

Journal of Teacher Education and Lifelong Learning (TELL)

Volume: 4 Number: 2 Year:2022

Research Article

ISSN: 2687-5713

Investigation of the Relationship between Food Craving, Cognitive Flexibility and Social Appearance Anxiety in Emerging Adulthood¹

Emine Duran ¹ D Zeliha Tras ² D





¹ Yozgat Bozok University, Akdagmadeni Vocational School, Yozgat, Türkiye pdremineduran@gmail.com

² Necmettin Erbakan University, Faculty of Education, Guidance and Psychological Counseling, Konya, Türkiye zztras@gmail.com

Article Info

ABSTRACT

Article History Received: 14.09.2022 Accepted: 06.12.2022 Published: 31.12.2022

Keywords: Food Craving, Cognitive Flexibility, Social Appearance Anxiety, Emerging

Adulthood.

In this study, it was aimed to reveal the predictive power of demographic characteristics, cognitive flexibility and social appearance anxiety of individuals in emerging adulthood on preoccupation with the thought of eating and loss of control over eating, which are the sub-dimensions of food craving. The design of the research was structured according to the relational screening model. The study group of the research consists of 551 participants, 395 (71.7%) women and 156 (28.3%) men. "Food Cravings Questionnaire-Trait Short Form", "Cognitive Flexibility Inventory", "Social Appearance Anxiety Scale" and "Personal Information Form" were used to collect research data. Correlation analysis was used to determine the relationship between food craving, cognitive flexibility and social appearance anxiety. Hierarchical regression analysis was used to determine the predictors of food craving of individuals in emerging adulthood. Considering the dimension of preoccupation with the thought of eating, while the alternatives, one of the sub-dimensions of cognitive flexibility, do not make a specific contribution to the model, the control sub-dimension makes a unique contribution to the model. When the sub-dimension of loss of control over eating is considered, alternatives from the sub-dimensions of cognitive flexibility make a low-level significant contribution to the model, while the sub-dimension of control makes a unique contribution to the model. The research results showed that the sub-dimensions of cognitive flexibility is an important predictor of preoccupation with the thought of eating and loss of control over eating, and similarly, social appearance anxiety is an important predictor of all sub-dimensions of food craving.

Citation: Duran, E. & Tras, Z. (2022). Investigation of the relationship between food craving, cognitive flexibility and social appearance anxiety in emerging adulthood. Journal of Teacher Education and Lifelong Learning, 4(2), 322-333.



"This article is licensed under a Creative Commons Attribution-NonCommercial 4.0 International License (CC BY-NC 4.0)"

¹ This study was presented as an oral presentation at the "VIII. International TURKCESS Education and Social Sciences Congress".

INTRODUCTION

Eating is one of the biological activities of humans. However, eating, beyond being a biological activity in human life, also has an important psychological and social place. Eating behavior is a complex process. It provides the necessary input for basic body functions and can be stimulated by hunger, desire or hedonistic sensations (Ahima & Antwi, 2008). People have to determine when and how much to eat, but sometimes this process does not work as in eating disorders. In this case, behaviors such as not being able to control food craving, vomiting after binge eating attacks or reducing food intake due to fear of weight gain are observed.

The excessive desire to consume a food product is defined as food craving (Weingarten & Elston, 1990). Food craving differs from other hunger types because it is a specific and intense emotion (Hill, 2007). A state of hunger is not necessary for this intense desire to eat (Pelchat & Schaefer, 2000). When the literature is examined, it is seen that food craving is affected by many psychological factors (Conner, 2006; Ogden 2010), the individual's mood and characteristic features (Eskici, 2020). Eating is not an automatic process and is influenced by the complex relationship between psychological, physiological, genetic and social factors that affect eating time, amount of food consumption and food preferences (Grimm & Steinle, 2011).

In eating behavior, individuals are faced with options that encourage food intake in an environment where there are highly delicious foods (Svaldi et al., 2014). In this series of options, patients with Anorexia Nervosa decide to stop eating; the decision to stop eating in patients with bulimia nervosa is interrupted by the urge to eat, and in patients with obesity, the decision to diet and lose weight often results in indecision. Here, the necessity of a regulatory process for decision-making emerges. The regulatory process related to resistance to acting impulsively, behavior inhibition and decision making is related to executive functions (Hofmann et al., 2012).

Executive functions encompass a set of cognitive processes that allow the initiation, planning, regulation, inhibition, sequencing, and realization of goal-directed behavior and complex thinking that may affect eating behavior (Raman et al., 2013). Executive functions express the cognitive process independent of the domain that forms the basis of voluntary behavior, and inhibition and cognitive flexibility in these processes are the two most basic executive functions (Gültekin Ahçı, 2016). Here, the importance of the concept of cognitive flexibility draws attention. Cognitive flexibility includes responding appropriately to new situations and stimuli, coping with new and difficult situations, being aware of options, and generating alternative ideas (Stahl & Pry, 2005).

When the literature is examined, it is seen that those with obesity problems have difficulties in continuing their actions towards a healthy and balanced diet and in changing their eating habits (Gerdan & Kurt, 2020). This situation is directly related to cognitive flexibility. In addition, studies on the subject have shown that patients with Anorexia Nervosa have poor cognitive flexibility (Tchanturia et al., 2011). Inadequacies in cognitive flexibility constitute a risk factor for the occurrence of eating disorders (Chanturia et al., 2004; Roberts et al., 2007).

Another risk factor is gender difference. Eating disorders are a group of diseases in which gender differences are most evident (Gürdal Küey, 2008). Disturbed eating behaviors are more common in women than in men (Davison & Neale, 2004). The results of epidemiological studies on the subject show that adolescence and young adulthood are high-risk periods for the development of disturbed eating behavior (Garner et al., 2009).

It is thought that the situation affecting the prevalence of disturbed eating behaviors in women in adolescence is the changes in this period and the inadequacy in adapting to the changes (Yücel, 2009). The level of cognitive flexibility is important to be flexible while adapting to changes and to produce alternative solutions to difficult situations. Cognitive flexibility helps the individual by contributing to

the ability to adapt in the face of negative situations and creates a protective effect (Yavuz & Kutlu, 2016).

One of the developmental needs of the adolescence period is to accept one's own body, and if one's own body is not accepted, negative body perception occurs (Oktan, 2012). In the stage of adapting to and accepting the changes experienced during adolescence, mental preoccupation with body shape is seen especially in girls (Rosenblum & Lewis, 1999; Yücel, 2009). Nowadays, with the importance of physical attractiveness, the incompatibility between the perfect body and his/her own body in the mind of the individual causes a distorted body perception, and this wrong perception creates many unhealthy behaviors (Oktan, 2012). There is a relationship between dissatisfaction with one's body and eating disorders (Hill et al., 2013; Wendell et al., 2012). McCabe & Ricciardelli (2001) stated that during adolescence, 40-60% of girls have eating behaviors accompanying their dissatisfaction with their bodies. Individuals with positive body image respect their own bodies and are less prone to eating disorders (Wood-Barcalow et al., 2010). Individuals who have a negative perception about their body think that others, also, do not find them attractive. On the contrary, an individual with a positive self-perception feels more comfortable in social environments because of having a positive self-perception (Antony & Swinson, 2008).

It is stated that individuals who have a negative perception towards their bodies experience social physical anxiety and this anxiety includes similar situations with anxiety (Haase et al., 2007). Social appearance anxiety occurs as a result of the social physical anxiety experienced by the individual (Hart et al., 2008). Social appearance anxiety arises as a result of negative thoughts, feelings and behaviors related to the physical appearance and body shape of the individual (Doğan, 2010).

Social appearance anxiety is thought to emerge during adolescence. The reason for this is that young people at that time experience intense anxiety about how their physical appearance is perceived by others (Gümüş, 2000). La Greca and Lopez (1998) found in their study that young people who are not satisfied with their physical appearance experience social appearance anxiety more intensely. This intense anxiety can cause the individual to display irregular and unhealthy eating behavior. In a study conducted on athletes, it was determined that athletes with intense social appearance anxiety tend to have an unhealthy diet (Tekkurşun Demir et al., 2021).

When the relevant literature is examined in line with the information above, no study was found examining the relationship between food craving, cognitive flexibility, and social appearance anxiety. As a result, the aim of this study is to reveal the predictive power of demographic variables (gender, age), cognitive flexibility levels and social appearance anxiety on the food craving of individuals in emerging adulthood.

METHOD

In this section, the model in which the research is structured, the study group of the research, data collection tools and data collection processes are included.

Research Design

The design of the research was structured according to the relational survey model, one of the descriptive survey methods. The relational survey model aims to reveal the existence of co-change between one or more variables without manipulating them and the degree of the relationship, if any (Gürbüz & Şahin, 2015). While cognitive flexibility and social appearance anxiety are the independent variables of the study, the dependent variable is the food craving.

Study Group

The study group consists of individuals between the ages of 20-28. Participants were determined using the convenience sampling technique. For convenience sampling method, the researcher creates

the sample starting from the participants with whom the data can be easily collected in order to reach the number of samples needed (Büyüköztürk et al., 2016). Convenience sampling saves time and cost and aims to include people who want to be included in the sample (Ural & Kılıç, 2011). A total of 551 people, 395 (71.7%) women and 156 (28.3%) men, participated in the research. The average age of the participants is 20.81.

Research Instruments and Processes

"Personal Information Form (PIF)", "Short Form of Food Cravings Questionnaire-Trait (FCQT-R)", "Cognitive Flexibility Inventory (CFI)" and "Social Appearance Anxiety Scale (SAAS)" were used to collect data. Before the data collection process, necessary permissions to apply the scale were obtained. The data were applied to individuals who volunteered between the years 2021-2022 through the online form prepared by the researcher. The forms prepared online for the data collection process were applied by the researcher in a face-to-face and supervised environment.

Short Form of Food Cravings Questionnaire-Trait (FCQT-R)

Short Form of Food Cravings Questionnaire-Trait, developed by Cepeda Benito et al. (2000) and adapted to Turkish by Traş and Gökçen (2021), consists of 15 items. The scale has two sub-dimensions. One of these sub-dimensions is "preoccupation with the thought of eating" and the other is "loss of control over eating". The statements in the scale are in the form of a six-point Likert scale as "Never", "Rarely", "Sometimes", "Often", "Usually" and "Always". The scale is scored between 15 and 90. Cronbach's alpha internal consistency was used to determine the reliability of the scale. The internal consistency coefficient of the sub-dimension of preoccupation with the thought of eating is .93. The internal consistency coefficient of the dimension of loss of control over eating has a value of .91. The Guttman two-half test reliability coefficient for the whole scale is .93, and the internal consistency reliability coefficient is .94. The fact that the reliability coefficients have a value higher than .70 is proof that the scale is reliable (Gürbüz & Şahin, 2015). Confirmatory factor analysis (CFA) was used to determine the validity of the scale. According to the CFA analysis results, the χ^2 /sd value, in which the model's good fit limits were tested, was found to be 4.89. Other fit index values are RMSEA=.07, CFI=.94, GFI=.91, NFI=.93, SRMR=.036. The obtained values are an indication that the model is in good fit index. According to exploratory factor analysis (EFA) results, Barlett Test of Sphericity value was found as γ2=5868.707 sd=105 (p=.000) and Kaiser-Meyer-Olkin (KMO) sample fit coefficient was found as .92. A KMO value of .60 and above indicates that the sample is suitable for the application (Gürbüz & Şahin, 2015).

Cognitive Flexibility Inventory (CFI)

The scale, which was developed by Dennis and Wal (2010) and adapted into Turkish by Sapmaz and Doğan (2013), consists of two sub-dimensions (Alternatives and Control) and a total of 20 items. The statements of the scale are scored between "Strongly Disagree (1)" and "Strongly Agree (5)" and are in the form of a five-point rating. In order to test the reliability of the scale, the test-retest method and the Cronbach's alpha internal consistency coefficient method were used. The Cronbach's alpha internal consistency coefficients of the sub-dimensions of the scale were .90 for the alternatives and .84 for the control; for the whole of the scale, this value was calculated as .90. The reliability coefficient obtained as a result of the test-retest method was .78 for the alternatives sub-dimension and .73 for the control sub-dimension; .73 for the whole scale. Criterion-related validity, EFA and CFA were used to test the validity of the scale. According to the EFA results, the Barlett Test of Sphericity value was found to be 3892.36 (p<.001) and the KMO sample fit coefficient was found to be .92. The values obtained as a result of the CFA analysis (RMSEA= .054, GFI= .92, NFI= .96, RFI= .95, CFI= .98, IFI= .98, χ 2/sd 2.44, RMR=.052) are within the scope of the fit index.

Social Appearance Anxiety Scale (SAAS)

The scale developed by Hart et al. in 2008 and adapted into Turkish by Doğan (2010) has a one-dimensional structure. The statements of the scale, which consists of 16 items in total, are scored on a five-point Likert scale between "Strongly Disagree (1)" and "Strongly Agree (5)". The Cronbach's alpha internal consistency coefficient for the entire scale is .93. The test-retest reliability coefficient is .85 and the reliability coefficient calculated and obtained using split half method is .88. The construct validity of the scale was tested with EFA and CFA. According to the results of EFA analysis, Barlett Test of Sphericity value was found as $\chi^2 = 2674.01$ (p<.001) and KMO sample fit coefficient was found as .94. The values obtained according to the CFA analysis results (RMSEA=0.051, NFI=0.98, CFI=0.99, IFI=0.99, RFI=0.98, GFI=0.93, AGFI=0.90) are within the scope of acceptable fit.

Data Analysis

Hierarchical regression analysis was used to determine the predictors of food craving of individuals in emerging adulthood. The analysis performed to determine to what extent more than one independent variable predicts the dependent variable is called multiple regression analysis (Altunişik et al., 2010). In hierarchical regression analysis, predictive variables are included in the analysis depending on the order determined by the researcher. In the hierarchical method, the predictor variables that were analyzed first are the control variables in terms of the predictor variables that will be included in the analysis later (Büyüköztürk et al., 2016). The analysis of the data obtained from the participants was carried out in the SPSS 17.00 package program.

After checking whether the data set is suitable for hierarchical analysis, data analysis was started. For this purpose, firstly the "Mahanalobis" distance value was calculated and the outliers were obtained and removed. Initially, data were collected from 569 participants. Then, the answers of 551 participants were included in the analysis, since the answers of 18 participants were found to be outliers. After removing the outliers, kurtosis and skewness coefficients, mode, mean and median values were examined in order to investigate whether they showed a normal distribution. The modes, median and mean values of the scores obtained from the data collection tools are close to each other, and the skewness and kurtosis coefficient values between -1 and +1 indicate that the distribution is close to the normal distribution. The mean, mode, median values and skewness and kurtosis coefficient values of the scales are presented in Table 1.

 Table 1. Mean, Median and Mode Values of FCQT-R, CFI and SAAS Scores

Variables	\overline{X}	Mode	Median	KC/KCSE	SC/SCSE	
CFI	3.64	3.80	3.7	600/.104	.800/.208	
SAAS	2.29	1.25	2	.847/.104	268/.208	
FCQT	2.32	1.27	2	.992/.104	.329/.208	

CFI: Cognitive Flexibility Inventory, SAAS: Social Appearance Anxiety Scale, FCQT-R: Short Form of Food Cravings Questionnaire-Trait, KC: Kurtosis Coefficient, KCSE: Kurtosis Coefficient Standard Error, SC: Skewness Coefficient, SCSE: Skewness Coefficient Standard Error

Another issue to be considered when performing multiple regression analysis is the multicollinearity problem. Multicollinearity problem refers to the situation where the correlation coefficients of two or more variables are higher than .75 (Albayrak, 2005).

When Table 1 is examined, the relationship of the independent variables does not create a multicollinearity problem. Examining the VIF (variance inflation factor) and TV (tolerance value) is another method used to detect the multicollinearity problem. If VIF values are equal to or higher than 10 and TVs are lower than .10, a linear connection problem occurs (Albayrak, 2005). When the VIFs and TVs are examined, it is seen that the TVs of the independent variables are higher than .10 and the VIF values are less than 10. As a result of these values, it is seen that there is no multicollinearity problem between the independent variables of the research. When Table 1 is examined, the correlation between the independent variables of the research is not higher than .75, so it does not create a

connection problem.

Analysis results indicate that the data are suitable for hierarchical regression analysis. The relationship between food craving, cognitive flexibility and social appearance anxiety was determined using correlation analysis. Multiple hierarchical regression analysis was used to reveal the predictive power of cognitive flexibility and social appearance anxiety, which are independent variables, and desire to eat, which is the dependent variable. In the hierarchical regression analysis, control variables (age and gender) were included in the model first. Gender variable was included in the model by being coded (1 as female, 2 as male) since it is a discrete variable. As the age is a continuous variable, it was directly included in the model.

Ethic

Ethical issues such as confidentiality and informed consent were taken into consideration during the data collection phase. Before the research was conducted, ethical approval was obtained from the Social and Human Sciences Scientific Research Ethics Committee of Necmettin Erbakan University with the decision number 2022/213. This research was conducted with the permission of Necmettin Erbakan University, Social and Human Sciences Scientific Research Ethics Committee, with the decision dated 10/06/2022 and numbered 10302.

FINDINGS

The findings obtained as a result of the correlation analysis and hierarchical regression analysis performed to determine the relationship between the variables of cognitive flexibility, food craving and social appearance anxiety of individuals in emerging adulthood are included in this section.

The findings of the correlation analysis between the scores of the participants in the short form of food cravings questionnaire, the cognitive flexibility inventory, and the social appearance anxiety scale are presented in Table 2.

Table 2. Pearson's Correlation Values Showing the Relationship between FCQT-R, CFI, and SAAS

VARIABLES	1	2	3	4	5
FCQT-R					
1. Preoccupation with the Thought of Eating	-	.82**	34**	.10*	36**
2. Loss of Control over Eating		-	36**	.16**	38**
CFI					
3. Control			-	.24**	45**
4. Alternatives				-	.23**
SAAS					-

p< .01**, p< .05* CFI: Cognitive Flexibility Inventory, SAAS: Social Appearance Anxiety Inventory, FCQT-R: Food Cravings Questionnaire Short Form

As can be seen in Table 2, there is a positive and low-level significant relationship between Preoccupation with the Thought of Eating dimension of Food Cravings Questionnaire and Control (r=.34, p<.01), one of the sub-dimensions of the Cognitive Flexibility Inventory, while a low-level significant negative correlation was observed with Alternatives (r=-.10, p>.05). In addition, the relationship between Preoccupation with the Thought of Eating, which is a sub-dimension of Food Cravings Questionnaire and Social Appearance Anxiety (r=.36, p<.01) was found to be low, positive and statistically significant.

While a low-level positive and significant correlation was observed between the Loss of Control Over Eating dimension of the Food Cravings Questionnaire and the Control (r=.36, p<.01), one of the sub-dimensions of the Cognitive Flexibility Inventory, and a low-level significant and negative relationship was observed with the Alternatives sub-dimension (r=-.16, p<.05). In addition, a positive and low-level significant relationship was found between Loss of Control over Eating and Social Appearance Anxiety (r=.38, p<.01).

When we look at the relationship between Cognitive Flexibility and Social Appearance Anxiety, there is a positive and moderate relationship with Control (r= .45, p< .01) and a low-level negative and significant relationship with Alternatives (r= -.23, p< .01).

The hierarchical regression analysis findings regarding the predictive power of the participants' demographic variables (age and gender), (preoccupation with the thought of eating and loss of control over eating) and social appearance anxiety scores on cognitive flexibility (control and alternatives) scores are presented in Table 3.

Table 3. Hierarchical Regression Analysis Findings for Cognitive Flexibility and Social Appearance Anxiety to Predict Food Craving (N=551)

		FOOD CRAVING				
	Predictives	Preoccupation with the Thought of Eating		Loss of Control over Eating		
		ΔR^2	β	ΔR^2	В	
1. Demographic Variables	Age	.00	06	.00	05	
2. Cognitive Flexibility	Gender Control	.12**	08 .50**	.14**	.52**	
3. Social Appearance Anxiety	Alternatives	.16**	.31**	.19**	.30**	
	Total R ²	.26**		.33**		

^{*}p<.05, **p<.001

In Table 3, food craving is discussed in terms of demographic variables, cognitive flexibility, and social appearance anxiety using hierarchical regression analysis. In Table 3, when dealing with the preoccupation with the thought of eating, one of the sub-dimensions of food craving, demographic variables (age and gender) included in the first step of the model did not contribute to the model, while cognitive flexibility (R^2 =.12, p<.001) included in the second step of the model.) and social appearance anxiety, which was included in the third step, contributed significantly to the model (R^2 =.16, p<.001). Cognitive flexibility made a 12% contribution to the model. While the Alternatives, one of the sub-dimensions of cognitive flexibility, did not make a specific contribution to the model, the Control sub-dimension made a specific contribution to the model (β =.50, p<.001). In other words, as the Control scores increase, the scores of preoccupation with the thought of eating also increase. The contribution of social appearance anxiety, which is included in the model in the third step, to the model is 15% (R^2 =.15, p<.001). As the social appearance anxiety scores increase, the scores of preoccupation with the thought of eating also increase (β =.31, p<.001).

In Table 3, considering the loss of control over eating, which is one of the sub-dimensions of food craving, demographic variables (age and gender) included in the first step of the model did not contribute to the model, while cognitive flexibility (R²=.14, p<. 001) and social appearance anxiety,

which was included in the third step, appeared to make a significant contribution to the model (R^2 =.19, p<.001). The contribution of cognitive flexibility to the model was 14%. Alternatives, one of the subdimensions of cognitive flexibility, makes a low-level significant contribution to the model (β = -.14, p<.05). As the scores from the Alternatives sub-dimension increase, the scores from the loss of control over eating sub-dimension decrease. The Control sub-dimension makes a unique contribution to the model (β = .52, p<.001). In other words, as the scores from the Control dimension increase, the scores from the loss of control over eating dimension also increase. Social appearance anxiety, which was included in the model in the third step, contributed 15% to the model (R^2 =.19, p<.001). As the level of social appearance anxiety increases, the scores for loss of control over eating also increase (β = .30, p<.001).

DISCUSSION, CONCLUSION AND RECOMMENDATIONS

In this study, how cognitive flexibility and social appearance anxiety of individuals in emerging adulthood predict their food craving is discussed. When the results were examined, cognitive flexibility and social appearance anxiety levels of individuals in emerging adulthood were found to be important predictors of their food craving. When the literature was examined, no research was found that examines the relationship between food craving, cognitive flexibility and social appearance anxiety variables.

According to the research results, cognitive flexibility is an important predictor of food craving. Control and Alternatives sub-dimensions of cognitive flexibility have predictive power on preoccupation with the thought of eating and loss of control over eating, which are sub-dimensions of food craving. It appears that as cognitive control (Gabrys et al., 2018), which includes focusing on information relevant to the situation, increases, the individual becomes more preoccupied with the thought of eating. At the same time, it was concluded that if the cognitive control is high, the loss of control over eating is also high. When the literature is examined, it is seen that there are studies that reveal the relationship between food craving and cognitive flexibility and support the current research results (Chanturia et al., 2004; Roberts et al., 2007; Tchanturia et al., 2011). Afzali et al. (2021), in their study on food craving, attentional bias towards food, and cognitive flexibility in individuals with binge eating disorder, revealed that cognitive flexibility can adjust their behavior against changing situations and environmental stimuli and can also control their excessive desire to eat because they can be aware of options.

In addition, it was concluded that as the ability to produce cognitive alternatives increases, the loss of control over eating and preoccupation with the thought of eating decreases. It is seen that individuals with high scores from the Alternatives sub-dimension, which expresses the ability to produce possible solutions in difficult situations that occur in the individual's life, experience less loss of control over eating and are less preoccupied with the thought of eating. This situation shows that individuals with high scores from the Alternatives do not use eating activity as a coping strategy. In the literature, there are study results stating that individuals who do not have the ability to produce alternative solutions tend to eat as a coping strategy in a stressful situation. In their study, İnançkal and Arslantaş (2021) stated that individuals with low problem solving and coping strategy development skills have high emotional eating scores. The result of the research supports the findings obtained. In this case, it can be said that individuals who can find a different alternative instead of turning to eating behavior in the face of a stressful situation have less problems with food craving.

Social appearance anxiety, which is included in the model in the third step of the research, makes a high contribution to the model in both sub-dimensions of food craving. It was observed that as social appearance anxiety scores increased, preoccupation with the thought of eating and loss of control over eating also increased. It was observed that individuals who have a high level of anxiety about their

social appearance have a high level of food craving. This can be explained by the fact that negative feelings such as anxiety and stress lead the individual to eating behavior. Tan and Chow (2014) stated in their study that the level of stress experienced increases the amount of eating. Similarly, high anxiety can affect the eating behavior of the individual and cause him/her to consume more food (Faraj & Fırat, 2022). It is seen that the desire of individuals to eat increases in times when social appearance anxiety is intense. Erdoğan et al. (2019) stated that there is a positive and significant relationship between eating attitude and anxiety. These results support the research findings.

When the literature was examined, no study was found that examined the relationship between food craving and social appearance anxiety. For this reason, studies on eating disorders and social appearance anxiety were examined. In the literature, there are studies that support the results of the current research and show that social appearance anxiety is associated with disturbed eating behavior (Erdoğan et al., 2019; Fitzsimmons-Craft et al., 2012; Hill et al., 2013; Kaye et al., 2004; Özkan, 2019; Thompson & Chad, 2002; Turel et al., 2018; Utschig et al., 2010; Wendell et al., 2012; Wonderlich-Tierney & Wal, 2010). Turel et al. (2018), in their study examining the effects of body image, sociocultural attitudes, appearance anxiety, and depression on eating disorders of university students, revealed that appearance anxiety predicted eating disorders. Kaye et al. (2004) stated that eating disorders and social appearance anxiety are highly comorbid. In their study, Ustchig et al. (2010) revealed that fear of negative evaluation is a risk factor for body dissatisfaction, pressure to be thin, diet restriction and negative emotions, and in terms of bulimic symptoms, Thompson and Chad (2002) stated that social appearance anxiety poses a risk for eating disorders in young women. Erdoğan et al. (2019), in their study examining the relationship between eating attitude and social appearance anxiety variables, found a significant relationship between these variables. Özkan (2017) revealed the significance of the relationship between emotional eating behaviors and social appearance anxiety in his study. When the studies on eating disorders and social appearance anxiety variables are examined, it is seen that the findings are similar to the results of the current study.

Although the current research is limited to individuals aged 20-28 in emerging adulthood, it reveals a causal relationship in terms of method. It is thought that this study will make a unique contribution to the literature in terms of revealing the predictive relationships between the variables of food craving, cognitive flexibility and social appearance anxiety. Because studies on food craving are limited in number, and there are limited studies examining the relationship between cognitive flexibility and food craving. In addition, no study was found that investigates the predictive power of social appearance anxiety and cognitive flexibility on food craving. In the studies to be conducted on the subject, different variables and sample groups can be studied. It can also guide in coping with food craving and determining the negative factors that have an effect on this situation. There is a need for causal studies on the subject. Education on eating disorders can be given to individuals in the emerging adulthood period, which is the age group where eating disorders and social appearance anxiety are most common. In addition, cognitive behavioral-based individual and group psychological counseling can be provided for individuals in emerging adulthood who have problems with eating disorders, cognitive flexibility and social appearance anxiety.

REFERENCES

- Ahima, R. S., & Antwi, D. A. (2008) Brain regulation of appetite and satiety. *Endocrinology and metabolism clinics of North America*, 37(4), 811–823. https://doi.org/10.1016/j.ecl.2008.08.005
- Afzali, R., Ehteshamzade, P., Asgari, P., Naderi, F., & Eftekhar Soadi, Z. (2021). Effect of transcranial direct current stimulation on food craving, attention bias to food, and cognitive flexibility in people with binge eating disorder. *Avicenna Journal of Neuro Psycho Physiology*, 8(3), 145-150. https://doi.org/10.32592/ajnpp.2021.8.3.105
- Albayrak, A. S. (2005). Çoklu doğrusal bağlanti halinde enküçük kareler tekniğinin alternatifi yanli tahmin teknikleri ve bir uygulama. *International Journal of Management Economics and Business*,

- *1*(1), 105-126.
- Altunışık, R., Coşkun, R., Bayraktaroğlu, S., & Yıldırım, E. (2010). Sosyal bilimlerde araştırma yöntemleri SPSS uygulamalı. Sakarya: Sakarya Publishing.
- Anthony, M. M., & Swinson, R. P. (2008). The Shyness & Social Anxiety Workbook (2nd ed.). Oakland, CA.
- Büyüköztürk, Ş., Kılıç Çakmak, E., Akgün, Ö. E., Karadeniz, Ş., & Demirel, F. (2016). *Bilimsel araştırma yöntemleri*. Ankara: Pegem Publishing.
- Cepeda-Benito, A., Gleaves, D. H., Fernández, M. C., Vila, J., Williams, T. L., & Reynoso, J. (2000). The development and validation of Spanish versions of the state and trait food cravings questionnaires. Behaviour Research and Therapy, 38(11), 1125-1138. https://doi.org/10.1016/S0005-7967(99)00141-2
- Chanturia, K., Anderluh, M., Morris, R., Rabe-Hesketh, S., Collier, D., Sanchez, P., & Treasure, J. (2004). Cognitive flexibility in anorexia nervosa and bulimia nervosa. *Journal of the International Neuropsychological Society*, 10(4), 513-520. https://doi.org/10.1017/S1355617704104086
- Conner, M., & Armitage, C. J. (2006). Social psychological models of food choice. Frontiers in Nutritional Science, 3, 41.
- Dağ, İ., & Gülüm, V. (2013). Yetişkin bağlanma örüntüleri ile psikopatoloji belirtileri arasındaki ilişkide bilişsel özelliklerin aracı rolü: Bilişsel esneklik. *Turkish Journal of Psychiatry*, 24(4), 240-247.
- Davison, G. C., Neale, J. M., & Kring, A. M. (2004). Abnormal psychology, with cases. Wiley.
- Dennis, J. P., & Vander Wal, J. S. (2010). The cognitive flexibility inventory: Instrument development and estimates of reliability and validity. *Cognitive Therapy and Research*, 34(3), 241-253. https://doi.org/10.1007/s10608-009-9276-4
- Doğan, T. (2010). Sosyal Görünüş Kaygısı Ölçeği'nin (SGKÖ) Türkçe uyarlaması: Geçerlik ve güvenirlik çalışması. *Hacettepe University Journal of Education*, 39, 151-159.
- Erdoğan, İ., Eryürek, S., & Ünübol, H. (2019). Üniversite öğrencilerinde sosyal görünüş kaygısı ve yeme tutumu arasındaki ilişkinin incelenmesi. *International Journal of Social Science*, 2(2), 85-94. Retrieved from https://dergipark.org.tr/en/pub/injoss/issue/47539/600497
- Faraji, H., & Fırat, B. (2022). Yeme bozuklukları ve duygular. Fenerbahçe Üniversity Journal of Social Sciences, 2(1), 153-174.
- Fitzsimmons-Craft, E. E., Harney, M. B., Brownstone, L. M., Higgins, M. K., & Bardone-Cone, A. M.. (2012). Examining social physique anxiety and disordered eating in college women. The roles of social comparison and body surveillance. *Appetite*, 59(3), 795-805. https://doi.org/10.1016/j.appet.2012.08.019
- Gabrys, R. L., Tabri, N., Anisman, H., & Matheson, K. (2018). Cognitive control and flexibility in the context of stress and depressive symptoms: The cognitive control and flexibility questionnaire. *Frontiers in Psychology*, *9*, 1-19. http://dx.doi.org/10.3389/fpsyg.2018.02219
- Garner, D. M., Olmstead, M., & Polivy, J. (2009). Development and validation of a multidimensional eating disorder inventory for anorexia nervosa and bulimia. *International Journal of Eating Disorders*, 2(2): 15–34. https://doi.org/10.1002/1098-108X(198321)2:23.0.CO;2-6
- Gerdan, G., & Kurt, M. (2020). Obezitede yönetici işlevler ve yeme stili arasındaki ilişkinin incelenmesi. Yeni Symposium, 58(1).
- Grimm E. R., & Steinle N. I. (2011) Genetics of eating behavior: established and emerging concepts. *Nutrition Reviews*, 69(1), 52–60. https://doi.org/10.1111/j.1753-4887.2010.00361.x
- Gümüş, A. E. (2000). Üniversite öğrencilerinin yalnızlık ve beden imgelerinden doyum sosyal kaygı düzeyleri ile ilişkisinin incelenmesi. *Ankara Üniversity Journal of Faculty of Educational Sciences*, 33(1), 99-108.
- Gürbüz, S., & Şahin, F. (2015). Sosyal Bilimlerde Araştırma Yöntemleri. Ankara: Seçkin Publishing.
- Gürdal Küey, A. (2008). Yeme bozuklukları. İstanbul Üniversity Cerrahpaşa Faculty of Medicine

- Continuing Education Activities Symposium Series, 63, 81-83.
- Haase, A. M., Mountford V., & Waller G. (2007). Understanding the link between body checking cognitions and behaviors: the roll of social physique anxiety. *International Journal of Eating Disorders*, 40, 241-246. https://doi.org/10.1002/eat.20356
- Hart, T. A., Flora, D. B., Palyo, S. A., Fresco, D. M., Holle, C., & Heimberg, R. G. (2008). Development and examination of the Social Appearance Anxiety Scale, *Assessment*, 15, 48-59. https://doi.org/10.1177/1073191107306673
- Hill, A. J. (2007). The psychology of food craving. *Proceedings of the Nutrition Society*, 66(2), 277-285. https://doi.org/10.1017/s0029665107005502
- Hill, M. L., Masuda, A., & Latzman, R. D. (2013). Body image flexibility as a protective factor against disordered eating behavior for women with lower body mass index. *Eating Behaviors*, *14*(3), 336-341. https://doi.org/10.1016/j.eatbeh.2013.06.003
- Hofmann, W, Schmeichel, B. J., & Baddeley, A. D. (2012). Executive functions and self-regulation. Trends in Cognitive Sciences, 16(3), 74–180. https://doi.org/10.1016/j.tics.2012.01.006
- İnalkaç, S., & Arslantaş, H. (2021). Depresyon tanılı hastalarda duygusal yeme ve etkileyen faktörler. *Journal of Health Sciences of Adıyaman University*, 7(3), 243-257. https://doi.org/10.30569/adiyamansaglik.942978
- Kaye, W. H., Bulik, C. M., Thornton, L., Barbarich, N., Masters, K., & Price Foundation Collaborative Group. (2004). Comorbidity of anxiety disorders with anorexia and bulimia nervosa. *American Journal of Psychiatry*, 161(12), 2215-2221. https://doi.org/10.1176/appi.ajp.161.12.2215
- La Greca, A. M., & Lopez, N. (1998). Among Adolescents: Linkages with peer relations and friendships, *Journal of Abnormal Child Psychology*, 26(2), 83-94.
- McCabe, M. P., & Ricciardelli, L. A. (2001). Body image and body change techniques among young adolescent boys. *European Eating Disorders Review*, 9(5), 335-347. https://doi.org/10.1002/erv.389
- Ogden, J. (2010). *The psychology of eating: From healthy to disordered behaviour* (2nd ed.). West Sussex, United Kingdom: Wiley–Blackwell.
- Oktan, V. (2012). Beden imajı ve reddedilme duyarlılığının öznel iyi oluşu yordama gücü. *Educational Sciences and Practice*, 11(22), 119-134.
- Öz, S. (2012). Ergenlerin cinsiyet, sosyo-ekonomik ve öğrenim kademesi düzeylerine göre bilişsel esneklik, uyum ve kaygı puanları arasındaki ilişkinin incelenmesi. [Unpublished master's thesis] Çukurova University Institute of Social Sciences.
- Özkan, Y. (2017). Ergenlerde sosyal görünüş kaygısı ile duygusal yeme arasındaki ilişkinin incelenmesi. Yayımlanmamış yüksek lisans tezi, İstanbul Gelişim Üniversitesi, Sosyal Bilimler Enstitüsü, İstanbul.
- Pelchat, M. L., & Schaefer, S. (2000). Dietary monotony and food cravings in young and elderly adults. *Physiology & Behavior*, 68(3), 353–359. https://doi.org/10.1016/S0031-9384(99)00190-0
- Raman, J., Smith E., & Hay, P. (2013). The clinical obesity maintenance model: an integration of psychological constructs including mood, emotional regulation, disordered overeating, habitual cluster behaviours, health literacy and cognitive function. *Journal of Obesity*, 1–9. https://doi.org/10.1155/2013/240128
- Roberts, M., Tchanturia, K., Stahl, D., Southgate, L., & Treasure, J. (2007). A systematic review and meta-analysis of set-shifting ability in eating disorders. *Psychological Medicine*, *37*(8), 1075-1084. https://doi.org/10.1017/S0033291707009877
- Rosenblum, G. D., & Lewis, M. (1999), The relations among body image, physical attractiveness, and bady mass in adolescence, *Child Development*, 70(1), 50-64. https://doi.org/10.1111/1467-8624.00005
- Sapmaz, F., & Doğan, T. (2013). Bilişsel esnekliğin değerlendirilmesi: Bilişsel Esneklik Envanteri Türkçe versiyonunun geçerlik ve güvenirlik çalışmaları. *Ankara University Journal of Faculty of*

- Educational Sciences, 46(1), 143-161. https://doi.org/10.1501/Egifak 0000001278
- Stahl, L., & Pry, R. (2005). Attentional flexibility and perseveration: Developmental aspects in young children. *Child Neuropsychology*, 11(2), 175-189. https://doi.org/10.1080/092970490911315
- Svaldi, J., Schmitz, F., Trentowska, M., Tuschen-Caffier, B., Berking, M., & Nauman, E. (2014) Cognitive interference and food related memory bias in binge eating disorder. *Appetite* 72(1), 28–36. https://doi.org/10.1016/j.appet.2013.09.014
- Tan, C. C. & Chow, C. M. (2014). Stress and emotional eating: The mediating role of eating dysregulation. *Personality and İndividual Differences*, 66, 1-4. https://doi.org/10.1016/j.paid.2014.02.033
- Tchanturia, K., Harrison, A., Davies, H., Roberts, M., Oldershaw, A., Nakazato, M., Stahl, D., Morris, R., Schmidt, U., & Treasure, J. (2011). Cognitive flexibility and clinical severity in eating disorders. *Plos One*, *6*(6), e20462. https://doi.org/10.1371/journal.pone.0020462
- Tekkurşun Demir, G., Namlı, S., & Cicioğlu, H. İ. (2021). Takım ve bireysel sporlarda sosyal görünüş kaygısı sağlıklı beslenmeye ilişkin tutumun belirleyicisi midir? SPORMETRE the Journal of Physical Education and Sport Sciences, 19 (4), 124-134. https://doi.org/10.33689/spormetre.915191
- Thompson, A. M., & Chad, K. E. (2002). The relationship of social physique anxiety to risk for developing an eating disorder in young females. *Journal of Adolescent Health*, 31(2), 183-189. https://doi.org/10.1016/S1054-139X(01)00397-4
- Traş, Z., & Gökçen, G. (2021). Yeme Arzusu Ölçeği Kısa Formunun Türk kültürüne uyarlanması: Geçerlilik ve güvenirlik çalışması. *Journal of Ahmet Kelesoglu Education Faculty*, *3*(2), 200-215. https://doi.org/10.38151/akef.2021.17
- Turel, T., Jameson, M., Gitimu, P., Rowlands, Z., Mincher, J., & Pohle-Krauza, R. (2018). Disordered eating: Influence of body image, sociocultural attitudes, appearance anxiety and depression-a focus on college males and a gender comparison. *Cogent Psychology*, 5(1), 1483062. https://doi.org/10.1080/23311908.2018.1483062
- Ural, A., & Kılıç, İ., (2011). Bilimsel araştırma süreci ve SPSS ile veri analizi. Ankara: Detay Publishing.
- Utschig, A. C., Presnell, K., Madeley, M. C., & Smits, J. A. (2010). An investigation of the relationship between fear of negative evaluation and bulimic psychopathology. *Eating Behaviors*, 11(4), 231-238. https://doi.org/10.1016/j.eatbeh.2010.05.003
- Weingarten, H. P., & Elston, D. (1990). The phenomenology of food cravings. *Appetite*, *15*(3), 231-246. https://doi.org/10.1016/0195-6663(90)90023-2
- Wendell, J. W., Masuda, A., & Le, J. K. (2012). The role of body image flexibility in the relationship between disordered eating cognitions and disordered eating symptoms among non-clinical college students. *Eating Behaviors*, 13(3), 240-245. https://doi.org/10.1016/j.eatbeh.2012.03.006
- Wood-Barcalow, N. L., Tylka, T. L., & Augustus-Horvath, C. L. (2010). "But I like my body": Positive body image characteristics and a holistic model for young-adult women. *Body İmage*, 7(2), 106-116. https://doi.org/10.1016/j.bodyim.2010.01.001
- Wonderlich-Tierney, A. L., & Vander Wal, J. S. (2010). The effects of social support and coping on the relationship between social anxiety and eating disorders. *Eating Behaviors*, 11(2), 85-91. https://doi.org/10.1016/j.eatbeh.2009.10.002
- Yavuz, H. Ç., & Kutlu, Ö. (2016). Ekonomik bakımdan dezavantajlı öğrencilerin akademik yılmazlık düzeylerinin bazı koruyucu faktörler açısından incelenmesi. *Education and Science*, 41(186), 1-19. http://dx.doi.org/10.15390/EB.2016.5497
- Yücel, B. (2009). Estetik bir kaygıdan hastalığa uzanan yol: Yeme bozuklukları. *Journal of Clinical Development*, 22(4), 39-45.