet*, 360: 473-482.
- French SA, Story M, Robert WJ 2009. Environmental influences on eating and physical activity. *Annual Review of Public Health*, 22: 309-335.
- Gökçay G, Garipoglu M 2002. Çocukluk ve ergenlik döneminde beslenme. *Saga Yayinlari*, 12-92.
- Golan M, Weizman A 2001. Familial approach to the treatment of childhood obesity: Conceptual mode. *Journal of Nutrition Education*, 33(2): 102-107.
- Gürel S, Inan G 2001. Çocukluk çağı obezitesi, tanı yöntemleri, prevelansı ve etiyojisi. *ADU Journal of Medicine Faculty*, 2(3): 39-46.
- Guyton AC, Hall JE 2001. *Textbook of Medical Physiology*. Istanbul: Nobel Bookstore, pp.797-800.
- Hamberlin LA, Sherman SN, Jain A, Powers SW, Whitaker RC 2002. The challenge of preventing and treating obesity in low-income, preschool children: Perceptions of WIC health care professionals. *Archives of Pediatrics and Adolescent Medicine*, 156 (7): 662-668.
- Hergüner S, Gökçay G 2007. Beslenme bozuklukları ve çocuk. *Çocuk hastalıklarında Biyopsikososyal Yaklaşım. Epsilon Yayıncılık*, 116-134.
- Karacabey K 2009. The effect of exercise on leptin, insulin, cortisol and lipid profiles in obese children. *The Journal of International Medical Research*, 37(5): 1472-1478.
- Klesges RC, Stein RJ, Eck LH 1991. Parental influence on food selection in young children and its relationship to childhood obesity. *Am J Clin Nutr*, 53: 859-864.
- Köksal G, Özel GH 2008. *Çocukluk ve Ergenlik Döneminde Obezite*. Ankara: Klasmat Printing, P.11.
- Köksal O 1995. *Kronik ve Dejeneratif Hastalıklarda Beslenme, Halk Sağlığı (Temel Bilgiler)*. Ankara: Gunes Kitabevi, pp. 285-292.
- Küçükali R 2006. Çocuklarda beslenme bozuklukları ve beslenmenin okul çocukları üzerindeki etkileri. *Kazım Karabekir Eğitim Fakültesi Dergisi*, 14: 223-239.
- Laing P 2002. Childhood obesity: A public health threat. *Paediatric Nursing*, 14(10): 14-16.
- Livingstone B 1997. Healthy eating in infancy. *Prof Care Mother Child*, 7(1): 9-11.
- Mentes E, Mentes B, Karacabey K 2011. Adölesan dönemde obezite ve egzersiz. *International Journal of Human Sciences*, 8(2): 965.

- Merdol Kutluay T 2008. Okul Öncesi Dönem Çocuklarının Beslenmesi, Sağlık Bakanlığı Yayınları, Yayın No: 726, Klasmat Matbaacılık, Ankara. From <<http://sbu.saglik.gov.tr/Ekutuphane/kitaplar/A%2010.pdf>> (Retrieved on 16 March 2015).
- Molarius A, Seidel JC, Sans S, Toumlehto J, Kuulasmaa K 1999. Varying sensitivity of waist action levels to identify subjects with overweight or obesity in 19 populations of the WHO MONICA Project. *J Clin Epidemiol*, 52: 1213-1224.
- Nicklas T, Baranowski T, Cullen K, Berenson G 2001. Eating patterns, dietary quality and obesity. *J Am Coll Nutr*, 20: 599-608.
- Oguz S, Derin DÖ 2013. 60-72 Aylık çocukların bazı beslenme alışkanlıklarının incelenmesi. *Elementary Education Online*, 12(2): 498-511.
- Osmanoglu N 2011. *Anne ve Çocuk Beslenmesi*. Ankara: Vize Basın Yayın.
- Özgenç F 2008. Oyun ve okul çocukluğa döneminde beslenme. *Güncel Pediatri Dergisi*, 6: 1-3.
- Özmert MN 2006. Erken çocukluk gelişiminin desteklenmesi-III: Aile. *Çocuk Sağlığı ve Hastalıkları Dergisi*, 49: 256-273.
- Özyürek A, Begde Z, Özkan I 2013. Okul öncesi dönem çocukların beslenmesi konusunda ebeveyn görüşlerinin belirlenmesi. *Uluslararası Hakemli Besevi ve Akademik Bilimler Dergisi*, 2(4): 132.
- Pala K, Aytekin N, Aytekin H 2003. Gemlik bölgesinde 6-12 yaş çocuklarda asiri kiloluluk ve sismanlık prevalansı. *Sürekli Tıp Eğitimi Dergisi*, 12(12): 448-450.
- Parlak A, Çetinkaya S 2007. Çocukların obezitenin oluşumunu etkileyen faktörler. *Firat Journal of Healthcare Services*, 2(5): 27-33.
- Parlak A, Çetinkaya S 2008. Oyun çocukluğu dönemi obez çocuğun ve ailelerinin beslenme alışkanlıklarının değerlendirilmesi. *Atatürk Üniversitesi Hemsirelik Yüksekokulu Dergisi*, 11(3): 59-68.
- Peterson NA, Hughey J, Lowe JB, Timmer AD, Scheider JE, Peterson JJ 2008. Health disparities and community-based participatory research: Issues and illustrations. In: RB Wallace, N Kohatsu (Eds.): *Public Health and Preventive Medicine*. USA: McGraw Hill Medical.
- Simsek F, Ulukol B, Berberoglu M, Gülnar SB, Adıyaman P, Öcal G 2005. Ankara'da bir ilköğretim okulu ve lisede obezite sıklığı. *Ankara Üniversitesi Tıp Fakültesi Mecmuası*, 58:163-166.
- Strauss RS, Knight J 1999. Influence of the home environment on the development of obesity in children. *Pediatrics*, 103 (6): 85.
- Süzek H, Ari Z 2010. Muğla merkez köylerinde yaşayan 6-15 yaş okul çocuklarında beslenme alışkanlıkları, kilo fazlalığı ve obezite prevalansı. *Journal of New Medicine*, 27: 22.
- Tezcan B 2009. *Obez Bireylerde Benlik Saygısı, Beden Algısı ve Travmatik Geçmiş Yasantılar*. Dissertation. İstanbul: T.R. Ministry of Health.
- Turkey Republic Ministry of Health 2013. *Çocukluk Çağı Obezite Araştırması (COSI-TR)*. Preliminary Report, Ankara.
- Turkey Republic Ministry of Health, Temel Sağlık Hizmetleri Genel Müdürlüğü 2010. *Türkiye Obezite ile Mücadele ve Kontrol Programı (2010-2014)*. Ankara: Kuban Printing and Publishing.
- Uğuz MA, Bodur S 2007. Konya il merkezindeki ergenlik öncesi ve ergen çocuklarda asiri ağırlık ve şişmanlık durumunun demografik özelliklerle ilişkisi. *Genel Tıp Dergisi*, 17(1): 1-7.
- Ulutas AP, Atla P, Say ZA, Sari E 2014. Okul çağındaki 6-18 yaş arası obez çocuklarda obezite oluşumunu etkileyen faktörlerin araştırılması. *Zeynep Kamil Tıp Bülteni*, 45(4): 192-196.
- World Health Organization (WHO) 2012. Global Strategy on Diet, Physical Activity and Health. From <<http://www.who.int/dietphysicalactivity/childhood/en/index.html>> (Retrieved on 16 November 2013).
- Yeley G 2003. *Parental Use of Child Feeding Practices and Outcomes in Child and Adolescent Nutrition*. Submitted to the Office of Graduate Studies of Texas A and M University.
- Yılmaz N 1999. *Anaokulu Öğretmeninin Rehber Kitabı*. Gelştirilmiş 3<sup>rd</sup> Edition. İstanbul: Ya-Pa Yayınları.
- Yılmazbas P, Gökçay G 2013. İlk İki Yasta Sağlıklı Beslenme ve Sağlıklı Beslenme Alışkanlığının Geliştirilmesi. *Çocuk Dergisi*, 13(4): 147-153.