

Exercise, Aggressive Diets, Bariatric Surgery and Other Attempts to Look Better: The Effects of Sociocultural Attitudes Toward Appearance on Social Physical Anxiety

Erman Doğan¹, Çiğdem Karagülmez Sağlam², Nazım Serkan Burgul³

¹ Department of Sports Management, Faculty of Sports Sciences, Girne American University, Girne, Cyprus

² Department of Physical Education and Sports Teaching, Faculty of Sports Sciences, Girne American University, Girne, Cyprus

³ Faculty of Sports Sciences, Near East University, Lefkoşa, Cyprus

Abstract

Aim: There might be a probability that the sporting environment emphasises a body ideal that increases the likelihood of body dissatisfaction among female participants. This study examined the effect of sociocultural attitudes towards appearance on social physique anxiety in women athletes.

Methods: The participants were 43 female students studying at the Faculty of Sport Sciences. The Social Physique Anxiety Scale (SPAS) and the Sociocultural Attitudes Towards Appearance Questionnaire-3 (SATAQ-3) were used in the study.

Results: There was a total of 43 participants aged between 18 and 27 included in the analysis, and the mean age was $21,7 \pm 1,95$. There were 10 sports activity types, and the most common sport was volleyball [$n=11$, 25.6%]. The minimum, maximum, and mean values for SATAQ-3 were 32, 123, and 74.70 ± 25.51 , respectively. Also, SPA scores showed that the minimum, maximum, and mean values were 20, 51, and 35 ± 5.65 , respectively. The correlation and regression analysis results showed that the SATAQ-3 sub-dimensions of internalization general [$r=.405$, $p<.01$], internalization athlete [$r=.440$, $p<.01$], and perception of pressure [$r=.431$, $p<.01$] were positively and significantly associated with overall social physique anxiety scores. The results of the regression analysis indicated that SATAQ-3 sub-dimensions may explain a significant amount of variance in female athletes' social physique anxiety scores.

Conclusions: The study showed that social physique anxiety is common and widespread among young female sports participants, regardless of the type of sport. Thus, one of the most important issues that needs to be addressed is how sports facilities could promote healthy habits and attitudes towards body image more effectively. In addition, results may be beneficial in solving problems such as social comparison and the resulting body image dissatisfaction and eating disorders that arise as a result of social physique anxiety triggered by sociocultural attitudes.

Keywords: Social physique anxiety; sociocultural attitudes towards appearance; female athletes

1. Introduction

Nowadays, people engage in a wide range of practices, from simple diets to aggressive diets, basic sports activities to intense workouts, and ultimately obesity surgery, to lose weight, look fit, and be healthy. In contemporary societies, the pursuit of a healthier, more aesthetically pleasing body has led individuals to adopt a wide range of weight management strategies. The range of potential interventions is broad, extending from moderate lifestyle modifications, such as dietary modifications and low-intensity

physical activity, to more extreme measures. These include restrictive diets, high-intensity fitness regimens, and even bariatric surgery.¹ Several factors influence the normalization of such practices. Firstly, there is an increasing global concern about obesity and its associated health risks. Secondly, there are cultural ideals that equate thinness with attractiveness and success.² Health-related behaviors are subject to further reinforcement by the media, social networks and public health campaigns. Such campaigns often

portray weight reduction not merely as a medical necessity but as a moral obligation. Consequently, individuals may feel compelled to adopt aggressive weight control behaviors even if these behaviors are detrimental to their physical or psychological well-being.³ The heterogeneity of weight loss strategies indicates a multifaceted phenomenon, encompassing divergent personal objectives and incentives, as well as structural and socioeconomic factors that influence access to healthier food options, conducive exercise environments, and professional health services. Body image disturbances are also considered to be one of these factors. A great deal of research has focused on body image disturbances due to their role in the development and maintenance of severe health problems. A review of the literature on body image disturbances reveals that body image disturbances may lead to unhealthy eating behaviors, low self-esteem, emotional instability, and social physique anxiety.⁴⁻⁶ Previously, researchers focused mainly on the relations and consequences of body image disturbances. Therefore, only a few theoretical frameworks underlie sociocultural processes of body image disturbances.⁵ Thin internalization is one of the most important theoretical frameworks for explaining the sociocultural antecedents of body image disturbances. The concept of thin internalization refers to the process by which individuals adopt the thin body type that is widely regarded as the ideal in society. This phenomenon is identified as a crucial sociocultural factor in the development of body image disorders.⁷ This process is influenced by constant exposure to thin body ideals from various social sources, including the media, peers, and family, and causes individuals to adopt these standards.⁸ The link between being thin and beauty, success, and social acceptance can create a situation where individuals compare their bodies with this ideal, potentially leading to body dissatisfaction and eating disorders.^{9,10} Stice emphasises that thin internalization is not only related to media exposure, but also to factors such as self-awareness, self-esteem, and critical media literacy.⁵ Recent studies demonstrate that the impact of this concept is further reinforced through social media platforms. As demonstrated by Bi et al., there is a clear correlation between exposure to selfie content and eating restriction behaviors among adolescents.¹¹ The study found that this exposure can lead to an increase in thin internalization, a key factor in understanding its influence on eating habits. In a related study, Schreurs and Vandenbosch found that thin internalization mediated the consumption of appearance-oriented content on social media, leading to increased body dissatisfaction.¹² Jung, Baron, Lee, and Swami also found that there were significant relationships between social media addiction and body image problems, and thin internalization was again at the centre of this relationship.¹³ Furthermore, the research by Scheiber, Diehl, and Karmasin indicated that the internalization of both thin and muscular ideals was associated with an excessive preoccupation with healthy eating, also known as orthorexia.¹⁴ Merino et al. reviewed the impact of social media content on body image satisfaction, self-esteem, and mental health, considering cultural and gender-related factors.¹⁵ These findings suggest that thin internalization is not only a reaction to visual content but also a multifaceted mechanism that profoundly affects the individual's psychological structure and body perception. Body image disturbances can impact overall well-being and psychological health.¹⁶ Previous research provided evidence that body image dissatisfaction may lead to unhealthy eating behavior or emotional instability.¹⁷ Apart from the general population, some specific populations may be more prone to develop body image disturbances and other related psychological and behavioral reactions.¹⁸ Therefore, it is essential to identify psychological and social processes that can contribute to the development of body image satisfaction.¹⁹ In this respect, Festinger's social comparison

theory may have the potential to explain the social and psychological effects that can lead to the development of body image dissatisfaction. Social comparison theory posits that individuals evaluate their abilities, attributes, and opinions by comparing themselves to others in their social environment.²⁰ This comparison process plays a significant role in the development of body image dissatisfaction, as individuals tend to measure themselves against societal standards and idealized body images. Media consumption, particularly through social media platforms, has been identified as a pervasive source of social comparisons, often presenting unrealistic and idealized body representations that influence viewers' perceptions.^{9,21} Recent studies have emphasized that frequent exposure to appearance-focused content intensifies upward social comparisons, which in turn exacerbate body dissatisfaction and social physique anxiety (SPA).^{22,23} SPA is defined as the anxiety experienced by individuals who believe that others are negatively evaluating their physiques.²⁴ The social comparison process is therefore a critical psychosocial mechanism that contributes not only to body dissatisfaction but also to the development and maintenance of SPA.²⁵ It is essential to understand these dynamics in order to develop interventions that aim to mitigate body image disturbances and the associated anxieties in contemporary media-saturated environments. Social Physique Anxiety (SPA) is defined as the discomfort or distress experienced by individuals when they believe that others are negatively evaluating their physical appearance.²⁴ The SPA has been identified as a critical construct in understanding body image concerns because it not only impacts psychological well-being but also predicts behaviors such as social avoidance, disordered eating, and broader body image disturbances.^{25,26} Elevated SPA levels have been demonstrated to be associated with increased body dissatisfaction and lowered self-esteem, which in turn can contribute to adverse mental health outcomes.²⁷ Competitive anxiety, defined as stress and apprehension related to performance in sports or competition, is conceptually linked to SPA. In contrast, competitive anxiety focuses on performance evaluation; SPA centers specifically on appearance-related evaluation. Social comparison processes have been demonstrated to exacerbate both SPA and competitive anxiety by heightening self-awareness and negative self-assessment.^{22,25} Considering the sociocultural pressures faced by female athletes regarding both appearance and performance, it is imperative to examine the impact of sociocultural attitudes towards appearance on SPA. The present study examined the effects of sociocultural attitudes towards appearance on SPA in women athletes.

2. Materials and Methods

2.1. Ethics

The Scientific Research Ethics Committee of Girne American University (23-24/18) approved all experimental procedures, and all data were collected following the Helsinki Declaration's ethical standards. Before participating in the study, participants also provided written informed consent approved by the Scientific Research Ethics Committee of Girne American University.

2.2. Study Design and Participants

The cross-sectional study was conducted on female students, with a mean age of 21.7 ± 1.95 , at the Faculty of Sport Sciences of Girne American University. Adult female students actively participating in sports training and exercises were included. Students with injuries or acute or chronic neuromuscular or psychiatric disorders that prevented them from taking part in training, exercises, or sports activities, or who were taking medication that could potentially interfere with physical

performance, were not included in the study. There were no sampling methods; all the eligible students were invited to participate in the study. The demographic data included age, gender, and the sports activity of the participants. The cases with surveys involving missing or unreliable information were excluded from the study, and the related data were not included in the analysis.

2.3. Questionnaire

A semi-structured survey form including demographic information, the Social Physique Anxiety Scale (SPAS), and the Sociocultural Attitudes Towards Appearance Questionnaire-3 (SATAQ-3) was used in the study.

2.3.1. The Social Physique Anxiety Scale (SPAS)

The SPAS is a 12-item self-report inventory developed by Hart et al. to measure the trait of social physique anxiety.²⁴ The SPAS has two subdomains, feeling of discomfort and expectation of negative evaluation. Participants responded on a 5-point Likert-type scale with anchors of not at all (1), slightly (2), moderately (3), very (4), and extremely (5). Scores can range from 12 to 60, with higher values indicating greater anxiety. The SPAS was adapted into Turkish by Ballı and Aşçı.²⁸ In the study, the internal consistency score of the SPAS was 0.89.

2.3.2. Sociocultural Attitudes Towards Appearance Questionnaire-3 (SATAQ-3)

The SATAQ-3 scale, developed by Heinberg et al. in 1995, was revised and updated by Thompson in 2004.^{29,30} The SATAQ-3 scale, which was prepared using a 5-point Likert scale, contains a total of 38 sentences with the options “strongly disagree”, “disagree”, “undecided”, “agree”, and “strongly agree”. Nine of the items were prepared to measure the importance of media as a source of information in evaluations about appearance, seven were prepared to measure feeling pressure from the media, six were prepared to measure feeling pressure about appearance through television and magazines, three were used to measure internalizing the appearance of athletes, four were for measuring comparing one's own body with celebrities and nine were prepared to measure the importance of media on creating ideal body awareness. Higher scores on the SATAQ-3 show an increased level of involvement in socio-cultural attitudes toward appearance. Cronbach's Alpha value of the scale was calculated as 0.96.

2.4. Statistical Analysis

The SPSS Statistics for Windows Version 23.0 software was used for statistical analysis. The distribution of the data in terms of normality was assessed by using the Kolmogorov-Smirnov test. Percentages, frequencies, and standard deviations were used to calculate the descriptive statistics of the participants. The analysis of the continuous variables was conducted using the one-sample t-test for variables with normal distribution and the Sign test for the ones that were not distributed normally. The Chi-square test was used in the analysis of the categorical variables. In the analysis of any potential correlations, the Pearson and Spearman correlation coefficients were calculated to explore the relationship between SATAQ-3 sub-dimensions and SPA. Afterwards, a regression analysis with the enter method was carried out to examine whether the model consisting of SATAQ-3 may explain a significant amount of variance in SPA.

3. Results

There was a total of 43 participants aged between 18 and 27 included in the analysis, and the mean age was 21.7 ± 1.95 . There were 10 sports activity types, and the most common sport was volleyball [$n=11$, 25.6%]. The minimum, maximum, and mean values for SATAQ-3 were 32, 123, and 74.70 ± 25.51 , respectively. Also, SPA scores showed that the minimum, maximum, and mean

values were 20, 51, and 35 ± 5.65 , respectively. Cronbach's alpha values for the SATAQ-3 and SPA were 0.973 and 0.613, respectively. Table 1 presents the distribution of the distribution and mean values for age, the SATAQ-3, and the SPA based on the types of sports.

Table 1
Age, SATAQ-3, and SPA values

n=43	n	%	Age	SATAQ-3	SPA
Athletics	2	4.7	21.5 ± 0.71	109.50 ± 9.19	36.00 ± 2.83
Basketball	7	16.3	22.29 ± 2.06	72.43 ± 25.70	32.14 ± 6.20
Gymnastics	1	2.3	20 ± 0	73.00 ± 0	36.00 ± 0
Fencing	2	4.7	20 ± 0	51.50 ± 16.26	35.00 ± 1.41
Fitness	9	20.9	21.11 ± 1.27	72.00 ± 18.68	36.33 ± 3.50
Handball	2	4.7	23.5 ± 4.95	56.00 ± 22.63	35.50 ± 7.78
Taekwondo	3	7.0	21.67 ± 1.15	85.67 ± 12.01	40.33 ± 9.29
Tennis	3	7.0	23 ± 3	53.00 ± 18.33	29.33 ± 3.06
Volleyball	11	25.6	21.45 ± 1.92	85.45 ± 27.99	36.64 ± 1.24
Swimming	3	7.0	22.33 ± 2.31	64.67 ± 40.51	30.67 ± 4.93

Descriptive statistics of the sub-dimensions of the scales used in the study are shown in Table 2. The results showed that there were significant differences between SATAQ-3 and SPA scores in terms of sports activity ($p < 0.05$ for each).

Table 2
Descriptive statistics of the scales

Scale/Subfactors	Min	Max	Mean	SD
SPA	12	39	27.88	6.797
Feeling of Discomfort	5	19	11.44	3.418
Expectations of Negative Evaluations	7	30	16.44	5.234
Internalization General	9	40	21.72	8.628
Internalization Athlete	5	22	13.44	4.982
Perception of Pressure	7	30	16.60	6.565
Information	9	36	22.93	7.992

Table 3 shows that the Pearson correlation analysis demonstrated that the SATAQ-3 sub-dimensions of internalization general [$r=.405$, $p<.01$], internalization athlete [$r=.440$, $p<.01$], and perception of pressure [$r=.431$, $p<.01$] were positively and significantly associated with overall SPA scores of female athletes. However, no relationship was observed between the information sub-dimension [$r=.036$, $p<.01$] of SATAQ-3 and overall SPA scores of female athletes.

Table 3**Correlation analysis results**

	SPA	Internalization General	Internalization Athlete	Perception of Pressure	Information
SPA	-	.405**	.440**	.431**	.036
Internalization General	.405**	-	.857**	.921**	.690**
Internalization Athlete	.440**	.857**	-	.818**	.694**
Perception of Pressure	.431**	.921**	.818**	-	.598**
Information	.036	.690**	.694**	.598**	-

variation in overall SPA scores. As shown in Table 4, the regression analysis results indicated that SATAQ-3 sub-dimensions may explain a significant amount of variance in female athletes' SPA scores. In the regression model, it was seen that the model established between SPA and SATAQ sub-dimensions was significant. In the model, only the sub-dimensions named Information [$p=0.005$, Adjusted $R^2=0.292$] and Internalization Athlete [$p>0.046$, Adjusted $R^2=0.292$] predicted the change in SPA significantly. Domains of Perception of Pressure and Internalization General did not have significant power in predicting the change in SPA.

4. Discussion

The study aimed to assess the impact of sociocultural attitudes towards appearance on social physique anxiety in female athletes. The results of the analysis revealed significant differences in SATAQ-3 and SPA scores between females practising different sports. In addition, "Information" and "Internalization subdomains were able to predict the changes in SPA scores.

Recent evidence shows that anxiety about appearance and body image concerns is highly prevalent among women globally and is often referred to as a 'normal' experience.³¹ It is widely recognised that negative body image is an important public health concern globally due to its consistent association with symptoms of disordered eating and poorer psychological well-being.³² Nevertheless, studies mostly focus on populations who were impacted directly by the appearance issue, and the remaining, including athletes, were often omitted. In this concept, participation in sports among females has been associated with better academic performance, higher self-esteem, and a reduced risk of psychological and physical disorders such as depression, osteoporosis, or even breast cancer. On the other hand, research suggests that participating in sports can improve body image.³³ Contrarily, other studies have found that sport-related weight pressures can contribute to body image concerns, particularly among female college athletes.³⁴ The study also showed a significant correlation between the intensity of sports and anxiety scores. In the study group, the highest scores were recorded by Athletics, Taekwondo practitioners, and Volleyball players. These athletes scored higher, as they require more stamina and focus, and face higher levels of competition. In parallel, a study by Varnes et al. showed that participation in university sports decreases the severity of body image concerns but appears to be less effective for athletes in more feminine sports and for higher-level athletes.³⁵ Contradictingly, Krane et al. have suggested that there were no differences in body satisfaction or physique anxiety between different sports or exercise groups. In both exercisers and athletes, the two body satisfaction variables were the strongest predictors of social physique anxiety.³⁶ Nevertheless, the work of Varnes et al underlines that there may be differences in competition level within the group of college athletes, with Division I and Division III athletes experiencing concerns differently depending on the construct being measured. They added that their results showed that Division I athletes were the only ones to report greater dissatisfaction, while athletes at other levels reported greater satisfaction.³⁵

The regression analysis results of the study revealed that SATAQ-3 sub-dimensions may explain a significant variance in female athletes' SPA scores. Sub-dimensions of Information and Internalization Athlete predicted the change in SPA significantly. Such finding about the influence of sociocultural attitudes supports previous evidence that sociocultural pressure can predispose to social physique anxiety.³⁷

There might be a probability that the sporting environment em-

Table 4**Simple linear regression analysis results**

	B	Standard Error	Beta	T	P	Adjusted R ²
Constant	23.050	2.872		8.025	.000	
Internalization General	.148	.312	.188	.474	.638	
Internalization Athlete	.752	.364	.551	2.066	.046	.292
Perception of Pressure	.148	.355	.143	.417	.679	
Information	-.477	.161	-.561	-2.958	.005	

In the next step of the analysis, a regression analysis with the enter method was performed to explore whether the model consisting of SATAQ-3 sub-dimensions may be able to explain

phasises a body ideal that increases the likelihood of body dissatisfaction among female participants. Conversely, social physique anxiety has been identified as a motive for exercising, with the aim of decreasing social physique anxiety by developing a fitter and more attractive physique. Moreover, determining sociocultural sources of body image dissatisfaction may be useful for researchers and practitioners aiming to prevent social anxiety and related problems.

There were several limitations of the study. Firstly, the small sample size and the fact that it was conducted in a single center limited the generalization of the findings. Besides, only female participants were involved, which avoids the interpretation of the results for male sports students. Finally, until further studies are carried out, it is not possible to make any generalisations about this field since it is still largely unexplored.

5. Conclusion

The study showed that social physique anxiety is common and widespread among young female sports participants, regardless of the type of sport. Thus, one of the most important issues that needs to be addressed is how sports facilities could promote healthy habits and attitudes towards body image more effectively. Such centres should emphasise that certain ideals are neither healthy nor realistic and can prevent negative thoughts and social physique anxiety. In addition, it is necessary to focus on the results of determining sociocultural attitudes towards appearance that cause social physique anxiety. This may be beneficial in solving problems such as social comparison and the resulting body image dissatisfaction and eating disorders that arise as a result of social physique anxiety triggered by these sociocultural attitudes. Based on this, it may help prevent individuals from engaging in aggressive diets that threaten their health. Further research could benefit from a more improved design, i.e., a follow-up or longitudinal study with a larger sample size, to investigate sports facility users in the areas examined in the study.

Statement of ethics

The Scientific Research Ethics Committee of Girne American University (23-24/18) approved all experimental procedures, and all data were collected following the Helsinki Declaration's ethical standards.

genAI

No artificial intelligence-based tools or generative AI technologies were used in this study. The entire content of the manuscript was originally prepared, reviewed, and approved by both authors.

Funding

This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

Conflict of interest statement

The authors declare that they have no conflict of interest.

Availability of data and materials

This Data and materials are available to the researchers.

Author contributions

ED: (Idea/Concept, Design and Layout, Supervision/Consulting, Analysis/Interpretation, Literature Review, Author, Critical Review)

CKS: (Design and Layout, Supervision/Consulting, Analysis/Interpretation, Literature Review, Author, Critical Review)

NSB: (Supervision/Consulting, Analysis/Interpretation, Author, Critical Review). Both authors read and approved the final manuscript.

References

1. Ng M, Fleming T, Robinson M, et al. Global, regional, and national prevalence of overweight and obesity in children and adults during 1980–2013: a systematic analysis. *Lancet*. 2014;384(9945):766–81. [\[Crossref\]](#)
2. Grabe S, Ward LM, Hyde JS. The role of the media in body image concerns among women: a meta-analysis of experimental and correlational studies. *Psychol Bull*. 2008;134(3):460–76. [\[Crossref\]](#)
3. Puhl RM, Heuer CA. Obesity stigma: important considerations for public health. *Am J Public Health*. 2010;100(6):1019–28. [\[Crossref\]](#)
4. Anton SD, Perri MG, Riley JR. Discrepancy between actual and ideal body images. *Eat Behav*. 2000;1(2):153–60. [\[Crossref\]](#)
5. Stice E, Shaw HE. Role of body dissatisfaction in the onset and maintenance of eating pathology. *J Psychosom Res*. 2002;53(5):985–93. [\[Crossref\]](#)
6. O'Dea JA, Abraham S. Improving the body image, eating attitudes, and behaviors of young male and female adolescents: a new educational approach that focuses on self-esteem. *Int J Eat Disord*. 2000;28(1):43–57. [\[Crossref\]](#)
7. Thompson JK, Stice E. Thin-ideal internalization: mounting evidence for a new risk factor for body-image disturbance and eating pathology. *Curr Dir Psychol Sci*. 2001;10(5):181–3. [\[Crossref\]](#)
8. Levine MP. Prevention of eating disorders: 2023 in review. *Eat Disord*. 2024;32(3):223–46. [\[Crossref\]](#)
9. Tiggemann M, Slater A. NetGirls: the Internet, Facebook, and body image concern in adolescent girls. *Int J Eat Disord*. 2013;46(6):630–3. [\[Crossref\]](#)
10. Cafri G, Yamamiya Y, Brannick M, Thompson JK. The influence of sociocultural factors on body image: a meta-analysis. *Clin Psychol Sci Pract*. 2005;12(4):421–33. [\[Crossref\]](#)
11. Bi X, Liang Q, Jiang G, Deng M, Cui H, Ma Y. The cost of the perfect body: influence mechanism of internalization of media appearance ideals on eating disorder tendencies in adolescents. *BMC Psychol*. 2024;12(1):138. [\[Crossref\]](#)
12. Schreurs L, Vandenbosch L. Different interactions with appearance-focused social media content and adolescents' body dissatisfaction: a within-person perspective. *Comput Hum Behav*. 2022;135:107364. [\[Crossref\]](#)
13. Jung J, Barron D, Lee YA, Swami V. Social media usage and body image: examining the mediating roles of internalization of appearance ideals and social comparisons in young women. *Comput Hum Behav*. 2022;135:107357. [\[Crossref\]](#)
14. Scheiber R, Diehl S, Karmasin M. Socio-cultural power of social media on orthorexia nervosa: an empirical investigation on the mediating role of thin-ideal and muscular internalization, appearance comparison, and body dissatisfaction. *Appetite*. 2023;185:106522. [\[Crossref\]](#)
15. Merino M, Tornero-Aguilera JF, Rubio-Zarapuz A, Villanueva-Tobaldo CV, Martín-Rodríguez A, Clemente-Suárez VJ. Body perceptions and psychological well-being: a review of the impact of social media and physical measurements on self-esteem and mental health with a focus on body image satisfaction and its relationship with cultural and gender factors. *Healthcare*. 2024;12(14):1396. [\[Crossref\]](#)
16. Durkin SJ, Paxton SJ. Predictors of vulnerability to reduced body image satisfaction and psychological wellbeing in response to exposure to idealized female media images in adolescent girls. *J Psychosom Res*. 2002;53(5):995–1005. [\[Crossref\]](#)
17. Stice E, Bearman SK. Body-image and eating disturbances prospectively predict increases in depressive symptoms in adolescent girls: a growth curve analysis. *Dev Psychol*. 2001;37(5):597–607. [\[Crossref\]](#)
18. Kostanski M, Gullone E. Adolescent body image dissatisfaction: relationships with self-esteem, anxiety, and depression controlling for body mass. *J Child Psychol Psychiatry*. 1998;39(2):255–62. [\[Crossref\]](#)
19. Tager D, Good G, Morrison J. Our bodies, ourselves revisited: male body image and psychological well-being. *Int J Mens Health*. 2004;5(3):228–37. [\[Crossref\]](#)
20. Festinger L. A theory of social comparison processes. *Hum Relat*. 1954;7(2):117–40. [\[Crossref\]](#)

- 21.Fardouly J, Diedrichs PC, Vartanian LR, Halliwell E. Social comparisons on social media: the impact of Facebook on young women's body image concerns and mood. *Body Image*. 2015;13:38–45. [[Crossref](#)]
- 22.Fardouly J, Pinkus RT, Vartanian LR. The impact of appearance comparisons made through social media, traditional media, and in person in women's everyday lives. *Body Image*. 2017;20:31–9. [[Crossref](#)]
- 23.Castellanos Silva R, Steins G. Social media and body dissatisfaction in young adults: an experimental investigation of the effects of different image content and influencing constructs. *Front Psychol*. 2023;14:1037932. [[Crossref](#)]
- 24.Hart EA, Leary MR, Rejeski WJ. The measurement of social physique anxiety. *J Sport Exerc Psychol*. 1989;11(1):94–104. [[Crossref](#)]
- 25.Vartanian LR, Shaprow JG. Effects of weight stigma on exercise motivation and behavior: a preliminary investigation among college-aged females. *J Health Psychol*. 2008;13(1):131–8. [[Crossref](#)]
- 26.Opara I, Santos N. A conceptual framework exploring social media, eating disorders, and body dissatisfaction among Latina adolescents. *Hisp J Behav Sci*. 2019;41(3):363–77. [[Crossref](#)]
- 27.Calogero RM. Objects don't object: evidence that self-objectification disrupts women's social activism. *Psychol Sci*. 2013;24(3):312–8. [[Crossref](#)]
- 28.Ballı ÖM, Aşçı FH. Sosyal fizik kaygı envanterinin geçerlilik ve güvenilirlik çalışması. *Hacettepe J Sport Sci*. 2006;17(1):11–9.
- 29.Heinberg LJ, Thompson JK, Stormer S. Development and validation of the sociocultural attitudes towards appearance questionnaire. *Int J Eat Disord*. 1995;17(1):81–9. [[Crossref](#)]
- 30.Thompson JK, van den Berg P, Roehrig M, Guarda AS, Heinberg LJ. The sociocultural attitudes towards appearance scale-3 (SATAQ-3): development and validation. *Int J Eat Disord*. 2004;35(3):293–304. [[Crossref](#)]
- 31.Swami V, Frederick DA, Aavik T, Alcalay L, Allik J, Anderson D, et al. The attractive female body weight and female body dissatisfaction in 26 countries across 10 world regions: results of the international body project I. *Pers Soc Psychol Bull*. 2010;36(3):309–25. [[Crossref](#)]
- 32.Neumark-Sztainer D, Paxton SJ, Hannan PJ, Haines J, Story M. Does body satisfaction matter? Five-year longitudinal associations between body satisfaction and health behaviors in adolescent females and males. *J Adolesc Health*. 2006;39(2):244–51. [[Crossref](#)]
- 33.Miller KE, Melnick MJ, Barnes GM, Farrell MP, Sabo D. Untangling the links among athletic involvement, gender, race, and adolescent academic outcomes. *Sociol Sport J*. 2005;22(2):178–93. [[Crossref](#)]
- 34.Reel JJ, SooHoo S, Petrie TA, Greenleaf C, Carter JE. Slimming down for sport: developing a weight pressures in sport measure for female athletes. *J Clin Sport Psychol*. 2010;4(2):99–111. [[Crossref](#)]
- 35.Varnes JR, Stellefson ML, Janelle CM, Dorman SM, Dodd V, Miller MD. A systematic review of studies comparing body image concerns among female college athletes and non-athletes, 1997–2012. *Body Image*. 2013;10(4):421–32. [[Crossref](#)]
- 36.Krane V, Stiles-Shipley JA, Waldron J, Michalenok J. Relationships among body satisfaction, social physique anxiety, and eating behaviours in female athletes and exercisers. *J Sport Behav*. 2001;24(3):247–64.
- 37.Eriksson L, Baigi A, Marklund B, Lindgren EC. Social physique anxiety and sociocultural attitudes toward appearance impact on orthorexia test in fitness participants. *Scand J Med Sci Sports*. 2008;18(3):389–94. [[Crossref](#)]