

Development of a Model of Body Dysmorphic Disorder Based on Ideal Body Image and Social Physique Anxiety With the Mediating Roles of Cognitive Flexibility and Rumination in Male Bodybuilders

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ABSTRACT

The present study aimed to develop a model of body dysmorphic disorder (BDD) based on ideal body image and social physique anxiety, with the mediating roles of cognitive flexibility and rumination, among male bodybuilding athletes in Arak, Iran. This correlational study employed a path analysis approach and was conducted among 200 male bodybuilding athletes in Arak during 2024–2025. Participants were selected using cluster sampling, and data were collected using the Body Image Questionnaire, Social Physique Anxiety Scale, Cognitive Flexibility Inventory, and Rumination–Reflection Questionnaire. Data were analyzed using Pearson correlation and regression analyses in SPSS and structural equation modeling in SmartPLS. The results indicated that ideal body image ($\beta = .639$) and social physique anxiety ($\beta = .499$) had significant positive effects on body dysmorphic disorder. Rumination ($\beta = .608$) also had a positive effect, whereas cognitive flexibility ($\beta = -.366$) had a negative effect on the disorder. Cognitive flexibility was confirmed as a mediator in the relationships of ideal body image ($\beta = .280$) and social physique anxiety ($\beta = .267$) with body dysmorphic disorder. Rumination also mediated the relationships of ideal body image ($\beta = .254$) and social physique anxiety ($\beta = .288$) with body dysmorphic disorder. The model fit indices (GFI, NFI, and CFI $\geq .90$; RMSEA = .064) indicated an acceptable model fit. These findings highlight the key roles of ideal body image, social physique anxiety, cognitive flexibility, and rumination in explaining body dysmorphic disorder and may be useful in designing psychological interventions for athletes.

Key words: body dysmorphic disorder, ideal body image, social physique anxiety, cognitive flexibility, rumination

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Introduction

Body image is a multidimensional psychological construct encompassing individuals' perceptions, evaluations, emotions, beliefs, and behavioral responses regarding their physical appearance. Rather than reflecting a purely objective appraisal of the body, body image is shaped by cognitive, affective, interpersonal, and sociocultural processes that determine how individuals interpret and respond to their bodily characteristics. Contemporary research increasingly emphasizes that body image includes multiple

facets, such as appearance evaluation, body satisfaction, body appreciation, body-related investment, preoccupation with specific physical features, and the discrepancy between perceived and idealized appearance. These dimensions may function differently across populations and psychological conditions, particularly in disorders characterized by persistent dissatisfaction with appearance or muscularity (1). Disturbances in body image are therefore not limited to dissatisfaction with weight or shape but may involve an excessive focus on specific bodily imperfections, heightened self-monitoring, social comparison, and maladaptive efforts to modify appearance. Such processes are particularly relevant to body dysmorphic disorder (BDD), in which perceived defects in appearance become the focus of persistent cognitive and emotional preoccupation.

Body dysmorphic disorder is characterized by excessive concern with one or more perceived defects or flaws in physical appearance that are either not observable or appear slight to others. These concerns are commonly accompanied by repetitive behaviors or mental acts, including mirror checking, reassurance seeking, appearance comparison, grooming, body concealment, and persistent evaluation of the perceived defect. The disorder may significantly impair psychological well-being, social functioning, occupational functioning, and interpersonal relationships. Body-related cognitive distortions can become self-reinforcing, so that appearance-related concerns become increasingly salient and resistant to corrective information. Research conducted among individuals with BDD has demonstrated that dysfunctional beliefs, maladaptive schemas, metacognitive processes, distress intolerance, and body-image disturbances contribute to the persistence of dysmorphic symptoms (2). Similarly, psychological interventions targeting body image and negative emotional states have produced improvements among individuals with BDD, indicating that maladaptive body representation constitutes a clinically meaningful component of the disorder rather than a superficial concern about appearance (3). Evidence from intervention research has further shown that therapies focused on emotional processing, mindfulness, and cognitive-behavioral mechanisms may improve body image among individuals displaying dysmorphic symptoms (4).

Although BDD occurs in both women and men, its phenomenology may differ according to gender and appearance ideals. In men, concerns about insufficient muscularity, body size, leanness, symmetry, or muscular definition may become particularly prominent. Male appearance ideals in many athletic and fitness environments place considerable emphasis on muscularity, low body fat, strength, and a highly defined physique. Consequently, men who engage intensively in resistance training or bodybuilding may experience a discrepancy between their actual physique and an internalized ideal muscular body. Evidence from male populations indicates that muscle dysmorphia and other forms of body-image pathology deserve particular attention because conventional approaches centered primarily on thinness may underestimate appearance-related psychopathology among men (5). In strength and power athletes, muscle dysmorphia has also been associated with body-image problems and exercise-related behavioral patterns, suggesting that environments emphasizing physique development may increase vulnerability to maladaptive appearance preoccupation in susceptible individuals (6). Therefore, bodybuilders represent an important population for examining the psychological mechanisms that may contribute to BDD-related symptoms.

One variable that may be particularly relevant in bodybuilding is ideal body image. Ideal body image refers to the internalized representation of how an individual believes the body should look and includes expectations concerning muscularity, proportion, shape, leanness, weight, attractiveness, and other

appearance characteristics. A moderate discrepancy between actual and ideal appearance may motivate health-promoting behavior; however, when ideal standards become rigid, unrealistic, or excessively salient, they may contribute to persistent body dissatisfaction and appearance-related distress. Among individuals with BDD, body-image concerns are often intensified by perfectionistic standards and dysfunctional beliefs regarding physical attractiveness and self-worth (7). When individuals interpret deviations from an idealized physique as evidence of inadequacy, such discrepancies may generate repeated appearance monitoring and negative self-evaluation. Research also indicates that negative body image is influenced by psychological inflexibility, suggesting that the manner in which individuals respond cognitively to unwanted appearance-related thoughts may be as important as the content of those thoughts (8).

For male bodybuilders, the idealized body may become especially influential because their sport explicitly directs attention toward muscular development, symmetry, visible definition, and appearance-based physical standards. Repeated exposure to highly muscular bodies in training environments, fitness culture, competitive bodybuilding, and social media may reinforce upward appearance comparisons and create progressively more demanding bodily expectations. Such patterns may encourage individuals to attend selectively to perceived weaknesses while discounting objectively positive aspects of their physique. Over time, the gap between perceived and ideal body image may become psychologically magnified, creating a cycle of dissatisfaction, compensatory exercise, self-scrutiny, and heightened concern with physical imperfections. This interpretation is consistent with findings showing that heightened attention to body shape is closely linked to social physique anxiety and other personal characteristics involved in appearance-related distress (9). It is therefore plausible that ideal body image represents a central cognitive antecedent of body dysmorphic symptoms among male bodybuilders.

Social physique anxiety is another important construct in understanding appearance-related psychopathology. It refers to anxiety experienced when individuals believe that their physique is being or may be evaluated negatively by others. This form of anxiety is particularly relevant in settings where the body is visible, compared, displayed, or judged. Individuals with high social physique anxiety may become excessively concerned with whether others perceive them as unattractive, insufficiently muscular, overweight, disproportionate, or physically inadequate. Studies have shown that social physique anxiety is associated with body image and interpersonal concerns, including anxiety in contexts in which physical attractiveness may influence social evaluation (10). Moreover, adults involved in physical activity programs may experience meaningful associations among body image, social physique anxiety, and self-esteem, demonstrating that participation in exercise does not necessarily protect individuals from appearance-related anxiety (11).

The psychological foundations of social physique anxiety include fear of negative evaluation, frequent appearance comparison, and personality-related vulnerabilities. Research among young adults has shown that fear of negative evaluation and appearance comparison can significantly contribute to social physique anxiety (12). In bodybuilders, these processes may be particularly intensified because the body represents not only a personal attribute but also the primary object of training and, in some contexts, public evaluation. Consequently, perceived physical shortcomings may be interpreted as failures that are visible to others. Evidence has also indicated that social body anxiety can influence health-related psychological functioning through body-related self-evaluation processes (13). Thus, social physique anxiety may contribute directly

to body dysmorphic symptoms by increasing vigilance toward perceived defects, promoting avoidance or compensatory behavior, and strengthening the belief that physical appearance determines social acceptance.

Nevertheless, the effects of ideal body image and social physique anxiety on BDD may not occur exclusively through direct pathways. Cognitive flexibility may represent an important mechanism through which appearance-related thoughts and anxiety are translated into persistent dysmorphic symptoms. Cognitive flexibility refers to the capacity to modify cognitive strategies in response to changing environmental demands, generate alternative interpretations, perceive difficult situations as controllable, and shift away from ineffective patterns of thinking. Individuals with greater cognitive flexibility are generally more capable of reconsidering rigid beliefs, tolerating ambiguity, adopting alternative perspectives, and adapting their cognitive responses to emotionally challenging situations. In the context of body image, cognitive flexibility may allow individuals to distance themselves from rigid appearance standards and reinterpret negative bodily evaluations in a more balanced manner.

The relevance of cognitive flexibility to body-related psychological functioning has been demonstrated across different populations. Research has shown that cognitive flexibility can be associated with more adaptive self-perceptions, body appreciation, and self-efficacy, suggesting that flexible cognitive processing may function as a psychological resource when individuals evaluate their bodies (14). Similarly, psychological flexibility and cognitive defusion have been found to predict negative body image, supporting the premise that rigid attachment to appearance-related thoughts contributes to body dissatisfaction (8). In clinical and health-related contexts, cognitive flexibility has also been identified as a mediator between anxiety and body image, indicating that anxiety may influence body perception partly through individuals' ability or inability to shift maladaptive cognitive patterns (15). These findings suggest that bodybuilders with a rigid ideal body image or elevated social physique anxiety may be especially vulnerable to BDD when they possess limited cognitive flexibility.

Psychological inflexibility may further promote experiential avoidance, in which individuals attempt to suppress, control, escape, or neutralize distressing thoughts and emotions about appearance. Such efforts can paradoxically increase the salience of the very thoughts being avoided. In appearance-related contexts, this may manifest as repeated checking, reassurance seeking, concealment, excessive exercise, rigid dietary practices, or compulsive comparison. Research on body-image-related psychological inflexibility has shown that rigid responses to body-related thoughts may interact with stigma and avoidance behavior, highlighting the broader behavioral consequences of inflexible appearance-related cognition (16). Acceptance- and flexibility-based interventions have also been applied to individuals with BDD characteristics, further supporting the clinical relevance of changing the relationship individuals have with appearance-related cognitions rather than exclusively attempting to alter their physical appearance (17).

A second potential mediator is rumination. Rumination refers to repetitive, persistent, and relatively passive thinking about distress, its causes, implications, or personally salient concerns. Unlike productive problem solving, rumination tends to recycle negative information without generating effective solutions. In the domain of body image, individuals may repeatedly think about perceived physical defects, past appearance-related criticism, imagined negative evaluation, comparisons with others, or the inability to attain an ideal physique. Such repetitive cognitive processing can intensify emotional distress and make appearance-related concerns increasingly accessible. In individuals vulnerable to BDD, rumination may

therefore operate as a cognitive mechanism that maintains attention on perceived bodily imperfections and strengthens negative interpretations of appearance.

Empirical evidence increasingly supports the role of rumination in body-image-related psychopathology. Rumination has been identified as a mediator in the relationship between rejection sensitivity and body image satisfaction, indicating that socially relevant concerns may influence body perception through repetitive negative thinking (18). Research has also shown that body dissatisfaction and rumination are interconnected with eating-related behavioral processes, suggesting that repetitive cognition may form part of a broader network linking negative body evaluation with maladaptive behavior (19). In addition, rumination has been identified alongside body-image concerns and emotion-regulation difficulties as a predictor of eating behavior, further demonstrating its significance in appearance- and weight-related psychological functioning (20). These findings are particularly relevant for bodybuilders, among whom dietary restraint, appearance monitoring, and body-focused self-evaluation may occur frequently.

The role of rumination also extends specifically to dysmorphic and somatic symptomatology. Body image and rumination have been shown to contribute to the prediction of somatic symptom severity, suggesting that repetitive negative cognition can amplify the psychological significance of bodily sensations and perceptions (21). Among cosmetic surgery applicants, rumination and cognitive emotion-regulation processes have also been proposed as mediating mechanisms linking maladaptive schemas to BDD, providing more direct evidence that repetitive thinking may contribute to dysmorphic symptom development and persistence (22). Accordingly, when male bodybuilders experience discrepancies between their actual and ideal body image or fear negative evaluation of their physique, rumination may transform transient concerns into enduring cognitive preoccupation.

Cognitive flexibility and rumination may be considered theoretically complementary mechanisms. Cognitive flexibility facilitates disengagement from rigid and ineffective cognitive patterns, whereas rumination reflects difficulty disengaging from repetitive negative thought. Thus, a bodybuilder who perceives a physical characteristic as discrepant from his ideal physique may respond adaptively if he can reinterpret the concern, consider alternative perspectives, and maintain a flexible sense of self-worth. In contrast, low cognitive flexibility may leave the individual cognitively trapped within rigid appearance standards, while rumination may repeatedly reactivate and elaborate the perceived defect. This combination could increase the intensity and persistence of dysmorphic symptoms. The importance of addressing both emotional and cognitive mechanisms is also consistent with findings indicating that interventions improving emotional functioning and body image can reduce maladaptive appearance-related experiences (3, 4).

Moreover, body dysmorphic symptoms cannot be understood adequately through a single-variable perspective. They likely arise from the interaction of body-image representations, social-evaluative processes, cognitive regulation, repetitive thought, and behavioral reinforcement. Structural studies have supported multivariate explanations in which body image functions together with maladaptive schemas, metacognition, and distress-related variables in predicting BDD (2). Likewise, research on social physique anxiety has demonstrated that body-focused attention and personal characteristics can be integrated within structural models rather than being treated as isolated correlates (9). This multivariate perspective is particularly appropriate for bodybuilding populations, in whom appearance ideals and social physique

evaluation coexist within a behavioral environment characterized by frequent body monitoring and explicit efforts to modify physical form.

Despite the growing literature on body image, social physique anxiety, psychological flexibility, and rumination, several gaps remain. First, many studies have examined these variables separately rather than within an integrated explanatory model. Second, research on male bodybuilders remains comparatively limited, although this population may be particularly vulnerable to muscularity-oriented body dissatisfaction and dysmorphic concerns (5, 6). Third, existing studies provide evidence for associations between cognitive flexibility and body image (14, 15), as well as between rumination and body-related distress (18, 21), but the simultaneous mediating roles of cognitive flexibility and rumination in the relationships of ideal body image and social physique anxiety with BDD require further investigation. Examining these mechanisms in an integrated structural model may clarify not only whether ideal body image and social physique anxiety are associated with BDD, but also how these relationships are cognitively transmitted and maintained.

Such clarification also has important clinical implications. If cognitive flexibility reduces the adverse effect of rigid appearance ideals and social-evaluative anxiety, interventions designed to increase cognitive flexibility, acceptance, and cognitive defusion may reduce vulnerability to dysmorphic preoccupation (8, 17). If rumination serves as a mechanism that intensifies appearance concerns, interventions focused on metacognitive awareness, attentional disengagement, mindfulness, and adaptive emotion regulation may be beneficial. Furthermore, because body-image difficulties are linked with negative emotions and behavioral consequences across different populations, interventions for athletes should move beyond simple reassurance about appearance and address the cognitive and affective processes that maintain dysmorphic symptoms (7, 13). Developing a comprehensive model may therefore contribute to more precise screening and intervention strategies for bodybuilders at risk for BDD.

Accordingly, the aim of the present study was to develop and test a model of body dysmorphic disorder based on ideal body image and social physique anxiety, with the mediating roles of cognitive flexibility and rumination, among male bodybuilding athletes in Arak.

Methods and Materials

Study Design and Participants

The present study was a correlational investigation using a path analysis design. The statistical population consisted of male bodybuilding athletes in Arak during 2024–2025. The study sample was selected using cluster sampling from the northern, southern, western, eastern, and central districts of Arak. The required sample size was determined using G*Power software. Accordingly, an initial sample size of 100 participants has been suggested for structural equation modeling as an adequate sample for detecting an effect (Soper, 2020). With a predicted effect size of .10, statistical power of .95, one criterion variable, eight predictor variables, and a significance level of .01, the recommended sample size for the study model was estimated at 133 participants. In the present study, however, considering potential participant attrition, the sample size was increased to 200 participants, who completed the designated questionnaires.

The inclusion criteria were (a) ability to read and write, (b) age between 18 and 50 years, (c) absence of excessive overweight, defined as at least 20 kg of excess weight, (d) at least 6 months of regular participation

in bodybuilding, and (e) absence of any specific disability. The exclusion criteria were (a) failure to respond to all questionnaire items and (b) discontinuation of athletic activity during the study.

Data Collection Tools

The Body Image Questionnaire consists of 68 self-report items and was designed to assess individuals' attitudes toward different dimensions of the body image construct. The first version of this questionnaire was developed in 1983 and consisted of 294 items. In the second edition, redundant sections were removed, and some sections were reorganized according to newly developed criteria. In 1985, Cash et al. (1986, 1987) used this questionnaire in an international study of body image (Ganji, 2016). From among 30,000 participants, 2,000 individuals were randomly selected and stratified according to age and sex. The questionnaire is scored on a 5-point Likert scale ranging from 1 (very dissatisfied) to 5 (very satisfied). Thus, total scores range from 68 to 340, with higher scores indicating a more favorable body image. The questionnaire comprises three scales: (1) the body-self scale, consisting of all items except those assigned to the other two subscales; (2) satisfaction with different body areas, consisting of Items 60–68; and (3) attitudes toward body weight, consisting of Items 20, 56, 57, 58, 59, and 66. The validity of the principal sections of the questionnaire was examined and confirmed by Brown et al. (1990).

The Social Physique Anxiety Scale developed by Motl and Conroy (2000) consists of seven Likert-type items derived from the original 12-item scale developed by Hart et al. (1989). This scale measures the degree of anxiety experienced by an individual regarding the appearance of their physique in social situations. Participants indicate their response to each item on a Likert scale ranging from 1 (not at all) to 5 (extremely), according to their own condition. Scores on the scale range from 7 to 49. Scott et al. (2004) reported a test–retest reliability coefficient of .94 for this measure. Yousefi et al. (2009) examined the reliability and factorial validity of the scale in an Iranian student population. Based on factor analysis of data obtained from 237 male and female university students, Yousefi et al. (2009) demonstrated an appropriate factorial structure for the scale in both sexes. Cronbach's alpha for all seven items indicated internal consistency coefficients of .81 for male students and .85 for female students, representing acceptable reliability. In the present study, the reliability of the questionnaire was assessed using Cronbach's alpha and was found to be .86.

The Cognitive Flexibility Inventory was developed by Dennis and Vander Wal (2010). It is a self-report instrument designed to assess a form of cognitive flexibility required for successfully challenging and replacing dysfunctional thoughts with more adaptive thoughts. The maximum possible score on this questionnaire is 140, and the minimum possible score is 20. Items are scored on a 7-point Likert scale, with a score of 7 assigned to “strongly disagree” and a score of 1 assigned to “strongly agree.” Items 2, 4, 7, 9, 11, and 17 are reverse-scored. Higher scores indicate greater cognitive flexibility, whereas lower scores, particularly those approaching 20, indicate lower cognitive flexibility. The developers reported a concurrent validity coefficient of $-.39$ with the Beck Depression Inventory-II (BDI-II) and a convergent validity coefficient of .75 with the Cognitive Flexibility Scale developed by Martin and Rubin (1995; Dennis & Vander Wal, 2010). In Iran, this questionnaire was standardized by Shareh Soltani et al. (2014–2015), who identified three subscales: Alternatives, Control, and Alternatives for Human Behaviors. The Alternatives subscale consists of Items 3, 5, 6, 12, 13, 14, 16, 18, 19, and 20. The Control subscale consists of Items 1, 2, 4, 7, 9, 11, 15, and 17. Items 8 and 10 constitute the Alternatives for Human Behaviors subscale. In support of the

construct validity of the three-factor version, these authors reported a test–retest coefficient of .71 for the total scale and a Cronbach's alpha coefficient of .90 for the total scale. In the study by Fazeli and Ehteshamzadeh Hashemi Sheikh Shabani (2014–2015), Cronbach's alpha for the questionnaire was .75. Cronbach's alpha coefficients for its three subscales ranged from .55 to .72.

The Rumination–Reflection Questionnaire (RRQ) was developed by Trapnell and Campbell (1999) and consists of 24 items, of which 12 assess self-focused rumination and 12 assess adaptive reflective thinking. Responses to each item are rated on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). Five items (13, 14, 19, 24, and 26) on the Reflection scale are reverse-scored, whereas three items (6, 9, and 10) on the Rumination scale are reverse-scored. Using Cronbach's alpha, Trapnell and Campbell (1999) reported good internal consistency coefficients of .91 and .90 for reflection and rumination, respectively, thereby demonstrating satisfactory psychometric properties for the instrument. Ghorbani and Watson (2008) also reported favorable psychometric properties for the measure, with internal consistency coefficients of .84 in Iran and .80 in the United States.

Data Analysis

The collected data were analyzed using Pearson correlation and regression analyses in SPSS and structural equation modeling based on the partial least squares approach (PLS-SEM) in SmartPLS.

Findings and Results

A total of 200 individuals participated in the present study, with a mean age of 29.68 years. The descriptive statistics for the study variables are presented in Table 1.

Table 1. Descriptive Statistics for the Main Study Variables

Variables	Subscales	Mean	SD	Skewness	Kurtosis
Body image	Body self	71.62	9.85	.268	1.147
	Satisfaction with different body areas	15.19	3.81	.215	.841
	Individual attitudes toward body weight	10.71	3.05	.712	1.051
Social physique anxiety	Discomfort with appearance	22.16	4.32	.093	-.503
	Expectation of negative evaluation of appearance	18.13	3.56	.118	-.691
Cognitive flexibility	Alternatives	24.60	5.85	.115	-.119
	Control	14.28	3.81	.481	.008
	Alternatives for human behaviors	5.78	1.73	.553	-.029
Rumination	Self-rumination	24.16	5.38	.190	.048
	Adaptive reflective thinking	39.13	7.66	.149	.197

As shown in Table 1, the descriptive statistics for the study variables were examined. Skewness and kurtosis indices were also used to assess the normality of the data. The results indicated that because the skewness and kurtosis values for all variables fell within the range of -2 to $+2$, all variables could be considered to have univariate normal or approximately normal distributions. Accordingly, Pearson's correlation analysis was used to examine the correlations among the study variables, as presented in Table 2.

Table 2. Pearson Correlation Matrix Among the Study Variables

Variables	1	2	3	4	5
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1. Body dysmorphic disorder	1				
2. Ideal body image	.68**	1			
3. Social physique anxiety	.51**	.38**	1		
4. Cognitive flexibility	-.38**	-.27**	-.40**	1	
5. Rumination	.60**	.55**	.49**	-.59**	1

The results presented in Table 2 indicated that body dysmorphic disorder was positively and significantly associated with ideal body image, social physique anxiety, and rumination, and negatively and significantly associated with cognitive flexibility ($p < .05$). Ideal body image was positively and significantly associated with social physique anxiety and rumination and negatively and significantly associated with cognitive flexibility ($p < .05$). Social physique anxiety was positively and significantly associated with rumination and negatively and significantly associated with cognitive flexibility ($p < .05$). Finally, cognitive flexibility was negatively and significantly associated with rumination ($p < .05$). The model fit indices also indicated an acceptable fit. Specifically, the recommended criterion for the goodness-of-fit index (GFI), normed fit index (NFI), and comparative fit index (CFI) is $\geq .90$, and the obtained values exceeded the recommended thresholds, thereby supporting these three indices. The recommended criterion for the root mean square error of approximation (RMSEA) is $< .08$, and the value obtained in the present study was .064. Furthermore, the recommended criterion for the chi-square to degrees-of-freedom ratio (χ^2/df) is < 3 , and the value obtained in the present study was 2.390. Overall, the obtained values were consistent with the recommended thresholds for the fit indices, indicating an acceptable fit of the model. The results of the structural equation modeling analysis examining the relationships among the study variables are presented in Table 3.

Table 3. Results of Structural Equation Modeling Analysis

Effects	Standardized Coefficient (β)	SE	<i>t</i>	<i>p</i>
Ideal body image $\rightarrow$ Body dysmorphic disorder	.639	.230	4.02	.001
Social physique anxiety $\rightarrow$ Body dysmorphic disorder	.499	.094	2.07	.001
Rumination $\rightarrow$ Body dysmorphic disorder	.608	.097	2.44	.001
Cognitive flexibility $\rightarrow$ Body dysmorphic disorder	-.366	.052	1.68	.003
Ideal body image $\rightarrow$ Cognitive flexibility	-.294	.090	1.94	.004
Social physique anxiety $\rightarrow$ Cognitive flexibility	-.404	.141	2.15	.002
Ideal body image $\rightarrow$ Rumination	.567	.060	2.19	.001
Social physique anxiety $\rightarrow$ Rumination	.475	.109	2.38	.002

Accordingly, the results presented in Table 3 were as follows: the effect of ideal body image on body dysmorphic disorder was confirmed, with a positive direction and an effect magnitude of $\beta = .639$. The effect of social physique anxiety on body dysmorphic disorder was confirmed, with a positive direction and an effect magnitude of $\beta = .499$. The effect of rumination on body dysmorphic disorder was confirmed, with a positive direction and an effect magnitude of $\beta = .608$. The effect of cognitive flexibility on body dysmorphic disorder was confirmed, with a negative direction and an effect magnitude of $\beta = -.366$. The effect of ideal body image on cognitive flexibility was confirmed, with a negative direction and an effect magnitude of $\beta = -.294$. The effect of social physique anxiety on cognitive flexibility was confirmed, with a negative direction and an effect magnitude of $\beta = -.404$. The effect of ideal body image on rumination was confirmed, with a positive direction and an effect magnitude of $\beta = .567$. Finally, the effect of social physique anxiety on rumination was confirmed, with a positive direction and an effect magnitude of $\beta = .475$ ($p < .05$). The results of the mediation analyses are presented in Table 4.

Table 4. Bootstrap Mediation Analysis for Cognitive Flexibility and Rumination

Type of Effect	Indirect Effect	SE	<i>t</i>	<i>p</i>	Result
Ideal body image → Cognitive flexibility → Body dysmorphic disorder	.280	.163	2.79	< .001	Supported
Social physique anxiety → Cognitive flexibility → Body dysmorphic disorder	.267	.112	2.04	< .001	Supported
Temperament pattern → Rumination → Body dysmorphic disorder	.114	1.006	12.36	> .094	Not supported
Character pattern → Rumination → Body dysmorphic disorder	.136	.086	2.08	< .001	Supported
Ideal body image → Rumination → Body dysmorphic disorder	.254	.076	2.09	< .001	Supported
Social physique anxiety → Rumination → Body dysmorphic disorder	.288	.096	2.54	< .001	Supported

The results presented in Table 4 indicated that the mediating role of cognitive flexibility in the relationship between ideal body image and body dysmorphic disorder was statistically supported, and the magnitude of the indirect effect of ideal body image on body dysmorphic disorder through cognitive flexibility was .280. The mediating role of cognitive flexibility in the relationship between social physique anxiety and body dysmorphic disorder was also statistically supported. The magnitude of the indirect effect of social physique anxiety on body dysmorphic disorder through cognitive flexibility was .267. Furthermore, the mediating role of rumination in the relationship between temperament patterns and body dysmorphic disorder was not statistically supported, whereas the mediating role of rumination in the relationship between character patterns and body dysmorphic disorder was statistically supported. The magnitudes of the indirect effects of temperament and character patterns on body dysmorphic disorder through rumination were .114 and .136, respectively. The mediating role of rumination in the relationship between ideal body image and body dysmorphic disorder was statistically supported, and the magnitude of the indirect effect of ideal body image on body dysmorphic disorder through rumination was .254. Finally, the results indicated that the mediating role of rumination in the relationship between social physique anxiety and body dysmorphic disorder was statistically supported, with an indirect effect magnitude of .288.

Discussion and Conclusion

The present study aimed to develop a model of body dysmorphic disorder (BDD) based on ideal body image and social physique anxiety, with the mediating roles of cognitive flexibility and rumination, among male bodybuilding athletes. The findings supported the proposed model and demonstrated that ideal body image and social physique anxiety had significant positive effects on body dysmorphic disorder. Rumination also exerted a significant positive effect on BDD, whereas cognitive flexibility had a significant negative effect. Furthermore, ideal body image and social physique anxiety were negatively associated with cognitive flexibility and positively associated with rumination. The mediation analyses indicated that cognitive flexibility and rumination significantly mediated the relationships of both ideal body image and social physique anxiety with body dysmorphic disorder. Taken together, these findings suggest that body dysmorphic symptoms among male bodybuilders may be explained not only by body-related ideals and concerns about others' evaluations but also by the cognitive mechanisms through which athletes process and regulate appearance-related experiences.

The first major finding indicated that ideal body image had a positive and significant effect on body dysmorphic disorder. This finding is consistent with previous evidence suggesting that disturbances in body image constitute one of the central psychological characteristics associated with BDD. Body image is not a unitary construct but includes cognitive, affective, perceptual, and behavioral dimensions, and maladaptive functioning in these dimensions has been strongly implicated in body-image-related psychopathology (1). The present result is also consistent with findings indicating that body-image concerns, maladaptive beliefs, and dysfunctional psychological schemas are closely related to body dysmorphic symptoms (2, 7). In male bodybuilders, the ideal physique may be defined by unusually high muscularity, low body fat, symmetry, and visible muscular definition. When these standards become rigid or unrealistic, even relatively minor discrepancies between actual and ideal appearance may be interpreted as major deficiencies. Thus, increased investment in an idealized body image can intensify dissatisfaction with the actual body and increase vulnerability to dysmorphic preoccupation.

This finding can also be interpreted in light of research on muscle dysmorphia and male body-image pathology. Men involved in strength and physique-oriented sports may be particularly vulnerable to persistent perceptions of insufficient muscularity or inadequate body proportions, despite objective evidence of substantial muscular development. Previous research has shown that muscle dysmorphia in male power and strength athletes is associated with problematic body image and exercise-related behavioral patterns (6). Research in male populations has likewise demonstrated that muscle dysmorphia and body-image pathology constitute important but sometimes underrecognized manifestations of appearance-related psychological disturbance (5). Therefore, the positive effect of ideal body image on BDD in the present study may reflect an escalating discrepancy process in which repeated comparison with an internalized ideal physique makes perceived bodily shortcomings more salient and psychologically significant.

The second principal finding showed that social physique anxiety had a significant positive effect on body dysmorphic disorder. This result is consistent with studies showing that individuals who fear negative evaluation of their appearance are more likely to experience body dissatisfaction and other maladaptive body-related outcomes. Social physique anxiety reflects concern that one's body will be judged negatively by others, and it is therefore closely linked to self-consciousness, appearance monitoring, social comparison, and evaluative threat. Previous research has demonstrated significant associations among body image, social physique anxiety, and related psychosocial outcomes (10, 11). Similarly, structural research has shown that greater attention to body shape is associated with increased social physique anxiety (9). These findings support the present result and indicate that persistent concern about others' judgments may reinforce maladaptive attention to perceived physical flaws.

Among bodybuilders, this process may be amplified because physical appearance is frequently exposed to direct or indirect evaluation. Training environments, mirrors, photographs, competitive standards, and comparisons with other athletes may increase awareness of appearance and perceived scrutiny. Individuals who interpret these contexts as threatening may become more vigilant toward imperfections and more likely to engage in repetitive checking or corrective behaviors. Research has demonstrated that fear of negative evaluation and appearance comparison are important predictors of social physique anxiety (12). In addition, social body anxiety has been associated with body-related self-evaluative processes and health-related behavior (13). Consequently, the significant direct pathway from social physique anxiety to BDD may

indicate that bodybuilders who are highly concerned about external judgments increasingly define their self-evaluation through perceived physical adequacy, thereby intensifying dysmorphic concerns.

Another important finding was that rumination had a significant positive effect on body dysmorphic disorder. This finding is consistent with evidence demonstrating that repetitive negative thinking plays an important role in body dissatisfaction and body-related psychopathology. Rumination keeps distressing material active in attention and repeatedly directs cognitive resources toward perceived problems without necessarily producing effective solutions. When directed toward appearance, this process may involve repeatedly thinking about disliked body parts, comparing the current physique with an idealized standard, remembering critical comments, or anticipating negative judgments. Previous studies have indicated that rumination contributes to body-image dissatisfaction and related maladaptive behaviors (18, 19). Rumination has also been identified as a predictor of problematic eating-related behavior in conjunction with body-image concerns and emotion-regulation difficulties (20).

The relationship between rumination and BDD is also supported more directly by research showing that repetitive negative thinking contributes to dysmorphic and somatic symptom severity. Body image and rumination have been shown to predict somatic symptom severity, indicating that persistent cognitive focus on bodily experiences may amplify distress associated with physical perceptions (21). Furthermore, rumination has been proposed as an important mediating mechanism in the relationship between maladaptive cognitive structures and BDD among individuals seeking cosmetic procedures (22). Therefore, the present finding suggests that male bodybuilders who repeatedly dwell on perceived flaws or discrepancies between their actual and desired physique may strengthen the salience and emotional significance of those concerns. Over time, this repetitive processing may transform ordinary dissatisfaction into persistent dysmorphic preoccupation.

The present study also found that cognitive flexibility had a significant negative effect on body dysmorphic disorder. In other words, greater cognitive flexibility was associated with lower levels of dysmorphic symptoms. This result aligns with research emphasizing the protective role of flexible psychological functioning in body-image adjustment. Cognitive flexibility enables individuals to reconsider rigid interpretations, generate alternative perspectives, and modify ineffective cognitive strategies when faced with emotionally difficult experiences. Studies have shown that greater cognitive flexibility is associated with more adaptive body-related self-perception and body appreciation (14). Similarly, psychological flexibility and cognitive defusion have been identified as important predictors of negative body image, suggesting that individuals who become fused with appearance-related thoughts and cannot flexibly respond to them are more vulnerable to body-image disturbance (8).

The negative association between cognitive flexibility and BDD may therefore be understood as a protective cognitive process. A bodybuilder with greater cognitive flexibility may be able to recognize that a temporary perception of inadequate muscularity does not constitute an objective or global evaluation of the self. Such an individual may also be more capable of tolerating differences between actual and ideal appearance and of considering alternative standards for self-worth. By contrast, low cognitive flexibility may promote rigid dichotomous judgments such as being either sufficiently muscular or physically inadequate. Evidence that cognitive flexibility mediates relationships between anxiety and body image in other clinical populations further supports this interpretation (15). Psychological inflexibility in body-image contexts has

also been associated with behavioral avoidance and maladaptive responses to appearance-related distress (16). Accordingly, cognitive inflexibility may intensify BDD by restricting alternative interpretations and reinforcing rigid appearance-based standards.

The findings further indicated that ideal body image negatively predicted cognitive flexibility and that cognitive flexibility significantly mediated the relationship between ideal body image and BDD. This suggests that rigid attachment to an idealized physique may contribute to dysmorphic symptoms partly by reducing the ability to interpret appearance-related experiences flexibly. When an ideal body representation becomes highly dominant, individuals may increasingly evaluate themselves through a narrow appearance-based framework. Such cognitive rigidity can make deviations from the ideal difficult to tolerate and may limit the capacity to reinterpret body-related concerns. These findings are consistent with evidence showing that cognitive defusion and psychological flexibility are associated with less negative body image (8), while acceptance- and commitment-based approaches that target psychological inflexibility have been used to modify body-image disturbances in individuals displaying BDD characteristics (17). Therefore, the mediating effect observed in the present study supports the proposition that the influence of ideal body standards depends partly on how rigidly individuals relate to those standards.

Social physique anxiety also negatively predicted cognitive flexibility, and cognitive flexibility significantly mediated the relationship between social physique anxiety and BDD. One possible explanation is that high levels of social-evaluative anxiety narrow attentional focus and increase rigid self-monitoring. When individuals expect negative evaluation, they may become less able to consider alternative interpretations of others' reactions and more likely to assume that perceived physical imperfections are noticeable and unacceptable. Over time, this restricted cognitive style may reinforce dysmorphic beliefs. The present finding is compatible with previous evidence that cognitive flexibility functions as a mediating process between anxiety and body-image outcomes (15). It also corresponds with findings that body-related psychological inflexibility can intensify avoidance and maladaptive responses when individuals encounter body-related social threat (16). Thus, increasing cognitive flexibility may weaken the pathway through which social physique anxiety contributes to dysmorphic symptoms.

Another important finding was that ideal body image positively predicted rumination, and rumination significantly mediated the relationship between ideal body image and BDD. This result suggests that idealized appearance standards may become problematic partly when they stimulate repetitive negative thinking about discrepancies between the desired and actual body. Individuals who repeatedly compare themselves with an ideal muscular physique may continuously reactivate perceptions of deficiency. Rumination may then prolong dissatisfaction, reinforce selective attention to disliked physical features, and increase the subjective importance of minor imperfections. This explanation is consistent with evidence linking body dissatisfaction to rumination and related behavioral outcomes (19). It also aligns with findings showing that rumination contributes to body-image satisfaction and appearance-related psychological functioning (18, 21). Consequently, rumination may be one of the mechanisms through which ideal body standards become translated into persistent dysmorphic concern.

The mediating role of rumination was also supported in the relationship between social physique anxiety and BDD. Individuals who experience high social physique anxiety may repeatedly review how others perceive their body, imagine possible criticism, and mentally rehearse situations in which their appearance

could be negatively evaluated. This repetitive cognitive process can maintain social-evaluative threat even when no immediate evaluation is occurring. Such rumination may increase the accessibility of appearance-related fears and intensify perceived bodily defects. Previous evidence showing that rumination mediates the association between interpersonal vulnerability and body-image satisfaction is consistent with this mechanism (18). Research also indicates that rumination is involved in the relationship between maladaptive schemas and body dysmorphic symptoms (22). Therefore, the present result supports a cognitive maintenance model in which social physique anxiety contributes to BDD not only directly but also indirectly by promoting repetitive appearance-focused thought.

Taken together, the findings support an integrated account of body dysmorphic disorder in male bodybuilders. Ideal body image and social physique anxiety appear to represent important appearance-related and social-evaluative risk factors, whereas cognitive flexibility and rumination represent two distinct but interconnected cognitive mechanisms. Cognitive flexibility may function as a protective capacity that allows athletes to reinterpret body-related concerns and disengage from rigid standards, while rumination may function as a risk process that repeatedly reactivates perceived deficiencies and negative evaluations. This interpretation is consistent with research showing that body-image interventions can improve negative emotional and body-related outcomes in individuals with dysmorphic symptoms (3, 4). It is also compatible with multidimensional models of BDD emphasizing the combined influence of body-image disturbance, maladaptive cognition, metacognitive processes, and limited tolerance of psychological distress (2). Accordingly, interventions directed solely at changing appearance may be insufficient unless the cognitive processes maintaining appearance-related distress are also addressed.

Several limitations should be considered when interpreting the findings. First, the correlational and cross-sectional design does not permit definitive causal conclusions regarding the direction of the relationships among ideal body image, social physique anxiety, cognitive flexibility, rumination, and body dysmorphic disorder. Second, all study variables were assessed using self-report questionnaires, which may be influenced by response bias, social desirability, inaccurate self-perception, or participants' willingness to disclose appearance-related concerns. Third, the sample consisted exclusively of male bodybuilding athletes from Arak, which limits the generalizability of the findings to female athletes, recreational exercisers, competitive athletes from other disciplines, and bodybuilders in different cultural or geographic contexts. Fourth, potentially relevant variables such as training intensity, competitive status, use of performance-enhancing substances, social media exposure, body mass index, dietary restraint, perfectionism, and exercise dependence were not included in the model. Finally, because clinical diagnostic interviews were not used, the findings should be interpreted primarily in relation to body dysmorphic symptoms rather than confirmed clinical diagnoses of BDD.

Future studies should use longitudinal designs to examine whether ideal body image and social physique anxiety prospectively predict changes in body dysmorphic symptoms and whether cognitive flexibility and rumination mediate these relationships over time. Experimental and intervention studies could provide stronger evidence concerning the causal role of cognitive flexibility and rumination by examining whether changes in these variables lead to reductions in dysmorphic symptoms. Replication is recommended among female bodybuilders, competitive and noncompetitive athletes, adolescents, and athletes from different regions and cultures. Future models should also incorporate variables such as perfectionism, appearance

comparison, exercise addiction, muscularity-oriented eating, self-compassion, emotion regulation, social media exposure, and use of appearance- or performance-enhancing substances. Clinical interviews and multimethod assessment procedures would further improve diagnostic precision and reduce dependence on self-report data. It would also be valuable to compare athletes with clinically significant BDD or muscle dysmorphia with athletes who display high body investment without psychopathology.

The findings indicate that psychological screening in bodybuilding settings should include not only dissatisfaction with physical appearance but also social physique anxiety, cognitive rigidity, and repetitive appearance-focused thinking. Sport psychologists, counselors, coaches, and health professionals working with bodybuilders should be attentive to athletes who show persistent dissatisfaction despite substantial physical development, excessive concern about others' judgments, compulsive appearance checking, or repeated negative thinking about perceived flaws. Interventions may benefit from incorporating cognitive restructuring, cognitive defusion, mindfulness, attentional shifting, metacognitive strategies, and exercises designed to strengthen cognitive flexibility. Psychoeducation for athletes and coaches should emphasize realistic body expectations, multidimensional self-worth, and the distinction between disciplined athletic development and compulsive attempts to correct perceived physical defects. Early identification and referral to qualified mental health professionals may help prevent the progression of body dissatisfaction into more severe and functionally impairing dysmorphic symptoms.

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Authors' Contributions

All authors equally contributed to this study.

Declaration of Interest

The authors of this article declared no conflict of interest.

Ethical Considerations

The study protocol adhered to the principles outlined in the Helsinki Declaration, which provides guidelines for ethical research involving human participants.

Transparency of Data

In accordance with the principles of transparency and open research, we declare that all data and materials used in this study are available upon request.

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References

1. Prnjak K, Jukic I, Mitchison D, Griffiths S, Hay P. Body image as a multidimensional concept: A systematic review of body image facets in eating disorders and muscle dysmorphia. *Body Image*. 2022;42:347-60. doi: <https://doi.org/10.1016/j.bodyim.2022.07.006>.
2. Khoshini F, Akbari M, Mohammadkhani S. The structure relationship of body dysmorphic disorder (BDD) with early maladaptive schema and perceived emotional invalidation: the mediating Role of metacognition, body image and distress tolerance. *Clinical Psychology and Personality*. 2022;19(2):101-19.
3. Mahboubi E, Shaker Dolagh A, Khademi A, Asayesh MH. The Effect of Paradox Therapy on Body Image and Negative Emotions in Women with Body Dysmorphic Disorder. *Iranian Journal of Nursing Research*. 2024;19(5):72-82.
4. Nemativnashi R, Rahmanian M, Kordmirza Nikoozadeh AE, Rafei Pour A, Abdollahzadeh H. The Effectiveness of Emotion-Focused Therapy and Mindfulness-Based Cognitive Therapy on Improving Emotional Eating and Body Image in Overweight Women with Body Dysmorphic Symptoms. *Quarterly Journal of Experimental and Cognitive Psychology*. 2025:1-16.
5. Rica R, Sepúlveda AR. Going deeper into eating and body image pathology in males: Prevalence of muscle dysmorphia and eating disorders in a university representative sample. *European Eating Disorders Review*. 2024;32(2):363-77. doi: 10.1002/erv.3048.
6. ŞEntÜrk G, Göbel P. The Relationship of Muscle Dysmorphia With Exercise Addiction, Body Image and Protein Consumption in Male Power and Strength Athletes. *Hacettepe Üniversitesi Sağlık Bilimleri Fakültesi Dergisi*. 2024. doi: 10.21020/husbfd.1427393.
7. Eslamnia R, Khalatbari J, Ghorban Shiroudi S. Determining the Relationship Between Sexual Schemas and Body Image with the Mediation of Perfectionism and Dysfunctional Beliefs in Individuals with Body Dysmorphic Disorder in Beauty Clinics. 2024.
8. Fang S, Ding D, Ji P, Huang M, Hu K. Cognitive Defusion and Psychological Flexibility Predict Negative Body Image in the Chinese College Students: Evidence From Acceptance and Commitment Therapy. *International Journal of Environmental Research and Public Health*. 2022;19(24):16519. doi: 10.3390/ijerph192416519.
9. Silva WRD, Teixeira PA, Marôco J, Ferreira EB, Teodoro MA, Campos J. Relationship between Attention to Body Shape, Social Physique Anxiety, and Personal Characteristics of Brazilians: A Structural Equation Model. *Int J Environ Res Public Health*. 2022;19(22):14802. doi: 10.3390/ijerph192214802.
10. Swami V, Robinson C, Furnham A. Associations between body image, social physique anxiety, and dating anxiety in heterosexual emerging adults. *Body Image*. 2021;39:305-12. doi: 10.1016/j.bodyim.2021.10.004.
11. Zartaloudi A, Christopoulos D, Kelesi M, Govina O, Mantzorou M, Adamakidou T, et al. Body Image, Social Physique Anxiety Levels and Self-Esteem among Adults Participating in Physical Activity Programs. *Diseases*. 2023;11(2):66. doi: 10.3390/diseases11020066.
12. Pradeepa D, Chelli K. Role of Personality, Appearance Comparison, Fear of Negative Evaluation in Predicting Social Physique Anxiety Among Young Adults. *Indian Journal of Health Studies*. 2024;06(02):38-62. doi: 10.56490/ijhs.2024.6203.
13. Hajiebrahim Araghi B, Rahmani MA, Rahimaghaee F. Examining the Mediating Role of Body Esteem in the Relationship Between Social Body Anxiety and Health-Oriented Lifestyle in Women with Obesity. *Psychology of Woman Journal*. 2024;5(3):97-105. doi: 10.61838/kman.pwj.5.3.12.
14. El-Sayed MM, Hawash MM, Khedr MA, Hafez SA, Salem E-SAE, Essa SA, et al. Cognitive Flexibility's Role in Shaping Self-Perception of Aging, Body Appreciation, and Self-Efficacy Among Community-Dwelling Older Women. *BMC Nursing*. 2024;23(1). doi: 10.1186/s12912-024-01874-4.
15. Zali R, Esmaeili A, Saberi H. The mediating role of cognitive flexibility styles in the relationship between anxiety and body image in women with breast cancer volunteering for mastectomy. *Applied Family Therapy*. 2022;3(5):567-80. doi: 10.61838/kman.aftj.3.5.33.

16. Flynn MK, Hernandez JO, Fraire JV, Hobbs SC, Malnar CS. Weight Stigma and Healthcare Avoidance among Women with Obesity: The Moderating Roles of Body Image-Related Psychological Inflexibility and Cognitive Fusion. *Journal of Contextual Behavioral Science*. 2024;33:100814.
17. Suryaningtyas D. Acceptance and Commitment Therapy Untuk Mengubah Body Image pada Individu dengan Ciri Body Dysmorphic Disorder (BDD). Universitas Muhammadiyah Malang 2023.
18. Nouri S, Atadokht A, Hajloo N. Examining the mediating role of rumination in the relationship between rejection sensitivity and body image satisfaction among students of Mohaghegh Ardabili University in the 2023–2024 academic year: A descriptive study. *Journal of Rafsanjan University of Medical Sciences*. 2025;24(6):497-508.
19. Wang Y. Exploring the Relations Between Body Dissatisfaction, Rumination, Physical Activity, and Restrained Eating: A Latent Moderated Structural Equation Approach. *Journal of Eating Disorders*. 2025;13(1). doi: 10.1186/s40337-025-01229-7.
20. Sadegh Kouhestani M, Sajadian I. The Role of Attitude toward Nutrition, Body Image Concern, Emotion Regulation Difficulty, and Rumination in Predicting Eating Behavior among Married Overweight Women in Isfahan in Summer 2022. *Community Health*. 2024;18(1):58-68.
21. Seyed Alitabar SH, Goli F. Exploring the Predictive Role of Body Image and Rumination on Somatic Symptom Severity: A Quantitative Analysis. *International Journal of Body, Mind and Culture*. 2024;11(3):193-200. doi: 10.22122/ijbmc.v11i3.689.
22. Rashidifar M, Karami M, editors. Early maladaptive schemas, body dysmorphic disorder (BDD), and the mediating role of rumination and cognitive emotion regulation: A focus on cosmetic surgery applicants. *Proceedings of the International Conference on Research in Psychology*; 2025.