

The Interaction of Intuitive Dietary Preferences in Middle-Aged Individuals with Cognitive Emotion Regulation Strategies: A Data-Driven Investigation

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Abstract

Aim: The main aim of this research is to understand the relationship between intuitive eating behaviors and cognitive emotion regulation strategies in individuals between the ages of 40-65.

Method: In the study, a socio-demographic data form was used to determine participants' general information, health habits, and eating habits. The Intuitive Eating Scale and Cognitive Emotion Regulation scales were employed to assess individuals' emotion regulation strategies following negative life events. The study was conducted with 149 participants.

Results: According to the results of the study, no significant relationship was found between intuitive eating behaviors and cognitive emotion regulation strategies in middle-aged individuals. In addition, there was no statistically significant relationship between Intuitive Eating Scale scores and cognitive emotion regulation strategy scores in terms of gender ($p>0.05$). The findings also indicated that 21.5% of participants had normal Body Mass Index (BMI) values, while 49.7% were classified as slightly obese, 28.2% as obese, and 0.7% as underweight. Analyzing the impact of intuitive eating behaviors and cognitive emotion regulation strategies on BMI revealed no statistically significant relationship ($p>0.05$).

Conclusion: The research findings demonstrate that intuitive eating behaviors in middle-aged individuals are not directly associated with cognitive emotion regulation strategies. Nevertheless, further detailed examination of the relationship between cognitive emotion regulation strategies and BMI is necessary. These results emphasize the importance of healthy eating habits and suggest the need for tailored educational programs to enhance cognitive emotion regulation skills in middle-aged individuals. Additionally, it is recommended that nutritionists and healthcare professionals provide conscious nutrition and healthy lifestyle education specifically for this age group. Conducting such studies will contribute to a better understanding of factors influencing intuitive eating behaviors in middle-aged individuals and support healthy aging.

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ETHICAL STATEMENT: The study received ethical approval from the Non-Interventional Ethics Committee of Yüksek İhtisas University on August 07, 2023 with decision number 2023/03/30.

Keywords: Middle-aged individuals, intuitive eating, cognitive emotion regulation, healthy aging

Orta Yaşlı Bireylerde Sezgisel Beslenme Tercihlerinin Bilişsel Duygu Düzenleme Stratejileri ile Etkileşimi: Veri Tabanlı Bir İnceleme

Öz

Amaç: Bu araştırmanın temel amacı, 40-65 yaş aralığındaki bireylerin sezgisel yeme davranışları ile bilişsel duygu düzenleme stratejileri arasındaki ilişkiyi anlamaktır.

Yöntem: Araştırmada, sosyodemografik veri formu kullanılarak katılımcıların genel bilgileri, sağlık alışkanlıkları ve beslenme alışkanlıkları belirlenmiştir. Sezgisel Yeme Ölçeği ve Bilişsel Duygu Düzenleme ölçekleri, bireylerin negatif yaşam olaylarına karşı kullanılan duygu düzenleme stratejilerini değerlendirmek amacıyla kullanılmıştır. Çalışma, 149 katılımcı üzerinde gerçekleştirilmiştir.

Bulgular: Çalışmanın sonuçlarına göre, orta yaşlı bireylerde sezgisel yeme davranışları ile bilişsel duygu düzenleme stratejileri arasında anlamlı bir ilişki bulunmamıştır. Ayrıca, Sezgisel Yeme Ölçeği puanları ile bilişsel duygu düzenleme stratejisi puanları arasında cinsiyet açısından istatistiksel olarak anlamlı bir ilişki bulunmamıştır ($p > 0,05$). Bulgular ayrıca katılımcıların %21,5'inin normal Beden Kütle İndeksi (BKİ) değerlerine sahip olduğunu, %49,7'sinin hafif obez, %28,2'sinin obez ve %0,7'sinin zayıf olarak sınıflandırıldığını göstermiştir. Sezgisel yeme davranışları ve bilişsel duygu düzenleme stratejileri ile BKİ arasındaki ilişkinin incelenmesinde ise istatistiksel olarak anlamlı bir ilişki bulunmamıştır ($p > 0,05$).

Sonuç: Araştırma sonuçları, orta yaşlı bireylerdeki sezgisel yeme davranışlarının doğrudan bilişsel duygu düzenleme stratejileri ile ilişkili olmadığını göstermektedir. Ancak, bilişsel duygu düzenleme stratejileri ve BKİ arasındaki ilişkinin daha detaylı incelenmesi gerekmektedir. Bu bulgular, sağlıklı beslenme alışkanlıklarının önemini vurgulamakta ve orta yaşlı bireylerin bilişsel duygu düzenleme becerilerini geliştirmek için eğitim programları önermektedir. Beslenme danışmanları ve sağlık profesyonellerinin, bu yaş grubuna yönelik bilinçli beslenme ve sağlıklı yaşam tarzı eğitimleri sunmalarının önemi de vurgulanmaktadır. Bu tür çalışmalar, orta yaşlı bireylerin sezgisel yeme davranışlarını etkileyebilecek faktörleri anlamamıza ve sağlıklı yaşlanmalarını desteklemeye yardımcı olacaktır.

Anahtar Sözcükler: Orta yaşlı bireyler, sezgisel yeme, bilişsel duygu düzenleme, sağlıklı yaşlanma.

Introduction

Nowadays, maintaining a healthy lifestyle and protecting physical health is one of the primary goals of many people. The relationship between eating habits and emotional health plays a critical role in achieving these goals¹. Regulating our eating habits and effectively managing our emotional experiences can affect our overall health and well-being². In recent years, the concept of "intuitive eating" has received increasing attention to refer to individuals' ability to follow natural body signals, trust their bodies, and become more conscious and balanced in their dietary choices. Intuitive eating can help avoid eating disorders, provide support in achieving and maintaining a healthy body

weight, and generally enhance psychological well-being. In this context, understanding the intuitive eating behaviors of middle-aged individuals may be an important factor in the process of healthy aging³. Another important issue is cognitive emotion regulation strategies. Cognitive emotion regulation refers to the ability of individuals to understand, accept, and manage their emotional experiences. When faced with negative life events or stressful situations, individuals try to regulate their emotional reactions by using different cognitive strategies. For example, strategies such as self-blame, acceptance, brooding, and positive reappraisal have the potential to affect emotional experiences⁴. In this context, this study aimed to investigate the relationship between intuitive eating behaviors and cognitive emotion regulation strategies among middle-aged individuals. How intuitive eating behaviors may be associated with cognitive emotion regulation strategies and the effects of these relationships on the health and quality of life of middle-aged individuals will be determined. The results of this study may help us understand how middle-aged individuals can use cognitive emotion regulation strategies to maintain healthy eating habits and manage their emotional health. It may also guide health professionals in providing appropriate support and interventions to individuals in this age group. This study may contribute to the development of healthy aging strategies and the prevention of health problems in old age.

Material and Methods

The study was administered to adult volunteers between the ages of 40-65 living in Ankara province. The data of this cross-sectional study were collected between August and November 2023. The study received ethical approval from the Non-Interventional Ethics Committee of Yüksek İhtisas University on August 07, 2023 with decision number 2023/03/30.

Sociodemographic Data Form

A questionnaire form consisting of 10 questions was applied to determine the general information and health habits of the individuals. The health information of the individuals was questioned with questions about gender, age, marital status, presence of a chronic disease diagnosed by a physician, smoking, and alcohol use.

Intuitive Eating Scale 2

Intuitive Eating Scale 2, Turkish validity and reliability study was conducted by Başı et al. in 2017. The scale is a Likert-type scale and consists of 23 items. It consists of 4 sub-dimensions: unconditional permission to eat, eating beyond emotional reasons, physical

trust in hunger and satiety cues, and body-food choice overlap. The questions are evaluated as "strongly disagree" 1, "disagree" 2, "undecided" 3, "agree" 4, and "strongly agree" 5 points; scoring is reversed for questions 1, 2, 4, 5, 9, 10, and 11. The mean score of the answers in the scale is calculated and individuals with higher scores are considered to be closer to intuitive eating behavior⁵.

The Cognitive Emotion Regulation Scale

The Cognitive Emotion Regulation Scale Turkish validity and reliability study was conducted by Onat and Otrar in 2010. It is a 36-item self-assessment questionnaire that assesses nine cognitive emotion regulation strategies that individuals use after experiencing negative life events or situations. Each subscale contains four items representing different emotion regulation strategies. These strategies are self-blame, acceptance, brooding, gaining perspective, focusing on positive redirection, planning-oriented redirection, positive reappraisal, focusing on catastrophe, and blaming others. The Cognitive Emotion Regulation Scale is rated on a 5-point Likert-type scale ranging from 1 (almost never) to 5 (almost always), and subscale scores are obtained by summing the individual item scores representing the relevant subscale, so that each subscale score takes a value between 4 and 20. Higher scores on the subscales represent more frequent use of the relevant emotion regulation strategy⁶.

Statistical Evaluation

The answers given to the questionnaire and scale questions directed to the participants within the scope of the research were recorded in the IBM® SPSS Statistics (Statistical Package for the Social Sciences), 25 program for analysis. While evaluating the study data; the suitability of the numerical variables for normal distribution was evaluated with the Kolmogorov-Smirnov test, parametric tests were used for normally distributed data and nonparametric tests were used for non-normally distributed data. The comparison of a normally distributed numerical variable in at least 3 groups was examined with the One-Way Anova Test. The relationship between two non-normally distributed and non-ordered numerical parameters was analyzed by the Pearson correlation test. The statistical significance level in the tests was evaluated as $p < 0.05$.

Results

The analyses of the research conducted to determine the relationship between Intuitive Eating Behaviors and Cognitive Emotion Regulation Strategies of middle-aged

individuals aged 40-65 years who participated in the study are given in the Tables 1 and 2.

Table 1. Distribution of demographic characteristics of the individuals

		n=149	%	Mean±SD	Lower-Upper
Gender	Female	78	%52.3		
	Male	71	%47.7		
Age				50.54±4.25	40-63
BMI				28.31±5.00	17.2-44.4
BMI Classification	Underweight	1	0.7		
	Normal	32	21.5		
	Slightly Obese	74	49.7		
	Obese	42	28.2		

Table 1 shows the distribution of demographic characteristics of the individuals who participated in the study. In total, 149 individuals participated in the study. Regarding gender distribution, 78 individuals of females and 71 individuals of males participated in the study. The age distribution of the individuals was found to be 50.54 ± 4.25 years, i.e. the average age of the individuals participating in the study was 50.54 years. The age range was determined as 40-63. When Body Mass Index (BMI) values were analyzed, the mean BMI value was found to be 28.31 ± 5.00 kg/m². BMI values ranged between 17.2 and 44.4 kg/m². According to BMI classification, 0.7% of the study participants were classified as underweight, 21.5% as normal weight, 49.7% as slightly obese and 28.2% as obese.

Table 2. Total scale scores according to the gender of the individuals

					t test		
Variables	Groups	n	X	ss	t	sd	p
Intuitive Eating Scale Total Score	Female	78	77.46	8.76	-1.54	147	.126
	Male	71	79.76	9.47	-1.53	143	.127
Cognitive Emotion Regulation Total Score	Female	78	110.81	13.03	1.23	147	.220
	Male	71	107.94	15.31	1.22	138	.223

Independent Sample t Test

Table 2 includes the comparison of the total scores of the Intuitive Eating Scale and Cognitive Emotion Regulation Scale according to the gender of the individuals participating in the study. The t-test was used for these analyses. In terms of the Intuitive Eating Scale Total Score, the mean score of women was 77.46, while the mean score of men was 79.76. According to the t-test results, there was no statistically significant difference between these scores ($t = -1.54$, $p = 0.126$). In terms of the Cognitive Emotion Regulation Scale Total Score, the mean score of women was 110.81, while the mean score of men was 107.94. According to the t-test results, there was no statistically significant difference between these scores ($t = 1.23$, $p = 0.220$).

Table 3. Total scale scores of individuals according to BMI classification

BMI Classification	Intuitive Eating Total Score			Cognitive Emotion Regulation Total Score	
	n =149	Mean±SD	p	Mean±SD	p
Underweight ($<18.5 \text{ kg/m}^2$)	1	84±0	0.157	99±0	0.652
Normal ($18.5\text{-}24.9 \text{ kg/m}^2$)	32	76.81±10.72		109.4±10.15	
Slightly obese ($24.9\text{-}29,9 \text{ kg/m}^2$)	74	80.18±8.74		110.6±16.0	
Obese ($30\text{-}39.9 \text{ kg/m}^2$)	42	78.56±9.15		107.7±13.7	

Table 3 shows the relationship between Body Mass Index (BMI) classification and total scores of Intuitive Eating and Cognitive Emotion Regulation scales. When the Intuitive Eating Total Scores were analyzed, the score of the only individual in the Poor BMI group was 84. While the mean Intuitive Eating score of individuals in the Normal BMI group was 76.81, the mean Intuitive Eating scores of individuals in the Slightly Obese and Obese BMI groups were 80.18 and 78.56, respectively. However, when the p values were analyzed, these differences were not statistically significant ($p > 0.05$).

Table 4. Correlation of total and subscale scores of organic food consumption scale with BMI

		BMI	Intuitive Eating Total Score	Cognitive Emotion Regulation Total Score
BMI	Pearson r	1	-.025	-.033
	p		.763	.693
	n	149	149	149
Intuitive Eating Total Score	Pearson r	-.025	1	.032
	p	.763		.696
	n	149	149	149
Cognitive Emotion Regulation Total Score	Pearson r	-.033	.032	1
	p	.693	.696	
	n	149	149	149

Table 4 shows the Pearson correlation coefficients and p values between BMI, Intuitive Eating Scale total score and Cognitive Emotion Regulation Scale total score. The correlation coefficient between BMI and Intuitive Eating Total Score was found to be -0.025. Since this value is almost zero, it shows that there is no relationship between BMI and Intuitive Eating. Furthermore, the p-value was calculated as 0.763, which indicates that the relationship is statistically insignificant. The correlation coefficient between BMI and Cognitive Emotion Regulation Total Score was found to be -0.033. This value is almost zero, which indicates that there is no relationship between BMI and Cognitive Emotion Regulation. The p-value was calculated as 0.693, again indicating that the relationship is statistically insignificant. The correlation coefficient between Intuitive Eating Total Score and Cognitive Emotion Regulation Total Score was 0.032. This value is almost zero, indicating that there is no relationship between Intuitive Eating and Cognitive Emotion Regulation. The p-value was calculated as 0.696, which indicates that the relationship is statistically insignificant. In conclusion, the correlation analyses in Table 4 show that there is no significant relationship between BMI, Intuitive Eating and Cognitive Emotion Regulation. These findings suggest that the relationships between the variables in your study are weak or non-existent.

Discussion

This study endeavored to examine the relationship between body mass index (BMI), instinctive eating behaviors, and cognitive emotion regulation strategies among middle-aged individuals. The findings of our investigation reveal a lack of significant associations between BMI and both instinctive eating behaviors and cognitive emotion regulation. Instinctive eating refers to the regulation of eating behavior by relying on physiological signals of hunger, satiety, and fullness, based on natural bodily instincts. This type of eating is characterized by sensitivity to the body's needs and alignment with the sensations of hunger and fullness. Instinctive eating aims to engage in the act of eating only when a sense of hunger is experienced and is not guided by external factors (such as emotional states or environmental stimuli). This can be defined as a mode of nourishment in which an individual follows a natural balance based on bodily signals⁷. In our study, the correlation coefficient between BMI and the total score of instinctive eating was found to be -0.025 . This result indicates a very weak and statistically insignificant relationship between BMI and instinctive eating behaviors. It suggests that there is no clear relationship between weight and instinctive eating behaviors in the sample of middle-aged individuals in the study. In a study conducted to determine intuitive eating behavior in healthcare workers aged 18-65 and to assess the relationship between intuitive eating, BMI, and food choices, a negative relationship was observed between intuitive eating behaviors and BMI. It was found that participants with higher BMI values had less intuitive eating behaviors⁸. Another study, which aimed to examine the relationship between intuitive eating behavior, depression, and BMI in individuals aged 20-65 who transitioned to remote work during the pandemic, found no statistically significant relationship between intuitive eating behaviors and BMI⁹. In a study evaluating the impact of intuitive eating behavior on body composition and certain biochemical parameters in the 18-65 age group, no significant relationship was found between intuitive eating behaviors and BMI¹⁰. The examination of the relationship between intuitive eating and BMI in the literature reveals the diversity of results obtained from studies conducted in different populations. While this study findings indicate a lack of a significant relationship between weight and instinctive eating behaviors in middle-aged individuals, results from other studies suggest that this relationship may vary across populations. This diversity underscores the complexity of research in this field and highlights the variety of influencing factors. Looking at the global literature, numerous studies have investigated the impact of cognitive emotion regulation strategies on

obesity, BMI, and body image¹¹⁻¹³. Cognitive emotion regulation strategies refer to cognitive processes that help individuals understand, manage, and regulate their emotional responses. These strategies involve cognitive efforts aimed at enhancing individuals' emotional well-being and coping with negative emotional states¹⁴. Studies focusing on the relationship between cognitive emotion regulation strategies and BMI in Turkey are limited. In this study, the relationship between BMI and cognitive emotion regulation strategies was evaluated. According to the obtained results, the correlation coefficient between BMI and cognitive emotion regulation strategies is very low (-0.025), and the p-value is statistically insignificant. This indicates that there is no significant relationship between weight and cognitive emotion regulation. In other words, it is concluded that there is not a strong connection between weight and cognitive emotion regulation strategies in the study sample. Our study also indicates a correlation of 0.032 between the total score of instinctive eating and the total score of cognitive emotion regulation. This result similarly suggests a very weak and statistically insignificant relationship between instinctive eating behaviors and cognitive emotion regulation strategies. These findings indicate that there is not a strong relationship among BMI, instinctive eating, and cognitive emotion regulation in middle-aged individuals. These results suggest that these factors should be evaluated independently, and there is no significant relationship between healthy eating and emotional regulation strategies in this population. However, these results should be considered for forming hypotheses for future research and confirming them on a larger sample. Additionally, the limitations of the study and methodological challenges should be emphasized in the discussion.

The study received ethical approval by the Non-Interventional Ethics Committee of Yüksek İhtisas University on August 07, 2023, with decision number 2023/03/30.

Within the scope of this study, participants were provided with the Informed Consent Form in accordance with ethical principles, and voluntary participation consent was obtained as participants signed this form for their involvement in the research.

Conclusion

Based on the results of this study, a significant relationship between instinctive eating behaviors and cognitive emotion regulation strategies in middle-aged individuals could not be identified. The findings suggest that there is no notable association between these two variables during the process of healthy aging. These results indicate that, during the process of healthy aging, the instinctive eating behaviors and cognitive emotion

regulation strategies of individuals are independent of each other. This implies that middle-aged individuals employ different strategies to manage their emotional states and maintain healthy eating habits. However, these results necessitate consideration of the potential influence of other factors (such as psychosocial factors, living conditions, social support, etc.) on this relationship. More comprehensive studies are needed. The limitations of this research should also be taken into account. For instance, the study was conducted only on middle-aged individuals, and it may need to be replicated with a more diverse age range in the sample. Additionally, the evaluation of participants based on self-reported scales should be supplemented with the use of objective data.

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