





Untangling the relationships between age, gender, type of sport, perfectionistic self-presentation and motivation on body satisfaction: a cross-sectional study on aesthetic and non-aesthetic female and male athletes aged 10 to 22 years

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ABSTRACT

Objectives To explore the relationships between age, gender, type of sport, perfectionistic self-presentation and motivation on body satisfaction among young athletes in one aesthetic sport (gymnastics) and one non-aesthetic sport (basketball). The study hypothesise that (1) age, gender and type of sport (aesthetic or non-aesthetic) will predict body satisfaction scores, (2) autonomous motivation will positively be related to body satisfaction and (3) perfectionistic self-presentation will negatively be related to body satisfaction.

Design Cross-sectional.

Method 209 athletes (132 gymnasts and 77 basketball players) aged 10–22 (median=13) years were recruited. After data screening, 200 athletes were included in analyses (females: n=155; males: n=45). Participants completed an online survey, which assessed demographic information, athlete motivation (Behavioural Regulation in Sport Questionnaire), perfectionistic self-presentation (Perfectionistic Self-Presentation Scale—Junior Form) and body satisfaction (Body Appreciation Scale-2).

Results Hierarchical multiple regression showed age, self-assigned gender, and two facets of perfectionistic self-presentation (ie, perfectionistic presentation and non-disclosure of imperfection) to predict reported levels of body satisfaction significantly. Subsequently, adding motivational variables did not improve the model. A moderation analysis showed that the relationship between non-disclosure of imperfection and body satisfaction was significantly moderated by gender.

Conclusions Two facets of perfectionistic self-presentation were associated with reported body satisfaction. Additionally, the relationship between non-disclosure of imperfection and body satisfaction appears to differ between female and male athletes. Researchers should move beyond sport types and identify factors (eg, perfectionistic self-presentation) at the individual and environmental levels that can protect young athletes' body satisfaction.

WHAT IS ALREADY KNOWN ON THIS TOPIC

- ⇒ Many adolescents, including athletes, experience body dissatisfaction, which is concerning considering that adolescence is a crucial developmental stage also with a close association between body image, self-esteem and identity.
- ⇒ Body dissatisfaction is not only linked to drop-out from sports and psychological distress but also a strong predictor of disordered eating behaviours and eating disorders.

WHAT THIS STUDY ADDS

- ⇒ The findings suggest age, gender and perfectionistic self-presentation to be important for the understanding of body satisfaction variations among young athletes.
- ⇒ The relationship between non-disclosure of imperfection and body satisfaction was moderated by gender, suggesting that the relationship may be stronger for female athletes.

HOW THIS STUDY MIGHT AFFECT RESEARCH, PRACTICE OR POLICY

- ⇒ A positive view, acceptance and appreciation of one's body and its functionality are related to sustained participation in sports among youth athletes. Identifying individual and environmental factors that can protect young athletes' body satisfaction is also essential for universal and selective prevention strategies for disordered eating in this population.

INTRODUCTION

Many adolescents within the general and athletic population experience body dissatisfaction, a concern given that adolescence is a crucial developmental period.¹ Body image, self-esteem and identity are closely related, and body image disturbances during early and middle adolescence are related to drop-out from sports as well as psychological



distress (eg, depressive symptoms) later in life.²⁻⁴ Body dissatisfaction is additionally known as a robust predictor of disordered eating behaviours and eating disorders and can increase the risk for these conditions over adolescence and lifespan.^{1 4-6}

Young athletes can experience sport-specific pressures related to body shape and weight, increasing the risk of body dissatisfaction. Pressures include stereotypical athletic body ideals, critical comments about weight or shape, the objectification of the body, an intense focus or demands on nutritional strategies to alter body composition, sports regulations (eg, requirements for revealing attire) and an emphasis on weight or physical appearance for performance purposes.⁷⁻⁹ These factors are particularly pronounced in weight-sensitive/lean and aesthetic sports, like gymnastics, figure skating, long-distance running and triathlon, where leanness and low body weight are considered beneficial for performance.^{10 11} However, research on athletes' body image concerns has predominantly focused on females, and study results on body dissatisfaction among male athletes have been inconclusive.¹²⁻¹⁴ While Burgon and colleagues¹⁴ found in their systematic review and meta-analysis that lean athletes generally reported higher body image concerns than non-lean athletes (eg, ball sports like basketball, soccer and volleyball), these differences were solely found in studies on females but not in studies focusing exclusively on males.

Beyond risk factors associated with specific types of sports (eg, weight-sensitive) and gender, several general and sport-specific factors can influence young athletes' body satisfaction. Intrinsic and autonomously regulated forms of motivation are generally associated with positive health outcomes,^{15 16} while more controlled forms of exercise motivation are indicated as related to higher levels of body dissatisfaction.¹⁷⁻¹⁹ Intrinsic motivation among female college-level high-intensity sports was, for example, found to be associated with a reduced risk of eating disorders, while extrinsic motivation across both low- and high-intensity sports showed an opposite pattern.²⁰ Body satisfaction experiences can also fluctuate throughout adolescence. A longitudinal cohort study²¹ revealed an increase in body satisfaction among males from ages 12 to 20 years, followed by a decline in early adulthood. Females between the ages of 10 and 16 years exhibited instead a decrease in body satisfaction, which stabilised and improved at the age of 20 years.²¹

The association between perfectionism (ie, the pursuit of achieving flawlessness) and body dissatisfaction among children and adolescents is well documented.²² Interpersonal expression of perfectionism in terms of perfectionistic self-presentation can be particularly important to explore among adolescents, who can experience appearance as a means to achieve an ideal public image.²³ Perfectionistic self-presentation targets three interpersonal facets: (a) perfectionistic self-promotion (ie, an excessive need to appear as being perfect to others, unrealistic self-presentation of one's perfection),

(b) non-display of imperfection (ie, fear/need to avoid showing imperfection or shortcomings to others or making errors in public by avoiding situations or hiding mistakes) and (c) non-disclosure of imperfection (ie, the need to avoid telling others/admitting shortcomings and evasiveness in interactions with others).²³ Paixão *et al*²⁴ found, for example, a significant and positive relationship between body-image-related perfectionistic self-presentation, body mass index, disordered eating and age among young female aesthetic athletes. In addition, perfectionistic self-presentation was found to mediate the relationship between body-image-related cognitive fusion and disordered eating.²⁴

Participation in youth sports can offer significant health benefits,²⁵ but research has revealed inconclusive results on whether sports participation acts as a protective or risk factor for body image disturbances.^{14 26} Drawing on the existing literature, this study hypothesises that (1) age, gender and type of sport (aesthetic or non-aesthetic) will predict body satisfaction scores, (2) autonomous motivation will be positively related to body satisfaction and (3) perfectionistic self-presentation will be negatively related to body satisfaction. Given that most previous research has focused on females participating in weight-sensitive/lean or aesthetic sports, this study aimed to include both female and male aesthetic and non-aesthetic athletes as participants. Gymnastics was chosen to represent an aesthetic sport, given the traditional predominance of prepubescent female figures for successful performance. Basketball was chosen to represent a non-aesthetic sport as body composition with a specific body shape or weight is not an essential factor for success or sports performance evaluation. We note, however, that there still needs to be more empirical knowledge on body satisfaction among ball sports athletes. The objective of this study was, therefore, to examine the relationships between age, gender, type of sport, perfectionistic self-presentation and motivation on body satisfaction among young athletes who engaged in one aesthetic sport (gymnastics) and one non-aesthetic ball sport (basketball).

METHODS

Study design

This cross-sectional study was part of a larger project named 'Young People Should Feel Good: Mental Health Through Sports'.²⁷ The Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) guidelines were adopted.

Participants and settings

Study participants were recruited from one non-aesthetic sport (basketball) and one aesthetic sport (gymnastics). Athletes' sports levels ranged from recreational to national elite. The participating sports clubs had approximately 170 (basketball) and 440 (gymnastics) members eligible for this study.

Data collection

All athletes within the targeted age range of 10 to 25 years actively participating in a training group or team

Table 1 Descriptives of the samples and assessments

Variable (min-max)	Females (n=155)	Males (n=45)	Basketball (n=73)	Gymnastics (n=127)	Total sample (n=200)	Assessments
	M (SD)	M (SD)	M (SD)	M (SD)		McDonald's α
Age (10–22)	13.09 (2.47)	14.56 (2.16)	14.78 (2.30)	12.64 (2.24)	13.42 (2.48)	--
Body satisfaction (10–50)	37.49 (9.38)	42.89 (7.93)	38.70 (9.40)	38.71 (9.33)	38.71 (9.33)	0.96
Self-promotion (8–40)	20.88 (7.77)	20.16 (8.28)	21.97 (8.25)	19.99 (7.58)	20.72 (7.87)	0.94
Non-display of imperfection (6–30)	19.11 (4.89)	17.71 (5.73)	19.05 (5.46)	18.65 (4.91)	18.80 (5.11)	0.86
Non-disclosure of imperfection (4–20)	10.92 (3.71)	11.60 (3.83)	11.86 (3.66)	10.61 (3.72)	11.07 (3.74)	0.74
Autonomous motivation (12–84)	68.57 (12.28)	67.76 (11.77)	72.04 (10.76)	66.28 (12.43)	68.38 (12.14)	0.93
Controlled motivation (8–56)	14.16 (7.62)	16.31 (8.76)	17.16 (8.69)	13.20 (7.08)	14.65 (7.92)	0.89

within the involved sports clubs were informed about the study. All participants provided written informed consent for their contribution to this study and were informed that participation was voluntary and that they could withdraw at any time. Participants younger than 15 years of age needed a written informed consent signed by one caregiver. The survey was anonymous, and no personal information (eg, playing position, competitive level) that could identify individual athletes was collected. The Swedish Ethical Review Authority approved the study before data collection (2021-05588-01).

Patient and public involvement statement

Data collection was performed in collaboration with the sports clubs. Members from the sports clubs were involved in designing the survey, sent out study information to their members about the project and assisted during survey distribution. Athletes completed the questionnaire on an electronic device (eg, tablet, smartphone), and an adult was available to answer potential questions.²⁷ Demographic information collected consisted of age and self-assigned gender.

Measures

Athlete motivation was assessed with the Behavioural Regulation in Sport Questionnaire (BRSQ).²⁸ The questionnaire consists of 24 questions measuring autonomous forms of motivation regulation (intrinsic motivation, integrated regulation, identified regulation), controlled forms (introjected regulation, external regulation) and amotivation. In this study, we only used two factors of autonomous and controlled regulation because these motivational regulation types have shown relationships to health.¹⁶ Participants respond on a 7-point scale ranging from '1, Strongly disagree', to '7, Strongly agree'. Higher scores indicate higher autonomous and controlled motivation regulation. A previously

validated Swedish version of the scale was used,²⁹ and the scale has shown adequate psychometric properties in studies including young athlete samples from the age of 14 years.²⁸

The Perfectionistic Self-Presentation Scale—Junior Form²³ assesses perfectionistic self-presentation with 18 items divided into three subscales: perfectionistic self-promotion (proclaiming and displaying one's perfection), non-display of imperfection (concealing and avoiding behavioural demonstrations of one's imperfection) and nondisclosure of imperfection (evading and avoiding verbal admissions of one's imperfection). The scale is adapted to children and adolescents, and each item is scored on a 5-point scale ranging from '1, Strongly disagree' to '5, Strongly agree'. A higher score on the scale indicates a higher perfectionistic self-presentation. The scale has shown acceptable psychometric properties when previously evaluated on early adolescents and youths. However, the four-item nondisclosure of imperfection subscale has been indicated with potentially weaker internal consistency (Cronbach's $\alpha < 0.70$).^{23,30} In the present study, we used a back-translated (English to Swedish) version of the scale.

Body satisfaction was assessed with the 10-item version of the Body Appreciation Scale-2 (BAS-2).³¹ Scores are combined into a single score, and a higher score indicates a higher body appreciation. Body appreciation is regarded to be inversely related to body dissatisfaction and is an independent construct proposed to positively impact wellbeing-related constructs.³² Respondents rate their answers on a five-item scale ranging from 'Never' (1) to 'Always' (5). The BAS-2 has shown acceptable psychometric properties across genders, nationalities and ages.^{31,32} In this study, we used a back-translated (English to Swedish) version of the scale.



Statistical analyses

Data screening, calculation of descriptives (mean values, SD) and McDonald's Omega were performed using SPSS Statistical Package version 29. All other statistical analyses were performed using R software (v4.3.3).³³ A hierarchical multiple linear regression analysis was performed in three steps to explore the contribution of predictor variables in explaining variance in body satisfaction. The first step included demographic variables (age, gender, sport), the second step included perfectionistic self-presentation and motivational variables were included in the final step. Finally, a moderation analysis was performed by testing a final model including demographic variables, identified significant predictors and two-way interactions between gender and identified predictors. The assumption of normally distributed residuals was checked by plotting a histogram of residuals for each model. Assumptions of linearity and homogeneity of variance were checked by constructing scatterplots of fitted values against standardised residuals and the square root of standardised absolute residuals, respectively. The assumption of no multicollinearity was checked by calculating variance inflation factors.

RESULTS

Data screening and descriptives

In table 1, descriptives of participants and mean values of self-reported scores of body satisfaction

(BAS-2), perfectionistic self-presentation (junior form) and motivation (BRSQ) are shown. Data screening with Mahalanobis distance identified one multivariate outlier ($\chi^2(9) \geq 27.88$, $p \leq 0.001$), and eight cases had incomplete data. These nine cases (6 females, 1 male, 2 missing; median age=12.5) were therefore excluded from further analyses, resulting in a final sample that consisted of 200 cases (females: $n=155$; males: $n=45$) with an age range from 10 to 22 years (median=13). The initial inspection of the data revealed a strong correlation between the non-display of imperfection and self-promotion subscales in the current sample ($r=0.80$). To avoid issues of multicollinearity and to avoid choosing one subscale over another, the two scales were combined into a composite scale (henceforth perfectionistic presentation), which represented the participants' tendency to show present as perfect and to hide signs of imperfection.

Multiple regression

The three steps of the initial hierarchical regression model are displayed in table 2. In the first model, containing only the background variables of age, gender and sport, the predictors explained 20.3% of the variance ($F(3,196)=16.97$, $p < 0.001$), with age and gender contributing significantly to the model. In the second model, two facets of perfectionistic self-presentation were introduced as predictors, adding a total of 18.5% variance to the model ($F(4,195)=28.47$, $p < 0.001$). Both facets of

Table 2 Hierarchical multiple linear regression of demographic variables, perfectionistic self-presentation and motivational variables on body satisfaction

Variables	b	Beta	t	P value	R ²	ΔR ²	ΔF
Step 1					0.20	0.21***	16.97
Age	-1.56	-0.42	-5.88	<0.001			
Gender	7.21	0.32	4.75	<0.001			
Sport	1.22	0.06	0.87	0.385			
Step 2					0.39	0.19***	28.85
Age	-1.17	-0.31	-4.83	<0.001			
Gender	6.60	0.28	5.04	<0.001			
Sport	1.78	0.09	1.44	0.153			
Perfectionistic presentation	-0.27	-0.36	-5.44	<0.001			
Non-disclosure of imperfection	-0.35	-0.14	-2.09	0.038			
Step 3					0.40	0.01	2.86
Age	-0.92	-0.24	-3.51	<0.001			
Gender	6.31	0.28	4.68	<0.001			
Sport	1.25	0.06	0.95	0.346			
Perfectionistic presentation	-0.25	-0.33	-4.85	<0.001			
Non-disclosure of imperfection	-0.32	-0.13	-1.96	0.052			
Controlled motivation	-0.14	0.12	-1.79	0.076			
Autonomous motivation	0.07	0.09	1.52	0.131			

*** $p < 0.001$.

perfectionistic self-presentation added significantly to the model. Finally, in the third step, autonomous and controlled motivation was added but did not significantly contribute to additional explained variance ($\Delta R^2=0.01$, $F=2.86$, $p=0.06$).

Post-hoc analyses: moderation

Previous research has indicated differential expression of body satisfaction between young males and females,^{21 34} and the regression analyses (table 1) showed gender to contribute to body satisfaction scores significantly. In a second analysis, we added gender as a hypothesised moderator to the relationship between perfectionistic self-presentation and body satisfaction. We thus conducted an additional multiple regression analysis including all two-way and three-way interaction terms between the two facets of perfectionistic self-presentation and gender. While no significant interaction was found between perfectionistic presentation and gender ($p=0.984$), a significant interaction effect was found between perfectionistic non-disclosure and gender ($p=0.014$). Post-hoc correlation analyses showed that while the correlation between perfectionistic non-disclosure and body satisfaction was moderate and statistically significant for females ($r(153)=-0.43$, $p<0.001$), the same correlation was substantially smaller and statistically non-significant for males ($r(43)=-0.24$, $p=0.12$). While the difference in statistical significance may be related to the greater number of female participants, the difference in magnitude suggests that the relationship between perfectionistic non-disclosure and body satisfaction is moderated by gender (see figure 1).

DISCUSSION

This study explored the relationships between age, gender, type of sport, perfectionistic self-presentation and motivation on body satisfaction among young athletes. The study's strengths were that it included both aesthetic (gymnastics) and non-aesthetic (basketball) sports, as well as female and male participants. The results partly corroborated the hypotheses indicating age, self-assigned

gender and perfectionistic self-presentation to be significant predictors of body satisfaction. Furthermore, self-assigned gender was identified as a moderating factor in the relationship between non-disclosure of imperfection and body satisfaction. However, the findings did not support the hypotheses that sport type or motivation (ie, autonomous or controlled) would be significantly associated with body satisfaction.

Clinical implications

Empirical knowledge of individual and environmental factors that can protect young athletes' body satisfaction is essential for both universal and selective prevention strategies for body dissatisfaction and disordered eating in this population. The findings in the present study indicate that perfectionistic self-presentation, especially non-disclosure of imperfections among female athletes, could be a more predictive indicator of lowered body satisfaction than participation in aesthetic or non-aesthetic sports alone. Aligned with previous research that has found perfectionistic self-presentation as related to body image, identity, dieting behaviour and various forms of psychopathology,^{35 36} this study suggests that an intensified need to conceal imperfections and portray an image of flawlessness can be of relevance to understanding levels of body satisfaction among young athletes. Further research is, however, required to confirm if perfectionistic self-presentation is a significant factor for levels of body satisfaction among athletes across a broader range of sports, age groups, competitive levels and gender.

In the present study, the hypothesised relationships between sport type (aesthetic, non-aesthetic) and motivation regulation (autonomous, controlled) on levels of body satisfaction were not empirically supported. Likely, differences within sports cultures and environments (eg, clubs, federations, sports systems) play a prominent role in how athletes' motivation regulation and body satisfaction could be affected by sports participation. As young athletes become immersed in their sports, they are socialised into the sports culture and its normative values.³⁷ Sports cultures that consciously or unconsciously endorse behaviours or practices (eg, preoccupation with nutrient intake, body composition manipulation strategies, body ideals promoting lean body shape for performance) that increase the risk for body dissatisfaction and disordered eating can adversely affect athletes' views of their bodies. Perfectionistic tendencies can, in addition, be socially acquired through direct observation, imitation, perceived social expectations, criticism and other relational dynamics with significant others.^{38 39} For example, if a lean athletic body ideal is the standard in the sports culture and deviations from this norm are implicitly or explicitly expressed as undesirable, resulting in negative consequences (eg, reduced attention from coaches, negative comments about body weight/shape), young athletes are likely to internalise this 'ideal sports body' narrative. Consequently, they may search for strategies to conceal or resolve deviations from this perceived ideal.

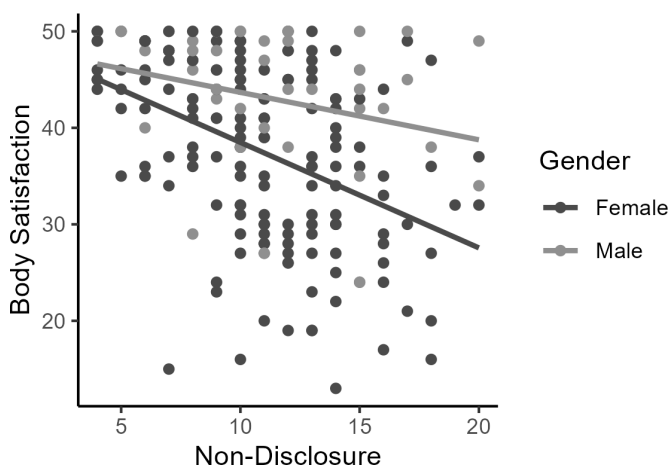


Figure 1 Moderation analysis.



The focus on body composition and nutrient intake, common in some sports (eg, aesthetic), underscores the importance of further empirical investigation of perfectionistic self-presentation about the body within these sports. For instance, Paixão *et al*²⁴ found body-image-related perfectionistic self-presentation to mediate the relationship between body-image-related cognitive fusion and self-reported disordered eating attitudes/behaviours in a sample of female aesthetic athletes. However, there is still sparse empirical knowledge of how these constructs manifest across genders and a broader range of sports or how perfectionistic self-presentation can be related to sports environmental factors. To date, most research on the social learning of perfectionism has focused on the parent–adolescent dyads. At the same time, less is known about the plausible transfer of perfectionistic social learning from social agents in the young person’s broader social network, which usually expands during adolescence.³⁸ Moreover, qualitative studies are warranted to increase the understanding of health-detrimental processes or practices that could be normalised within sports environments and pose a risk for young athletes’ body dissatisfaction. Promoting a healthy environment within sports settings for young athletes is important to foster both personal and athletic development and to encourage continued sports participation.

Limitations

This study has generated new hypotheses concerning factors related to young athletes’ body satisfaction but also has some limitations. First, contextual factors within or external to the sports setting (eg, family, peer and coach support, socioeconomic factors, academic demands, sports culture) were not assessed. They could not be controlled in data analyses. Consequently, we cannot rule out that including these variables could have altered the findings of this study. Second, previous research has indicated a relationship between body satisfaction and sustained sports participation. It is plausible that athletes with intensified levels of body dissatisfaction could have terminated their sports involvement, thereby not being represented in this study. Third, the research design was cross-sectional, with data collected exclusively from athletes in two sports (basketball and gymnastics), limiting the generalisability of the study’s results.

Fourth, the age range of participants (10 to 22 years) was broad; developmental differences could confound the effects of the studied variables on body satisfaction. The study also included participants at different sporting levels (from recreational to national elite), where body satisfaction is likely to increase with higher levels of competition. Finally, we combined two subscales with high correlations, and future research needs to consider these subscales separately. While the relatively large sample size was deemed satisfactory for testing the main hypotheses, it would also be appropriate to replicate the findings in a larger sample with an approximately equal gender ratio to examine moderation effects.

CONCLUSIONS

Young athletes’ perfectionistic self-presentation can be associated with reported body satisfaction, particularly among females. Further research to identify individual and environmental factors across gender, development stages and sports that can protect young athletes’ body satisfaction is needed.

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