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Factors associated with positive body image in adult men and women: appearance schemas, physical self-perception, and mood states

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Objective: Positive body image has great potential to benefit physical and mental health in a variety of ways. This study investigated factors associated with positive body image by gender among appearance schemas, physical self-perception, and mood states.
Methods: Participants who consented to the study completed an anonymous questionnaire measuring appearance schemas, physical self-perception, mood states, and positive body image. A total of 179 participants, 48 men and 131 women, were included in the analyses. Factors associated with positive body image in men and women were investigated using multiple regression analysis with positive body image as the objective variable, and appearance schemas, physical self-perception, and the POMS (Profile of Mood States) as explanatory variables.
Results: Multiple regression analysis found Attractive body and Vigor to have significant positive associations with positive body image for both men and women. A significant negative association with positive body image was also found for Anger-Hostility in women only.
Conclusions: Attractive body and Vigor were associated with positive body image for both men and women, while an additional association for Anger-Hostility was found in only women. This result suggests that psychological factors associated with positive body image differ by gender.

Key words: positive body image, appearance schemas, physical self-perception, mood states

Introduction

Body image refers to the mental perception a person has of their own body.[1,2] It is viewed as a complex, multidimensional construct defined across four aspects: perceptual, cognitive, affective, and behavioral.[3,4] Body image can be largely divided into negative body image and positive body image, with most existing research focusing only on its pathological or negative aspects (e.g., body dissatisfaction, distortions or discrepancies).[5,6] Gradually, however, researchers are beginning to emphasize the importance of understanding the positive and healthy benefits of positive body image, and have recently focused on the positive aspects of body image and on the development of indices of positive body image in recent years.

The most common measure of positive body image is the Body Appreciation Scale (BAS).[7] Body appreciation is one form of positive body image defined as accepting, positively evaluating, and respecting one's body, and refusing to accept that the ideal appearance promoted by the media is the only type of beauty.[8-10] A revised version of the BAS, the BAS-2, was later developed,[8] and a Japanese version of the BAS-2 was made in 2017.[9] Body appreciation, as measured by the BAS-2, has been associated with a number of indicators related to physical and mental health. For example, higher body appreciation has been associated with lower levels of depression, higher self-esteem, fewer unhealthy dieting behaviors, and a lower desire for muscularity.[11] More recent studies have reported that higher body appreciation is associated with lower body dissatisfaction, lower inclination toward abnormal eating behaviors, and higher well-being.[8,9] Higher body appreciation has also been associated with higher sports confidence and other sports-related factors.[12] However, the factors associated with positive body image remains underinvestigated. Detailed investigation of factors associated with positive body image is of great significance as it is likely to lead to the development of models and interventions aiming to promote and improve

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physical and mental health, thereby contributing to better overall health.

Appearance schemas are factors associated with positive body image. Defined as the belief that one's appearance has great significance in one's life and impacts daily events and activities in a variety of ways, appearance schemas play a key role in developing and maintaining body dissatisfaction.[5,13,14] Appearance schemas comprise Self-evaluative salience, the extent to which one's self-evaluation is based on appearance and to which one's social and emotional experiences are governed by one's appearance, and Motivational salience, the extent to which one devotes psychological and behavioral effort toward improving and maintaining a physically desirable appearance.[5,13] Both Self-evaluative salience and Motivational salience have been associated with body dissatisfaction, though Self-evaluative salience has a stronger relationship with the negative aspects of body image such as body dissatisfaction than does Motivational salience.[5,13,15]

A second factor associated with positive body image is physical self-perception which refers to self-evaluation of one's physical attributes and is a vital component of self-esteem.[16,17] Physical self-perception is one's self-esteem concerning one's body and has been associated with actual measurements of body shape, such as real and ideal weight and BMI (body mass index), and the difference between these real and ideal values.[18] In addition to body shape, perceived body shape and distortions therein have also been associated with physical self-perception.[19]

Mood states are also factors associated with positive body image. As previously pointed out, higher positive body image is associated with lower levels of depression.[11] While this result is from a study of male and female American college students, similar findings have been confirmed in studies of American pregnant women and female Romanian medical students.[11,20,21] Nonetheless, to our knowledge, as yet, there have been no studies from Japan investigating whether or not there is an association between positive body image and depression.

The existing studies of appearance schemas and physical self-perception have focused on associations with negative body image but have neglected to investigate possible associations with positive body image. Moreover, studies of mood states have investigated the association between depression and positive body image but have failed to investigate any associations between other mood states and positive body image. Thus, these facts indicate that positive body image has not yet been sufficiently studied. Furthermore, investigating factors related to positive body image by gender is important because of potential gender differences in factors such as media internalization.[9] Therefore, this study investigated the relationship between the levels of positive body image and appearance schemas, physical self-perception, and mood states in adult men and women, as well as investigating how other factors perceived by men and women are related to positive body image.

Materials and Methods

Participants

Participants were undergraduate and graduate students aged 20 or older at the Kitasato University School of Allied Health Sciences, Kitasato University Graduate School of Medical Sciences, and students majoring in Sports Health in the Hosei University Graduate School of Sports and Health Studies. Graduate students of the Kitasato University Graduate School of Medical Sciences who offered to participate after seeing a recruitment poster and provided written consent were also included. There was a preliminary total of 185 students who consented to and participated in the study. Of these, however, 6 students were excluded due to missing data on their questionnaires, leaving a remainder of 179 participants for this study. Therefore, a total of 179 participants (mean age $\pm$ SD = 21.3 $\pm$ 1.3), including 48 men (mean age $\pm$ SD = 21.3 $\pm$ 1.6) and 131 women (mean age $\pm$ SD = 21.3 $\pm$ 1.2), were included in the analyses.

Questionnaire

The questionnaire was consisted of the explanatory cover sheet and the psychometric scales below. Participants were given all the pages at one time, and their responses were requested.

Cover sheet

The cover sheet briefly explained the purpose of the study, the instructions, and asked for the participants' basic information of age and gender.

Appearance schemas

The Japanese version of the Appearance Schemas Inventory — Revised (JASI-R) was used to measure appearance schemas.[5] The JASI-R is a scale measuring appearance schemas — based on the concept that one's appearance has great significance on one's life and impacts daily events and activities in a variety of ways. It is comprised of two subscales, Self-evaluative salience and Motivational salience, and within those measures a total

of 13 items. Responses are from a 5-point scale from "1: Strongly disagree" to "5: Strongly agree."

Physical self-perception

The revised Japanese version of the Physical Self-Perception Profile (PSPP-J)[22] was used to measure the participants' physical self-perception. It consists of one comprehensive subscale, Physical self-worth, and four specific subscales: Subjective sports competence (sports skill and confidence), Physical condition (physical conditioning and the individual's exercise habits to maintain it), Attractive body (bodily appearance and shape), and Physical strength (physical strength and muscular development). Each of the 5 subscales contains 4 items for a total of 20 items which are rated on a 4-point scale from "1: Not at all true" to "4: Quite true."

Positive body image

Positive body image was measured using the Japanese version of the Body Appreciation Scale-2 (J-BAS-2).[9] The J-BAS-2 is a comprehensive and simple scale measuring positive body image as represented by satisfaction with one's body and favorable evaluation of one's appearance. The scale has a one-factor structure comprised of 10 items which are rated on a 5-point scale from "1: Never" to "5: Always."

Mood states

The Japanese version of the Profile of Mood States − Brief Form (POMS) was used to measure the participants' mood states.[23] The POMS is comprised of 6 mood state subscales: Tension-Anxiety (feelings of tension and anxiety), Depression-Dejection (feelings of depression accompanied by loss of self-confidence), Anger-Hostility (feelings of anger and hostility), Vigor (energy, liveliness, and/or activity), Fatigue (decreased ambition or activity, feelings of exhaustion), and Confusion (decreased cognition, feelings of bewilderment). It also simultaneously measures Total Mood Disturbance (TMD), a comprehensive index of these 6 moods. Scores for the 6 mood state subscales were converted to T-scores using the formula for calculating standardized scores [T-score = 50 + 10 × (raw score − mean score)/standard deviation]. TMD, the comprehensive index, was calculated following a method described in previously published research,[24] e.g., subtracting the score for Vigor from the sum of the scores of the other subscales, and adding 100. The scale is comprised of 30 items which are rated on a 5-point scale from "0: Not at all" to "4: Extremely."

Procedure

Participants were recruited at the Kitasato University School of Allied Health Sciences, Kitasato University Graduate School of Medical Sciences, and Hosei University Graduate School of Sports and Health Studies on a voluntary basis at the end of lectures for which the course instructor had consented to the study's implementation. Participants were given an envelope containing the questionnaire and instructions and asked to read the instructions before completing the questionnaire. Questionnaire responses were anonymous, and filling out a questionnaire and returning it was considered as written consent to participate in the study. Completed questionnaires were placed inside the return envelopes provided, sealed, and returned immediately on site, or before or just after the next lecture. For online lectures, the invitation to participate in the study was posted online, and participants were recruited on a voluntary basis. Undergraduate and graduate students who wanted to participate were mailed a questionnaire and instructions to an address they chose. Participants filled out the questionnaire anonymously, and were asked to return the completed questionnaire by enclosing it in the provided return envelope and mailing it to Ryuta Sugita at the Kitasato University Graduate School Laboratory of Medical Psychology. Lastly, graduate students who wanted to participate after seeing a recruitment poster in the Kitasato University Graduate School Laboratory of Medical Psychology were allowed to participate following the same procedure used for online recruitment. This study was approved by the research ethics review committee of the Kitasato University School of Allied Health Sciences.

Statistical analyses

Men and women were divided into high positive body image and low positive body image groups based on the median positive body image score for both men and women (28 points). Of the 48 men, 30 (62.5%) were classified into the high positive body image group (mean ± SD = 32.6 ± 4.2 points) and 18 (37.5%) into the low positive body image group (mean ± SD = 21.8 ± 4.0 points). Of the 131 women, 60 (45.8%) were classified into the high positive body image group (mean ± SD = 33.1 ± 4.2 points) and 71 (54.2%) into the low positive body image group (mean ± SD = 21.4 ± 4.5 points). To confirm differences in positive body image score between the high and the low groups, a two-way analysis of variance (ANOVA) investigating the effects of gender (male/female) and positive body image level (high/low) on positive body image score was conducted. The results

revealed one main effect for positive body image level only [F (1, 175) = 229.70, P < 0.05], confirming that the high positive body image groups scored higher than did the low positive body image groups.

To investigate whether or not appearance schemas, physical self-perception, and POMS differed by gender and positive body image level, a two-way ANOVA exploring the effects of gender (male/female) and positive body image level (high/low) on subscale scores for appearance schemas, physical self-perception, and POMS was conducted.

Subsequently, to investigate factors associated with positive body image in men and women, stepwise multiple regression was performed with positive body image as the objective variable and "appearance schemas, physical self-perception, and POMS as explanatory variables. Because the Physical self-worth scale of the PSPP-J and TMD of the POMS are comprehensive indicators, they were not included as objective variables in the present analyses. Note also that a variable input was discontinued if the partial regression coefficient did not reach a 5% level of significance.

Analyses were performed with IBM SPSS Statistics (ver. 26) with values of P < 0.05 considered as statistically significant.

Results

Participant characteristics and gender × positive body image two-way ANOVA

A two-way ANOVA exploring the effects of gender and positive body image on subscale scores for appearance schemas, physical self-perception, and POMS was conducted. ANOVA results and mean (standard deviation) for each subscale are shown in Table 1.

Scores for Self-evaluative salience and Motivational salience, which comprised the appearance schemas, were significantly higher among women than men [F (1, 175) ≥ 5.48, P < 0.05].

Scores for the Subjective sports competence, Physical condition, Attractive body, and Physical self-worth subscales of physical self-perception were significantly higher among men than women [F (1, 175) ≥ 4.06, P < 0.05] as well as among the high positive body image group compared with the low positive body image group [F (1, 175) ≥ 6.84, P < 0.05]. Scores for the remaining

Table 1. Mean (SD) and analysis of variance results for appearance schemas, physical self-perception, and POMS scores indicating the degree of positive body image by gender

	Men (n = 48)		Women (n = 131)		F-value	
	Positive body image				Gender	Positive body image
	High group	Low group	High group	Low group		
Appearance schemas						
Self-evaluative salience	24.3 (6.9)	26.1 (6.1)	26.5 (5.4)	28.4 (4.8)	5.48*	3.80
Motivational salience	15.5 (3.5)	15.7 (4.8)	17.5 (4.1)	17.7 (3.8)	8.24*	0.08
Physical self-perception						
Subjective sports competence	10.9 (2.5)	9.6 (3.0)	9.8 (3.5)	7.9 (2.7)	7.19*	9.53*
Physical condition	10.8 (2.5)	9.8 (2.9)	9.2 (3.0)	7.8 (2.2)	15.68*	6.84*
Attractive body	8.5 (2.6)	6.4 (1.7)	7.4 (2.2)	5.8 (1.7)	5.98*	26.01*
Physical strength	9.0 (2.3)	6.8 (2.7)	8.5 (3.0)	7.2 (2.5)	0.01	14.27*
Physical self-worth	10.1 (2.1)	8.2 (2.5)	9.5 (2.7)	7.1 (2.2)	4.06*	26.95*
POMS						
Tension-Anxiety	46.5 (11.3)	49.7 (9.9)	49.4 (9.4)	52.4 (9.4)	2.64	3.39
Depression-Dejection	47.7 (10.0)	53.1 (9.3)	48.0 (9.4)	52.1 (10.2)	0.04	7.92*
Anger-Hostility	48.5 (8.7)	50.2 (11.0)	48.7 (9.6)	51.9 (10.7)	0.33	1.93
Vigor	54.2 (10.3)	48.0 (8.8)	52.5 (10.3)	47.0 (9.1)	0.62	11.96*
Fatigue	48.6 (10.1)	50.4 (10.3)	48.3 (9.8)	52.5 (9.6)	0.27	3.22
Confusion	48.8 (9.6)	48.4 (8.0)	47.9 (10.2)	53.1 (9.7)	1.27	2.02
TMD	130.1 (20.3)	138.6 (20.3)	132.0 (20.3)	143.6 (19.5)	0.99	8.50*

Regarding the ANOVA results, the F-value of the interaction was omitted because the interaction between gender and positive body image was not significant for any of the subscales.

SD, standard deviation; POMS, Profile of Mood States; TMD, total mood disturbance

*P < 0.05

subscale, Physical strength, were significantly higher among the high positive body image group compared with the low positive body image group [$F(1, 175) \geq 14.27$, $P < 0.05$].

Scores for the POMS subscale Depression-Dejection and the comprehensive index TMD were significantly lower among the high positive body image group compared with the low positive body image group [$F(1, 175) \geq 7.92$, $P < 0.05$], while scores for the subscale Vigor were significantly higher among the high positive body image group compared with the low positive body image group [$F(1, 175) = 11.96$, $P < 0.05$].

Noteworthy, there were no significant differences between gender and positive body image on any of these scales.

Multiple regression analysis with positive body image as the objective variable

Table 2 shows the results of multiple regression analysis by gender with positive body image as the objective variable and appearance schemas, physical self-perception (excluding Physical self-worth) and POMS (excluding TMD) as explanatory variables. Collinearity diagnostics revealed no evidence of multicollinearity. For men, the factors showing significant positive associations with positive body image were: Attractive body and Vigor [$F(2, 45) = 14.29$, $P < 0.05$]. For women, the factors showing significant positive associations with positive body image were Attractive body and Vigor, while a significant negative association was seen for Anger-Hostility [$F(3, 127) = 20.84$, $P < 0.05$].

Table 2. Multiple regression analysis with positive body image as the objective variable by gender

	β	t
Men (n = 48)[a]		
Attractive body	0.45*	3.80
Vigor	0.39*	3.30
Women (n = 131)[b]		
Attractive body	0.38*	4.91
Vigor	0.30*	3.85
Anger-Hostility	-0.18*	-2.35

[a]$F(2, 45) = 14.29$, *$AdjR^2 = 0.36$
[b]$F(3, 127) = 20.84$, *$AdjR^2 = 0.31$
*$P < 0.05$

Discussion

The ANOVA results revealed that women scored significantly higher than men for Self-evaluative salience and Motivational salience, while men scored significantly higher than women for Subjective sports competence, Physical condition, Attractive body, and Physical self-worth (Table 1). The former finding suggests that women see their appearance as more important to their self-worth and expend more effort on improving and maintaining a physically attractive body, and is thought to reflect the previously reported finding that women have a higher rate of body dissatisfaction than men.[25] The latter finding suggests that men have higher confidence in their sports skills, physical conditioning, body shape, and appearance, as well as greater physical self-worth, and is believed to reflect the previously reported finding that men have higher self-esteem than women.[26] These results are consistent with those of other researchers.[5,27]

Concerning positive body image level, scores for Subjective sports competence, Physical condition, Attractive body, Physical strength, and Physical self-worth were significantly higher among those with high positive body image than for those with low positive body image. It has been suggested that those with high positive body image are more physically and mentally healthy because they are more compassionate toward their bodies and more likely to engage in physical self-care behaviors to maintain and improve their health.[11,12] The findings of the present study corroborated the concept that participants with high positive body image had better physical self-perception than those with low positive body image because they engaged in self-care behaviors intended to maintain and improve their health and had compassion for their bodies. Those with high positive body image were also found to score significantly higher for Vigor, indicating energy, liveliness, and/or activity. People with high positive body image are reported to have higher self-esteem, optimism, and well-being,[7,9] as well as lower rates of abnormal eating behavior and unhealthy dieting.[8,11] The findings in the present study corroborate all these points made by previous investigators.

Furthermore, Depression-Dejection and TMD were lower among those with high positive body image than they were for those with low positive body image. This finding also supports those of past studies[11,20,21] showing an association between higher positive body image and lower depression. As previously pointed out, people with higher positive body image have higher self-esteem,[7] which is likewise associated with fewer worries and

anxieties regarding body image, as well as promotion of positive evaluations of one's weight and shape.[28] These relationships seem to be reflected in the finding that those with high positive body image have lower levels of depression. Likewise, TMD, a comprehensive index of negative mood states, is significantly lower among those with high positive body image for the same reason.

Multiple regression analysis suggested that Attractive body and Vigor have significant positive associations with positive body image for both sexes (Table 2). The significant positive association between Attractive body and positive body image indicates that there is a relationship between positively evaluating one's appearance and body shape, and increased positive body image. This can be explained by the fact that positive evaluation of one's own appearance and shape has been found to increase self-esteem through Physical self-worth,[16,29] and higher self-esteem has been associated with higher positive body image.[7] Concerning the significant positive association between Vigor and positive body image, Vigor, which indicates energy, liveliness, and/or activity, may lead to increased positive body image because those with high Vigor actively engage in sports and other physical activities. Indeed, not only has engaging in physical activity been found to reduce negative mood and increase positive mood,[30] it has also been reported to lead to higher positive body image even in non-athletes.[12] However, the conclusion that Vigor leads to increased positive body image through proactive involvement in sports and other physical activities requires further study.

The present results also revealed a significant negative association between positive body image and Anger-Hostility in women. Research has found that women are more strongly influenced by the media than men, for example, by internalizing a "thin ideal" under the influence of those in the media spotlight, and feeling pressured about their own appearance as a result of constantly seeing them.[31] The influence of the media has also been reported to increase negative moods among women.[32] The findings suggest that women may be strongly influenced by the media, which may increase negative moods such as Anger-Hostility and decrease positive body image; however, the relationship between these factors warrants further examination.

These results revealed that women scored higher than men for Self-evaluative salience and Motivational salience, while men scored higher than women for Subjective sports competence, Physical condition, Attractive body, and Physical self-worth. The findings also suggest that people with high positive body image have higher Subjective sports competence, Physical condition, Attractive body, Physical strength, Physical self-worth, and Vigor, and lower Depression-Dejection and TMD, than do those with low positive body image. Attractive body and Vigor were associated with positive body image in both sexes. However, Anger-Hostility was only associated with positive body image in women, indicating that the psychological factors associated with positive body image differ by gender. As such, from this point going forward, it will be important to consider separate models of improvement in positive body image for men and women, and to develop support for mental and physical health concerns, such as abnormal eating behaviors,[9] unhealthy dieting,[11] and body dissatisfaction.[9] Examples of positive body image intervention programs include increasing self-compassion,[33] which has been found to reduce body dissatisfaction and increase positive body image among women.[34] However, such intervention fails to account for the psychological factors found to be associated with positive body image in this study, including physical self-perception and positive and negative moods. Moreover, the gender differences in psychological factors associated with positive body image revealed in this study indicate that it may be necessary to examine intervention programs separately and to consider those developed specifically for men or women. In this regard, the present study offers findings that may contribute to novel clinical implications.

Limitations

First, the number of participants, both male and female, was low, and the factors covered by the survey were limited. Furthermore, while the standard partial regression coefficients obtained were significant, values remained low overall. Therefore, the factors covered do not explain the whole picture of positive body image, a fact that must be taken into consideration when interpreting the results. Second, we did not find any associations between positive body image and appearance schemas for either men or women. The factors comprising appearance schemas, Self-evaluative salience and Motivational salience, have been suggested to have positive and negative associations, respectively, with stress response, indicating anxiety, feelings of uncertainty, and fatigue;[35] and it is, therefore, necessary to consider the possibility that appearance schemas may have a positive or negative impact on positive body image by way of stress response. Furthermore, although this study dealt with body appreciation as positive body image, it will be necessary to consider different aspects of positive body image in future research. For example, it would be

possible to take a multifaceted view of positive body image by including functionality appreciation, which is defined as appreciation and respect for the functionality of the body.[36,37] Lastly, because this was a cross-sectional study, we could not make decisive claims regarding causal relationships. Therefore, a longitudinal study focusing on appearance schemas, physical self-perception, mood states, and positive body image may shed light on possible causal relationships between these factors.

Conclusions

Women scored higher than men for Self-evaluative salience and Motivational salience, while men scored higher than women for Subjective sports competence, Physical condition, Attractive body, and Physical self-worth. Also, people with a high level of positive body image have higher Subjective sports competence, Physical condition, Attractive body, Physical strength, Physical self-worth, and Vigor than do those with a low level of positive body image, while those with a high level of positive body image have lower Depression-Dejection and TMD than do those with a low level of positive body image. Multiple regression analysis revealed that Attractive body and Vigor were associated with positive body image in men, while Attractive body, Vigor, and Anger-Hostility were associated with positive body image in women. These results demonstrate that physical self-perception and mood states are both associated with positive body image. However, other positive body image factors should be investigated, including appearance schemas and stress response, physical self-perception and self-esteem, and mood states and physical activity. Further exploration of these as they apply to men and women may lead to the development of models and intervention programs that will likely improve positive body image and, thereby in turn, also improve one's individual mental and physical health.

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Conflicts of Interest: None

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