

DOI: 10.4274/gulhane.galenos.2024.16046
Gulhane Med J 2024;66(4):203-210



Understanding the role of perfectionism in adult expectations of dietary restriction and thinness

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Cite this article as: Ekici EM, Yıldırım Z, Erdem S. Understanding the role of perfectionism in adult expectations of dietary restriction and thinness. Gulhane Med J. 2024;66(4):203-210

Date submitted:

24.04.2024

Date accepted:

24.07.2024

Online publication date:

22.11.2024

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Keywords: Perfectionism, eating disorders, thinness, dietary restriction

ABSTRACT

Aims: This study aimed to evaluate the relationship between perfectionism and expectations of thinness and dietary restriction in adults.

Methods: This descriptive and cross-sectional study was conducted with adults 18-65 years old. Demographic characteristics and anthropometric measurements were questioned using a questionnaire form. Perfectionism characteristics of individuals were evaluated with "Frost Multidimensional Perfectionism Scale (FMPS)" developed to make a multidimensional assessment of perfectionism, and the findings regarding their expectations from thinness and food restriction were evaluated with the "Thinness and Restricting Expectancy Inventory (TREI) Scale". Data collection was facilitated using a web-based questionnaire. Those who were not in the appropriate age range and did not tick the "I consent to participate in this study voluntarily" tab were excluded from the study.

Results: The study population was 1,376 adults (mean age: 27.42±10.99 years; 74.4% female). The TREI total score showed a weak positive correlation with the FMPS total score ($r=0.351$, $p<0.001$), and body mass index (BMI) ($r=0.288$, $p<0.001$). In multiple regression analysis, BMI, marital status, and TREI score showed an independent association with the FMPS total score. Male sex, TREI score, fear of making mistakes, and dieting showed independent associations with BMI.

Conclusions: Perfectionism is associated with body dissatisfaction, BMI, expectations regarding thinness, and dietary restriction. It is considered an influential personality trait for identifying the risk of developing eating disorders and assessing the treatment process in the future.



Introduction

Perfectionism is characterized by striving for flawlessness, setting unattainably high standards, engaging in harsh self-criticism, and fearing negative evaluations from others (1). It is assessed both unidimensionally and multidimensionally (2). In the unidimensional perspective of perfectionism, individuals tend to focus more on themselves. They set unreachable criteria, engage in excessive self-criticism, and evaluate their worth solely in terms of productivity and success (3). In multidimensional perfectionism, Frost et al. (2) and Hewitt and Flett (4) analyses revealed evaluations of both self and social relationships. Frost et al. (2) highlights not only individuals' high standards regarding performance but also their excessive concern about mistakes when evaluating perfectionism and its subdimensions. Hewitt and Flett (4), on the other hand, specified that perfectionism comprises three components: self-oriented perfectionism (setting high standards for oneself), other-oriented perfectionism (setting high standards for others), and socially prescribed perfectionism (others setting high standards for oneself). These dimensions can be adaptive or maladaptive (2). Adaptive perfectionism is associated with success and leads to positive health indicators, such as psychological well-being, self-efficacy, perceived social support, coping, lower vulnerability, and fewer self-defeating behaviors. On the other hand, maladaptive perfectionism is linked to excessive stress and hypersensitivity to health problems, resulting in negative outcomes such as eating disorders, depression, and anxiety (5,6). Eating disorders, which are associated with increased depression and anxiety, significantly impact quality of life, well-being, and health (7).

Dietary restriction is defined as the deliberate limitation of the total amount of food consumed, the types of food consumed, or both, which are often motivated by a desire to reduce body weight or maintain a specific body shape (8). It is known that some individuals engage in behaviors such as restrictive eating, emotional eating, binge eating, adhering to very low-calorie diets, and using laxatives for purging (9,10). Individuals excessively restrict their diets to control their body weight and body shape due to the individual's evaluation of their worth based on eating, body weight, and body shape. Individuals engage in very low-energy dieting to transform their bodies into the "valued" shape, which can lead to subsequent psychopathological binge eating or starvation syndrome (11). In this context, perfectionism is considered a strong risk factor for the development and continuation of eating disorders due to eating restriction (12).

Perfectionistic individuals often focus on body flaws, leading to dissatisfaction with body image and the development of unhealthy eating behaviors. Fear of failure in perfectionistic concerns can lead to overeating or weight gain. This situation contributes to negative self-criticism/evaluation and a more determined effort to strive for new goals, thus impacting eating

disorders (13). Perfectionism is a risk factor for eating disorders (3). Individuals with eating disorders have rigid and restrictive individual eating rules. Individuals who rigidly adhere to dietary rules regarding what, when, and how foods should be eaten may develop eating disorders (14). Due to excessive concern about overeating, they avoid unhealthy foods, deprive themselves of certain foods, and restrict food intake by consuming only what they consider safe. This can lead to physiological deprivation and cravings for binge eating (4).

The importance of further investigating the relationship between perfectionism and dietary restriction to understand how individuals' tendencies toward perfectionism can be associated with body image and food restrictions, as well as in promoting nutrition awareness. Additionally, from a psychological assessment perspective, this approach will contribute to increasing awareness among individuals who have or are at risk of eating disorders. There are only a limited number of studies demonstrating the relationships between perfectionism, thinness perception, and dietary restrictions among adult individuals from various cultures. There is a need for more research on how these relationships vary across cultural contexts.

This study aims to understand the relationships among perfectionism, thinness, and eating habits among individuals and to investigate how these relationships impact them. Thus, this study examines how expectations regarding perfectionism and food restrictions influence each other, the effects of this interaction on adult individuals, and their emotional states.

Methods

Participants and procedure

This cross-sectional, descriptive study was planned to be conducted between October 2023 and February 2024 and aimed to include individuals aged 18-65 years, which is the adult age range. The "Snowball Sampling Method" was used to determine the sample created by the researchers through Google Forms, and individuals were reached via social media. Data collection was facilitated using a web-based questionnaire. The study sample comprised individuals who actively consented to participate by selecting the designated option at the onset of the questionnaire and subsequently completed it in its entirety. Those who were not in the appropriate age range and did not tick the "I consent to participate in this study voluntarily" tab were excluded from the study.

Assessments

Sociodemographic data form: Demographic variables (gender, age, educational attainment, income level) and anthropometric measures (body weight and height) were assessed using a questionnaire. Among the information about the general characteristics of individuals, such as their educational status, how they perceived themselves in terms of

appearance, and their food preferences were also questioned. Additionally, individuals' perfectionism traits were measured using the "Frost Multidimensional Perfectionism Scale (FMPS)", designed for a comprehensive evaluation of perfectionism, while their attitudes toward thinness and food restriction were gauged using the "Thinness and Restricting Expectancy Inventory (TREI) Scale".

Anthropometric measurements: Anthropometric measurements (body weight, height, and waist circumference) were self-reported by participants. Detailed instructions on how to perform these measurements were provided in the questionnaire. Body mass index (BMI) was calculated by dividing body weight (in kilograms) by the square of height (in meters). BMI values below 18.50 kg/m² were categorized as underweight, between 18.50-24.99 kg/m² as normal, between 25.0-29.99 kg/m² as overweight, and above 30.0 kg/m² as obese (15).

Frost Multidimensional Perfectionism Scale: The FMPS was developed by Frost et al. (2) to assess perfectionism in a multidimensional manner. This scale consists of 35 items distributed among 6 subscales, rated from 1 (strongly agree) to 5 (strongly disagree). The subscales of the scale are personal standards (7 items) and organization (6 items), concern over mistakes (9 items), parental expectations (5 items), parental criticism (4 items), and doubts about actions (4 items). Internal consistency in the current study was acceptable for both factors ($\alpha=0.86$ and 0.91 , respectively). The reliability and validity of the scale in Turkey was conducted by Kağan (16). Each item in the scale is a five-point Likert-type measurement scored between 1 and 5. There are no reverse-scored items in the scale. Evaluation is performed by adding the scores of the seven items. The scores obtained from the scale range from 1 to 175. Evaluation was performed according to the total scores of the measurement tool, with an increase in total scores indicating an increase in perfectionism.

Thinness and Restricting Expectancy Inventory Scale: The TREI scale was developed by Hohlstein et al. (17) on the basis of expectancy learning theory. The reliability and validity study of the scale in Turkey was conducted by Sapmaz Yurtsever and Tekinsav Sutcu (18). This unidimensional scale provides information about an overgeneralized expectation of goodness for thinness and dieting. The 44-item scale, which includes items such as "I feel like I could get some things more easily if I were thin" and "Others will care more about me when I limit what I eat", is answered on a 7-point scale. As the scale score increased, the desire to be thin and eating restriction behaviors also increased (18).

Ethics

Ethical approval for the study was obtained prior to commencement and was granted by the University of Health Sciences Türkiye, Gülhane Scientific Research Ethics

Committee under decision number: 2023-333, date: 26.09.2023. All procedures in this study adhered to the principles outlined in the Declaration of Helsinki.

Statistical Analysis

The data analysis in this study was conducted using Statistical Package for Social Sciences 27.0 software. The normality distribution was evaluated using the Kolmogorov-Smirnov test. Descriptive statistics are presented as frequencies (n), percentages, and median lower and upper values. For comparisons between two independent groups, non-parametric tests such as the Mann-Whitney U test for numerical/quantitative data and the Pearson Chi-square test for qualitative data were employed. Spearman's rank correlation analysis, a non-parametric method, was used to examine the relationships between numerical variables. Regression analysis was used to predict total FMPS. Logarithmic transformation was applied to non-normally distributed variables prior to linear regression analysis to approximate normality. Statistical significance was determined at $p<0.05$.

Results

Descriptive findings

This descriptive and cross-sectional study included 1,376 adults (1,018 female, 358 male) aged 18-65 years. The average age of the participants was 27.42 ± 10.99 years and 70.1% were single. A significant proportion of participants (73.2%) held university degrees. Among the participants, men preferred protein foods more than women, whereas women preferred carbohydrate foods more ($p<0.05$). The average BMI of the participants was $23.1 (15.4-40.2)$ kg/m². Regarding BMI classification, 60.2% of participants were classified as having normal weight, 23.0% were overweight, and 8.2% were obese. The mean total FMPS score was 102.0 (39-170), whereas the mean total TREI score was 2.77 (1-7). Although the mean FMPS total score did not differ according to sex, the mean TREI total score was higher among females. The general characteristics of the participants are presented in Table 1.

Relationship between FMPS, TREI Scale, and BMI

The simple correlations between the FMPS, TREI, and BMI are presented in Table 2.

Predictors of multidimensional frost perfectionism

The linear regression analysis results of the prediction of multidimensional perfectionism are presented in Table 3. The linear regression model created to evaluate the factors associated with FMPS total score was significant ($R^2=0.212$; $p<0.001$). BMI, marital status, and TREI score were significantly associated with the FMPS total score ($p<0.001$), whereas sex was not.

Table 1. General characteristics of individuals

Variables	Gender						Statistical analysis*
	Female		Male		Total		
	n	%	n	%	n	%	
Gender	1018	74.0	358	26.0	1376	100.0	-
Marital status							
Single	714	70.1	251	70.1	965	70.1	p=0.993
Married	304	29.9	107	29.9	411	29.9	
Education level							
Primary school	35	3.4	4	1.1	39	2.8	p<0.001*
Middle school	18	1.8	13	3.6	31	2.3	
High school	166	16.3	82	22.9	248	18.0	
University	745	73.2	234	65.4	979	71.1	
Master's degree/doctorate	54	5.3	25	7.0	79	5.7	
Food preference							
Fatty foods (e.g. fried foods, fatty meats, fatty dishes, margarine and butter on bread, etc.)	125	12.3	69	19.3	194	14.1	p<0.001*
Carbohydrate foods (e.g. bread, rice, pasta, sweets, etc.)	450	44.4	100	27.9	550	40.0	
Protein foods (e.g. meat/chicken/fish/eggs)	256	25.1	173	48.3	429	31.2	
Vegetable-based foods (dark green leafy vegetables, root vegetables)	187	18.4	16	4.5	203	14.8	
Assessing body weight							
Underweight	115	11.3	44	12.3	159	11.6	p=0.164
Normal	492	48.3	159	44.4	651	47.3	
Overweight	322	31.6	131	36.6	453	32.9	
Obese	89	8.8	24	6.7	113	8.2	
BMI classification							
Underweight (<18.50 kg/m ²)	112	11.0	6	1.7	118	8.6	p<0.001*
Normal (18.50-24.99 kg/m ²)	625	61.4	203	56.7	828	60.2	
Overweight (25.00-29.99 kg/m ²)	199	19.5	118	33.0	317	23.0	
Obese (≥30.0 kg/m ²)	82	8.1	31	8.7	113	8.2	
Past weight loss diet history							
Yes	489	48.5	99	27.7	588	43.0	p<0.001
	Median (min-max)		Median (min-max)		Median (min-max)		
Age (years)	22.00 (18-65)		28.41 (18-65)		27.45 (18-65)		Z=-1.314 p=0.189
BMI (kg/m²)	22.37 (15.4-38.2)		24.41 (16.1-40.2)		23.1 (15.4-40.2)		Z=8.795 p≤0.001*
Total FMPS score	101.0 (39-170)		103.0 (48-162)		102.0 (39-170)		Z=-0.632 p=0.528
Total TREI score	2.85 (1-7)		2.54 (1-6.8)		2.77 (1-7)		Z=-3.408 p<0.001*

BMI: Body mass index, FMPS: Frost Multidimensional Perfectionism Scale, TREI: Thinness and Restricting Expectancy Inventory Scale, Z: Mann-Whitney U test, min-max: Minimum-maximum, Chi-square test, *p<0.05

Table 2. Correlation coefficients between scale scores and BMI

		1	2	3	4	5	6	7	8	9
1. TREI total score	r	-								
	p	-								
2. FMPS total score	r	0.351	-							
	p	<0.001								
3. CM	r	0.389	0.840	-						
	p	<0.001	0.000							
4. PS	r	0.195	0.746	0.533	-					
	p	<0.001	<0.001	<0.001						
5. PE	r	0.230**	0.699	0.489	0.447**	-				
	p	<0.001	<0.001	<0.001	<0.001					
6. PC	r	0.326**	0.639**	0.548**	0.267**	0.587**	-			
	p	<0.001	<0.001	<0.001	<0.001	<0.001				
7. D	r	0.302**	0.643**	0.615**	0.344**	0.324**	0.449**	-		
	p	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001			
8. O	r	-0.018	0.263**	-0.027	0.313**	0.032	0.155**	-0.044	-	
	p	0.505	<0.001	0.322	<0.001	0.233	<0.001	0.105		
9. BMI	r	0.288**	-0.033	-0.068*	-0.019	-0.008	0.048	-0.051	0.007	-
	p	<0.001	0.217	0.012	0.490	0.774	0.076	0.058	0.790	

Spearman's correlation analysis was used to calculate the p value.

BMI: Body mass index, CM: Concern over mistakes, D: Doubts about actions, FMPS: Frost Multidimensional Perfectionism Scale, O: Organization, PC: Parental criticism, PE: Parental expectations, PS: Personal standards, TREI: Thinness and Restricting Expectancy Inventory Scale

Table 3. Multiple linear regression analysis of the predictors of Frost's Multidimensional Perfectionism Level

Frost Multidimensional Perfectionism Total Score					
Model	Beta	t	p	95% confidence interval	
Gender	0.056	2.255	0.024	0.320	4.599
BMI	-0.102	-3.640	<0.001	-0.707	-0.212
Marital status	0.172	6.604	<0.001	5.098	9.407
TREI score	0.448	17.648	<0.001	0.158	0.197
R ² =0.212; p<0.001*					

*Significant at p value <0.05.

BMI: Body mass index, TREI: Thinness and Restricting Expectancy Inventory Scale

Predictors of BMI

The linear regression analyses for the prediction of BMI are presented in Table 4. The linear regression model created to evaluate the factors associated with BMI was significant (R²=0.243; p<0.001). Sex, TREI score, concerns over mistakes score, and dieting status were significantly associated with the BMI (p<0.001), whereas FMPS total score was not.

Discussion

Perfectionism was observed to be associated with body dissatisfaction, BMI, expectations regarding thinness, and dietary restriction. The main findings of the study were as follows: The level of expectations related to being thin and

restricting eating was positively related to the FMPS total score and all subcategories. Increasing BMI is associated with increased thinness and an increased level of expectations from restricting eating. The main factors affecting FMPS levels were BMI, marital status, gender, and TREI.

Perfectionism is a multidimensional concept that encompasses both maladaptive and adaptive characteristics (19). Perfectionism in terms of physical appearance is viewed as a feature associated with body dissatisfaction and eating behavior disorder (20). Expectations that shape eating and non-eating behaviors can lead to eating behavior disorders (21). Body dissatisfaction is a major risk factor for eating behavior disorder (22) and is considered a normative concern (23). Some studies

Table 4. Multiple linear regression analysis of the predictors of BMI

Model	BMI level				
	Beta	t	p	95% confidence interval	
Gender	0.272	11.295	<0.001	2.172	3.086
TREI score	0.301	10.874	<0.001	0.022	0.031
FMPS score	0.017	0.347	0.729	-0.017	0.024
Concerns regarding misusing	-0.213	-4.398	<0.001	-0.177	-0.068
Dieting status	-0.286	-11.275	<0.001	-2.885	-2.030
R²=0.243; p<0.001*					
*Significant at p value <0.05. BMI: Body mass index, FMPS: Frost Multidimensional Perfectionism Scale, TREI: Thinness and Restricting Expectancy Inventory Scale					

have suggested the importance of perfectionism and affect in the psychopathology of eating behavior disorder (24,25).

Studies conducted to date have demonstrated the influential role of personality traits such as perfectionism, obsessiveness, and impulsivity, along with early life experiences such as abuse, traumatic events, and adverse family environments, in the development and perpetuation of eating disorders. In addition to these effects, expectations about “eating” have been suggested as a factor leading to disordered eating behaviors (17,25,26). This view was proposed within the framework of expectancy learning theory, which explains the mechanisms of human behavior (17,27). Accordingly, people increase or restrict their eating behavior to meet many expectations, such as relaxation, alleviation of negative emotions, feeling more secure, and being more attractive. Research has shown that expectations about eating, thinness, and restriction evolve into eating behavior disorders. It has also been shown that these expectations can determine the treatment of eating behavior disorders, and it is possible to prevent eating behavior disorders and evaluate the treatment process during the treatment phase with a good understanding of expectations from eating and thinness (17,28,29).

According to the study gender is closely related to body satisfaction and TREI. Sex, maladaptive perfectionism, and psychological well-being are risk factors for body dissatisfaction (30). One study found that than non-dieters, dieting women had higher reward expectations for thinness (31). In this study, although the average FMPS total score did not differ by gender, the average TREI total score and tendency to diet were higher in women. At the same time, although 61.4% of the women were in the normal range according to the BMI classification, 48.3% stated that they perceived themselves as having normal weight, and most of the difference was due to the fact that they perceived themselves as overweight. This suggests that body dissatisfaction is higher in women. In a study conducted with women aged between 28 and 40 years, the relationship between different dimensions of perfectionism and body dissatisfaction was confirmed (22). In this study, although the

TREI score affected the state of perfectionism, the average TREI score showed a positive relationship with the FMPS and FMPS subdimensions of worry about making mistakes, personal standards, familial expectations, criticism from the family, and not being sure of what one is doing.

Perfectionist evaluation concerns and distrust of body sensations (i.e., not feeling safe in one’s own body; are key components in the relationship between perfectionism, intrapersonal sensitivity, and eating symptomatology (32). Personality traits are associated with body dissatisfaction in both genders. Personality traits influence how a person perceives external pressure to meet social ideals, which can lead to body image concerns (22). Perfectionism behavior increases the individual’s dissatisfaction with body image and tendency to develop unhealthy behaviors by intensifying perceptions of certain body-related flaws (33). The fact that people with high perfectionism have high standards of body image increases their body image dissatisfaction scores by focusing on the difference between the ideal and the real body (34).

There are studies in the literature that examined the relationship between anorexia nervosa and perfectionism (35,36). The results obtained in a study indicate that the prevalence of anorexia nervosa among female students is 0.2%, and the importance of insecure attachment styles, perfectionism, and body shape anxiety as risk factors are pointed out (37). In the study by Świerczyńska (35), the anorectic group had the highest FMPS score. As the tendency toward body weight loss increases, individuals’ concerns about their own mistakes and doubts about their actions also escalate (38). The likelihood of engaging in compensatory behaviors related to restriction (such as fasting, intense exercise) is associated with perfectionism, including high standards. However, binge eating, laxative misuse, and purging behaviors are not associated with these standards; instead, they are associated with impulsivity (39). This study showed that there was a significant positive correlation between the FMPS and TREI scores.

Unsuccessful weight management often leads to a weight cycle characterized by repeated weight loss and

unintentional weight gain. Individuals with a higher weight cycle, independent of age, gender, BMI, and weight loss attempts, have higher expectations of thinness (40). Although it has been shown that emotional or behavioral disorder (EBD) symptoms, especially restrictive eating and body control, increase with perfectionism, individuals with low perfectionism have been shown to be the group that exhibits the most appropriate functioning in terms of EBD pathology and affective symptoms (depression, anxiety, negative affect) (36). The results of this study are consistent with the existing literature. The level of expectations regarding thinness and dietary restriction showed a positive relationship with the total FMPS score and all its subcategories. As individuals' expectations of thinness increase, their perfectionism levels also increase. In addition, we concluded that increasing BMI was associated with increasing expectations regarding thinness and dietary restriction. According to the results of the regression analysis conducted in this study; BMI, marital status, and TREI score significantly influenced the FMPS total score. Additionally, factors such as gender, TREI score, concern over mistakes score, and dieting status were found to significantly impact BMI. This study evaluated the relationship between perfectionism and thinness expectations and dietary restriction in a large sample. Perfectionism; It is related to thinness expectations and body satisfaction. Personality characteristics may be effective in determining the risk of developing an eating disorder and evaluating the treatment process in the future. Accordingly, this study discussed the relationship between perfectionism, thinness expectations, and dietary restriction in detail. The findings of this study may serve as a guide for future studies examining the relationships between personality traits and eating disorders.

The findings of this study should be evaluated in light of some limitations. Since the data in this study were collected based on personal statements via the survey method, there may have been errors. The cross-sectional design of the study precludes the establishment of a causal relationship between perfectionism and thinness expectations and dietary restriction. The study was conducted with a limited sample; more studies should be conducted with larger samples to generalize the findings to the general population.

Conclusion

In conclusion, perfectionism has been observed to be associated with body dissatisfaction, BMI, expectations regarding thinness, and dietary restriction. It is considered an influential personality trait for identifying the risk of developing eating disorders and assessing the treatment process in the future. In this context, it is thought that it would be useful to consider and evaluate the concept of perfectionism in relation to the formation, risk, and treatment of eating behavior disorder.

Ethics

Ethics Committee Approval: Ethical approval for the study was obtained prior to commencement and was granted by the University of Health Sciences Türkiye, Gülhane Scientific Research Ethics Committee under decision number: 2023-333, date: 26.09.2023.

Informed Consent: Survey study.

Footnotes

Authorship Contributions

Concept: E.M.E., Z.Y., S.E., Design: E.M.E., Z.Y., S.E., Data Collection or Processing: E.M.E., Z.Y., Analysis or Interpretation: E.M.E., Literature Search: E.M.E., Z.Y., S.E., Writing: E.M.E., Z.Y., S.E.

Conflict of Interest: No conflict of interest was declared by the authors.

Financial Disclosure: The authors declared that this study received no financial support.

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