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Research Article

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# The Relationship Between Eating Behaviors and Stress Level in Adolescents Undergoing Endoscopy

Endoskopi Yapılacak Olan Adolesanlarda Yeme Davranışları ile Stres Düzeyi Arasındaki İlişki

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**Abstract**

**Purpose:** This study was conducted to determine the relationship between eating behaviors and stress level in adolescents undergoing endoscopy.

**Method:** This descriptive study was conducted in the endoscopy unit in the pediatric minor clinics of a university hospital in Erzurum between April and July 2019. The sample of the study was composed of 43 adolescents who came for endoscopy in the specified dates, were literate and had cognitive ability to express themselves and were voluntary to participate in the study. The data of the study were collected using "Descriptive Information Form", "Scale of Eating Behaviors", and "Perceived Stress Scale".

**Results:** It was determined that 76.7% were in the age group of 15-18 years and 79.1% were female. Mean score of the adolescents was 304.53±53.55 for the scale of eating behaviors and was 31.39±5.35 for perceived stress scale. It was found that the number of siblings and family income status were effective in the mean score of eating behaviors scale. Place of residence, family type and mother's education level were effective in the mean score of perceived stress scale ($p<0.05$). A statistically positive and highly significant correlation was found between the eating behaviors and stress levels of the adolescents undergoing endoscopy (r: 0.877, $p<0.001$).

**Conclusion:** Adolescents' eating behaviors were evaluated as good because the mean score of the scale was between 291 and 435. High perceived stress scale mean score of the adolescents indicated that they were stressed. In addition, it was found that some variables were effective on eating behaviors and stress levels of the adolescents undergoing endoscopy.

**Keywords:** Adolescent, eating behaviors, endoscopy, nursing, stress

**Özet**

**Amaç:** Bu araştırma; endoskopi yapılacak olan adolesanlarda yeme davranışları ile stres düzeyi arasındaki ilişkinin belirlenmesi amacıyla yapıldı.

**Yöntem:** Araştırma verileri, Erzurum'da bir üniversite hastanesinin pediatri yandallar kliniği içerisinde bulunan endoskopi ünitesinde Nisan-Temmuz 2019 tarihleri arasında tanımlayıcı olarak gerçekleştirildi. Araştırmanın örneklemini belirtilen tarihlerde endoskopi için gelen, kendilerini ifade edebilecek bilişsel yeterliliği ve okuma yazması olan, araştırmaya katılmaya gönüllü 43 adölesan oluşturdu. Araştırma verileri, "Tanıtıcı Bilgi Formu", "Yeme Davranışları Ölçeği" ve "Algılanan Stres Ölçeği" ile toplandı.

**Bulgular:** Adolesanların %76.7'sinin 15-18 yaş grubunda yer aldığı ve %79.1'inin kız olduğu belirlendi. Adolesanların yeme davranışları ölçek puan ortalaması 304.53±53.55, algılanan stres ölçek puan ortalaması 31.39±5.35'tir. Kardeş sayısı ve aile gelir durumunun yeme davranışları ölçek puan ortalamasında etkili olduğu saptandı. Yaşam yeri, aile tipi ve anne eğitim durumunun algılanan stres ölçek puan ortalamasında etkili olduğu saptandı ($p<0.05$). Endoskopi yapılacak olan adolesanların yeme davranışları ile stres düzeyi arasında istatiksel pozitif yönlü, yüksek düzeyde anlamlı ilişki saptandı (r: 0.877, $p<0.001$).

**Sonuç:** Adolesanların yeme davranışları ölçek puan ortalaması 291-435 arasında olduğu için iyi olarak değerlendirildi. Adolesanlarda algılanan stres ölçek puan ortalamasının yüksek olması stresli olduklarını göstermektedir. Ayrıca bazı değişkenlerin endoskopi yapılacak olan adolesanların yeme davranışları ve stres düzeyi üzerinde etkili olduğu belirlendi.

**Anahtar kelimeler:** Adolesan, yeme davranışları, endoskopi, hemşirelik, stres

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## INTRODUCTION

There are several periods in human life when the adequate and balanced diet is very important. One of them is the adolescence period. Adolescence period is the transition period from childhood to adulthood accompanied with rapid growth, development and maturation in biochemical, physical, social and spiritual terms (Arıkan, Çelebioğlu, & Güdücü. 2018; Ball, Bindler & Cowen, 2020; Derman, 2013). The World Health Organization (WHO) defined the "age group of 10-19 years" as adolescence, the "age group of 15-24 years" as young and the "age group of 10-24 years" as youth (WHO, 2019).

It is expressed that in the adolescence period, there are significant mental and physical developments and rapid growth and the nutritional requirement increases in parallel. In addition, there are changes in the eating behaviors and food choices of the adolescents during this period (Baysal, 2018). In this period when peer relationships are at the forefront, adolescents may develop wrong eating behaviors such as irregular meals, snacking with friends and eating outside rather than home environment (Aksoydan & Çakır, 2011; Akman, Tüzün & Ünalan, 2012). One of reasons for the insufficient and unbalanced diet in adolescence period is the insufficient nutritional knowledge. It is accepted that nutritional knowledge of adolescents develops in the family environment at first, and then it is formed with the effects of teachers and environmental factors in pre-school and school years (Baltacı, Ersoy, Karaağaoğlu, Derman & Kanbur, 2008).

Eating behavior of adolescents is affected by many factors such as insufficient and unbalanced energy and nutrition intake, economic deficiencies, psychosocial factors, life style, physical activity status, sociocultural factors, number of individuals in family, personal belief and values, preferring fast-food, deficiencies in nutritional knowledge, dietary habits, mass media, number of meals, skipping meals, eating disorders, availability, production and distribution of food, unidirectional nutrition, excessive use of nutritional supplements (vitamin, minerals, etc.), alcohol, smoking, drug use and various diseases (Şanlıer & Ersoy, 2004).

Wrong information and practices of individuals about eating is one of the factors causing insufficient and unbalanced diet, various pains, obesity and consequently impaired quality of life. This brings up many disorders (Özkan & Çalışır, 2019). The procedure seen and applied for the diagnosis and treatment of these disorders is endoscopy. Endoscopy is the name given to all interventions made for diagnosis and treatment purposes by entering through the holes opening out of the body (Selimoğlu, 2011). Gastrointestinal system endoscopy is a method allowing the esophagus, stomach, proximal duodenum as well as colon and terminal ileum mucosa to be seen and used increasingly in the diagnosis and treatment of diseases of these regions (Nguyen, Nguyen & Nguyen, 2010). Gastrointestinal system endoscopy is performed with various indications. Adolescents may encounter with this procedure in cases such as abdominal pain, dyspepsia, hematemesis, melena, weight loss, chronic reflux symptoms, chronic diarrhea, iron deficiency anemia, corrosive substance ingestion, cancer screening, Percutaneous Endoscopic Gastrostomy (PEG) opening, esophageal varices control, band ligation, conditions caused by stress and eating disorders (Nguyen, Nguyen & Nguyen, 2010;

Kim, 2010). In the study of Gerceker et al., 43 (61.4%) upper GI bleeding and 27 (38.6%) lower GI bleeding were found in children who undergoing endoscopy. In a study conducted in our country, it was reported that peptic ulcer disease was found in 13.2% of 357 children who undergoing endoscopy with GIS complaints (Uğraş & Pehlivanoğlu, 2011). In the study of Ecevit et al., peptic ulcer disease was found in 3.4% of 902 pediatric patients who undergoing endoscopy.

There are many factors affecting eating behaviors in adolescence period and one of them is their psychological states. It is necessary to evaluate mental health indicators (such as perceived stress and depressive symptoms) and eating habits together (Mikolajczyk, Ansari & Maxwell, 2009). Stressful life, anxious and concerned states of an individual can affect eating behaviors (Khodabakhsh &Kiani, 2014; Altun & Kutlu, 2015). This brings up many disorders and the procedure applied for the diagnosis and treatment is again endoscopy. For this reason, the aim of this study is to determine the relationship between the eating behaviors and stress levels in adolescents undergoing endoscopy.

## MATERIAL and METHOD

### Time and Location of the Study

The data of this descriptive study were collected in the endoscopy unit in Pediatric Minor Clinics of a university hospital located in Erzurum province between April and July 2019.

### Population and Sample of the Study

The population of the study was composed of the 85 adolescents who applied to pediatric outpatient clinics of the specified hospital in a year and were given an appointment with the decision of endoscopy for diagnosis and treatment. The sample of the study was composed of 43 adolescents who came for endoscopy in the specified dates, were literate and had cognitive ability to express themselves and were voluntary to participate in the study. The endoscopy procedure is performed in a specific room in the pediatric minor clinic, only two days a week (Monday and Tuesday) with a team including a specialist doctor, a nurse and anesthesia team. Hospitalization procedures of the patients, who had an appointment day with the appointment system, came to the clinic on that day, had no infection risk, passed anesthesia control and approved, are made and the procedure is applied to the children in order.

As a result of the G.Power 3.1.9.2 power analysis, the effect size of the study was determined to be 0.3, the power was determined as 0.64, and the α type error estimation was 0.05. These values indicate that the sample size is sufficient (Çapık, 2014). Inclusion criteria for the study;

- Being a 9-18 age group child
- Undergoıng endoscopy
- Being literate
- Having the cognitive competence to express themselves

**Data Collection Tools**

"Descriptive Information Form", "Scale of Eating Behaviors" and "Perceived Stress Scale" were used to collect the data of the study.

***Descriptive Information Form:*** The questionnaire prepared by the researchers in accordance with the related literature (Özdoğan, 2013; Altun & Kutlu, 2015) contains questions for determining the personal characteristics of the adolescents (age, gender, income status, parents' education status, etc.).

***Scale for Eating Behaviors (SEB):*** Developed by Özdoğan in 2013. Scale for eating behaviors is composed of a total of 58 items and each item in the scale is rated between 0-10 points and 0 means never and 10 refers to always. The scale total score of ≤145 is evaluated as poor, between 146-290 is evaluated as moderate, between 291-435 is evaluated as good, and ≥436 is evaluated as very good. The Cronbach' Alpha reliability coefficient of the scale was found as .84 (Özdoğan, 2013). In this study, the Cronbach's alpha coefficient of the scale was found as .79.

***Perceived Stress Scale (PSS)****:* Turkish validity and reliability study of the Perceived Stress Scale developed by Cohen et al. (1983) to evaluate how much a person is stressful in some situations was conducted by Yerlikaya and Inanc in 2007. The questions in the scale evaluate the mood change of adolescents and adults in the last 1 month. The scale is a 5-point Likert type (0-Never, 1-Almost Never, 2-Sometimes, 3-Frequently, 4-Very often). The questions 4, 5, 7 and 8 in the scale are reversely coded. The total score to be obtained from the scale is between 0 and 40. High total score indicates that the stress is also high. The Cronbach' Alpha reliability coefficient of the scale was found as .84 (Yerlikaya & İnanç, 2007). In this study, the Cronbach's alpha coefficient of the scale was found as .75.

**Data Collection**

The data of the study were explained by the researcher in the endoscopy unit in the pediatric minor clinics of the specified hospital between April and July 2019 and filled by the adolescents before the endoscopy procedure. It took approximately 15-25 minutes to collect the data.

**Data Analysis**

The data obtained from the study were analyzed in the SPSS 20 packaged software. Descriptive statistics, mean, Mann-Whitney U test and Kruskal Wallis test in non-normal distributions, Pearson correlation analysis and the Cronbach's alpha coefficient calculation were used to analyze the data. Significance level was accepted as $p<0.05$.

**Ethical Considerations**

Before starting the study, ethical approval from the Nursing Faculty Ethics Committee in Erzurum Ataturk University (19.04.2019 dated and 2019-2/2 numbered) and written permissions from the institutions where the study would be conducted were obtained. Before the interview, adolescents and their families were informed about the purpose and goal of the study, the benefits to be obtained from the study, the time they would spend for the interview and their written and verbal consents were obtained.

## RESULTS

**Table 1.** Distribution of the Adolescents in terms of Their Descriptive Characteristics

| Descriptive characteristic | n | % |
|---|---|---|
| **Ages** | | |
| 9-14 ages | 10 | 23.3 |
| 15-18 ages | 33 | 76.7 |
| **Gender** | | |
| Female | 34 | 79.1 |
| Male | 9 | 20.9 |
| **Number of siblings** | | |
| 1-3 | 26 | 60.5 |
| 4 and above | 17 | 39.5 |
| **Family Type** | | |
| Nuclear family | 30 | 69.8 |
| Extended family | 13 | 30.2 |
| **Living place** | | |
| City center | 30 | 69.8 |
| District | 8 | 18.6 |
| Village | 5 | 11.6 |
| **Family Income** | | |
| More than expenditure | 9 | 20.9 |
| Equal income and expenditure | 34 | 79.1 |
| **Mother Education Status** | | |
| Primary education | 27 | 62.8 |
| Secondary Education | 4 | 9.3 |
| High school and above | 12 | 27.9 |
| **Father Education Status** | | |
| Primary education | 18 | 41.9 |
| Secondary Education | 7 | 16.2 |
| High school and above | 18 | 41.9 |
| **Father's Profession** | | |
| Officer | 17 | 39.5 |
| Worker | 11 | 25.6 |
| Self-employment | 15 | 34.9 |
| **Complaint of Coming to the Hospital** | | |
| Vomiting | 9 | 20.9 |
| Anemia | 4 | 9.3 |
| Stomache pain | 30 | 69.8 |
| **School Success Status** | | |
| Good | 21 | 48.8 |
| Middle | 22 | 51.2 |
| **Exam Period Stress Status** | | |
| Yes | 33 | 76.7 |
| No | 10 | 23.3 |
| **Method of Coping with Stress** | | |
| Listen to music | 21 | 48.8 |
| Reading | 11 | 29.6 |
| Computer playing | 7 | 16.3 |
| Chatting with friends | 4 | 9.3 |

When the descriptive characteristics of the participants were examined, it was determined that 76.7% were in the age group of 15-18 years, 79.1% were female, 60.5% had 1 to 3 siblings, 69.8% were living in a nuclear

family, 69.8% were living in the city center, 79.1% had equal income and expenditure level of family income, all of them had social security, 62.8% of their mothers had primary school degree and all of them were unemployed, 41.9% of the fathers had high school and higher education level and 39.5% of them were working as officers. It was determined that all of the adolescents defined their friendships as good, 69.8% applied to the hospital with stomach pain complaints, 51.2% defined their school success as moderate, 76.7% had stress during exam period, and 48.8% preferred listening music as the coping method for stress (Table 1).

**Table 2.** Mean scores of SEB and PSS

| | **Mean scores** | **SD** | **Min** | **Max** |
|---|---|---|---|---|
| SEB | 304.53 | 53.55 | 206.00 | 437.00 |
| PSS | 31.39 | 5.35 | 14.00 | 39.00 |

As seen in Table 2, SEB minimum mean score of the adolescents was 206.00 and their SEB maximum mean score was 437.00. The general mean score of the scale was 304.53±53.55. PSS minimum mean score of the adolescents was 14.00 and their PSS maximum mean score was 39.00. The general mean score of the scale was 31.39±5.35.

**Table 3.** Comparison of the SEB and PSS Mean Scores of the Adolescents in Terms of Their Descriptive Characteristics

| **Descriptive Characteristics** | **SEB**<br>**X ± SD**<br>**Test and p** | **PSS**<br>**X ± SD**<br>**Test and p** |
|---|---|---|
| **Ages** | | |
| 9-14 ages | 284.80±47.67 | 30.80±7.50 |
| 15-18 ages | 310.51±54.46 | 31.57±4.64 |
| | U= 133.50 | U= 164.00 |
| | p=0.365 | p=0.977 |
| **Gender** | | |
| Female | 308.55±58.26 | 30.88±5.62 |
| Male | 289.33±26.94 | 33.33±3.80 |
| | U= 121.00 | U= 122.50 |
| | p= 0.339 | p= 0.358 |
| **Number of siblings** | | |
| 1-3 | 290.46±47.32 | 31.34±6.43 |
| 4 and above | 326.05±56.69 | 31.47±3.24 |
| | U=138.00 | U= 187.00 |
| | **p= 0.039** | p= 0.394 |
| **Family Type** | | |
| Nuclear family | 309.23±61.20 | 32.80±4.90 |
| Extended family | 293.69±28.29 | 28.15±5.08 |
| | U=167.50 | U=79.50 |
| | p=0.467 | **p=0.002** |
| **Living place** | | |
| City center | 298.83±41.57 | 31.20±5.96 |
| District | 308.37±90.16 | 34.12±2.41 |
| Village | 332.60±45.81 | 28.20±2.04 |
| | KW=2.247 | KW=7.792 |
| | p=0.325 | **p=0.020** |

| | | |
|---|---|---|
| **Family Income** | | |
| More than expenditure | 358.44±48.69 | 33.55±1.01 |
| Equal income and expenditure | 290.26±45.52 | 30.82±5.87 |
| | U=37.000 | U=92.500 |
| | **p=0.001** | p=0.069 |
| **Mother Education Status** | | |
| Primary education | 299.51±58.94 | 30.03±6.04 |
| Secondary Education | 317.25±18.83 | 32.50±3.31 |
| High school and above | 311.58±49.65 | 34.08±2.64 |
| | KW=1.630 | KW= 6.311 |
| | p= 0.443 | **p= 0.043** |
| **Father Education Status** | 300.55±69.48 | 31.05±6.37 |
| Primary education | 301.00±25.51 | 31.14±1.34 |
| Secondary Education | 309.88±44.43 | 31.83±5.39 |
| High school and above | KW=0.773 | KW=1.518 |
| | p=0.680 | p=0.468 |
| **Father's Profession** | | |
| Officer | 309.52±44.31 | 30.76±4.77 |
| Worker | 320.00±65.73 | 30.54±3.58 |
| Self-employment | 287.53±52.38 | 32.73±6.90 |
| | KW= 1.810 | KW= 2.381 |
| | p= 0.405 | p= 0.304 |
| **Complaint of Coming to the Hospital** | | |
| Vomiting | 305.88±76.26 | 30.44±7.81 |
| Anemia | 322.00±11.63 | 29.50±1.73 |
| Stomache pain | 301.80±49.84 | 31.93±4.82 |
| | KW= 2.158 | KW= 2.193 |
| | p= 0.341 | p= 0.334 |
| **School Success Status** | | |
| Good | 309.52±49.68 | 30.61±6.20 |
| Middle | 299.77±57.75 | 32.13±4.40 |
| | U=171.00 | U=223.00 |
| | p=0.145 | p=0.845 |
| **Exam Period Stress Status** | | |
| Yes | 301.00±48.29 | 31.15±5.66 |
| No | 316.20±69.95 | 32.20±4.31 |
| | U=163.500 | U=159.000 |
| | p=0.966 | p=0.862 |
| **Method of Coping with Stress** | | |
| Listen to music | 287.47±48.07 | 32.00±7.20 |
| Reading | 323.63±48.70 | 30.90±2.73 |
| Computer playing | 330.57±73.76 | 32.42±1.39 |
| Chatting with friends | 296.00±29.96 | 27.75±1.50 |
| | KW=3.773 | KW=6.488 |
| | p=0.287 | p=0.090 |

Table 3 compares the SEB and PSS mean scores of the adolescents in terms of their descriptive characteristics. When SEB was examined, no significant difference was found in the variables of age, gender, family type, place of residence, mother's education status, fathers' education status, father's occupation, complaint to visit the hospital, school success, stress during the exam period, and coping with stress method in terms of in the SEB mean scores ($p>0.05$). The number of siblings and family income status were effective on SEB mean score ($p<0.05$).

When PSS was examined, no significant difference was found in the variables of age, gender, number of siblings, family income status, father's education status, father's occupation, complaint to visit the hospital, school success, stress during exam period and coping with stress method in terms of PSS mean scores. Place of residence, family type and mother's education status were effective in the mean score of the perceived stress scale ($p<0.05$, Table 3).

**Table 4.** Examination of the Relationship between SEB and PSS

| | | **PSS** |
|---|---|---|
| **SEB** | r | 0.877 |
| | p | **0.001**** |
| | n | 43 |

A statistically positive and highly significant correlation was found between the eating behaviors and stress level of the adolescents undergoing endoscopy (Table 4).

## DISCUSSION

It is stated in the literature that family structure, time allocated to children, nutrition of the child, and changes they experience during adolescence period are effective on adaptation and stress management (Chen, Shiao & Gau, 2007; Pekcan, 2015).

In the study, it was found that SEB mean score of the adolescents was good (304.53±53.55). In the study by Özdoğan titled as "Study of a scale development for determining the eating behavior and nutritional knowledge of adolescents", their eating behavior mean score was determined as good (313.24±60.79). The result of the present study is similar with the result of the study by Özdoğan.

Along with the problems caused by the adolescence period, diseases like depression, stress and anxiety shown to increase more and more today constitute a separate risk factor for the period (Yılmaz, 2015). In the present study, high perceived stress scale mean score in adolescents (31.39±5.35) showed that they were stressed. Compared to the literature, while many factors such as school problems, peer relations, self-concept, body image, and family relations because of the age period cause eating problems, they also cause this period to be stressful.

If bad eating habits are related to stress and depression symptoms, mental health status can be associated with the consumption of healthy foods and opposite foods. Therefore, mental health indicators (such as perceived stress and depressive symptoms) should be evaluated with eating habits (Yılmaz, 2015). A statistically positive and highly significant correlation was found between the eating behaviors and stress levels of adolescents undergoing endoscopy. Psychological conditions such as stress and depression not only affect mental health negatively but also affect the behaviors (such as eating) of individuals (Tinker et al., 2002). In the literature, in the study by Ozgen et al. titled as "Eating attitudes and behaviors of adolescents", they found that both male and female adolescent students were closely interested in their weight and the students' changing moods such as being unhappy, stressed, angry, sad, happy during this period were effective

on eating behaviors (Özgen, Kınacı & Arlı, 2012). In the light of these results, it can be thought that fighting with stress and the reflection of stress on behaviors in the adolescent age group are more reflected on eating behaviors and the change factor in eating behaviors of adolescents in this period came to the fore since appearance and self-esteem carry great importance in them.

It was found in the present study that family income status was effective on SEB mean score and SEB mean score of the adolescents who expressed their family income level as more than expenditure was higher. In the study by Kalay and Türkmen titled as "determination of the factors affecting the eating and exercise behaviors of adolescents", it was found that the students believing that their family's economic status was good had more healthy eating behaviors (Kalay&Türkmen, 2015). In the study by Özdoğan, when evaluated according to socioeconomic status, it was found that the differences between the nutritional knowledge mean scores were statistically significant and this difference was caused by the adolescents at high socioeconomic level. In addition, another result of that study was that the differences between the eating behavior mean scores were statistically significant when evaluated according to socioeconomic status and this difference was caused by the adolescents at low socioeconomic levels (Özdoğan, 2013). In the study conducted by Akan in 2018, adolescents who were living in a town/village and had low level of family income had irregular meals. Families' socioeconomic status also affect the food intake and diet quality. Especially low socioeconomic status of the families negatively affects the food consumption frequency for the family members and causes their nutrient needs not to be met (Akan, 2018). Inadequacy in income status is associated with decreased fruit consumption (Han, Lawlor & Kimm, 2010; Kabaran & Mercanlıgil, 2013). In the light of this literature information, providing better opportunities to children by their families with more than expenditure income, not having limited conditions, and good nutritional knowledge and awareness may have positive effects on eating behaviors.

Nutritional status, habits and behaviors of adolescents are affected by many psychosocial and environmental factors. The most important factors in their formation are personal food choices, food culture of the family, parents being a model, number of siblings in the family, economic status, media and society norms (Akman, Tüzün & Ünalan, 2012). In the present study, it was found that the number of siblings was effective in SEB mean score and adolescents with high number of siblings had higher SEB mean score. In the study of Daştan et al. titled as "Obesity and overweight prevalence in students aged 7-8 in Izmir province", a negative correlation was found between the number of siblings and obesity (Daştan, Çetinkaya & Delice, 2014). In the study conducted by Akan in 2018, it was concluded that the number of siblings had no effect on eating behaviors (Akan, 2018). The fact that this result is opposite with literature and the present study may be due to the conditions of the regions they live in. In the present study, factors like the existence of a family structure with many children in the Eastern provinces and siblings taking each other as samples at meal times may cause an awareness in eating behaviors.

It was determined in the present study that the place of residence was effective in PSS mean score and the adolescents who were living in a district had higher SO mean scores. When the stressors were examined, it was observed that the opportunities offered by the residence place of the individuals from the personal stressors affected the formation of stress in individuals (Cantürk, 2014). It can be asserted that stress load can be higher in adolescents who have better living conditions such as the city center but are constantly in a race, trying to catch up something and factors like crowdedness, transportation to long distances, and eating conditions may also be effective on stress.

It was found that the mother's education status was effective in PSS mean score and the adolescents with mothers having high school and higher degree of education had higher PSS mean score. In the study by Deveci et al., (2013), adolescents with low maternal education level (primary school and lower) were found to be more prone to stress and depression (Deveci, Ulutaşdemir & Açık, 2013). In their study, Aylaz et al., reported that stress and depression symptoms were significantly higher among young people with parents having low education level (Aylaz, Kaya, Dere, Karaca & Bal, 2007). These results, which contradict with results of the present study, are thought to be influenced by the approaches of the families with high parental education to solve the problems of their children and the fact that they exhibit a more controlling attitude and unconsciously a more repressive behavior.

It was found that family type was effective in PSS mean score and adolescents with nuclear family type had higher PSS mean score. In the study by Bebiş et al., titled as "Investigation of the health promotion behaviors of adolescents in a secondary school", they found that although the scale total and subscale scores of adolescents having a nuclear family were not statistically significant, they had higher mean score (Bebiş, Akpunar, Özdemir & Kılıç, 2015). This situation is considered to be an expected result related to family structure due to reasons such as the time and shares with the children, economic, social and other problems of the family.

**Limitations**

The limitation of the study is that it was conducted in a single hospital. Another limitation is the small sample size.

## CONCLUSION

Adolescents' eating behaviors were evaluated as good because the mean score of the scale was between 291 and 435. High perceived stress scale mean score in adolescents indicated that they were stressed. In addition, it was determined that some variables were effective on the eating behaviors and stress level of the adolescents undergoing endoscopy.

In line with these results; It is important to know the factors affecting the food choice and eating behaviors of adolescents, to turn the wrong food selection and eating behaviors into healthy and correct eating habits, to prevent possible health problems in later ages.

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