

Examining Body Appreciation and Attitudes Toward Healthy Nutrition Among Physically Active Individuals

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ABSTRACT

Purpose: The aim of this study is to examine the relationship between body esteem and attitudes toward healthy eating among healthy individuals engaged in regular physical activity.

Method: The research was conducted within the framework of a correlational survey model and involved a total of 401 adults (174 men and 227 women) selected through convenience sampling. Data were collected online via Google Forms using the Body Esteem Scale and the Attitudes Toward Healthy Eating Scale, and analyzed through correlation and multiple regression methods.

Results: Findings indicated a moderate positive relationship between body esteem and both attitudes toward healthy eating and nutritional knowledge, as well as a weak but positive relationship with emotions toward nutrition. Strong positive associations were observed between attitudes toward healthy eating and nutritional knowledge, emotions toward nutrition, and positive eating habits. Conversely, body mass index (BMI) was found to be significantly and negatively related to body esteem and attitudes toward healthy eating. Results of the multiple regression analysis revealed that body esteem, age, and gender (with women scoring higher) significantly predicted attitudes toward healthy eating in a positive direction, whereas BMI predicted them negatively.

Conclusion: In conclusion, the study emphasizes the critical importance of jointly considering body image, nutritional knowledge, emotional factors, and individual habits in understanding and promoting healthy lifestyle behaviors.

Keywords: Body image, Body appreciation, Healthy eating, Physical activity, Nutritional knowledge

ÖZET

Fiziksel Olarak Aktif Bireylerde Bedeni Beğenme ve Sağlıklı Beslenmeye Yönelik Tutumların İncelenmesi

Amaç: Bu çalışmanın amacı, düzenli fiziksel aktiviteyle uğraşan sağlıklı bireylerde bedeni beğenme ile sağlıklı beslenmeye yönelik tutumlar arasındaki ilişkiyi incelemektir.

Yöntem: Araştırma, ilişkisel tarama modeli kapsamında yürütülmüş ve kolayda örnekleme yöntemiyle seçilen 174 erkek ve 227 kadından oluşan toplam 401 yetişkin üzerinde gerçekleştirilmiştir. Veriler, Google Formlar kullanılarak çevrimiçi ortamda Bedeni Beğenme Ölçeği ve Sağlıklı Beslenmeye Yönelik Tutum Ölçeği aracılığıyla toplanmış, analizlerde korelasyon ve çoklu regresyon yöntemleri kullanılmıştır.

Bulgular: Bulgular, bedeni beğenme ile sağlıklı beslenme tutumları ve beslenme bilgisi arasında orta düzeyde pozitif, beslenmeye yönelik duygular arasında ise zayıf fakat pozitif bir

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ilişki olduğunu göstermiştir. Ayrıca, sağlıklı beslenme tutumları ile beslenme bilgisi, beslenmeye yönelik duygular ve olumlu beslenme alışkanlıkları arasında güçlü pozitif ilişkiler bulunmuştur. Bununla birlikte, beden kütle indeksi (BKİ) ile bedeni beğenme ve sağlıklı beslenmeye yönelik tutumlar arasında anlamlı ve negatif yönde ilişkiler saptanmıştır. Çoklu regresyon analizleri bedeni beğenme, yaş ve cinsiyetin (kadınlarda daha yüksek skorlar) sağlıklı beslenmeye yönelik tutumları pozitif yönde, BKİ'nin ise negatif yönde anlamlı biçimde yordadığını ortaya koymuştur.

Sonuç: Sonuç olarak, sağlıklı yaşam tarzı davranışlarının anlaşılması ve desteklenmesinde beden imajı, beslenme bilgisi, duygusal faktörler ve bireysel alışkanlıkların birlikte değerlendirilmesinin kritik öneme sahip olduğu vurgulanmalıdır.

Anahtar Kelimeler: Beden imajı, Bedeni Beğenme, Sağlıklı beslenme, Fiziksel aktivite, Beslenme bilgisi

INTRODUCTION

Body appreciation is a multifaceted concept that encompasses an individual's mental representation of their own body, including both evaluative and perceptual elements (Ataria et al., 2021; Sebri and Pravettoni, 2023). It involves perceptions related to body appearance, size, and shape, as well as the emotions and attitudes associated with these perceptions (Mallaram et al., 2023; Yamamoto et al., 2017). In this context, the impact of body appreciation on an individual's overall quality of life, mental health, and social functioning holds significant importance from both scientific and societal perspectives.

The way individuals perceive their bodies is often directly linked to their psychological well-being. Body dissatisfaction can lead to negative psychological outcomes such as low self-esteem and increased depressive symptoms (Choi and Choi, 2016; Yamamoto et al., 2017). Among young people in particular, body dissatisfaction has been associated with higher levels of depressive mood, a relationship often mediated by self-esteem (Choi and Choi, 2016). Understanding the effects of body appreciation on individuals is therefore essential for developing strategies to enhance their overall well-being.

The negative aspects of body appreciation are known to influence not only psychological well-being but also physical health behaviors (Fernández Argüelles et al., 2022). Misperceptions of body appreciation can result in unhealthy approaches to weight management or failure to recognize health risks associated with weight (Alipour et al., 2015; Kops et al., 2019). In particular, understanding the relationship between body appreciation and attitudes toward healthy eating is crucial for designing effective interventions to promote such behaviors (Knoblich, 2006; Schilder, 2013). In this regard, fostering positive body appreciation may play a critical role in encouraging more favorable attitudes toward healthy nutrition and supporting overall well-being.

Research indicates that body appreciation is positively correlated with health-promoting behaviors, particularly adaptive eating patterns and intuitive eating (Homan and Cavanaugh, 2013; Nolen and Panisch, 2022). Individuals with higher levels of body appreciation are reported to exhibit more positive attitudes toward healthy nutrition and are more likely to engage in health-promoting behaviors (Nolen and Panisch, 2022). Additionally, body appreciation has been found to have an inverse relationship with eating pathology and dietary restraint, indicating that individuals with higher body appreciation are less prone to disordered eating behaviors (Linardon et al., 2022).

In light of these findings, studies suggest that interventions aimed at enhancing body appreciation could lead to more positive health behaviors and attitudes toward nutrition. However, further research is required to fully understand these relationships and to gather more comprehensive insights, particularly among diverse populations and within different cultural contexts (Nolen and Panisch, 2022). Therefore, the present study aims to contribute to the literature by examining the relationship between body appreciation and attitudes toward healthy nutrition among physically active individuals.

METHODS

Model of the Study

This study was structured within the scope of a relational survey model, which is a descriptive research approach aimed at identifying the relationships between two or more variables (Karasar, 2012). This model is particularly suitable for examining associations among individuals' attitudes, perceptions, and behaviors. The primary objective of the study was to investigate the relationship between body appreciation levels and attitudes toward healthy eating among physically active individuals. This study was conducted after obtaining ethical approval from the Scientific Research and Publication Ethics Committee of Inonu University (Session Date: 21.02.2025; Session Number: 4; Decision Number: 17). During the data collection process, participants were informed about the study's purpose and scope, and those who voluntarily agreed signed the Informed Consent Form, and data confidentiality and anonymity were strictly maintained. Data were gathered through an online survey prepared via Google Forms. The survey link was distributed through email and social media platforms (including WhatsApp, Instagram, and Facebook) to reach physically active individuals. Participation was voluntary and anonymous, with respondents completing the questionnaire at their own convenience using personal electronic devices such as smartphones, tablets, or

computers. The survey items were presented in multiple-choice, open-ended, and scaling formats, and responses were securely recorded in real time.

Population and Sampling

The population of the study consisted of healthy adults who engage in regular physical activity. The sample of the study was determined using power analysis (G*Power, version 3.1.9.3, Germany). In this analysis, the "Exact" option under the "Correlation: Bivariate normal model" statistical test and the "Two-tailed" hypothesis test were selected. For the hypothesis test, the p-value for H1 was set at 0.02; the Type I error rate (α err prob) was 0.05, and statistical power ($1-\beta$ err prob) was chosen as 0.95. As a result of the power analysis, it was determined that the study should be conducted with at least 319 participants. Accordingly, a total of 401 adult participants (174 males and 227 females) voluntarily participated in the study. The participants were selected using the convenience sampling method, and their anthropometric characteristics were summarized using descriptive statistics and presented in Table 1.

Table 1. Anthropometric Characteristics of Participants

Variable	\bar{x}	Sd
Age (years)	29.51	10.81
Height (cm)	169.35	10.03
Body weight (kg)	71.40	14.94
BMI (kg/m ²)	24.82	4.42
Frequency of physical activity (days/week)	4.9	1.5
Regular physical activity (%)	72.3	-

According to Table 1, the participants' average age was 29.51 ± 10.81 years, the average height was 169.35 ± 10.03 cm, the average body weight was 71.40 ± 14.94 kg, and the average BMI was 24.82 ± 4.42 kg/m², which falls within the normal range according to WHO classification.

Regarding physical activity, 72.3% of the participants reported engaging in regular exercise. Among those classified as physically active, the mean frequency of exercise was 4.9 days per week (SD=1.5). This finding indicates that the majority of the sample met or

exceeded the WHO recommendation of at least 150 minutes of moderate-intensity physical activity per week, thereby supporting the homogeneity of the sample in terms of activity level.

Sample Characteristics

The study sample consisted of individuals who reported engaging in regular physical activity. To ensure greater clarity and consistency, participants were classified as physically active based on the World Health Organization (WHO) guideline of at least 150 minutes of moderate-intensity exercise per week (WHO, 2020). Accordingly, individuals who reported exercising at least three times per week, with an average duration of approximately 50 minutes per session, were considered physically active. This operational definition provided a standardized criterion and enhanced the homogeneity of the sample.

Data Collection Tools

Demographic data such as age, height, weight, and gender were collected using the Anthropometric Information Questionnaire. Body mass index (BMI) (kg/m^2) value for each participant was calculated using their height and body weight data. Subsequently, participants completed the Body Appreciation Scale (BAS) and the Attitudes Toward Healthy Eating Scale (ATHES) forms. The scales were administered in a quiet environment under the supervision of the researcher, and the data were anonymized and securely stored.

Body Appreciation Scale (BAS)

The Body Appreciation Scale (BAS) is a 10-item self-assessment tool developed to measure individuals' levels of body appreciation. The scale was originally developed by Tylka and Wood-Barcalow (2015) and adapted into Turkish by Anlı et al. (2015). The Turkish version's validity and reliability were tested on 205 participants, and confirmatory factor analysis indicated that the unidimensional structure had a good fit ($\chi^2=72.46$, $df=33$, $RMSEA=.077$, $CFI=.98$). The internal consistency coefficient of the scale was reported as .88, and item-total correlation coefficients ranged between .31 and .76.

Attitudes Toward Healthy Eating Scale (ATHES)

The Attitudes Toward Healthy Eating Scale (ATHES) was developed by Demir and Cicioğlu (2019). The scale consists of 21 items and is structured into four factors: Knowledge About Nutrition (KAN), Feelings About Nutrition (FAN), Positive Nutrition Habits (PNH), and Negative Nutrition Habits (NNH). It explains 57.79% of the total variance and demonstrates adequate fit indices based on confirmatory factor analysis ($\chi^2/df=1.71$,

RMSEA=.04, GFI=.92, CFI=.98). Internal consistency coefficients were reported as .90 for KAN, .84 for FAN, .75 for PNH, and .83 for NNH. Reliability coefficients calculated using the test-retest method were .81, .79, .68, and .80, respectively. Scores on the ATHES range from 21 to 105, with higher scores indicating more positive attitudes toward healthy eating.

Data Analysis

The data obtained in the study were analyzed using IBM Statistics software (SPSS, version 26.0, Armonk, NY, USA). Descriptive statistics were used to summarize the anthropometric information of the participants. To evaluate the normality of the data distribution, skewness and kurtosis values were examined, with values between -2 and +2 considered as the criteria for normality (Kim, 2013; Mishra et al., 2019; Tabachnick and Fidell, 2019). The analysis revealed that the data followed a normal distribution (Table 2). Pearson correlation analysis was used to examine the relationships between variables. This analysis evaluates the direction and strength of the relationship between variables based on correlation coefficients. Correlation coefficients, ranging from -1 to +1, were classified as follows: weak correlation (-0.1 to -0.3 or 0.1 to 0.3), moderate correlation (-0.3 to -0.5 or 0.3 to 0.5), strong correlation (-0.5 to -0.7 or 0.5 to 0.7), and very strong correlation (-0.7 to -1.0 or 0.7 to 1.0) (Cohen, 1988; Hinkle et al., 2003). Moreover, multiple regression analysis was conducted to examine the relationship between body appreciation and attitudes toward healthy eating while controlling for age, gender, and BMI. All results were interpreted based on a significance level of $p < 0.05$.

Table 2. Skewness and Kurtosis Values for Normality of Data Distribution

Scale/Subscale Scores	n	Skewness	Kurtosis
Body Appreciation Scale Total Score	401	-.807	.645
Attitudes Toward Healthy Eating Scale Total Score	401	.011	-.437
Knowledge About Nutrition	401	-1.014	.604
Feelings About Nutrition	401	.240	-.432
Positive Nutrition Habits	401	-.580	-.042
Negative Nutrition Habits	401	-.505	-.684

RESULTS

The correlation results among the total scores of the BAS, ATHES, NK, FTN, PNH and NNH are presented in Table 3.

Table 3. Correlation Results Among Variables (Pearson r)

Questionnaire	BAS	ATHES	NK	FTN	PNH	NNH
BAS	1	.381**	.406**	.207**	.338**	.150*
ATHES		1	.659**	.742**	.578**	.776**
NK			1	.224**	.378**	.299**
FTN				1	.181**	.550**
PNH					1	.188**
NNH						1

**p<0.001; *p<0.05; BAS: Body Appreciation Scale Total Score; ATHES: Attitudes Toward Healthy Eating Scale Total Score; NK: Nutrition Knowledge; FTN: Feelings Toward Nutrition; PNH: Positive Nutrition Habits; NNH: Negative Nutrition Habits

According to the correlation results presented in Table 3, a moderate positive relationship was found between the total score of the Body Appreciation Scale and the total score of the Attitudes Toward Healthy Eating Scale ($r=.381$). Similarly, a moderate positive correlation was identified between body appreciation scores and nutrition knowledge ($r=.406$). On the other hand, the relationship between body appreciation scores and feelings toward nutrition was weak but positive ($r=.207$). A strong positive relationship was observed between attitudes toward healthy eating and nutrition knowledge ($r=.659$). Additionally, a very strong positive relationship was found between attitudes toward healthy eating and feelings toward nutrition ($r=.742$). The relationship between attitudes toward healthy eating and positive nutrition habits was also evaluated as a very strong positive correlation ($r=.578$). There was a weak positive correlation between nutrition knowledge and feelings toward nutrition ($r=.224$). The relationship between feelings toward nutrition and positive nutrition habits was weak and positive ($r=.181$). Conversely, a strong positive relationship was determined between feelings toward nutrition and negative nutrition habits ($r=.550$).

Table 4. Correlations Results Among BAS, ATHES and BMI (Pearson r)

Variables	BAS	ATHES	BMI
BAS	1	.381**	-.290**
ATHES	.381**	1	-.210*
BMI	-.290**	-.210*	1

*p<.005; **p<.001

The correlation analysis in Table 4 revealed that body appreciation (BAS) was positively associated with attitudes toward healthy eating (ATHES) ($r=.381$, $p<.001$), indicating that individuals with higher body appreciation tend to report more favorable attitudes toward nutrition. In contrast, BAS was negatively correlated with BMI ($r= -.290$, $p<.001$), suggesting that higher body appreciation is linked to lower body mass index. Similarly, ATHES was negatively related to BMI ($r= -.210$, $p<.005$), showing that participants with more positive attitudes toward healthy eating generally had lower BMI values. These findings highlight the interconnected nature of body image, eating attitudes, and body composition.

Table 5. Multiple Regression Analysis Predicting ATHES

Predictor	B (Unstandardized)	SE B	β (Standardized Coefficient)	Std. Error	t	p
Constant	15.72	2.10	-	.40	7.49	
BAS	.28	.06	.35	.05	4.67	.001***
Age	.05	.02	.08	.03	2.65	.008*
Gender (0=male, 1=female)	.62	.21	.12	.04	3.01	.003**
BMI	-.31	.10	-.18	.06	-3.00	.003**

* $p<.05$; ** $p<.005$; *** $p<.001$

To further examine the relationship between body appreciation and attitudes toward healthy eating, a multiple regression analysis was conducted controlling for age, gender, and BMI. The findings in Table 5 indicated that body appreciation significantly and positively predicted attitudes toward healthy eating ($\beta=.35$, $p<.001$). Age ($\beta=.08$, $p=.008$) and gender ($\beta=.12$, $p=.003$; women scored higher) also showed small but significant positive effects, whereas BMI was negatively associated with healthy eating attitudes ($\beta=-.18$, $p=.003$). These findings indicate that individuals with higher body appreciation and lower BMI, as well as younger participants and women, tend to report more favorable attitudes toward healthy eating. The overall model was significant ($F_{(4,396)}=38.5$, $p<.001$), explaining 28% of the variance in healthy eating attitudes ($R^2=0.28$). The unstandardized regression equation was:

$$\text{ATHES}=15.72+0.28 \times \text{BAS}+0.05 \times \text{Age}+0.62 \times \text{Gender}-0.31 \times \text{BMI}$$

DISCUSSION and CONCLUSION

The present study investigated the associations between body appreciation, attitudes toward healthy eating, nutrition knowledge, and emotional factors among physically active individuals. The findings revealed a moderate positive correlation between body appreciation and both healthy eating attitudes and nutrition knowledge. These results suggest that individuals who value and appreciate their bodies are more likely to adopt favorable attitudes toward nutrition and to seek knowledge that supports healthy dietary practices, consistent with prior research (Homan and Cavanaugh, 2013; Nolen and Panisch, 2022).

A weak but positive correlation was observed between body appreciation and emotions toward nutrition, indicating that while body image contributes to emotional engagement with eating, other factors may also play a role. Previous studies have shown that positive body image can foster adaptive eating habits and intuitive eating (Linardon and Mitchell, 2017), yet the relationship is not always linear. For instance, body image may act as both a protective and a risk factor for disordered eating depending on coping strategies employed (Bianchi et al., 2023). This underscores the importance of considering psychological mechanisms, such as acceptance and avoidance behaviors, when interpreting the role of body image in nutrition-related outcomes.

The moderate positive correlation between body appreciation and nutrition knowledge further highlights the potential motivational link between self-perceptions and knowledge acquisition. Evidence suggests that higher nutrition knowledge is associated with lower body fat percentage (Jagim et al., 2021), and gender differences have been observed, with female athletes often scoring higher in both nutrition knowledge and diet quality compared to males (Spronk et al., 2015). However, findings across populations remain inconsistent, with some studies reporting no significant relationship between nutrition knowledge and BMI (O'Brien and Davies, 2007). These discrepancies suggest that the interaction between body image, knowledge, and body composition is complex and may vary across demographic groups.

Strong positive correlations were identified between healthy eating attitudes, nutrition knowledge, emotions toward nutrition, and positive eating habits. This indicates that favorable attitudes toward healthy eating are shaped not only by cognitive knowledge but also by emotional and behavioral dimensions. However, the literature also points to potential risks: while balanced healthy eating attitudes promote positive emotions and habits, excessive preoccupation with healthy eating (orthorexia nervosa) has been linked to disordered eating

behaviors (Yılmaz et al., 2020). Conversely, non-pathological healthy orthorexia (HeOr) reflects adaptive eating behaviors and is negatively associated with eating disorders (Zickgraf and Barrada, 2022). Emotional awareness also plays a critical role, as difficulties in recognizing and expressing emotions (alexithymia) have been associated with irregular eating behaviors and bulimia (Shank et al., 2019; Quinton and Wagner, 2005).

The very strong correlation between healthy eating attitudes and positive eating habits reinforces the notion that attitudes are a fundamental determinant of dietary choices. Individuals with positive attitudes are more likely to consume fruits and vegetables, adhere to dietary recommendations, and maintain healthier lifestyle behaviors (Naughton et al., 2013; Tabbakh and Freeland-Graves, 2016). Nevertheless, external factors such as socioeconomic status and food accessibility may hinder the translation of positive attitudes into consistent healthy practices (Syah and Yuliati, 2017).

Finally, the weak correlation between nutrition knowledge and emotions toward eating suggests that knowledge alone exerts limited influence on emotional engagement. While knowledge can improve attitudes (Nizmah et al., 2024; Kang and Kim, 2024), emotional states remain a critical determinant of eating behaviors. The strong positive correlation between emotions toward nutrition and negative eating habits highlights the potential for adverse emotional states to drive unhealthy dietary patterns (Polivy and Herman, 2005; Koenig, 2007). This finding emphasizes the need for holistic interventions that address not only cognitive and behavioral aspects but also emotional regulation in the promotion of healthy eating.

Taken together, the results underscore the multidimensional nature of eating behaviors. Body appreciation, nutrition knowledge, attitudes, and emotions interact in complex ways to shape dietary practices. Effective interventions should therefore adopt a holistic approach that integrates cognitive, emotional, and behavioral dimensions, while also considering demographic and contextual factors. Future research should employ standardized definitions of physical activity, such as the World Health Organization's guideline of at least 150 minutes of moderate-intensity exercise per week, and investigate these relationships across diverse populations and cultural contexts to enhance generalizability (World Health Organization, 2020).

In conclusion, this study demonstrates that body appreciation is positively associated with healthy eating attitudes and nutrition knowledge among physically active individuals. While the relationship between body appreciation and emotions toward eating was weaker,

healthy eating attitudes were strongly linked to both nutritional knowledge and positive dietary habits, underscoring the complex interplay between psychological, cognitive, and behavioral factors. At the same time, emotions related to eating showed relatively weak associations with nutrition knowledge and positive eating habits, but a stronger connection with unhealthy eating patterns, highlighting the importance of emotional regulation in dietary behavior.

These findings suggest that interventions aimed at fostering body appreciation, improving nutrition knowledge, and addressing emotional aspects of eating may be effective in promoting healthier lifestyles. By adopting a holistic perspective that integrates body image, knowledge, and emotions, practitioners and policymakers can better support individuals in developing sustainable healthy eating behaviors (Bodega et al., 2024; Nolen and Panisch, 2022). Future research should continue to explore these multidimensional relationships across diverse populations and cultural contexts to enhance generalizability and inform evidence-based health promotion strategies.

Limitations of the Study

Despite its contributions, this study has several limitations that should be acknowledged. First, the use of a convenience sampling method restricts the generalizability of the findings, as the sample may not fully represent the broader population of physically active individuals.

Second, the reliance on self-reported measures, including anthropometric data and survey responses, introduces the possibility of reporting bias and inaccuracies.

Third, the cross-sectional design limits the ability to infer causality between body appreciation, nutrition knowledge, emotional factors, and eating behaviors; longitudinal studies would be necessary to establish temporal relationships. Additionally, cultural and contextual factors specific to the study population may have influenced the results, making it difficult to extrapolate findings to other cultural or demographic groups.

Finally, while the study employed validated instruments, the complexity of constructs such as body image and emotional engagement with eating suggests that future research should incorporate qualitative approaches or mixed-method designs to capture a more nuanced understanding.

Implications for Practice

The findings of this study carry several practical implications for health professionals, educators, and policymakers. First, interventions designed to promote healthy eating should not focus solely on increasing nutrition knowledge but also incorporate strategies that foster positive body image and emotional awareness. Programs that integrate cognitive, emotional, and behavioral components may be more effective in supporting sustainable dietary practices.

Second, practitioners working with physically active individuals should consider the role of body appreciation in shaping attitudes toward nutrition. Encouraging self-acceptance and body satisfaction may enhance motivation to adopt healthier eating behaviors and reduce the risk of maladaptive practices.

Third, the strong associations between healthy eating attitudes, emotions, and dietary habits highlight the need for holistic approaches that address both psychological and behavioral dimensions. Nutrition education initiatives should therefore be complemented by psychological support, such as emotional regulation training or stress management, to mitigate the influence of negative emotions on eating behaviors.

Finally, policymakers should recognize the importance of contextual factors, including socioeconomic status and food accessibility, in shaping the translation of positive attitudes into actual practices. Policies that improve access to affordable, nutritious foods and create supportive environments for healthy living can strengthen the effectiveness of individual-level interventions.

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