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RESEARCH ARTICLE / ARAŞTIRMA MAKALESİ

Turkish Adaptation of the Food Cravings Questionnaire–Trait Short Form for Adolescents: A Validity and Reliability Study

Ergenlerde Yeme Arzusu Ölçeği Kısa Formunun Türkçe Uyarlaması: Geçerlik ve Güvenirlik Çalışması

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Abstract:

The aim of this methodological study was to examine the psychometric properties of the Turkish version of the Food Cravings Questionnaire–Trait Short Form (FCQ-T-r) in an adolescent sample and to evaluate its validity and reliability. The main sample consisted of 340 adolescents aged between 10 and 17 years ($M = 14.3$). The language and content validity process was conducted systematically through forward translation, expert evaluation, and back-translation procedures. Exploratory factor analysis (EFA) was performed on an independent pilot sample ($n = 110$) using the principal axis factoring method. The single-factor structure obtained from the EFA was subsequently tested through confirmatory factor analysis (CFA) in the main sample, excluding the pilot participants. Twenty-one participants with chronic conditions that might affect eating behavior were excluded, and CFA analyses were conducted with 319 adolescents. The Kaiser-Meyer-Olkin value was .947, and Bartlett's test of sphericity was significant ($\chi^2 = 3722.381$, $p < .001$). EFA results indicated a single-factor structure explaining 58.2% of the total variance. CFA findings ($\chi^2/df = 3.77$; GFI = .905; AGFI = .924; NFI = .901; CFI = .922; RMSEA = .008) demonstrated acceptable model fit. Internal consistency was high (Cronbach's $\alpha = .947$). The preservation of the single-factor structure supports structural consistency with the scale's original form. The high internal consistency coefficient indicates that the items represent the measured construct homogeneously. Overall, the findings suggest that the FCQ-T-r is a valid and reliable instrument for assessing food cravings among Turkish adolescents and is suitable for research use in this population.

Keywords: Food craving, Adolescence, Reliability, Validity, Turkish adaptation.

*This study was presented as a paper at the VII. INCES International Science, Culture & Education Congress.

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Öz:

Bu metodolojik çalışmanın amacı, Yeme Arzusu Ölçeği Kısa Formu'nun (YAÖ-KF) ergen örneklemindeki psikometrik özelliklerini incelemek ve geçerlik ile güvenilirliğini değerlendirmektir. Araştırmanın ana örneklemini yaşları 10–17 arasında değişen (Ort. = 14,3) 340 ergen oluşturmaktadır. Ölçeğin dil ve kapsam geçerliği süreci ileri çeviri, uzman değerlendirmesi ve geri çeviri aşamalarıyla sistematik biçimde yürütülmüştür. Açıklayıcı faktör analizi (AFA), pilot uygulamadan elde edilen bağımsız bir örneklem ($n = 110$) üzerinde temel eksen faktörleştirilmesi (principal axis factoring) yöntemiyle gerçekleştirilmiştir. AFA sonucunda elde edilen tek faktörlü yapı, pilot örnekleme dahil edilmeyen ana uygulama grubunda doğrulayıcı faktör analizi (DFA) ile test edilmiştir. Yeme davranışını etkileyebileceği düşünülen kronik rahatsızlığı bulunan 21 katılımcı analizden dışarı çıkarılmış ve DFA analizleri 319 katılımcı üzerinden yürütülmüştür. Kaiser-Meyer-Olkin değeri .947 olarak bulunmuş, Bartlett küresellik testi ise anlamlı sonuç vermiştir ($\chi^2 = 3722.381$, $p < .001$). AFA bulguları tek faktörlü yapının toplam varyansın %58,2'sini açıkladığını göstermiştir. DFA sonuçları ($\chi^2/sd = 3,77$; GFI = .905; AGFI = .924; NFI = .901; CFI = .922; RMSEA = .008) modelin kabul edilebilir uyum gösterdiğini ortaya koymuştur. İç tutarlılık katsayısı Cronbach $\alpha = .947$ olarak hesaplanmıştır. Ölçeğin tek faktörlü yapısının korunması, orijinal form ile yapısal tutarlılığın sürdürüldüğünü desteklemektedir. Yüksek iç tutarlılık katsayısı, maddelerin ölçülen yapıyı homojen biçimde temsil ettiğine işaret etmektedir. Genel olarak elde edilen bulgular, YAÖ-KF'nin Türk ergenlerde yeme arzusu düzeyini değerlendirmede geçerli ve güvenilir bir ölçme aracı olduğunu ve ergen örneklemlerinde araştırma amaçlı kullanıma uygun olduğunu göstermektedir.

Anahtar Kelimeler: Yeme arzusu, Ergenlik, Geçerlik, Güvenirlilik, Türkçe uyarlama.

Introduction

Adolescence is a developmental period in which biological, psychological, and social changes are experienced intensely as individuals transition from childhood to adulthood. According to the World Health Organization, adolescents aged 10–19 years account for more than 16% of the world's population (WHO, 2023). According to 2022 data from the Turkish Statistical Institute (TÜİK), the adolescent population aged 10–19 years comprised approximately 12,793,612 individuals, corresponding to nearly 15% of the total population (TÜİK, 2023).

Adolescence encompasses a range of important transformations, generally influenced by hormonal changes, such as physical growth, sexual maturation, and cognitive development (Fuhrmann et al., 2015). During adolescence, individuals face important psychosocial tasks such as identity development and the attainment of independence. The pace and nature of these changes are influenced by individual, environmental, and genetic factors (Blakemore & Mills, 2014). The physical and psychological changes experienced during adolescence may directly affect individuals' daily habits, social relationships, and overall health. Eating habits, in particular, play a significant role during this developmental period.

The increasing prevalence of eating disorders in recent years has led researchers to expand studies in this field beyond clinical samples to include the eating attitudes and behaviors of non-clinical individuals (Elkin & Kalabaş, 2023; Traş & Gökçen, 2023; Yalın & Karaköse, 2022). In this context, food craving, a concept closely associated with eating behavior, has emerged as an important variable in explaining individuals' intense and difficult-to-control desire to consume specific foods. Food craving is defined as an intense desire for a particular food (Taylor, 2019). This experience is characterized by intrusive thoughts and vivid sensory images related to the desired food, intense urges to consume it, perceptions of inadequate self-

control, and expectations of positive and/or negative reinforcement following consumption (Meule, 2020). Food cravings may arise due to both physiological and psychological factors (Meule et al., 2014). In particular, cravings for foods high in sugar, fat, and carbohydrates have been associated with the dopamine reward system (Richard et al., 2019). Various emotional states, stress, hormonal changes, and environmental stimuli may also increase food cravings (Meule et al., 2024).

Food cravings may have significant effects on an individual's energy balance and overall health. Food cravings during adolescence may increase due to hormonal changes. In particular, fluctuations in growth and sex hormones may increase individuals' energy requirements, thereby intensifying food-related cravings (Parker et al., 2021). At the same time, adolescents may use food consumption as a coping mechanism for emotional changes and psychological distress (Horovitz, 2025). For example, a study examining the relationship between eating disorders and psychological symptoms in adolescents reported positive correlations between disordered eating attitudes and psychological symptoms such as depression, anxiety, and stress. These findings indicate that adolescents' eating behaviors are closely associated with their mental health (Yazgan & Baran, 2025).

Environmental factors are important determinants of food cravings during adolescence. Media influence, social norms, and peer group behaviors may shape adolescents' food preferences and eating behaviors (Chung et al., 2021). Additionally, the risk of developing eating disorders increases during this developmental period, and concerns related to body image may negatively affect eating habits and overall psychological well-being (Hoseini et al., 2023). Managing food cravings during adolescence is critical to individuals' long-term physical and psychological health (Venessa et al., 2024). During this period, eating behaviors are shaped by the interaction

of biological, psychological, and environmental factors; therefore, promoting healthy eating awareness and regulating emotional eating behaviors are considered important objectives (Le et al., 2023).

Although several food craving scales have been developed for adult populations in both the international literature (Cepeda-Benito et al., 2000; Dalton et al., 2015; Forman et al., 2007; White et al., 2002) and the national literature (Akkurt et al., 2019; Hamurcu et al., 2023; Traş & Gökçen, 2021), it is noteworthy that a valid and reliable scale specifically designed for adolescents is lacking in the national literature. For example, the Food Cravings Questionnaire–Trait (FCQ-T) and its short form, the FCQ-T-r, are widely used instruments for assessing food cravings in adult populations (Cepeda-Benito et al., 2000; Meule et al., 2014). However, validity and reliability studies specifically targeting adolescents appear to be limited, and culturally adapted versions for adolescent populations have not been sufficiently reported in the national literature. Although several food craving scales have also been developed in the international literature for different populations (Burton Murray et al., 2022; Hormes & Timko, 2025; Marín-Soto et al., 2023), cultural differences necessitate that such instruments undergo cultural adaptation processes rather than being applied directly across cultures. In this regard, adapting existing measurement tools for adolescent populations or introducing scales specifically developed for this age group into the national literature is considered important for promoting healthy eating habits and preventing risky eating behaviors.

Method

Research Pattern and Ethical Process

This research is a methodological, cross-sectional scale adaptation study investigating the psychometric properties of the Turkish version of the Food Cravings Questionnaire–Trait-Reduced (FCQ-T-r). In the study, the scale's construct validity, criterion validity, and reliability were examined.

Before the study commenced, the research protocol was reviewed by the Scientific Research Ethics Committee of

Social and Human Sciences at Necmettin Erbakan University. The protocol was discussed at the meeting held on January 24, 2025 (Meeting No. 02), and ethical approval was granted with Decision No. 2025/30 (Application No. 22987).

During the research process, the principle of voluntary participation was strictly upheld. Informed consent was obtained from all participants, and parental consent was obtained for those under 18. Participants' identities were kept confidential, and the collected data were used solely for scientific purposes.

Study Group

The original version of the scale and its adaptation studies were conducted with healthy adult samples in Germany (Meule et al., 2014). The Turkish validity and reliability study of the scale was previously conducted with an adult sample (Traş & Gökçen, 2021); however, its psychometric properties have not yet been investigated among adolescents aged 10–17 years. Therefore, the present study aimed to address this scientific gap regarding the scale's use among adolescents.

In scale validity and reliability studies, sample sizes are classified as “very poor” for 50, “poor” for 100, “fair” for 200, “good” for 300, “very good” for 500, and “excellent” for 1,000 participants (Comrey & Lee, 2013). Accordingly, the present study aimed to recruit at least 300 participants and ultimately included 340 adolescents who met the inclusion criteria.

The inclusion criteria were as follows: being between 10 and 17 years of age, having no psychiatric diagnosis, having no chronic illness that could affect eating behaviors (e.g., diabetes), and voluntarily agreeing to participate in the study.

The exclusion criteria were incomplete or incorrectly completed data forms, a self-reported current psychiatric diagnosis, the presence of a medical condition that could influence eating behavior, the use of psychotropic medication, and the absence of parental consent. Participants who met any of these exclusion criteria were excluded from the analysis. The demographic characteristics of the participants are presented in Table 1.

Table 1. Demographic Characteristics of Participants (N=340)

Variable	N	%
Gender		
Female	226	66.5
Male	114	33.5
Chronic disease		
Yes	21	6.2
No	319	93.8
BMI category		
Underweight	111	32.6
Normal	179	52.6
Overweight	34	10.0
Obese	16	4.7

The mean age of participants was 14.3 years. When the BMI distribution is examined, the majority fall within the normal weight category (52.6%).

Linguistic and Scope Validity

Translation

To ensure the linguistic validity of the Turkish form of the scale, it was translated independently from English to Turkish and from Turkish to English by two experts with native-language competence in English and Turkish. The researchers' translations were compared and assessed, and decisions were made regarding the most appropriate statements for the Turkish version.

Back Translation

To evaluate the accuracy and consistency of the translation process, the back translation method is critical (Karaçam, 2019). In this process, the Turkish version was independently translated back into English by two experts. The researchers compared the back-translated version of the scale with the original English form and found no significant deviations in meaning, aside from minor, unimportant differences. Finally, the back-translated versions were sent to the scale's original developers to assess any deviations in meaning. The developers confirmed that the translations were very close to the original in terms of meaning and cognitive impact.

Expert Opinion

The scale was offered for assessment to 5 academics working in the fields of psychological counseling and guidance and psychiatry. The experts were asked to evaluate each item on a 4-point Likert scale (1: not appropriate, 2: should be significantly revised, 3: requires minor changes, 4: appropriate). Expert opinions were analyzed with the Kendall compatibility coefficient (W) (Karagöz, 2010) and no significant differences were identified between the assessments ($W=0.20$; $p=0.002$). After completing the translation process and expert assessments, the researchers finalized the scale.

Pilot Study

With the aim of assessing the understandability and clarity of a scale, it is recommended to perform a preliminary test with a 20-50-person group (Büyükoztürk, 2018). In line with this, a pilot study was completed with 30 participants. At the end of the study, the scale was found to be sufficiently understandable, and it was decided to apply it to the Turkish sample without any changes. Individuals participating in the pilot study were not included in the main study.

Data Collection

The data collection process was completed with a face-to-face survey in the school environment. Participants were first informed of the research aim and inclusion criteria, and written consent was obtained from those who met them. In the first section of the survey, participants confirmed their suitability for the study and signed the informed consent form. During the application, each student completed the survey individually and only once. Because it was mandatory to respond to all questions, no data were missing, and data from 340 students were included in the study.

Data Collection Tools

Demographic Information Form

The form included 5 questions on individuals' age, gender, chronic disease, and BMI, and was created by the researchers.

Food Cravings Questionnaire–Trait Reduced (FCQ-T-r)

The Food Cravings Questionnaire–Trait (FCQ-T) was originally developed by Cepeda-Benito et al. (2000) as a 39-item scale designed to assess characteristics of food cravings in individuals. Later, Meule et al. (2014) revised the scale for a German sample and developed a 15-item short form. The Food Cravings Questionnaire–Trait Reduced (FCQ-T-r) uses a 6-point Likert-type scale, with items rated from never (1) to always (6). Total scores on the scale range from 15 to 90. Higher scores indicate greater food craving, whereas lower scores indicate lower food craving.

The original short form demonstrated a single-factor structure. Confirmatory factor analysis results indicated that the model fit well, and the internal consistency coefficient (Cronbach's alpha) was reported to be above .90 (Meule et al., 2014). The scale is used to assess the intensity of food cravings and the cognitive and emotional processes associated with food craving.

The Turkish validity and reliability study of the scale was conducted with an adult sample (Traş & Gökçen, 2021). The exploratory factor analysis results revealed a two-factor structure, whereas the confirmatory factor analysis indicated acceptable fit indices. The internal consistency coefficient for the total score of the scale was above .90, and the item–total correlations were found to be adequate. These findings suggest that the Turkish version of the scale is a valid and reliable measurement tool for use with adult samples.

Data Analysis

AMOS 24.0 and IBM SPSS 25.0 software (IBM Corp., Armonk, NY, USA) were used for data analysis, and all analyses were conducted at a significance level of $p < .05$. As part of the descriptive statistics, mean, standard deviation, and percentage values were calculated. The content validity of the scale was evaluated using Kendall's coefficient of concordance (W) based on expert evaluations. To determine the suitability of the data for factor analysis, the Kaiser–Meyer–Olkin (KMO) measure of sampling adequacy and Bartlett's test of sphericity were performed. A two-stage analysis was conducted to examine the scale's construct validity. In the pilot sample, exploratory factor analysis (EFA) was performed using the principal axis factoring method, whereas in the main sample, the model was tested through confirmatory factor analysis (CFA). Examining construct validity is necessary to determine the extent to which a scale accurately measures the conceptual structure it is intended to assess (Gökdemir & Yılmaz, 2023; Karaçam, 2019). When evaluating construct validity, relying solely on model fit indices is considered insufficient; therefore, analyses of convergent and discriminant validity are also recommended (Karaman, 2023).

Within the CFA framework, model fit was evaluated using absolute fit indices (χ^2/df , GFI, AGFI, RMSEA, and SRMR) and incremental fit indices (CFI and NFI). The χ^2/df ratio indicates the overall model fit; GFI and AGFI represent the degree of fit between the observed covariance matrix and the covariance matrix estimated by the model; CFI and NFI indicate the improvement of the proposed model relative to the independence model; RMSEA reflects the approximate error of the model in the population; and SRMR represents the mean magnitude of

standardized residuals. A χ^2/df value below 5, RMSEA and SRMR values of .08 or lower, and CFI, NFI, GFI, and AGFI values of .90 or higher were considered indicators of acceptable model fit (Abu-Bader & Jones, 2025; Büyüköztürk, 2022). To evaluate convergent and discriminant validity, Average Variance Extracted (AVE) and Composite Reliability (CR) values were calculated. The AVE-based approach was proposed by Fornell and Larcker (1981), and an AVE value of .50 or higher indicates acceptable convergent validity (Hair & Alamer, 2022). The CR value evaluates the composite reliability of items within a factor, and values of .70 or higher are considered acceptable (Hair & Alamer, 2022). The CR coefficient is particularly preferred because Cronbach's alpha may produce inflated reliability estimates as the number of items increases (Yaşlıoğlu, 2017). To establish convergent validity, the CR value is expected to exceed the AVE value (Lim, 2024). Internal validity was examined by comparing the upper and lower 27% groups based on total scale scores. The reliability of the scale was evaluated

using Cronbach's alpha and the split-half reliability coefficient.

Results

Validity Analyses

To assess suitability for factor analysis, the Kaiser-Meyer-Olkin (KMO) sample adequacy coefficient and Bartlett's test of sphericity were applied. The KMO value was .947, indicating the sample is appropriate for factor analysis. The result of the Bartlett's sphericity test was significant ($\chi^2 = 3722,381$; $p < .001$). This situation indicates that the correlations among the variables were sufficiently high to support factor analysis.

Exploratory factor analysis was completed using principal axis factoring on the independent sample obtained from the pilot study ($n=110$). Factors with eigenvalues above 1 were identified, and the analysis yielded a single-factor structure parallel to the scale's original structure. The factor explained 58% of the total variance. The 15-item scale had factor loadings ranging from .61 to .85 (Table 2).

Table 2. Factor Structure and Explained Variance of the Scale

Items	
Factor 1	
1. When I really want to eat something, I know I won't be able to stop when I start eating. <i>Canım bir şeyi yemeyi çok istediğinde, yemek yemeye başladığımda duramayacağımı bilirim.</i>	0.671
2. If I eat something I really crave, I frequently lose control and eat too much. <i>Canımın çok çektiği bir şeyi yersem, sıklıkla kontrolümü kaybedip çok fazla yerim.</i>	0.644
3. My craving to eat food always makes me think of ways to get what I want to eat. <i>Yemek yeme arzum her zaman yemek istediğim şeyi elde etmenin yollarını düşündürür.</i>	0.664
4. I feel like thoughts of eating are always on my mind. <i>Sanki her zaman zihnimde yemek yeme düşüncesi varmış gibi hissediyorum.</i>	0.762
5. I find myself, my head, constantly busy with food. <i>Kendimi kafam sürekli yiyeceklerle meşgulken buluyorum.</i>	0.839
6. Whenever I really crave something, I find myself making plans to eat it. <i>Ne zaman canım bir şeyleri çok çekse, kendimi yeme planları yaparken buluyorum.</i>	0.723
7. When I feel that I am bored, angry, or sad, I crave food. <i>Sıkıldığımda, kızdığım da ya da üzgün hissettiğimde yiyecek arzuluyorum.</i>	0.625
8. I don't have the decisiveness to resist my craving to eat a food. <i>Yemek yeme arzuma karşı koyacak kararlılığa sahip değilim.</i>	0.613
9. When I start eating, I find it hard to stop myself. <i>Yemeye başladığım zaman kendimi durdurmada zorlanıyorum.</i>	0.798
10. No matter how hard I try, I can't stop thinking about eating a food. <i>Ne kadar çok uğraşırsam uğraşayım, yemek yeme düşüncemi durduramıyorum.</i>	0.859
11. If I give in to my craving to eat a food once, I lose all control. <i>Bir kere yemek yeme arzusuna teslim oldum mu, tüm kontrolümü kaybediyorum.</i>	0.812
12. Whenever I have a craving to eat a food, I think about it until I really eat that food. <i>Ne zaman bir yemek yeme arzum olsa, o yemeği gerçekten yiyene kadar düşünüp dururum.</i>	0.640
13. If I really crave something, thoughts about eating that consume me. <i>Canım bir şeyleri çok çekiyorsa, onu yeme düşünceleri beni tüketiyor.</i>	0.811
14. My feelings frequently stimulate my craving to eat a food. <i>Duygularım bende sık sık yemek yeme isteği uyandırır</i>	0.810
15. It is difficult for me to resist my craving to eat appetizing things that I can access. <i>Ulaşabileceğim iştah açıcı yiyecekleri yeme arzusuna karşı koymak benim için zordur.</i>	0.781
Explained variance (%)	58.20
Eigenvalue (Factor 1)	8.73
KMO	0.947
Bartlett test (χ^2 (105))	3722.381; $p < .001$

FCQ-T-r: Food Cravings Questionnaire-Trait Reduced; KMO: Kaiser-Meyer-Olkin

This single-factor structure, obtained via exploratory factor analysis, was tested in the main sample (N=340) using confirmatory factor analysis (CFA). Given that

chronic disorders may affect eating behavior, 21 participants were excluded from the analyses, and CFA was conducted with 319 participants.

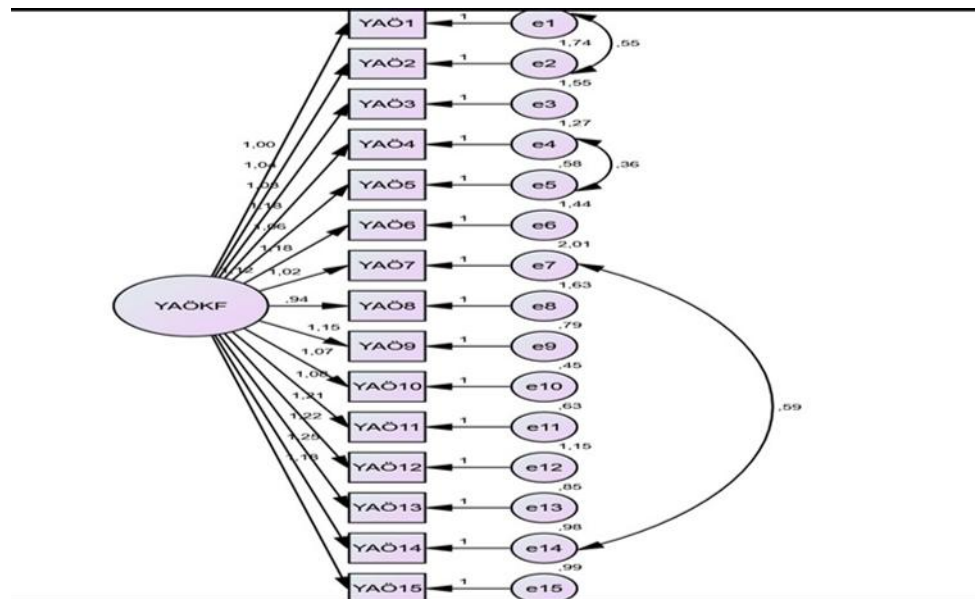


Figure 1. Path Analysis for the Food Cravings Questionnaire-Trait Reduced

Table 3. Goodness of Fit Indexes for Confirmatory Factor Analysis at Primary Level for the Food Cravings Questionnaire-Trait Reduced

Index	Perfect level of fit	Good level of fit	Values	Result
χ^2/Sd	0-3	3-5	3.77	Good fit
RMSEA	$0.00 \leq RMSEA \leq 0.05$	$0.05 \leq RMSEA \leq 0.08$	0.08	Good fit
CFI	$0.95 \leq CFI \leq 1.00$	$0.90 \leq CFI \leq 0.95$	0.922	Good fit
NFI	$0.95 \leq NFI \leq 1.00$	$0.90 \leq NFI \leq 0.95$	0.901	Good fit
GFI	$0.95 \leq GFI \leq 1.00$	$0.90 \leq GFI \leq 0.95$	0.905	Good fit
SRMR	$0.00 \leq SRMR \leq 0.05$	$0.05 \leq SRMR \leq 0.10$	0.07	Good fit
AGFI	$0.90 \leq AGFI \leq 1.00$	$0.85 \leq AGFI \leq 0.90$	0.924	Perfect fit

GFI: Goodness of Fit Index; AGFI: Adjusted Goodness of Fit Index; NFI: Normalized Fit Index; CFI: Comparative Fit Index; RMSEA: Root Mean Square Error of Approximation; SRMR: Standardized Root Mean Squared Residual

According to Table 3, the results for primary level confirmatory factor analysis for the single-factor structure of the FCQ-T-r were $\chi^2/SD = 3,773$ ($p < .001$), $GFI = .905$,

$AGFI = .924$, $NFI = .901$, $CFI = .922$, $RMSEA = .08$, and $SRMR = .07$. The obtained goodness of fit indexes show the model had an acceptable fit to the data.

Table 4. Convergent and Divergent Validity Findings

Items	λ	λ^2	$1 - \lambda^2$	AVE/CR
FCQ1	0.671	0.450	0.585	N=15 AVE=0.5497 CR=0.9116
FCQ2	0.644	0.414	0.559	
FCQ3	0.664	0.440	0.419	
FCQ4	0.762	0.580	0.296	
FCQ5	0.839	0.703	0.477	
FCQ6	0.723	0.522	0.609	
FCQ7	0.625	0.390	0.624	
FCQ8	0.613	0.375	0.363	
FCQ9	0.798	0.636	0.262	
FCQ10	0.859	0.737	0.340	
FCQ11	0.812	0.659	0.590	
FCQ12	0.640	0.409	0.342	
FCQ13	0.811	0.657	0.343	
FCQ14	0.810	0.656	0.390	
FCQ15	0.781	0.609	0.390	

FCQ: Food Craving Questionnaire; AVE: average variance explained; CR: combined reliability; square of shared variance

Convergent validity analysis found that the single-factor structure had an AVE above .50 and a CR above .70. The CR was greater than the AVE (Table 4).

Table 4. Convergent and Divergent Validity Findings

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FCQ6	0.723	0.522	0.609	
FCQ7	0.625	0.390	0.624	
FCQ8	0.613	0.375	0.363	
FCQ9	0.798	0.636	0.262	
FCQ10	0.859	0.737	0.340	
FCQ11	0.812	0.659	0.590	
FCQ12	0.640	0.409	0.342	
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Table 5. Comparisons of Upper-Lower 27% Group Comparisons and Item-Total Correlations for FCQ-T-R Items

Scale Items	Item-Total Correlations	Lower Group (n=86) $\bar{X}$ (SD)	Upper Group (n=86) $\bar{X}$ (SD)	t	P	Cronbach's alpha coefficient when an item is removed
FCQ 1	.680	.379 (.702)	3.331 (1.383)	-17.675	<.001	.944
FCQ 2	.651	.367 (.572)	3.582 (1.486)	-18.760	<.001	.945
FCQ 3	.661	.344 (.643)	3.291 (1.423)	-17.440	<.001	.945
FCQ 4	.731	.183 (.673)	3.272 (1.163)	-16.366	<.001	.943
FCQ 5	.803	.034 (.183)	2.545 (1.156)	-15.258	<.001	.942
FCQ 6	.709	.137 (.378)	3.465 (1.377)	-21.599	<.001	.944
FCQ 7	.597	.287 (.761)	3.325 (1.751)	-14.764	<.001	.947
FCQ 8	.590	.114 (.579)	2.604 (1.596)	-13.607	<.001	.946
FCQ 9	.781	.057 (.234)	2.976 (1.549)	-17.283	<.001	.942
FCQ 10	.811	.011 (.107)	2.441 (1.484)	-15.148	<.001	.942

FCQ 11	.773	.013 (.109)	2.432 (1.548)	-14.136	<.001	.942
FCQ 12	.744	.103 (.306)	3.325 (1.529)	-19.158	<.001	.943
FCQ 13	.772	.114 (.386)	3.000 (1.502)	-17.247	<.001	.942
FCQ 14	.781	.0345 (.183)	3.162 (1.622)	-17.770	<.001	.942
FCQ 15	.765	.080 (.313)	3.116 (1.450)	-18.977	<.001	.942

According to Table 5, there are statistically significant differences in mean scores for each item between the lower (27%; n=86) and upper (27%; n=86) groups, as determined by total scores ($p < .001$). The upper group had higher mean scores on all items, indicating that the items have high discriminatory power. The corrected item-total correlations were within acceptable limits, and removing any item did not significantly increase the scale's internal consistency.

To evaluate the reliability of the scale, the Cronbach's alpha coefficient and split-half consistency analyses were conducted. The FCQ-T-r was calculated to have a Cronbach's alpha coefficient of .947, and the Guttman split-half coefficient was .672. The Cronbach's alpha coefficient for the first half (first 8 items) was .882, and for the second half (last 7 items) was .962. The correlation coefficient between the two halves was 0.884. The findings show that the scale has high internal consistency and sufficient half-test reliability.

Discussion

In this study, the construct validity of the FCQ-T-r was examined in a Turkish adolescent sample, and the EFA and CFA findings supported the scale's single-factor structure. This finding is consistent with the literature suggesting that food craving is a construct associated with the reward system and related to behavioral regulation processes (Reents & Pedersen, 2021). The FCQ-T was originally developed as a multidimensional instrument by Cepeda-Benito et al. (2000), and the 15-item short form (FCQ-T-r), proposed by Meule et al. (2014), has been reported as a valid and reliable measure. The findings of the present study indicate that the FCQ-T-r preserved its original structure and psychometric properties in the Turkish adolescent sample.

The KMO value obtained in the present study was .94, indicating that the sample was highly adequate for factor analysis. In the literature, KMO values of 0.90 or higher are considered indicators of excellent sample adequacy (Yaşlıoğlu, 2017). In addition, Bartlett's test of sphericity was statistically significant ($p < .001$), indicating that the correlations among the items were sufficiently high to perform factor analysis.

EFA findings demonstrated that the items of the scale loaded on a common factor and supported the theoretically

predicted factor structure (Karaman, 2023; Kılıç, 2022). This result suggests that the structural integrity of the scale was preserved in the Turkish adolescent sample and that the factor structure was statistically consistent. The findings of the present study also indicated that the scale's single-factor structure was preserved, consistent with that reported for the scale's original short form (Meule et al., 2014). The first-order CFA results revealed that the model demonstrated acceptable fit indices ($\chi^2/df = 3.77$; GFI = .905; AGFI = .924; NFI = .901; CFI = .922; RMSEA = .008). Considering the fit criteria reported in the literature (Goretzko et al., 2024; İlhan & Çetin, 2014), these values support the model-data fit. In addition, the factor loadings ranged from .61 to .85, indicating that the items strongly represented the construct measured by the scale. In the literature, factor loadings of .30 or higher are considered acceptable (Büyüköztürk, 2018; Tavşancıl, 2019). Accordingly, no item removal was required, and the scale was found to preserve its structural integrity in the Turkish adolescent sample.

It appears the AVE and CR values, calculated within the scope of the single-factor structure in the research, met the recommended criteria (Shrestha, 2021). This finding shows that the items represent the common construct to a sufficient extent and supports the scale's structural consistency. Additionally, comparisons of the upper and lower 27% groups revealed significant differences across all items between adolescents with high and low levels of food craving. This result shows that the scale has high discriminative power and can statistically differentiate individuals with varying levels of food craving. For this reason, the findings support the view that the FCQ-T-r is a scale tool with both structural validity and internal consistency.

In this study, the internal consistency coefficient for the FCQ-T-r was high ($\alpha = .94$). This value is consistent with the reliability coefficient reported for the original form of the scale (Meule et al., 2014). This finding supports the scale's ability to produce reliable results at a similar level across different samples (Traş & Gökçen, 2021). In the literature, high Cronbach's alpha values are reported to indicate the internal consistency of a measurement tool (Büyüköztürk, 2018; Taber, 2018; Vaske et al., 2017). Additionally, removing any item did not significantly increase the alpha coefficient, indicating that the items on

the scale displayed a homogeneous structure and consistently contributed to the measured construct.

The split-half analysis results show the scale displays a consistent structure. The Guttman split-half coefficient is at acceptable levels, supporting the view that the two halves of the scale are consistent with each other (Cheung et al., 2024; Taşancıl, 2019). When this finding is considered alongside the high Cronbach's alpha, it indicates the scale has strong internal consistency. The finding is consistent with the high reliability coefficients reported for the original form of the scale (Meule et al., 2014) and with internal consistency values reported in adaptation studies conducted across different cultures (Queiroz de Medeiros et al., 2019; Koutoulogenis et al., 2020; Innamorati et al., 2015). Additionally, studies conducted with adult samples similarly reported high coefficients of internal consistency and temporal stability (Cepeda-Benito, 2000; Iani, Barbaranelli & Lombardo, 2015). These results support the idea that the scale provides robust measurement in both the adult and Turkish adolescent samples.

When evaluating these findings, some methodological limitations should be considered. Firstly, the study's data are based on self-reports, which may introduce social desirability bias and prejudice. Additionally, the study was conducted with a sample of adolescents without a clinical diagnosis. As a result, it is recommended to exercise caution when generalizing the results to clinical samples or to different sociocultural groups.

Conclusion and Recommendations

The findings show that the FCQ-T-r is a valid and reliable

instrument for the Turkish adolescent sample. The concise, practical structure of the scale facilitates its use, especially in research environments. Future studies may strengthen the evidence for the scale's psychometric properties by testing it across different samples and in longitudinal designs.

Declarations

Ethics Approval and Consent to Participate

Ethical approval for the study was obtained from the Publication Ethics Committee for Social and Human Sciences at Necmettin Erbakan University (Decision No. 2025/30, Date: 24.01.2025).

Consent for Publication

Not applicable.

Availability of Data and Materials

Not applicable.

Competing Interests

The authors declare that they have no competing interests.

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Author Contributions

GG made major contributions to writing the introduction, methods, and discussion sections of the manuscript, as well as preparing the abstract and the Turkish summary. The overall writing, editing of the manuscript, data analysis, and interpretation of the results were carried out by GG. ZT contributed to the data collection process. All authors read and approved the final version of the manuscript.

References

- Abu-Bader, S., & Jones, T. V. (2025). Structural equation modeling: Principles, assumptions, and practical application using SPSS Amos. *International Journal of Quantitative and Qualitative Research Methods*, 13(1), 12–31. <https://doi.org/10.37745/ijqqr.13/vol13n1123>
- Akkurt, Ş., Köse, G., & Dönmez, A. (2019). Yeme arzusu ölçeğinin Türkçeye uyarlama çalışması. *Bilişsel Davranışçı Psikoterapi Araştırmalar Dergisi*, 8(2), s. 69–80. <https://doi.org/https://doi.org/10.5455/JCBPR.7875>
- Benedicta, V., Luglio Muhammad, H. F., & Ekawati, F. M. (2024). The association between demographic, socio-economic, smoking habits and food cravings in adolescents. *Review of Primary Care Practice and Education*, 7(1), 22. <https://doi.org/10.22146/rpcpe.96103>
- Blakemore, S. J., & Mills, K. L. (2014). Is adolescence a sensitive period for sociocultural processing? *Annual Review of Psychology*, 65, 187–207. <https://doi.org/10.1146/annurev-psych-010213-115202>
- Burton Murray, H., Zhang, F., Manasse, S. M., Forman, E. M., Butryn, M. L., & Juarascio, A. S. (2022). Validation of the food craving Acceptance and action questionnaire (FAAQ) in a weight loss-seeking sample. *Appetite*, 168, 105680. <https://doi.org/10.1016/j.appet.2021.105680>
- Büyükköztürk, Ş. (2018). Sosyal Bilimler için Veri Analizi El Kitabı (24. bs.). Ankara, Türkiye: Pegem Akademi Yayıncılık. ISBN: 978-975-6802-74-8.
- Cepeda-Benito, A., Gleaves, D. H., Williams, T. L., & Erath, S. A. (2000). The development and validation of the state and trait food-cravings questionnaires. *Behavior Therapy*, 31(1), 151-173. [https://doi.org/https://doi.org/10.1016/S0005-7894\(00\)80009-X](https://doi.org/https://doi.org/10.1016/S0005-7894(00)80009-X)
- Cheung, G. W., Cooper-Thomas, H. D., Lau, R. S., & Wang, L. (2024). Reporting reliability, convergent and discriminant validity with structural equation modeling: A review and best-practice recommendations. *Asia Pac J Manag*, 41(2), 745-783. <https://doi.org/doi.org/10.1007/s10490-023-09871-y>
- Chung, A., Vieira, D., Donley, T., Tan, N., Jean-Louis, G., Kiely Gouley, K., & Seixas, A. (2021). Adolescent Peer Influence on Eating Behaviors via Social Media: Scoping Review. *Journal of Medical Internet Research*, 23(6), e19697. <https://doi.org/10.2196/19697>
- Comrey, A. L., & Lee, H. B. (2013). A first course in factor analysis. Psychology Press. <https://doi.org/https://doi.org/10.4324/9781315827506>
- Dalton, M., Finlayson, G., Hill, A., & Blundell, J. (2015). Preliminary validation and principal components analysis of the Control of Eating Questionnaire (CoEQ) for the experience of food craving. *European Journal of Clinical Nutrition*, 69(12), 1313–1317. <https://doi.org/10.1038/ejcn.2015.57>
- Elkin, N., & Kalabaş, S. (2023). The Relationship Between Emotional Eating Behavior Awareness and Body Image of Women in Turkey During the Covid-19 Pandemic Period. *Kıbrıs Türk Psikiyatri ve Psikoloji Dergisi*, 5(4), 339-343. <https://doi.org/10.35365/ctjpp.23.4.06>

- Forman, E. M., Hoffman, K. L., McGrath, K. B., Herbert, J. D., Brandsma, L. L., & Lowe, M. R. (2007). A comparison of acceptance- and control-based strategies for coping with food cravings: An analog study. *Behaviour Research and Therapy*, 45(10), 2372-2386. <https://doi.org/https://doi.org/10.1016/j.brat.2007.04.004>
- Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*, 18(1), 39-50. <https://doi.org/10.2307/3151312>
- Fuhrmann, D., Knoll, L. J., & Blakemore, S. J. (2015). Adolescence as a Sensitive Period of Brain Development. *Trends in Cognitive Sciences*, 19(10), 558-566. <https://doi.org/10.1016/j.tics.2015.07.008>
- Gelino, B. W., Schlitzer, R. D., Reed, D. D., & Strickland, J. C. (2024). A systematic review and meta-analysis of test-retest reliability and stability of delay and probability discounting. *Journal Of the Experimental Analysis of Behavior*, 121(3), 358-372. <https://doi.org/doi.org/10.1002/jeab.910>
- Goretzko, D., Siemund, K., & Sterner, P. (2024). Evaluating model fit of measurement models in confirmatory factor analysis. *Educational and Psychological Measurement*, 84(1), 123-144. <https://doi.org/10.1177/00131644231163813>
- Gökdemir F, Yılmaz T. Likert Tipi Ölçekleri Kullanma, Modifiye Etme, Uyarlama ve Geliştirme Süreçleri. *Journal of Nursology*. 2023;26(2):148-160. <https://doi.org/10.5152/JANHS.2023.22260>
- Hair, J. F., & Alamer, A. (2022). Partial least squares structural equation modeling (PLS-SEM) in second language and education research: Guidelines using an applied example. *Research Methods in Applied Linguistics*, 1(3), 100027. <https://doi.org/10.1016/j.rmal.2022.100027>
- Hamurcu, P., Şahin, İ. N., & Çelik, A. (2023). Yeme Arzusuna Kabullenme ve Davranış Ölçeği'nin Türkçe Uyarlamasının Geçerlilik ve Güvenilirlik Çalışması [Validity and Reliability of Turkish Version of the Food Craving Acceptance and Action Questionnaire]. *İstanbul Gelişim Üniversitesi Sağlık Bilimleri Dergisi* (19), 19-32. <https://doi.org/10.38079/igusabder.1109847>
- Hormes, J. M., & Timko, C. A. (2025). Validation of the food craving acceptance and action questionnaire (FAAQ) in pregnancy. *Eating Behaviors*, 57, 101974. <https://doi.org/10.1016/j.eatbeh.2025.101974>
- Horovitz, O. (2025). Advancements in the Diagnosis and Treatment of Eating Disorders in Children and Adolescents: Challenges, Progress, and Future Directions. *Nutrients*, 17(10), 1744. <https://doi.org/https://doi.org/10.3390/nu17101744>
- Hoseini, F. S., Djazayeri, A., & Movahedi, A. (2023). The relationship between food cravings and body image with healthy eating index in adolescent girls. *Nutrition*, 111, 112037. <https://doi.org/https://doi.org/10.1016/j.nut.2023.112037>
- Iani, L., Barbaranelli, C., & Lombardo, C. (2015). Cross-validation of the reduced form of the Food Craving Questionnaire-Trait using confirmatory factor analysis. *Frontiers in Psychology*, 6, 433. <https://doi.org/10.3389/fpsyg.2015.00433>
- Innamorati, M., Imperatori, C., Meule, A., Lamis, D. A., Contardi, A., Balsamo, M., Tamburello, A., Tamburello, S., & Fabbriatore, M. (2015). Psychometric properties of the Italian Food Cravings Questionnaire-Trait-reduced (FCQ-T-r). *Eating and Weight Disorders: EWD*, 20(1), 129-135. <https://doi.org/10.1007/s40519-014-0143-2>
- İlhan, M., & Çetin, B. (2014). LISREL ve AMOS Programları Kullanılarak Gerçekleştirilen Yapısal Eşitlik Modeli (YEM) Analizlerine İlişkin Sonuçların Karşılaştırılması. *Journal of Measurement and Evaluation in Education and Psychology*, 5(2), 26-42. <https://doi.org/10.21031/epod.31126>
- Karaçam, Z. (2019). Ölçme Araçlarının Türkçeye Uyarlanması. *Journal of Midwifery and Health Sciences*, 2(1), 28-37. <https://izlik.org/JA86CE46MY>
- Karagöz, Y. (2010). İlişki katsayılarıyla öğrenci başarısını etkileyen faktörlerin belirlenmesi. *Elektronik Sosyal Bilimler Dergisi*, 9(32), 425-446. <https://dergipark.org.tr/pub/esosder/issue/6146/82522>
- Karaman, M. (2023). Keşfedici ve doğrulayıcı faktör analizi: Kavramsal bir çalışma [Exploratory and confirmatory factor analysis: A conceptual study]. *Uluslararası İktisadi ve İdari Bilimler Dergisi*, 9(1), 47-63. <https://doi.org/10.29131/uiibd.1279602>
- Kılıç, A. F. (2022). Açımlayıcı faktör analizinde boyut sayısına karar verme: Yöntemlere kısa bir bakış [Deciding the Number of Dimensions in Explanatory Factor Analysis: A Brief Overview of the Methods]. *Pamukkale Üniversitesi Sosyal Bilimler Enstitüsü Dergisi* (51), 305-318. <https://doi.org/10.30794/pausbed.1095936>
- Koutoulogenis, K., Gonidakis, F., Giannakoulia, M., & Vasiladou, M. (2020). Validation study of the Food Craving Questionnaire-Trait: Reduced in the Greek population. *Psychiatrike = Psychiatriki*, 31(2), 118-128. <https://doi.org/10.22365/jpsych.2020.312.118>
- Le, T. P., DeJesus-Rodriguez, A., Rihai, T. K., & Raposa, E. B. (2023). Associations between trait food craving and adolescents' preferences for and consumption of healthy versus unhealthy foods. *Food Quality and Preference*, 108, 104887. <https://doi.org/https://doi.org/10.1016/j.foodqual.2023.104887>
- Lim WM (2024). "A typology of validity: content, face, convergent, discriminant, nomological and predictive validity". *Journal of Trade Science*, Vol. 12 No. 3 pp. 155-179, doi: <https://doi.org/10.1108/JTS-03-2024-0016>
- Marín-Soto, M. D., Leija-Alva, G., Campuzano-Reyes, D., Castillo-Ramírez, M., Montufar-Burgos, I. I., & Aguilera-Sosa, V. R. (2023). Intense craving to eat: standardization of the Food Cravings Questionnaire-State in Mexico. Deseo intenso de comer: estandarización del Food Cravings Questionnaire-State en México. *Cirugía y Cirujanos*, 91(6), 798-803. <https://doi.org/10.24875/CIRU.22000359>
- Meule A. (2020). The Psychology of Food Cravings: The Role of Food Deprivation. *Current Nutrition Reports*, 9(3), 251-257. <https://doi.org/10.1007/s13668-020-00326-0>
- Meule, A., Hermann, T., & Kübler, A. (2014). A short version of the Food Cravings Questionnaire—Trait: the FCQ-T-reduced [Original Research]. *Frontiers in Psychology*, Volume 5 - 2014. <https://doi.org/10.3389/fpsyg.2014.00190>
- Meule, A. (2024, June). Eating addiction [Preprint of book chapter]. OSF. <https://doi.org/10.31234/osf.io/mcjwb>
- Queiroz de Medeiros, A. C., Pedrosa, L. F. C., & Yamamoto, M. E. (2019). Exploring the structural and construct validity of the Brazilian Food Cravings Questionnaire-Trait-reduced (FCQ-T-r). *Revista Brasileira de Psiquiatria (São Paulo, Brazil: 1999)*, 41(1), 66-69. <https://doi.org/10.1590/1516-4446-2017-0019>
- Parker, M. N., Tanofsky-Kraff, M., Crosby, R. D., Byrne, M. E., LeMay-Russell, S., Swanson, T. N., Ramirez, E., Shank, L. M., Djan, K. G., Kwarteng, E. A., Faulkner, L. M., Yang, S. B., Zenno, A., Chivukula, K. K., Engel, S. G., Brady, S. M., Yanovski, S. Z., & Yanovski, J. A. (2021). Food cravings and loss-of-control eating in youth: Associations with gonadal hormone concentrations. *The International Journal of Eating Disorders*, 54(8), 1426-1437. <https://doi.org/10.1002/eat.23530>
- Reents, J., & Pedersen, A. (2021). Differences in food craving in individuals with obesity with and without binge eating disorder. *Frontiers in Psychology*, 12, 660880. <https://doi.org/10.3389/fpsyg.2021.660880>
- Richard, A., Meule, A., & Blechert, J. (2019). Implicit evaluation of chocolate and motivational need states interacts in predicting chocolate intake in everyday life. *Eating Behaviors*, 33, 1-6. <https://doi.org/10.1016/j.eatbeh.2019.01.006>
- Shrestha, N. (2021). Factor analysis as a tool for survey analysis. *American Journal of Applied Mathematics and Statistics*. 2021; 9(1):4-11. doi:10.12691/ajams-9-1-2

- Taber, K. S. (2018). The use of Cronbach's alpha when developing and reporting research instruments in science education. *Research in Science Education*, 48(6), 1273–1296. <https://doi.org/10.1007/s11165-016-9602-2>
- Tavşancıl, E. (2019). Tutumların ölçülmesi ve SPSS ile veri analizi (6. bs.). Ankara, Türkiye: Nobel Akademik Yayıncılık. ISBN: 978-605-133-740-1
- Taylor, M. (2019). A review of food craving measures. *Eating Behaviors*, 32, 101-110. <https://doi.org/10.1016/j.eatbeh.2019.01.005>
- Taş, Z., & Gökçen, G. (2021). Yeme Arzusu Ölçeği Kısa Formunun Türk Kültürüne Uyarlanması: Geçerlilik ve Güvenirlik Çalışması. *Ahmet Keleşoğlu Eğitim Fakültesi Dergisi*, 3(2), 200-215. <https://izlik.org/JA55NU56JC>
- Taş, Z., & Gökçen, G. (2023). Yeme Arzusu ve Yeme Tutumu İlişkisinde Beden İmgesi Baş Edebilme Stratejilerinin Aracı Rolü. *Ahmet Keleşoğlu Eğitim Fakültesi Dergisi*, 5(1), 119-138. <https://doi.org/10.38151/akef.2023.47>
- Vaske, J. J., Beaman, J., & Sponarski, C. C. (2017). Rethinking Internal Consistency in Cronbach's Alpha. *Leisure Sciences*, 39(2), 163–173. <https://doi.org/10.1080/01490400.2015.1127189>
- White, M. A., Whisenhunt, B. L., Williamson, D. A., Greenway, F. L., & Netemeyer, R. G. (2002). Development and validation of the food-craving inventory. *Obesity Research*, 10(2), 107-114. <https://doi.org/https://doi.org/10.1038/oby.2002.17>
- Yalın, K., & Karaköse, S. (2022). Yeme Tutumlarını Yordamada Öz Anlayış ve Yeme Farkındalığının Rolü: Karşılaştırmalı Bir Çalışma. *Kıbrıs Türk Psikiyatri ve Psikoloji Dergisi*, 4(2), 154-161. <https://doi.org/ktppdergisi.1000114>
- Yaşlıoğlu, M. M. (2017). Sosyal Bilimlerde Faktör Analizi ve Geçerlilik: Keşfedici ve Doğrulamalı Faktör Analizlerinin Kullanılması. *İstanbul Üniversitesi İşletme Fakültesi Dergisi*, 46, 74-85. <https://izlik.org/JA83ZA74BA>
- Yazgan, E., & Baran, G. (2025). 13-16 Yaş Arası Ergenlerde Sosyal Destek Algısı, Psikolojik Sağlamlık ve Duygusal Yeme Davranışı Arasındaki İlişkilerin İncelenmesi. *Gençlik Araştırmaları Dergisi*, 13(36), 17-41. <https://doi.org/10.52528/genclikarastirmalari.1519288>