RESEARCH ARTICLE

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Evaluation of Body Weight Perception Using Body Size Guides

ABSTRACT

Objective: The search for new approaches in the fight against obesity has resulted in the idea of examining the characteristics of body weight perception. The aim of this study was to determine individuals' body weight perceptions and to observe the association between such perceptions and their socio-demographic characteristics and weight loss-oriented behaviors.

Method: A cross-sectional study was conducted using the Body Size Guide and the Body Weight Attitude and Behavior Questionnaire to assess body weight perception among participants. We assessed the frequency of accurate, under- or over-perception of participants' own body weights and their association with socio-demographic characteristics Data were analyzed using Chi-square tests, Student's t-tests, and one-way ANOVA to determine associations between weight perception and socio-demographic characteristics.

Results: Of the 283 participants, 50.2% (142) exhibited inaccurate body weight perception (IBWP). Significant associations were found between IBWP and gender, education level, and BMI classification ($p<0.05$). The frequency of accurate body weight perception (ABWP) in participants with a normal actual body mass index (BMI) was 76.6% (66), but only 30.8% (33) in pre-obese, 41.1% (23) in class I obese and 31.6% (6) in class II obese individuals. In addition, 52.1% (74) of participants with IBWP under-perceived their body weight. Forty-seven (64.4%) women with IBWP under-perceived themselves, while 42 (60.9%) of men IBWP over-perceived themselves ($p=0.004$). There was a significant difference between actual BMI classes in terms of ABWP ($p<0.001$). Significant differences were determined between perceived BMI classes in terms of diet, exercise and seeking expert advice in order to lose weight ($p<0.001$, $p=0.005$, and $p<0.001$, respectively).

Conclusion: This study provides new insights into the prevalence and factors associated with inaccurate body weight perception. These findings can inform targeted public health interventions to promote accurate self-perception and encourage healthier behaviors, particularly among populations at higher risk of obesity.

Keywords: Body Mass Index, Obesity, Weight Loss, Body Weight Perception.

Vücut Ölçüsü Kılavuzlarını Kullanarak Vücut Ağırlığı Algısının Değerlendirilmesi

ÖZET

Amaç: Obeziteyle mücadelede yeni yaklaşımların arayışı vücut ağırlığı algısının incelenmesi fikrini doğurmuştur. Bu çalışmanın amacı, bireylerin vücut ağırlığı algılarını belirlemek ve bu algılar ile sosyo-demografik özellikleri ve kilo verme odaklı davranışları arasındaki ilişkiyi gözlemlemektir.

Yöntem: Katılımcılarda vücut ağırlığı algısını değerlendirmek için Vücut Ölçüsü Rehberi ve Vücut Ağırlığı Tutum ve Davranış Anketi kullanarak kesitsel bir çalışma yürütüldü. Katılımcıların kendi vücut ağırlıklarını doğru, az veya çok algılama sıklığını ve bunların sosyo-demografik özelliklerle ilişkisini değerlendirdik. Veriler, kilo algısı ile sosyo-demografik özellikler arasındaki ilişkileri belirlemek için Ki-kare testleri, Student t-testleri ve tek yönlü ANOVA kullanılarak analiz edildi.

Bulgular: 283 katılımcının %50,2'si (142) yanlış vücut ağırlığı algısı (YVAA) sergiledi. YVAA ile cinsiyet, eğitim düzeyi ve BKİ sınıflandırması arasında anlamlı ilişkiler bulundu ($p<0,05$). Normal vücut kitle indeksi (VKİ) olan katılımcılarda doğru vücut ağırlığı algısı (DVAA) sıklığı %76,6 (66) iken, pre-obezlerde bu oran yalnızca %30,8 (33), sınıf 1 obezlerde %41,1 (23) ve sınıf 2 obezlerde %31,6 (6) idi. Ayrıca, YVAA'lı katılımcıların %52,1'i (74) vücut ağırlıklarını olduğundan az algıladı. YVAA'lı kırk yedi kadın (%64,4) kendilerini olduğundan az algılarken, YVAA'lı erkeklerin 42'si (%60,9) kendilerini olduğundan fazla algıladı ($p=0,004$). Gerçek BKI sınıfları arasında DVAA açısından anlamlı fark bulundu ($p<0,001$). Diyet, egzersiz ve kilo vermek için uzman görüşü alma açısından algılanan BKI sınıfları arasında anlamlı fark bulundu (sırasıyla $p<0,001$, $p=0,005$ ve $p<0,001$).

Sonuç: Bu çalışma, yanlış vücut ağırlığı algısının yaygınlığı ve bununla ilişkili faktörler hakkında yeni bakış açıları sunmaktadır. Bu bulgular, özellikle obezite riski daha yüksek olan popülasyonlarda doğru öz algıyı teşvik etmek ve daha sağlıklı davranışları desteklemek için halk sağlığı müdahalelerine bilgi sağlayabilir.

Anahtar Kelimeler: Vücut Kitle İndeksi, Obezite, Ağırlık Kaybı, Vücut Ağırlığı Algısı.

INTRODUCTION

Body perception refers to the body image that individuals shape in their own minds (1). It is a subjective, rather than objective assessment, and reflects how one perceives oneself. However, it may not actually reflect reality (2). Body perception depends on many factors, such as psychological components, sociodemographic characteristics and cultural differences (3). Variables such as gender, age, ethnicity, anthropometric measurements and mass media can affect the perception of one's body (4).

Body weight perception refers to body weight perception (5). Awareness of body weight, in other words accurate body weight perception (AWBP), is defined as agreement between individuals' actual measurable weight and their perceived body weight. ABWP also helps individuals to be aware of potential health risks associated with their weight status (6). AWBP was assessed in the Turkey Body Weight Perception Survey, and incompatibility between participants' weight and perceived weight was defined as inaccurate body weight perception (IBWP) (7). IBWP may assume one of two forms – under-perception of one's actual weight, or over-perception.

According to the health belief model, the motivation needed to change a habit depends on the degree of perceived health risk associated with it (8). Therefore, failure to perceive one's health status accurately will result in a tendency not to alter health-threatening behaviors (8). While overweight individuals 20 years ago thought of themselves as overweight or obese, today they regard themselves as being of normal weight (9). This normalization of overweight and obesity suggests that patients fail to accurately perceive their own health status and will therefore not modify their weight loss-oriented behaviors in order to reduce health risks (10). ABWP plays an important role in the success of obesity prevention programs (11). Brener et al. reported that while healthy or overweight participants who described themselves as overweight or obese adhered to weight loss programs, participants who did not perceive themselves as overweight were unable to exhibit weight loss-oriented behaviors (12).

Understanding body weight perception can be a key tool in developing methods for reduce obesity (6). The aim of this study was to determine individuals' own body weight perceptions and to examine their relationship with various sociodemographic characteristics and weight loss-oriented behaviors.

MATERIALS AND METHODS

This cross-sectional was performed between July and December 2018 in three different family health centers in the Kalkınma region of Trabzon, Turkey. Participants' sociodemographic characteristics were investigated, and they were grouped according to World Health Organization (WHO) body mass index (BMI) classifications by measuring body weight and height and calculating actual BMI from these.

Participants were recruited from three family health care centers using a stratified random sampling technique to ensure a representative sample of the target population. The sample size was calculated using power analysis to ensure sufficient statistical power for detecting significant associations. Confounders such as age, gender, and socio-economic status were controlled through multivariate analysis.

Participants were asked to specify the image that most closely resembled their own body shape from images contained in the body mass index-based Body Size Guide (BSG). The BMI class in which participants perceived themselves was thus identified. The BSG was developed by Harris et al. and contains 10 different body images created using real photographs. Image A represents the 'underweight' class, images B and D the 'normal' class, image D the 'pre-obese' class, images E and F the 'class I obese' class, images G and H the 'class II obese' class, and images I and J the 'class III obese' class. High correlation exists between these images and measured BMI values (Pearson's correlation coefficient r:0.94 for men and r:0.86 for women, $p<0.001$) (13).

Exact agreement between actual BMI classes and perceived BMI classes was defined as ABWP, while inconsistency between the two was defined as IBWP. Participants with IBWP were divided into two groups based on comparison of actual BMI classes and perceived BMI classes at BSG analysis. The term 'over-perceiving' was employed to describe participants whose actual BMI classes were above the perceived BMI class at BSG. We also employed the term 'under-perceiving' for participants whose actual BMI classes were below the perceived BMI class at BSG.

We calculated the frequency of participants' own body weight perception, and also evaluated the association between body weight perception status and sociodemographic data. Associations between accurate or inaccurate body weight perception and actual BMI classes were also analyzed. When evaluating associations between actual BMI class and under- and over-perception of weight among participants with IBWP, we excluded participants in the 'underweight; and 'class III obese' groups. This is because it was not possible for participants in the 'underweight' actual BMI class to choose a BSG image lower than that category, nor for individuals in the 'class III obese' class to choose a higher category of BSG image. The prevalence of over- or under-perception among participants with IBWP in was thus investigated only in the 'normal,

pre-obese, class I obese and class II obese' actual BMI classes.

Participants were asked to select those images from the BSG most closely matching their ideal body shape in the words 'In your opinion, which is the most suitable image for the ideal body structure? Please specify.' The association between participants' ideal body choice and age and gender was then subjected to analysis.

We applied a Body Weight Attitude and Behavior Questionnaire (BABQ) prepared on the basis of a search of the existing literature. This was used to investigate participants' attitudes concerning whether their body weights were healthy, knowledge concerning whether obesity is a health problem using a five-point Likert-type scale, and diet and exercise-related behaviors and histories of consulting a specialist. Exercising for at least 20 minutes at moderate intensity three days per week was considered to represent appropriate exercise. The frequency of these attitude and behaviors was determined on the basis of perceived BMI classes, while the frequency of behaviors concerning weight loss was based on body weight perception.

Individuals aged 18 with sufficient intellectual capacity to understand the questionnaire were included. Exclusion criteria were the presence of a neurological or psychological illness, any condition capable of preventing exercise, pregnancy, and involvement in bodybuilding.

Statistical analysis was carried out on Statistical Package for the Social Sciences (SPSS) software. Descriptive statistics were applied, and normality of data distribution was assessed using the Kolmogorov-Smirnov test. The Chi-square test, Student's t test and one-way ANOVA were then used to evaluate the significance of intergroup differences.

All individuals taking part received verbal explanations of the study, and provided written consent. The study was approved by the Karadeniz Technical University Medical Faculty Ethical Committee. A Research Permits Cooperation Protocol was signed between the Trabzon Provincial Health Directorate and the Karadeniz Technical University Medical Faculty Dean's Office.

RESULTS

Sociodemographic Characteristics: Two hundred eighty-three participants with a mean age of 36.77 ± 12.77 years were enrolled in the study. Other sociodemographic data are shown in Table 1.

Table 1. Participants' Socio-demographic Characteristics

Sociodemographic data	%	Number
Gender		
Female	54.8	155
Male	45.2	128
Education status		
Illiterate	1.1	3
Literate	1.8	5
Primary school graduate	26.5	75
High school graduate	30.0	85
University and above	40.6	115
Actual body mass index classes		
Underweight	3.9	11
Normal	30.4	86
Pre-obese	37.8	107
Class I obese	19.8	56
Class II obese	6.7	19
Class III obese	1.4	4

Perceived BMI Classes

Participants' perceived BMI classes are shown in Figure 1.

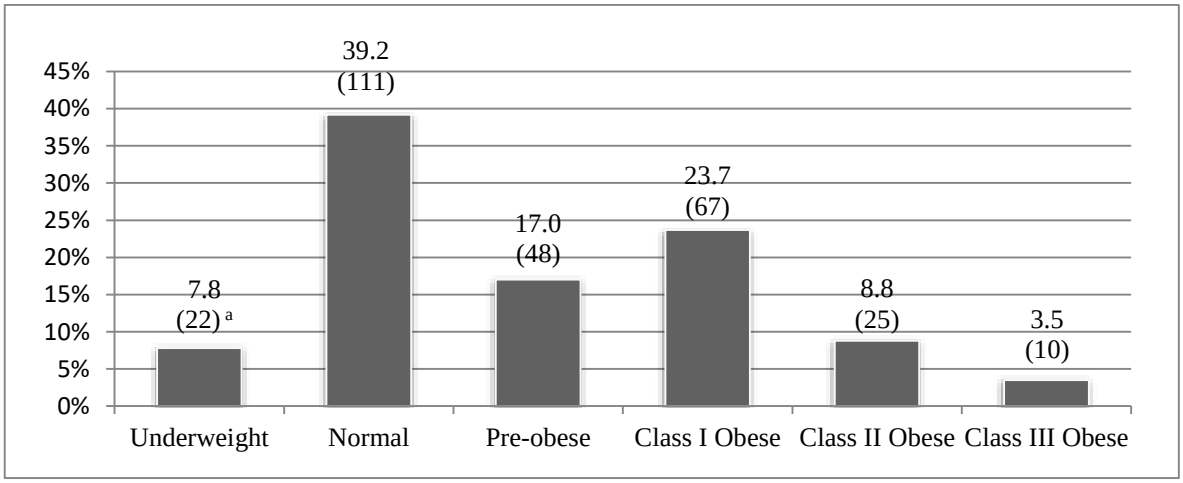

Figure 1. Distributions of perceived BMI classes.[a] % (n)

Body Weight Perception Status: ABWP was detected in 49.8% (141) of participants and IBWP in 50.2% (142), while under-perception was determined in 52.1% (74) of participants with IBWP and over-perception in 47.9% (68). Associations between participants' body weight perception status and sociodemographic data are shown in Table 2.

Table 2. Participants' body weight perception status and sociodemographic data

	Body Weight Perception Status			Inaccurate Body Weight Perception (IBWP)		
	ABWP*	IBWP	P value	Under-perception	Over-perception	p value
Mean age ± standard deviation[a]	34.14 ± 11.86	39.37 ± 13.14	0.001	40.20 ± 12.96	38.47 ± 13.36	0.434
Gender						
Female % (n)	52.9 (82)	47.1 (73)	0.283	64.4 (47)	35.6 (26)	0.004
Male % (n)	46.1 (59)	53.9 (69)		39.1 (27)	60.9 (42)	
Education status % (n)						
Illiterate	33.3 (1)	66.7 (2)	0.025	100.0 (2)	0.0 (0)	0.015
Literate	20.0 (1)	80.0 (4)		100.0 (4)	0.0 (0)	
Primary school graduate	40.0 (30)	60.0 (45)		39.2 (29)	35.6 (16)	
High school graduate	45.9 (39)	54.1 (46)		47.8 (22)	52.2 (24)	
University and above	60.9 (70)	39.1 (45)		37.8 (17)	62.2 (28)	

*Accurate body weight perception [a]: A significant difference was found between ABWP and under-perception (p=0.002). No significant difference was found between ABWP and over-perception, or between under- and over- (p=0.052 and p=0.689, respectively).

Participants' body weight perception status in terms of actual BMI classes is shown in Figure 2.

A significant difference was observed between actual BMI classes and whether perception of body weight was accurate or inaccurate (p<0.001). In the actual BMI classes, there were significant differences between normal and pre-obese classes (p<0.001), normal and class I obese classes (p<0.001), and normal and class II obese classes (p<0.001) in terms of accurate or inaccurate body weight perception. No significant difference was determined in actual BMI classes between pre-obese, class I obese and class II obese groups in terms of accurate or inaccurate body weight perception (p=0.412).

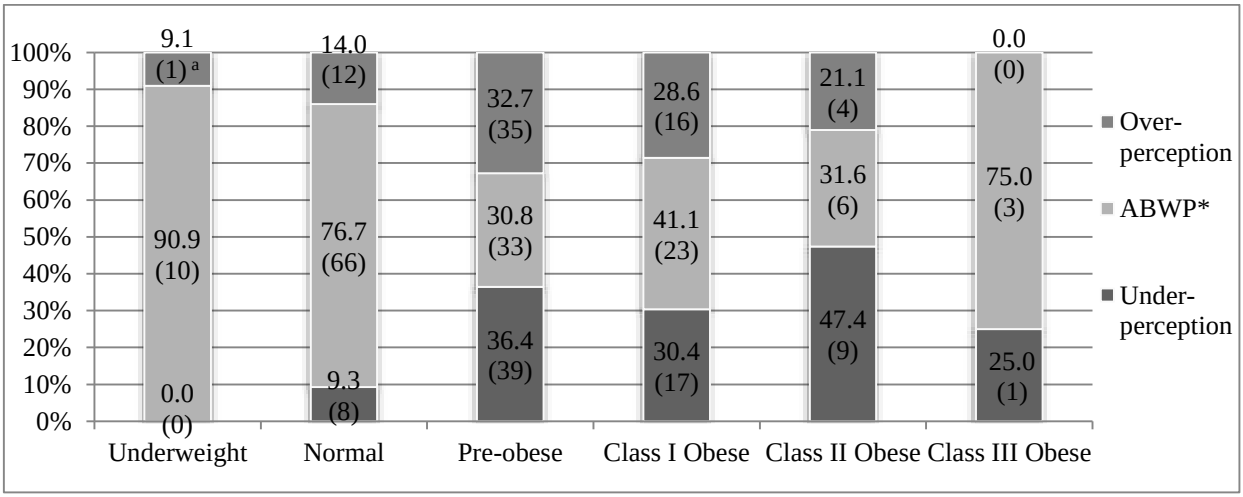

Figure 2. Distribution of Body Weight Perception Status Based on Actual BMI Classes
[a:] % (n) * Accurate body weight perception

Among the IBWP participants, in terms of actual BMI classes, under-perception was found in 40% (8) of the normal class, 52.7% of (39) the pre-obese class, 51.5% (17) of the class I obese class, and 69.2% (9) of the class II obese class. There was no significant difference between these classes in terms of under-perception status (p=0.437).

Ideal Body Image Preferences: While 70.7% (200) of participants preferred a 'normal' class image, 12.7% (36) selected an 'underweight' image, 13.1% (37) a 'pre-obese' image and 3.5% (10) a 'class I obese' image as an ideal body image. Participants' age and gender characteristics depending on ideal body preferences are shown in Table 3.

Table 3. Participants' age and gender characteristics depending on ideal body preferences

	Ideal body preferences				p value
	Underweight	Normal	Pre-obese	Class I obese	
Mean age ± standard deviation	33.50 ± 10.73	36.40 ± 12.41	39.27 ± 14.13	46.60 ± 16.68	0.019*
Gender					<0.001
Female % (n)	22.6 (35)	72.9 (113)	2.6 (4)	1.9 (3)	
Male % (n)	0.8 (1)	68.0 (87)	25.8 (33)	5.5 (7)	

* A significant difference was observed between the underweight and class I obese classes chosen as an ideal body in terms of mean age (p=0.020).

BABQ Outcomes and Their Association with Body Weight Perception: A significant difference was observed between perceived BMI classes in terms of participants' attitudes concerning whether their body weight was healthy (p<0.001, Figure 3).

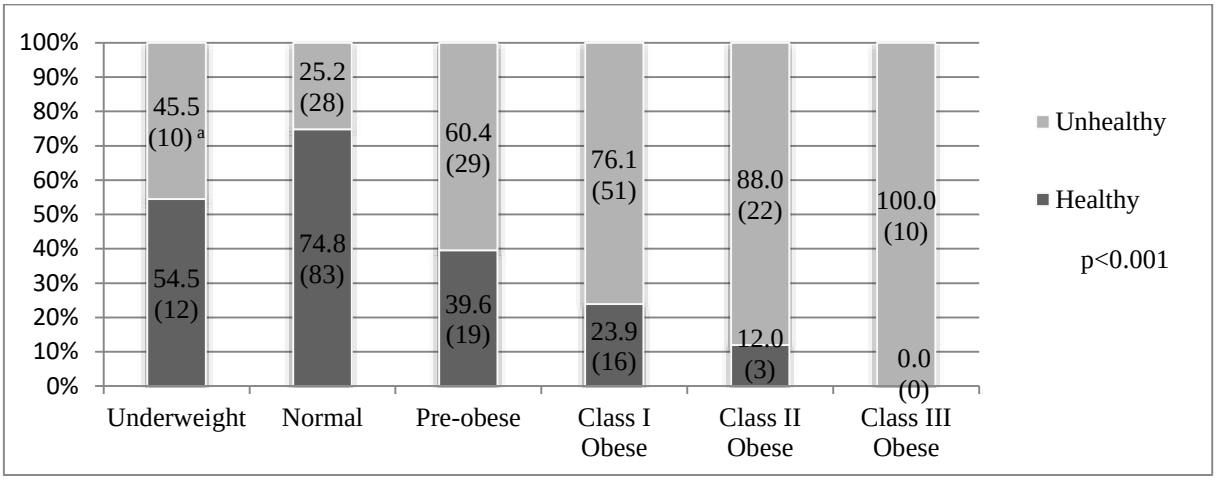

Figure 3. Participants' attitudes concerning body weight in terms of perceived body mass index classes
[a] % (n)

The study findings showed that 95.1% (269) of participants agreed or strongly agreed with the proposition that 'Obesity is a health problem,' while 0.7% (2) stated 'I have no opinion,' and 4.2% (12) responded 'I disagree.' No participants answered 'I strongly disagree'.

The findings also showed that 40.3% (114) of participants had dieted to lose weight in the past, 43.8% (124) exercised, and 23.7% (67) of participants had sought expert advice. There were significant differences between the perceived BMI classes in terms of diet, exercise and seeking expert advice (p<0.001, p=0.005, and p<0.001, respectively, Figure 4).

Frequencies of weight loss-oriented behaviors (diet, exercise and seeking expert advice) according to body weight perception status are shown in Table 4.

Table 4. Frequencies of previous weight loss-oriented behavior according to body weight perception status

	Previous weight loss-oriented behaviors		
	Diet	Exercise	Seeking expert advice
Body weight perception status			
ABWP*	37.6 (53)	41.1 (58)	21.3 (30)
IBWP**	43.0 (61)	46.5 (66)	26.1 (37)
p value	0.397	0.402	0.402
IBWP			
Under-perception	37.8 (28)	39.2 (29)	20.3 (15)
Over-perception	48.5 (33)	54.4 (37)	32.4 (22)
p value	0.236	0.092	0.126

*Accurate body weight perception, % (n) **Inaccurate body weight perception, % (n)

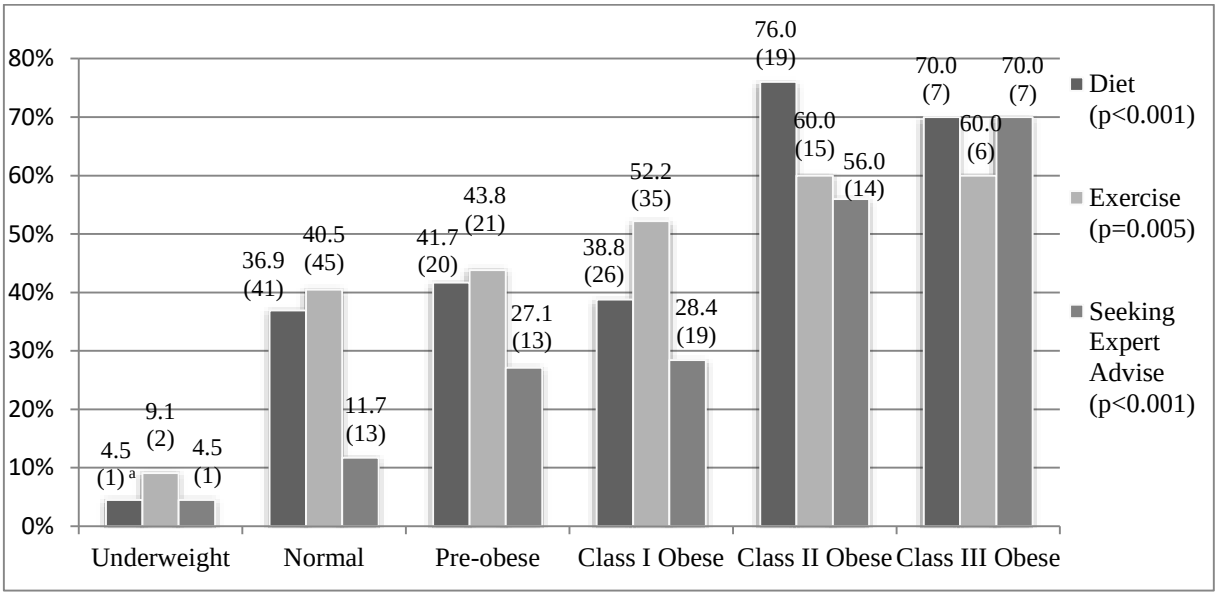

Figure 4. Frequencies of previous weight loss-oriented behaviors according to perceived body mass index classes

[a] % (n)

DISCUSSION

The prevalence of obesity in childhood and adulthood is increasing both in Turkey and worldwide (14). The most effective way to stop this increase is to prevent obesity and to raise awareness of the disease. The fact that overweight individuals perceive themselves as being of normal weight represents a risk factor for obesity (10). Efforts for weight management were associated with misperception of body weight (15). The present study therefore investigated sociodemographic features that may be related to body weight perception, together with individuals' knowledge of and attitudes and behaviors toward obesity.

Compared with the TURDEP-II study conducted in 2010, higher rates of membership of the actual BMI 'underweight, normal and pre-obese' classes were observed in the present study, while rates of membership of the actual BMI 'class I obese, class II obese and class III obese' classes were lower (16). In the Turkey Body Weight Perception Survey, which used participants' own statements when calculating actual BMI, 3.6% of participants were underweight, 39.7% were normal weight, 33.3% were pre-obese, and 23.4% were obese (7). According to the Turkish Health Interview Survey performed by the Turkish Statistical Institute in 2016, 4% of individuals aged 15 years and older were underweight, 42.1% were normal weight, 34.3% were pre-obese, and 19.6% were obese (17). The proportions of pre-obese and obese individuals in the present study were higher than in those two studies. A meta-analysis evaluating studies from Turkey in the previous 15 years reported variations in obesity prevalences between different studies was emphasized and attributed this to the general characteristics of the TURDEP study population (18). This may also explain the lower prevalence of obesity in our study than in TURDEP-II.

ABWP was determined in 49.8% of the participants in the present study. The frequency of ABWP in the Turkey Body Weight Perception Survey was 49.7%, which was very close to our own figure (7). And also Khalesi et al.'s found similar ABWP frequency (%48.6) as ours (19). In Inoue et al.'s study from Japan, the frequency of ABWP was 55.2%, higher than the value in the present study (20). In a study conducted among university freshmen by Stock et al., the frequency of ABWP was 56.7%, again higher than our figure (21). In the present study, the mean age of participants with ABWP was lower than that of individuals with under-perception. This finding is supported by previous studies showing that ABWP decreases with age (7, 22). There was no statistically significant difference between the genders in terms of ABWP or IBWP in the present study. Other studies have also reported similar rates of ABWP among females and males (7, 23, 24). Among our participants with IBWP, males tended to over-perceive their own weight, while females tended to under-perception. However, Stock et al. reported a higher rate of over-perception in females compared to males (84.8% among females with IBWP and 33.6% in males with IBWP) (21). Similarly, Kim at al. reported over-perception among 84.8% of females with IBWP (25). We think that the variations between studies may be due to differences in sociodemographic characteristics (age, education status, BMI values, ethnic origin etc.) of the study samples, as well as the differences in the methods employed to detect body weight perception. The highest frequencies of ABWP and of over-perception were observed among

individuals studying at university level or above, while the highest frequency of under-perception was observed among illiterate and merely literate individuals. In recent studies also demonstrated that underestimation body weight was associated with lower education level (15, 23, 24, 26, 27). Previous studies have shown that the frequency of ABWP increases in line with education levels (7, 11, 22, 28). The prevalence of obesity also increases as education levels decrease (29). This may be partly explained by the higher frequency of under-perception among primary school graduates and others with lower levels of education.

The two actual BMI classes with the highest frequencies of ABWP in the present study were 'underweight and normal.' The frequencies of ABWP in the 'pre-obese, class I obese and class II obese' classes were statistically significantly lower than in the 'normal' class ($p<0.001$, $p<0.001$ and $p<0.001$ for all). Karakaya et al. similarly observed found the highest ABWP frequency in the 'normal' class (71.8%) (7). In accordance with other research in China, Malaysia, Saudi Arabia shows that obese people were more likely to misperceive their weight than people with normal BMI (24, 30, 31). The lower prevalence of ABWP in overweight or obese individuals than in individuals with normal BMI values indicates impaired body weight perception. On the other hand, studies have also reported higher rates of ABWP in pre-obese or obese individuals. In Duncan et al.'s study, the prevalence of ABWP in pre-obese and obese individuals was approximately 77% (32). In another study, the reported rate of ABWP in pre-obese and obese individuals was 73.1% (22). Body weight perception is known to be affected by variables such as ethnicity, gender, and education (11, 32-35). The different prevalences of ABWP in these studies may result from variations in the sample characteristics. Randomized controlled studies are now needed to clarify the relationship between BMI and body weight perception.

In the present study, one out of every three members of the pre-obese and class I obese classes and one out of every two members of the class II obese class exhibited under-perception. This suggests impairment of body awareness. Pre-obese and obese individuals who under-perceive are unaware of their own health risks (35). The first step in the fight against obesity should be to improve individuals' body weight perception. If one is unable to regard oneself as pre-obese or obese, then one may be indifferent to all interventions aimed at preventing and treating obesity.

In the present study, men's ideal body preference mostly consisted of normal and pre-obese images, whereas women largely preferred normal and underweight images. This finding is consistent with Alipour et al.'s study of 184 women aged 18 to 35, in which women's ideal body preferences also consisted of normal and underweight body images (4). The mean age of individuals who selected the class I obese image as their ideal body image was higher than that of those who chose the underweight image. The fact that individuals with ABWP are younger, and that younger individuals select images from lower BMI classes as their ideal body preferences indicates that priority should be attached to middle age and above in terms of improving body weight perception in the fight against obesity.

Based on perceived BMI classes, one out of every 10 class II obese, one out of every five class I obese, and two out of every five pre-obese individuals evaluated their body weight as healthy. While 95.1% of participants agreed that obesity is a health problem, they were unable to exhibit the same judgment in terms of their own bodies. Irrespective of actual BMI, individuals who evaluate their own bodies as pre-obese or obese, and who also evaluate their body weights as healthy, have an insufficient level of perception and knowledge regarding healthy body weight. In the context of the fight against obesity, steps should be taken to improve the perception of healthy body weight in addition to ABWP.

In literature, weight loss-targeted behavior were associated with misperception of body weight (15). Frequencies of previous weight loss-targeted behaviors (dieting, exercising and seeking expert advice) differed significant differently between perceived BMI classes in the present study. The perceived BMI classes with the highest frequencies of dieting, exercising and seeking expert advice were 'class II obese and class III obese', while the lowest frequencies were in the 'underweight class'. Karakaya et al. asked participants whether they had dieted to lose weight in the past year, and observed a frequency of dieting of 10.1% in the normal class among perceived BMI classes, compared to 29.4% in the pre-obese class (7). The frequency of dieting was also higher in these classes in the present study. The lower frequency of dieting in Karakaya et al.'s study may result from their investigating a period of only one year.

No significant difference was observed in this study between accurate or inaccurate body weight perception in terms of past weight loss-oriented behaviors. Among participants with IBWP, there was no significant difference between under- and over-perception of body weight in terms of weight loss-oriented behaviors. In the light of these data, we conclude that the relationship between body weight perception and weight loss-oriented behaviors is related to the BMI class to which the individual perceives himself to belong, rather than perceiving himself to belong to the correct BMI class. In support of this thesis, Lemon et al. found that individuals who perceive themselves as overweight or obese attempt to lose weight more than those who perceive themselves as normal (36).

In another study a discrepancy between body weight perception and BMI among middle-aged children was found (29). Enabling individuals to perceive themselves as obese can be used as a motivation for overweight and obese individuals to engage in various weight loss-oriented behaviors. Studies are therefore now needed to reveal the effects of body weight perception on attempts to lose weight.

Limitations of the Study: One limitation of this study is we did not investigate the use of social media and other mass media, which may affect societies' ideal body perceptions. Individuals in participants' immediate environments – such as family members, colleagues, and other households – were also not investigated.

Strengths of the Study: One particular strength of this study is that we used the BSG when determining body weight perception. We think that the BSG is superior to methods of measuring body weight perception involving pictures or drawings in the literature and to methods in which subjects are asked to express how they perceive themselves in writing or verbally.

Although this study was not designed to reflect households, we think that it does reflect society, since it was conducted in primary health care facilities, those which are most accessible to the general community.

CONCLUSION

Half of the participants in this study had IBWP. Individuals' sociodemographic characteristics affect their body weight perception, and that perception affects weight loss-oriented behaviors. More efforts are needed to raise awareness of the health problems caused by obesity. Public health strategies should focus on promoting accurate body weight perception through education and awareness campaigns, targeting high-risk groups such as those with lower education levels. Within the scope of primary and secondary protections, accurate body weight perception should be inculcated, and efforts need to be made to increase individuals' awareness of their own bodies, especially in terms of pre-obesity and obesity. We recommend that further studies be performed to reveal the cause-effect relationship between body weight perception and obesity and socio-demographic features, and to produce methods for improving body perception. This study provides new insights into the prevalence and factors associated with inaccurate body weight perception. These findings can inform targeted public health interventions to promote accurate self-perception and encourage healthier behaviors, particularly among populations at higher risk of obesity.

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