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Sensitivity to Rejection Due to Appearance in Female Gymnasts and Non-Athletes

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Abstract

Introduction. According to modern research, in recent years, due to the spread of inflated standards of thinness and attractiveness, young women have increased dissatisfaction with their appearance, contributing to a decrease in self-esteem and increased sensitivity to rejection due to appearance. The aim of the study was to compare the subjective assessment of weight, sensitivity to rejection due to appearance, satisfaction with body image, and self-esteem of female students engaged in rhythmic gymnastics and non-sports students. **Methods.** *Sample*: 80 female students aged 18-23 years (40 professional gymnasts and 40 non-athletes). *Methods:* socio-biographical questionnaire, BISS body image state scale, "Appearance-Based Rejection Sensitivity, ARS", Rosenberg Self-Esteem Scale RSES. *Methods of mathematical statistics:* descriptive statistics, Student's criterion for independent samples, correlation analysis (Pearson's criterion), and univariate analysis of variance (ANOVA). **Results.** Significant differences in body mass index were found in the comparison groups. Subjective perception of their weight often does not correspond to objective categorization according to WHO criteria in gymnasts compared to their non-athlete peers. Gymnasts are more likely to receive negative assessments of their appearance than female students without professional sports experience. Significant correlations were found between sensitivity to rejection due to appearance and body image satisfaction and self-esteem in both groups. Low body image satisfaction is associated with increased sensitivity to rejection due to appearance in girls aged 18–23 years. **Discussion.** Potential causes of differences in subjective weight assessments among female rhythmic gymnasts and female students not involved in professional sports. For the first time, a comparative analysis of the sensitivity to rejection due to appearance was

performed between female students engaged in professional rhythmic gymnastics and those who are not involved in sports. Furthermore, the relationships between these indicators and the experience of negative appearance-related evaluations from others, body image satisfaction, and self-esteem were analyzed.

Keywords

sensitivity to rejection due to appearance, body image satisfaction, self-esteem, female students, rhythmic gymnastics

For citation

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Introduction

Despite the fact that a person's ideas about their appearance have been studied by psychologists for a century, interest in this issue has been growing in recent years due to the increasing importance of physical attractiveness for professional self-realization, interpersonal communication, mental health, subjective well-being, value orientation, self-esteem, etc. (Volkova & Veresov, 2019; Kapitanova, 2022; Labunskaya, 2020; Labunskaya & Drozdova, 2017; Labunskaya et al., 2019; Faustova et al., 2024; Javaid & Ajmal, 2019; Tylka & Wood-Barcalow, 2015). Currently in psychology to determine the perceptions of the person about their appearance are used concepts of body image (Sokolova, & Dorojevec, 1985; Belogay, & Morozova, 2019; Schilder, 1999; Hogue & Mills, 2019), a structural component of self-concept "I" or physical "I" corporal (Con, 1984; Shishkovskaya, 2009; Berns, 1986; Cash & Smolak, 2011), the relationship to the external appearance (Labunskaya, 2023). These concepts are largely similar, since they characterize the system of human representations about their body that is part of the structure of self – consciousness-its mental representation, as well as assessments of their appearance and related emotions, experiences, and relationships. Focusing on the various aspects of these constructs, the authors unanimously emphasize that the leading role in the formation and dynamics of self-assessment of one's appearance (especially in adolescents and young people) is played by assessments from significant people and generally accepted standards of external attractiveness distributed in social media at this stage of society's development (Labunskaya, 2020; Labunskaya, Drozdova,2012). 2017; Labunskaya et al., 2019; Pirogova & Vasilenko, 2022; Pogontseva, 2014; Polskaya & Yakubovskaya, 2022; Serikov, 2018; Hogue & Mills, 2019). It is important that perceptions of how attractive appearance is from the point of view of others have a greater impact on self-assessment of appearance than its objective indicators (Pogontseva, 2014; Park, 2007). Due to the pressure of socio-

economic stereotypes dissatisfaction with their appearance experienced by many people in different countries, men and women, representatives of different age groups, those who have any physical defects or mental disabilities, and those who have not, therefore, modern society is characterized by "normative discontent" with their appearance (Belogay, Morozova, 2019; Ramsey, Harcourt, 2009; Kolmogorov, Tarkhanov, 2014;Fuller-Tyszkiewicz et al., 2019; Herbozo et al., 2004).

Broadcast standards of appearance, in particular, a very thin, toned body, body proportions used in the modeling field and used in clothing advertising, doll production, cinematography and computer games form certain body standards in children, adolescents and young people, often idealized and unattainable in real life (Labunskaya et al., 2019; Polskaya & Yakubovskaya, 2022; Tiggemann & Slater, 2013).The discrepancy between one's own body image and common standards often causes negative emotions, persistent dissatisfaction with one's appearance, decreased self-esteem, and anxiety in communication, and thus contributes to increased sensitivity to rejection by other people (Polskaya et al., 2020;Javaid & Ajmal, 2019).

Sensitivity to rejection due to appearance (ARS) is defined as readiness to perceive rejection due to appearance in real or imagined interpersonal contacts, accompanied by an anxious expectation of social rejection and other negative emotional reactions (Razvalyaeva & Polskaya, 2020; Park, 2007). As one of the types of sensitivity to rejection, ARS is based on cognitive and affective signals coming from others (cues, looks, etc.), which form a complex of self-assessments and beliefs about one's external attractiveness, as well as an anxious anticipation of a negative assessment of one's appearance by other people and a strong emotional reaction to the alleged social rejection (Park et al., 2009).Receptivity to rejection can increase to such a level that even neutral or ambiguous assessments of others will be interpreted as rejecting (Polskaya, Yakubovskaya, Razvalyaeva, 2023;Downey & Feldman, 1996). An increase in ARS is manifested in an increase in vulnerability to rejection in situations of evaluating or comparing the parameters of one's appearance with broadcast significant people or social media. With a high ARS, dissatisfaction with one's appearance and anxiety increase, self-esteem instability and its dependence on appearance increase, as a result of which the risk of eating disorders and unjustified appeals to plastic surgery methods increases (Razvalyaeva, Polskaya, 2020; Polskaya, Yakubovskaya, Razvalyaeva, 2023).

It seems that the problems of dissatisfaction with appearance and ARS are especially acute among representatives of those activities in which very high and strict requirements are imposed on appearance: modeling business and technical and aesthetic sports: rhythmic gymnastics (RG), figure skating, aesthetic gymnastics, etc. Young women who are engaged in RG from preschool age are taught that you need to look beautiful, and for this you need to be very thin, control your weight, and follow a diet. In a number of sports schools for RG, height-weight tables are used that reflect the standard of body parameters established in this sport, corresponding to asthenic and muscular-asthenic body types (Samusev, 2021). Compared to their peers, artistic gymnasts have lower body mass index (BMI) and body fat percentage (Vybornaya et al., 2021), but there are more of them who are not satisfied with their body (Vetvitskaya, 2021).

Despite the fact that the body parameters and weight of female athletes are not regulated by the rules approved by the International Gymnastics Federation and the programs of the federal standard of the Russian Federation for sports training in the sport of "rhythmic gymnastics", coaches of this sport pay special attention to the appearance of female athletes, and above all, body weight and proportions. The strict requirements imposed by the coaches on the light weight and very thin physique of artistic gymnasts are explained by the need for high-quality performance of complex movements that make up the technique of gymnastic exercises and the desire to impress the judges during the performance not only by the complexity of the performed programs, but also by the appearance of the athletes. In an effort to ensure that their wards meet unofficial but generally accepted standards of appearance in this sport, coaches regularly evaluate the figure of athletes, often make comments, constantly remind them of the need to maintain weight, and practice control measurements (weighing, measuring). From the first years of training, coaches form beliefs about the need to be as thin as possible for a successful sports career in rhythmic gymnastics, not only among athletes, but also among their parents. Dreaming of high sports achievements of their children, parents closely monitor the weight and strictly control the nutrition of gymnasts, their appearance is often discussed in the family and even small weight gains are condemned. Judges, spectators, sports journalists and specialists who post comments and tips on the weight and figure of certain athletes on social media make their contribution to evaluating the appearance of female gymnasts.

The authors ' experience of working as psychologists with artistic gymnasts shows that many athletes have a hard time accepting negative assessments of their appearance from their coach, parents, and comments about their figure in social networks. Negative evaluation statements about the appearance or comparing the figure not in favor of one of the gymnasts are not only unpleasant, but also cause deep and long-term experiences in some athletes, leading to a decrease in self-esteem, increased anxiety, feelings of social isolation and rejection.

Rhythmic gymnastics refers to complex coordination sports, which are characterized by the above-described features of social pressure in connection with the appearance of athletes. Therefore, in comparison with athletes of other sports disciplines, representatives of this group of sports are distinguished by the highest dissatisfaction with their appearance, excessive concern about weight, a constant desire to "lose weight" and a more pronounced tendency to eating disorders (Davletova & Tafeeva, 2023). The culmination of the sports career of most gymnasts-artists occurs at the age of 18-23 years and, usually, young women not only train intensively and often participate in competitions, but also combine sports with study. Like non-sports students aged 18-23, gymnasts need to solve the main tasks of this age period – to find their place in society, both professionally through mastering the profession and roles, and personally through the need for intimacy and understanding, through the formation of their own authenticity and correlation with others (Nartova-Bochaver et al., 2023). The implementation of these tasks is closely related to self-reflection and self-esteem (Solovyova, 2022), which, in turn, are interrelated with personal health and satisfaction with one's appearance.

The aim of the study: to study the features of subjective assessment of their weight, ARS, body image satisfaction (BIS) and self-esteem among female students engaged in rhythmic gymnastics and non-sports students.

The objectives of the study included a comparison of objective indicators of weight (BMI) and its subjective assessments, as well as a comparative analysis of the experience of negative assessments of their appearance, ARS, BIS and self-esteem in female students engaged in RG and female students not engaged in professional sports.

Based on the above analysis of modern standards of attractiveness and social pressure due to appearance in relation to female students engaged in RG and not involved in sports, the following **hypotheses were put forward:**

- the subjective perception of their weight by female students engaged in rhythmic gymnastics often does not correspond to the objective categorization (WHO standards) than in female students who are not engaged in sports;
- female students who practice rhythmic gymnastics are more likely to be exposed to other people because of their appearance than female students who don't do sports.
- in female students who are engaged in rhythmic gymnastics, ARS is more pronounced than in female students who are not engaged in sports.

Methods

Methods of empirical research

1. A socio-biographical questionnaire that includes questions about age, height, and weight to determine BMI, current diet adherence, and use (1-yes, currently dieting, 2-slightly, slightly dieting, 3-not currently dieting), and others' perception (assessment) of your weight and a subjective assessment of your own weight (you are underweight; Your weight is normal; You are slightly overweight; You are very overweight), individual questions about the experience of negative assessments from representatives of your own sex, the opposite sex, relatives, teachers/coaches (never; rarely; sometimes; often; always). Thus, the socio-biographical questionnaire included questions that reveal various aspects of body image, the degree of satisfaction with body parameters and weight, the desire to adjust body parameters using diets, the experience of negative assessments of body type and weight, and the manifestation of concern about appearance as a component of body image.

2. To identify overall body image satisfaction BIS, BISS (Body Image States Scale) developed by Thomas Cash (Cash et al., 2002) was used, adapted by L. T. Baranskaya & S. S. Tataurova (2011). The methodology consists of 6 questions that identify evaluative experiences about body image, including appearance, attractiveness, and weight relative to the average person, and allows you to quantify overall satisfaction with body image. The range of values is from 1.0 to 8.0 points, higher values according to this method indicate greater satisfaction with the body image at present.

3. The method of "Appearance-based Rejection Sensitivity", developed by L. E. Park (Park, 2007), adapted by A. Yu. Razvalyaeva & N. A. Polskaya (2020). The methodology consists of describing 15 brief situations, for example, weight gain, a flaw in appearance, other people's statements about appearance, and others, to which two questions and / or statements are asked: the first of them (point A) reflects the affective color, the intensity of anxiety in this situation for the respondent, point B reveals a negative belief, concern about yourself and your appearance; the answers to both questions should be rated on a 6-point scale from "Won't bother you at all"/"Very unlikely" to "Will be very disturbing"/"Most likely." The higher the overall final score, the higher the anxious expectation of rejection due to appearance in the respondent.

4. M. Rosenberg's Self-Esteem Scale, RSES (Rosenberg, 1965), adapted by A. A. Zolotareva (2020). The methodology consists of 10 statements that reveal individual components of self-esteem and its manifestations: self-esteem, self-respect, self-worth assessment, sense of dignity, and other components. Higher values correspond to higher self-esteem of the respondent.

Mathematical and statistical analysis of the obtained data was carried out using the licensed program IBM SPSS Statistics 27.0. using descriptive statistics, Student's criterion for independent samples, Pearson correlation coefficient, univariate analysis of variance (ANOVA).

Description of the study sample

Respondents were recruited through an electronic invitation to participate in the study among students of 3 universities (St. Petersburg State University, Lesgaft, National University, First Pavlov State Medical University of St. Petersburg), by self-filling out a psychodiagnostic battery in the Google Forms format. The study protocol, informed consent, and psychodiagnostic battery were reviewed and approved by the St. Petersburg State University Ethics Committee (Protocol No. 115-02-5 of 21.06.2023).

The final sample of the study consisted of 80 young women aged 18-23 years, who are students and receive their first higher education. 40 of them are professional athletes who are engaged in rhythmic gymnastics for 13-15 years (13.47±0.27 years) and have sports qualifications: candidate for master of sports (26 people), master of sports (13 people), master of sports of international class (1 person). 6 respondents have chronic diseases: 2 episodes of pyelonephritis, 1 episode of pyelonephritis, 1 episode of pyelonephritis, an episode of gastritis, 1 episode of chronic tonsillitis, which were not excluded from the study sample due to the fact that these diagnoses/diseases do not directly affect the studied indicators in respondents. Two respondents with a diagnosis of "depressive disorder" were excluded from the group of female students who were not professionally involved in sports, as their condition could complicate the objectivity of the psychodiagnostic examination.

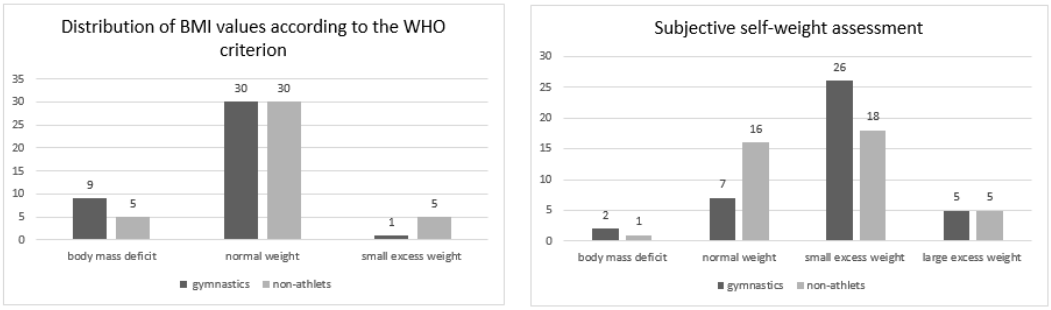
The average age of the entire sample was 20.09±0.16 years: female athletes were 19.91±0.23 years old, and non-sports students were 20.26±0.23 years old.

Results

Among female students engaged in RG, BMI (M±m 19.65±0.34, n=40) is close to the lower limit of the WHO standard range, which is consistent with the results of other studies in this age group (Miteva, 2020; Purenović-Ivanović et al., 2019). Female students who are not professionally engaged in sports have a BMI (M±m 21.28±0.5, n=40) in the middle of the standard range and corresponds to the data of studies of young women of the same age (Pitirut, 2023). BMI of female gymnasts is statistically significantly lower than that of non-athletic female students (Student's t-test: t=-2.692, p=0.009, df=78).Similar differences in BMI were found in the study of K. V. Vybornaya et al. (2021).

The distribution of BMI according to WHO criteria in the group of female students engaged in rhythmic gymnastics (female gymnasts) and in the group of female students not engaged in professional sports (non-female athletes) is shown in Figure 1 (left). Body mass deficit was detected in 22.5% of the sample in the group of gymnasts and 12.5% in the second group, the standard BMI value in both groups is 75%, excess body weight in the group of gymnasts was detected in 2.5% and 12.5% in the group of non-athletes.

Figure 1
Distribution of BMI values in comparison groups (left) and distribution of subjective self-weight assessment by group (right)

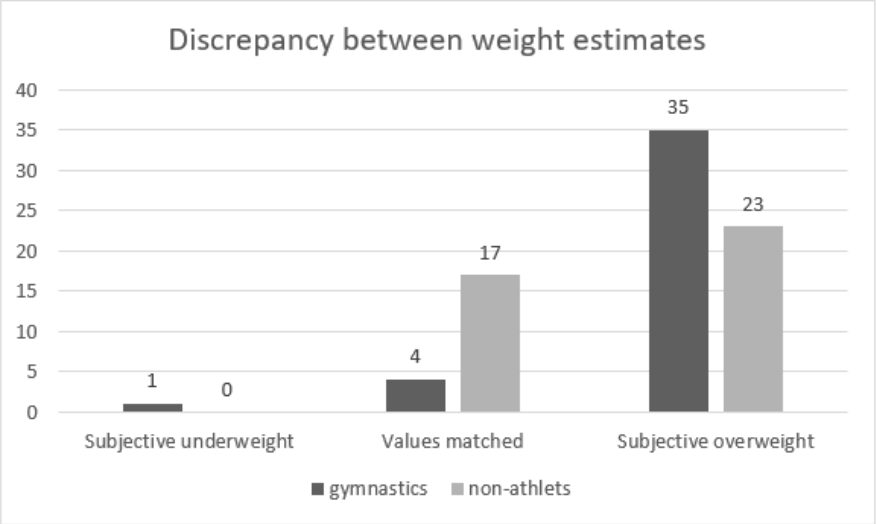


Respondents were asked to assign their weight to one of 4 categories: body mass deficit, normal weight, small excess weight (overweight), large excess weight (obesity), the distribution by groups is shown in Figure 1 (right). In the group of female students engaged in rhythmic gymnastics, 17.5% of all respondents in this group rated their weight as corresponding to the standard value, and 65% described it as slightly overweight (excess body weight), 12.5% noted that they have a large excess weight (obesity). According to the WHO criterion, excess body weight in the group of gymnasts was detected only in 1 respondent, according to a subjective assessment, the value above the standard value was noted in 31 respondents, that is, in 77.5% of the group of gymnasts and in 23 respondents in the group of non-athletes, which is 57.5% of the sample. Thus, young women aged 18-23 years tend to assess their weight as higher, compared to the WHO BMI categorization. The distribution of episodes of overlap or

discrepancy between the objective weight assessment (BMI) and the subjective assessment by group is shown in Fig. 2. In 87.5% of the sample of female students engaged in RG, there is a subjective overestimation of their own weight, while in the second group this indicator is 57.5%. At the same time, almost half of the respondents (42.5%) had similar grades in the group of female students who were not involved in sports, while only 10% of the sample had female athletes.

Figure 2

The number of cases of overlap and discrepancy in the smaller and larger sides when correlating the BMI (WHO) weight category and subjective assessment



Female students who practice rhythmic gymnastics are more likely than non-athlete students to receive negative ratings and comments about their appearance and weight from their own gender (other female athletes), teachers, and coaches. Compared to non-athletic female students, female gymnasts pay more attention to their appearance and are more likely to follow diets (Table 1).

In the group of gymnasts, increased adherence to diets is associated with an increase in ARS (correlation analysis, Pearson's criterion, r=-0.341, p=0.031) (a decrease in points on the diet adherence scale means an increase in this indicator, and an increase in points on the ARS scale means an increase in the anxious expectation of rejection due to appearance.) In the group of female students who are not professionally engaged in sports, an increase in the BIS is associated with a decrease in the desire to adhere to diets (correlation analysis, Pearson's criterion, r=0.600, p=0.000). In the same group, increased adherence to diets is associated with an increase in age (correlation analysis, Pearson's test,r=-0.369, p=0.019). (A decrease in points on the diet adherence scale means an increase in this indicator, and an increase in

points on the BIS and age scales means an increase in them). Thus, young women who are not engaged in sports resort to diets in case of low satisfaction with body image, while for athletes, actions aimed at weight loss and figure correction are primarily due to the desire to reduce negative comments from significant individuals (which contribute to an increase in ARS).

Table 1

Experience of negative assessments of their appearance from the outside and attention to their appearance among female gymnast students and non-sports students (univariate analysis of variance)

Indicators	Female students engaged in rhythmic gymnastics (n=40)	Female students who are not professionally engaged in sports (n=40)	F	p
Negative appearance ratings from members of one's own sex	More often	Less	4.35	0.04
Negative appearance ratings from teachers and trainers	More often	Less	67.293	0.000
Attention to one's appearance and weight	More	Less	4.345	0.04
Adherence to diets	More	Less	12.841	0.001

The indicators of sensitivity to rejection due to appearance (ARS), body image satisfaction (BIS), and self-esteem of female gymnasts and non-sports students do not differ statistically significantly (Table 2). In both groups of respondents, the indicators of ARS and BIS correspond to the average level, while self-esteem is above the average level.

Table 2

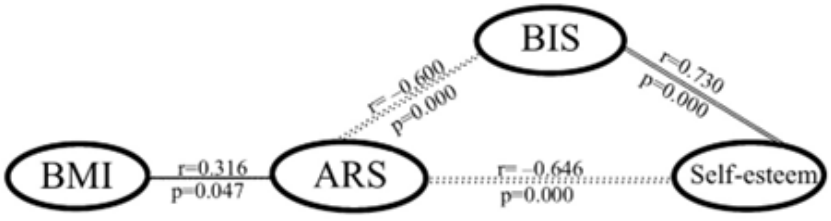
ARS, BIS and self- esteem in female gymnasts and non-female students

Indicators	Female students engaged in rhythmic gymnastics (n=40)	Female students who are not professionally engaged in sports (n=40)	Student's criterion
	M±m	M±m	t
Sensitivity to rejection due to appearance	11.4±1.12	11.97±1.13	Not significant
Body image satisfaction	5.39±0.27	5.89±0.25	Not significant
Self-esteem	19.8±0.95	19.92±0.85	Not significant

In female rhythmic gymnastics students, an increase in ARS is associated with an increase in BMI and with a decrease in body image satisfaction and self-esteem (Figure 3). Apparently, gymnasts with higher weight indicators are more likely than other athletes with lower weight to hear comments and negative comments about their appearance, as a result of which they experience a higher mental state. tension and expect negative assessments of their appearance from the outside. Because of the real and potential threats of a negative assessment of the appearance of female gymnast students, ARS increases, as well as BIS and self-esteem decrease.

Figure 3

Relationships of the sensitivity index to rejection due to appearance (ARS) with body image satisfaction (BIS), self-esteem (RSES) and BMI in the group of female students engaged in rhythmic gymnastics



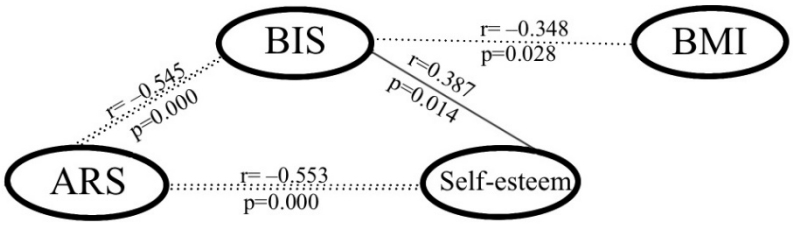
It was found that the ARS decreases due to an increase in the age of gymnasts (correlation analysis, Pearson's criterion: r=-0.345, p=0.029). This can be explained both by a decrease in the need to meet the standard figure of a gymnast due to the planned completion of a

sports career by older athletes, and by an improvement in resistance to negative assessments. Obviously, older athletes, having more experience of experiencing pressure "on appearance" from the outside, adapt more successfully to this pressure, using various methods of reducing the significance of comments: rationalization, ignoring, displacement, etc.

In female students who do not play sports, as well as in gymnasts, an increase in ARS is associated with a decrease in body image satisfaction and a deterioration in self-esteem (Figure 4). In contrast to rhythmic gymnasts, non-athlete students exhibit no association between ARS and BMI.

Figure 4

Relationships of the sensitivity index to rejection due to appearance (ARS) with body image satisfaction (BISS), self-esteem (RSES) and BMI in the group of female students who are not engaged in professional sports



Both female and non-female students involved in RG have an increase in body image satisfaction associated with improved self-esteem, which confirms the role of body image assessment in overall self-esteem and self-esteem in young women aged 18-23 years and is consistent with data on the relationship between appearance satisfaction and personal self-esteem (Mukhina, 2018; Imankulova, Kudaibergenova, 2021; Lozenko, 2021; Shoraka & Amirkafi, 2019).

Discussion

Objective values of BMI according to WHO criteria in most female students who are engaged in RG and not involved in sports correspond to the norm. However, the subjective estimates of their weight in gymnasts are overestimated and coincide with the objective values of BMI much less often than in female students who are not engaged in sports. The higher subjectivity of gymnasts can be explained by stricter and diverse criteria for evaluating their appearance. When assessing their weight, female students who are not professionally engaged in sports are guided by age norms and existing ideas about the attractiveness of young women in society. In addition to the above-mentioned parameters, female gymnast students also take into account the influence of weight on the performance of gymnastic exercises, being reasonably or exaggeratedly afraid that being overweight can lead to injuries during the performance of

elements, to a negative impression of themselves from judges and coaches, and to a decrease in points for the competition program.

Only 36 respondents out of 80 (including 11 gymnasts and 25 non-athletes) noted that they do not follow a diet at present, which reflects the importance of weight, appearance and confirms the available data on the widespread dissatisfaction with body image and the use of various methods of body correction in young women (Labunskaya et al., 2019; Faustova, Yakovleva, 2017; Faustova et al., 2024). Showing the standard for this age group dissatisfaction with their appearance, accompanied by a desire to improve it, gymnasts, unlike young women who do not play sports, more closely monitor their weight and appearance, as they are more often subjected to pressure due to appearance from both peers and mentors (Table 1).

Despite the fact that compared to female students who are not professionally engaged in sports, gymnasts more strictly assess their weight and more often receive comments about their appearance from other people, in particular from representatives of their own gender (other athletes) and coaches, they, like "non-athletes", demonstrate an average level of ARS. This can be explained both by the fact that in the course of many years of practicing rhythmic gymnastics, athletes adapt to criticism of their appearance from other people, and by the fact that by adolescence in rhythmic gymnastics there is a "natural dropout": athletes with a weaker nervous system and low emotional stability stop practicing at earlier stages, and remain they have a stronger nervous system and are resistant to emotionogenic factors (including harsh comments from the outside). It is also important to note that rhythmic gymnastics is a sport with an early professionalization, and by the age of 16, athletes begin to perform in the Masters of Sports (MS) program. Due to high workloads, some athletes finish their sports career after receiving the MS at the age of 16-18 years, while the other part ends their sports career when entering the university.

Both female students who are engaged in RG and non-sports demonstrate an average level of ARS and BIS, and they rate themselves at a level slightly higher than average. Similar data were obtained when studying the severity of these indicators in the same age group (Razvalyaeva, Polskaya, 2020, Vetvitskaya, 2021). The respondents of both groups (gymnasts and non-athletes) ARS did not have statistically significant differences in their ARS, BIS, and self-assessment (Table 1), despite the fact that in comparison with female students who do not play sports, female gymnasts are more likely to receive negative assessments of their appearance from the outside (Table 2). It is important to note that, having a more negative experience of evaluating their appearance from the outside, gymnasts pay more attention to their appearance and more often adhere to diets than those who do not play sports. female students who are not engaged in sports (Table 2). The results obtained give grounds to state that female students who are engaged in RG, in the process of playing sports, form the skills of working with critical comments of their appearance. Obviously, gymnasts tend not to "delve deeply" into their feelings, but to push them out or try to take appropriate measures (diet, etc.) to improve their appearance. The absence of "obsession" with emotions and the awareness that something is being done to improve your appearance allow you to maintain an optimal level of ARS, BIS and self-esteem.

Both female students who are engaged in RG and non-sports ARS students have closely interrelated indicators of ARS, BIS and self-esteem (Fig. 3 and Fig. 4), which is consistent with other studies (Imankulova & Kudaibergenova, 2021; Lozenko, 2021; Shoraka & Amirkafi, 2019).

Probably, the close interrelationships found in our and similar studies between ARS, BIS, and self-assessment are explained by individual features of assessment (Baturin & Vyboishchik, 2011) and individual differences in control and assessment as a regulatory process (Morosanova, 2012). Actualization of ARS, BIS, and self- esteem involves evaluating one's appearance and comparing it with the normatively defined or desired one. It can be assumed that the identified consistent manifestation of ARS, BIS, and self-esteem is associated with a moderate or categorical pessimistic evaluation style (Baturin & Vyboyschik, 2011), a tendency to overestimate the severity of subjective evaluation criteria, and a minimization of the degree of inconsistencies that cause correction of actions (Morosanova, 2012).

Since an increase in ARS is closely related to a decrease in BIS and self-esteem, and an increase in BIS is related to an increase in self-esteem (Fig. 3, Fig. 4), it is reasonable to assume that psychological influences aimed at increasing self-esteem and forming self-respect can increase the acceptance of one's own body and BIS, thereby forming a protective, protective factor for reducing ARS. However, this assumption requires further empirical verification.

Attention is drawn to the fact that in gymnasts, an increase in BMI is associated with an increase in ARS, and in female students – with a decrease in BIS (Fig. 3, Fig. 4). Gymnasts with higher weight indicators are more likely to expect negative comments about their appearance from the outside, and female students are less satisfied with their appearance. Thus, objective weight gain in gymnasts is associated with increased readiness for social rejection, and in female students-with an increase in their dissatisfaction with the body. It is likely that the awareness that weight gain will lead to more comments contributes to more rigorous subjective weight estimates among gymnasts than among female students – according to the data of this study, subjective weight estimates coincide with BMI in gymnasts less often than in female students.

Conclusion

Compared to female students who are not professionally engaged in sports, female gymnasts are less objective in their assessment of their weight, often exaggerating its value relative to the objective BMI. Female students who are engaged in RG are more likely than female students who are not professionally engaged in sports to receive negative assessments about their appearance from others (coaches, parents, other athletes). More than half of female students (both gymnasts and "non-athletes") follow diets to maintain the right weight, but those who are engaged in RG do this more often than those who are not engaged in sports. An increase in BMI in female gymnasts is associated with an increase in ARS, and in non-athletic female students-with a decrease in BIS. The revealed features indirectly indicate the significance of external assessments of appearance for gymnasts, and orientation to their own assessments of appearance in "non-athletes".

The level of ARS, BIS, and self-esteem does not differ between female students involved in RG and non-athletic women; in both groups, ARS and BIS are expressed at an average level, and self-esteem is slightly higher than average. An increase in ARS is correlated with a decrease in BIS and self-esteem in female students who are engaged in RG and not involved in sports. There is reason to assume that the interrelated manifestation of ARS, BIS, and self-esteem identified in this study and in other studies ARS is based on individual assessment features. However, this assumption requires verification in a special study.

Thus, the hypotheses were confirmed that female students who are professionally engaged in RG assess their weight less objectively (exaggerating) than non-sports students and are more likely than the latter to be subjected to negative pressure from others because of their appearance.

The hypothesis that female students involved in HG have more pronounced ARS than non-athletic female students was not confirmed. The results obtained can be explained by the fact that gymnasts for many years (12–15 years) sports careers get used to regular assessments of others appearance. Gymnasts adapt to pressure from outside because of their appearance, developing certain skills in working with comments on their appearance: some statements are “ignore”, others are pushed out by switching to something else, some take note and “go on a diet”, etc. Learning skills to counteract the pressure of others regarding appearance would allow us to concretize the understanding of adaptation to negative statements due to appearance and develop recommendations for optimizing the level of ARS through the formation of appropriate skills.

Limitations

This study has the following limitations:

1. The sample size is not too large: 40 female students who are engaged in rhythmic gymnastics and 40 female students who are not involved in sports.
2. Sample size: university students from Saint Petersburg only, including permanent residents of Saint Petersburg and nonresidents.
3. This study did not take into account the factors of gymnasts ' attitude to sports and the success of their sports career, which can influence the formation of the studied indicators: subjective perception of their weight, self-esteem, satisfaction with body image, sensitivity to rejection due to appearance.

References

Baranskaya, L. T., & Tataurova, S. S. (2011). Methods of body image research. Yekaterinburg: Ural Federal University Press. (In Russ.)

Belogaj, K. N., & Morozova, I. S. (2019). Characteristics of Body Image at Different Stages of Psychosomatic Development. *Siberian journal of psychology, 74*, 167–182. (In Russ.) https://doi.org/10.17223/17267080/74/11

Baturin, N. A., & Vyboyschik, I. V. (2011). Psychology of assessment and evaluation: theoretical and applied aspects. Chelyabinsk: Publishing Center of the South Ural State University. (In Russ.)

Vetvitskaya, T. V. (2021). Attitude of female athletes engaged in rhythmic gymnastics. Ananyevsky Readings-2021, 727–728. (In Russ.)

Volkova T.G., & Veresov N. N. (2019). Physical image of I students in the context of psychological health. *Health, Physical Culture and Sports, 15*(4), 70–78. (In Russ.)

Vybornaya K.V., Semenov M.M., Zakharova M.F., Radzhabkadiev R.M., Nikitjuk D.B. (2021). Features of Physical Development in Girls and Teenagers in Rhythmic Gymnastics. *Human. Sport. Medicine 21*(3), 14–22. (In Russ.) https://doi.org/10.14529/hsm210302

Davletova, N. H., & Tafeeva, E. A. (2023). Perception of the body image and its influence on the development of maladaptive eating behaviors in sports university students. *Science and Innovations in Medicine, 8*(1), 22–28. (In Russ.) https://doi.org/10.35693/2500-1388-2023-8-1-22-28

Zolotareva, A. A. (2020). Validity and Reliability of the Russian Version of the Rosenberg Self-Esteem Scale. *Herald of Omsk University. Series "Psychology", 2*, 52–57. (In Russ.) https://doi.org/10.24147/2410-6364.2020.2.52-57

Imankulova, I. A., & Kudaibergenova, S. K. (2021). Women`s body image satisfaction: connection with age and self-esteem. *The Journal of Psychology and Sociology, 77*(2), 28–37. (In Russ.) https://doi.org/10.26577/JPsS.2021.v77.i2.04

Kapitanova, E. V. (2022). Appearance in the structure of value orientations of young people who are concerned about it or satisfied with it. *Personality in a changing world: health, adaptation, development, 10*(4), 383–393. (In Russ.)

Kohn, I. S. (1984). *In search of self: personality and its self-consciousness*. Moscow: Politizdat. (In Russ.)

Labunskaya, V. A. (2020). The external appearance of a person as a cultural and natural construct that generates psychological problems of the individual. In *the face of man in the contexts of nature, technology and culture* (p. 11-25). Cogito-Center, Moscow Institute of Psychoanalysis. (In Russ.)

Labunskaya, V. A. (2023). Socio-demographic Factors in the Structure of Relationships Between Self-assessments of Appearance and Assessments of Subjective Well-being. *Russian Psychological Journal, 20*(3), 255–273. (In Russ.) https://doi.org/10.21702/rpj.2023.3.14

Labunskaya, V. A., & Drozdova, I. I. (2017). A theoretical and empirical analysis of the influence of socio-psychological factors on young people's assessment and self-assessment of appearance. *Russian Psychological Journal, 14*(2), 202–226. (In Russ.) https://doi.org/10.21702/rpj.2017.2.12

Labunskaya, V. A., Serikov, G. V., Shkurko, T. A. [et al.]. (2019). Social Psychology of Appearance: theoretical approaches and empirical research (collective monograph). Rostov-on-Don: Mini Type LLC. (In Russ.)

Lozenko, K. S. (2021). The Problem of Satisfaction with the Image of the Physical Self. *Modern scientific researches and innovations, 2*, 29–29. (In Russ.)

Morosanova, V. I. (2012). *Self-regulation and human individuality* (2nd ed.). Moscow: Nauka Publishing House. (In Russ.)

Mukhina, Yu. I. (2018). Research of the relationship between self-esteem of a person and satisfaction with appearance. *Humanization of education, 4*, 90–96. (In Russ.)

Nartova-Bochaver, S. K., Yerofeyevaa, V. G., Bayramyana, R. M., & Chulyukina, K. S. (2023). Everyday Representations of Authenticity: From Childhood to Youth. *Psychology. Journal of the Higher School of Economics, 20*(3), 523–547. (In Russ.) https://doi.org/10.17323/1813-8918-2023-3-523-547

Pirogova, O. D., & Vasilenko, V. E. (2022). Satisfaction with body image and interpersonal relationships in older adolescents. *World of Science. Pedagogy and psychology, 10*(2). (In Russ.) https://mir-nauki.com/PDF/25PSMN222.pdf

Pogontseva, D. V. (2014). The desire to lose weight: a socio-psychological analysis. *Science Time, 5*, 159–165. (In Russ.)

Polskaya, N. A., Tseitlina, M. D., & Yakubovskaya, D. K. (2020). Rejection sensitivity and mental health. *Questions of psychology, 66*(5), 119–129. (In Russ.)

Polskaya, N. A., & Yakubovskaya, D. K. (2022). Idealization of the Body in the Social Media. *Psychological journal, 43*(2), 128–141. (In Russ.)

Polskaya, N.A., Yakubovskaya, D.K., & Razvaliaeva, A.Y. (2023). Vulnerability to Interpersonal Rejection Based on Appearance in Body Positive and Pro-Anorexic Online Communities. *Social Psychology and Society, 14*(1), 150–171. (In Russ.) https://doi.org/10.17759/sps.2023140109

Razvaliaeva, A.Y., & Polskaya, N.A. (2020). Validating Appearance-Based Rejection Sensitivity and Fear of Negative Appearance Evaluation Scales in the Russian Sample. *Counseling Psychology and Psychotherapy, 28*(4), 118–143. (In Russ.) https://doi.org/10.17759/cpp.2020280407

Ramsey, N., & Harcourt, D. (2009). Psychology of appearance (translated from English). St. Petersburg: Publishing House "Piter". (In Russ.)

Samusev, R. P., Ageeva, V. A., Zubareva, E. V., Rudaskova, E. S., & Adelshina, G. A. (2021). Constitutional features of female athletes with different types of motor activity. *Volgograd Scientific and Medical Journal, 20*(4), 21–24. (In Russ.)

Serikov, G. V. (2018). Attractive Appearance as an Instrumental Value and its Importance Among Young People. *Psychologist, 6*, 21–31. (In Russ.) Https://doi.org/10.25136/2409-8701.2018.6.27934

Sokolova, E. T., & Dorozhevets, A. N. (1985). Research of "body image" in foreign psychology. *Bulletin of the Moscow University. Episode 14. Psychology, 4*, 39–49. (In Russ.)

Solovyova, A. E. (2022, November). Self-assessment in adolescence: a theoretical aspect. *Postulate, 11*. (In Russ.)

Faustova, A. G., Labunskaya, V. A., Yakovleva, N. V. [et al.]. (2024). *Psychological studies of appearance and body image* (collective monograph). Ryazan: Ryazan State Medical University. Academician I. P. Pavlov. (In Russ.)

Faustova, A. G., & Yakovleva, N. V. (2017). Problems of defining and measuring normative dissatisfaction with the body in clinical psychology. *Personality in a Changing World: Health, adaptation, development, 5*(3), 359–380. (In Russ.) https://doi.org/10.23888/humJ20173359-380

Kholmogorova, A. B., & Tarkhanova, P. M. (2014). Appearance standards and culture: the role of physical perfectionism and its implications for adolescent and youth health. *Questions of psychology, 2*, 52–65. (In Russ.)

Shishkovskaya, A.V. (2009). Theoretical ideas about the image of the physical self in psychology. *North Caucasian Psychological Bulletin, 3*, 71–78. (In Russ.)

Berns, R. (1986). *Развитие Я-концепции и воспитание* (пер. с англ.). Москва: Педагогика.

Cash, T. F., Fleming, E. C., Alindogan, J., Steadman, L., & Whitehead, A. (2002). Beyond body image as a trait: The development and validation of the Body Image States Scale. *Eating Disorders, 10*(2), 103–113. https://doi.org/10.1080/10640260290081678

Cash, T. F., & Smolak, L. (Eds.). (2011). *Body image: A handbook of science, practice, and prevention*. New York, NY: Guilford Press.

Downey, G., & Feldman, S. I. (1996). Implications of rejection sensitivity for intimate relationships. *Journal of Personality and Social Psychology, 70*(6), 1327–1343. https://doi.org/10.1037/0022-3514.70.6.1327

Fuller-Tyszkiewicz, M., Chhouk, J., McCann, L. A., Urbina, G., Vuo, H., Krug, I., … Heron, K. (2019). Appearance comparison and other appearance-related influences on body dissatisfaction in everyday life. *Body Image, 28*, 101–109. https://doi.org/10.1016/j.bodyim.2018.12.001

Herbozo, S., Tantleff-Dunn, S., Gokee-Larose, J., & Thompson, J. K. (2004). Beauty and thinness messages in children's media: A content analysis. *Eating Disorders, 12*(1), 21–34. https://doi.org/10.1080/10640260490267742

Hogue, J. V., & Mills, J. S. (2019). The effects of active social media engagement with peers on body image in young women. *Body Image, 28*, 1–5. https://doi.org/10.1016/j.bodyim.2018.11.002

Javaid, Q., & Ajmal, A. (2019). The impact of body image on self-esteem in adolescents. *Clinical and Counselling Psychology Review, 1*(1), 44–54. https://doi.org/10.32350/ccpr.11.04

Miteva, S., Yanev, I., Kolimechkov, S., Petrov, L., Mladenov, L., Georgieva, V., & Somlev, P. (2020). Nutrition and body composition of elite rhythmic gymnasts from Bulgaria. *International Journal of Sports Science & Coaching, 15*(1), 108–116. https://doi.org/10.1177/1747954119892803

Park, L. E. (2007). Appearance-based rejection sensitivity: Implications for mental and physical health, affect, and motivation. *Personality and Social Psychology Bulletin, 33*(4), 490–504. https://doi.org/10.1177/0146167206296301

Park, L. E., Calogero, R. M., Harwin, M. J., & DiRaddo, A. M. (2009). Predicting interest in cosmetic surgery: Interactive effects of appearance-based rejection sensitivity and negative appearance comments. *Body Image, 6*(3), 186–193. https://doi.org/10.1016/j.bodyim.2009.02.003

Pitirut, I. B., Swami, V., Poamă-Neagră, T., & Enea, V. (2023). Appearance-based rejection sensitivity mediates the relationship between Instagram addiction and dysmorphic concerns in young adult women. *Scandinavian Journal of Psychology*. https://doi.org/10.1111/sjop.12973

Purenović-Ivanović, T., Popović, R., Bubanj, S., & Stanković, R. (2019). Body composition in high-level female rhythmic gymnasts of different age categories. *Science & Sports, 34*(3), 141–148. https://doi.org/10.1016/j.scispo.2018.10.010

Rosenberg, M. (1965). *Society and the adolescent self-image*. Princeton, NJ: Princeton University Press.

Schilder, P. (1999). *The image and appearance of the human body* (1st ed.). London, England: Routledge. https://doi.org/10.4324/9781315010410

Shoraka, H., Amirkafi, A., & Garrusi, B. (2019). Review of body image and some of contributing factors in Iranian population. *International Journal of Preventive Medicine, 10*, Article 24. https://doi.org/10.4103/ijpvm.IJPVM_293_18

Tiggemann, M., & Slater, A. (2013). NetGirls: The Internet, Facebook, and body image concern in adolescent girls. *International Journal of Eating Disorders, 46*(6), 630–633. https://doi.org/10.1002/eat.22141

Tylka, T. L., & Wood-Barcalow, N. L. (2015). What is and what is not positive body image? Conceptual foundations and construct definition. *Body Image, 14*, 118–129. https://doi.org/10.1016/j.bodyim.2015.04.001

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Conflict of Interest Information

The authors have no conflicts of interest to declare.