

Comparison of Self-Esteem, Body Satisfaction, and Social Physique Anxiety Across Males of Different Exercise Frequency and Racial Background

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Self-esteem, body satisfaction and social physique anxiety were examined in college age males ($N = 557$) of differing self-reported exercise frequency and racial background. Participants were categorized into Caucasian ($n=407$), African-American, ($n=150$), three weight training frequency categories (nonweight training, 1-3 days/week, 4+ days/week), and three aerobic exercise frequency categories (no aerobic exercise, 1-3 days/week, 4+ days/week). Participants from weight room facilities and class settings completed Rosenberg's Self-Esteem Scale (RSE), the Body Cathexis Scale (BCS), and the Social Physique Anxiety Scale (SPAS). A 2×3 (race $\times$ weight training) MANCOVA on SPA, SE, and BCS indicated a significant overall interaction between race and weight training on the dependent variables (Wilk's Lambda = .95, $F(1,532) = 7.67$, $p < .006$). A comparison of SPA across racial background indicated that African-American males had lower SPA ($M = 28.92$, $SD = 6.83$) compared to Caucasian males ($M = 31.35$, $SD = 6.88$, $t(555) = 2.69$, $p < .008$). Two separate two-step regression analyses separated by race indicated that for Caucasian males, BMI, body dissatisfaction, and self-esteem were significant in predicting SPA ($F(4,406) = 35.96$, $p < .0001$, $R^2 = .32$). For African-American males, self-esteem and body dissatisfaction were significant predictors of SPA ($F(4,149) = 13.74$, $p < .0001$, $R^2 = .32$). Weight training frequency and aerobic exercise frequency were not related to SPA, self-esteem, or body dissatisfaction, nor did exercise frequency enter into the regression models as significant predictors of SPA. Previous research was supported in that body dissatisfaction (Eklund & Crawford, 1994) and self-esteem (Martin, Engels, Wirth, & Smith, 1997) were meaningful predictors of SPA in males. Results are discussed in terms of potential mediating variables in males' SPA and the importance that reasons for exercise may have in determining social physique anxiety.

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Recent interest within the exercise psychology literature has indicated that social physique anxiety (SPA) (Hart, Leary & Rejeski, 1989), or selective presentation anxiety and omission of aspects of one self to create desired impression (Eklund & Crawford, 1994), may reduce exercise motivations (Eklund & Crawford, 1994; McAuley, Bane, & Mihalko, 1995). Specifically, high body dissatisfaction and low self-esteem have been related to SPA with self-esteem being especially predictive in females (Martin, Engels, Wirth, & Smith, 1997). Many people who think others view their bodies favorably or who are disinterested in other's reactions to their body may rarely experience SPA. Others, however may be chronically concerned with how others view their physiques, either because their bodies are objectively unattractive or because they hold an unrealistically negative perception of their physiques (Hart et al., 1989).

Although related to global body image and body dissatisfaction, it has been suggested (Hart et al., 1989; Lantz, Hardy, & Ainsworth, 1991) that SPA is conceptually distinct and useful in understanding involvement (or lack thereof) in exercise behaviors. Recent research has indicated exercise preferences are influenced by SPA (McAuley, Bane, & Mihalko, 1995; Spink, 1992). Specifically, Spink (1992) assigned women to either high or low anxiety groups based on SPA scores and found women with high SPAS scores reported tendencies to exercise privately rather than publicly. In addition, McAuley et al., (1995) found that exercising alone in one's natural environment resulted in lower overall anxiety compared to laboratory conditions.

SPA is correlated with psychological variables logically associated with evaluative concerns among young adult women including lower global self-esteem, fear of negative evaluation, weight dissatisfaction, body dissatisfaction, body cathexis (Crawford & Eklund, 1994; Eklund & Crawford, 1994; Hart et al. 1989). A variety of physical characteristics have been found to correlate with SPA including weight, height, and percent body fat among young adult women (Eklund & Crawford, 1994; Hart et al., 1989) and a model has recently been proposed that posits that physiological measures such as body mass index, influence SPA, which in turn affects protective self-presentational motives and, ultimately, self-presentational behaviors in both males and females (Diehl, et al., 1999)

The majority of studies in this area have focused on overall exercise patterns (Crawford & Eklund, 1994; Eklund & Crawford, 1994; Spink, 1992), aerobic exercise patterns (Lantz, et al., 1991; McAuley et al., 1995) and examination of SPA with respect to young females, since body dissatisfaction and low self-esteem have shown to be especially problematic with this population (Silberstein, Striegel-Moore, Timko, & Rodin, 1988). In fact, it has been argued that in contemporary society, weight is a domain of central importance to women (Rodin, Silberstein, & Striegel-Moore, 1985), and thus creates a normative discontent with physical self-esteem. Social physique anxiety is also predictive of female-specific problematic behaviors such as disordered eating (Cox, Lantz, & Mayhew, 1997) and low exercise adherence rates (Eklund & Crawford, 1994).

However, except for notable exceptions (Hart et al., 1989; Martin & Mack, 1996; McAuley et al., 1995), little research has been done with self-presentational anxiety in males. In addition, few studies have examined the relationship between SPA and combined effects strength training and aerobic exercise. In the construct validation of the SPAS, Hart et al. (1989) showed that for both females and males, correlations of the SPA measures of body dissatisfaction and body esteem were moderate to high. The relationships between body satisfaction, self-esteem, dieting, and exercise have shown to differ between men and women. Specifically, Silberstein et al. (1988) found that body satisfaction was related to self-esteem in men whereas for females measures of weight dissatisfaction were not associated with self-esteem. It is clear then that gender differences occur in reasons for exercise (Silberstein et al., 1988; Vitulli & DePace, 1992) and previous SPA research has indicated that self-presentational reasons for exercise are important for females. It is surprising, then, that more empirical work has not investigated the relationship between SPA, body satisfaction, and self-esteem in males engaged in strength training, an exercise modality preferred by many males because of males' greater general interest in building muscle mass to attain what is culturally regarded as a more socially ideal body image (Silberstein et al., 1988).

Bezner, Adams, and Steinhardt (1997) recently found exercisers' self-esteem inversely related to body satisfaction. In their findings, Bezner et al. (1997) hypothesized that individuals with a less secure sense of self may experience lower self-esteem, perpetuating a vicious cycle of body dissatisfaction and increased risk of compulsive behavior. Finally, there has been contradiction in the literature regarding the relationship between SPA and resultant exercise behavior. Higher levels of SPA have been shown to be related to lower exercise participation rates (Hart et al., 1989; Lantz et al., 1997; McAuley, Bane, Rudolph, & Lox, 1995), yet have also been shown to be related to emotional profiles similar to addicted exercisers (Frederick & Morrison, 1996).

It has been noted that male exercisers report body dissatisfaction (Silberstein et al., 1988), however, it has not generally been considered as prevalent as among females and is associated with feeling underweight rather than overweight (Blouin & Goldfield, 1995; Silberstein et al., 1988). Low self-esteem, depression, and body dissatisfaction occur in males who are underweight (Davis, Elliott, Dionne, & Mitchell, 1991) and those who are below self-reported ideal weight and height report lower self-esteem and greater social adjustment problems. Concern has also been voiced (Pope, Katz, & Hudson, 1993) that body dissatisfaction and body image problems, including muscle dysmorphia, may occur more frequently in males who weight train in high volumes (Pope et al., 1993) compared to the regular exercise population and may predispose them to steroid use (Pope, Gruber, Choi, Olivardia, & Phillips, 1997). Smith et al. (1998) proposed that when exercisers use weight training to improve self-esteem, some may come to rely on this training to feel good about themselves.

While much of the SPA literature has focused on the relationship between SPA and exercising females (Martin et al., 1997; McAuley & Burman, 1993; Thorton & Maurice, 1997), less is known regarding the relationship regarding males' exercise behavior, and it has been advocated that this construct be examined in males (Eklund, Mack, & Hart, 1996). Little research has been done examining the relationship between self-esteem, body dissatisfaction and SPA in males engaged in regular weight training and aerobic exercise. Yet, it is generally regarded that lower physical self-esteem (Martin et al., 1997) and higher body dissatisfaction (McAuley & Burman, 1993) are related to greater social physique anxiety. The rationale for the present study was to extend SPA research to the population of males and various race/ethnic backgrounds and to an exercise domain (weight training) that has been less frequently studied.

Finally, it has been suggested that body image should be considered in a cultural context. Within the eating disorder literature, it has been noted that African American women develop eating disorders and experience less body dissatisfaction than Caucasian women (Abood & Chandler, 1997). However, no studies to date have examined whether differences exist in self-presentational anxiety as a function of racial background. Thus, racial background was included as an important variable to examine whether there were differences in exercising males on SPA, body dissatisfaction, and self-esteem as a function of cultural and ethnic contextual differences.

One purpose of the current study was to examine the predictors of SPA in college males. It was hypothesized that strength-training frequency, aerobic frequency and self-esteem would be negatively related to SPA, and that body dissatisfaction and BMI would be positively related to SPA. Self-presentational theory (Leary & Kowalski, 1995) indicated that people with higher body mass index would be expected to experience greater SPA. This model was subsequently supported with male fitness center participants (Diehl et al., 1999). Based on previous examination of physiological and psychological predictors of SPA (Eklund & Crawford, 1994; Martin et al., 1997), it was expected that the psychological predictors and exercise patterns would account for variance above that attributable to the main physiological measure in the study (BMI). Since previous studies have shown physical characteristics to be closely associated with SPA (Eklund & Crawford, 1994; Hart et al., 1989; McAuley et al., 1995), BMI was considered a primary predictor of SPA in the current study. A second purpose was to determine whether the variables of racial background and exercise frequency were related to the psychological variables of SPA, body dissatisfaction, and self-esteem. Since previous exercise literature (Abood & Chandler, 1997) has indicated that there are differences across race in females' body dissatisfaction, it was hypothesized that similar differences might also exist for males, with African-American males maintaining lower body dissatisfaction and higher self-

esteem than Caucasian males and males of greater exercise frequency maintaining lower SPA, body dissatisfaction, and higher self-esteem than males who exercised less frequently. Since the analysis of racial background on SPA has not been previously examined, this analysis was considered exploratory in nature.

Based upon the extant social physique anxiety literature, there were several specific hypotheses proposed in the current study:

1. Based on previous social physique anxiety research (Crawford & Eklund, 1994; Martin et al., 1997), individuals who scored higher on body dissatisfaction would score higher on SPA.
2. Using body mass index as a covariate, males could be significantly differentiated on SPA, self-esteem, and body dissatisfaction based on their strength training frequency and racial background.
3. Males' SPA, after controlling for the physiological correlate of body mass index, could be predicted from body dissatisfaction, self-esteem, weight training frequency, and aerobic frequency.
4. Males with higher levels of SPA would display lower weekly strength training and aerobic exercise frequencies.

Method

Subjects

Data were collected from a total of 557 (Caucasian = 407, African American = 150) college-age males from three different Midwest universities. The mean age of males was 21.94 years ($SD = 3.66$), the mean height of subjects was 1.81 m ($SD = .08$ m), the mean weight of subjects was 83.22 kg, ($SD = 16.29$ kg). Weight training frequency and aerobic exercise frequency were used as measures of exercise regularity in the study and were measured through self-reported number of days per week that participants engaged in exercise.

Measures

Social Physique Anxiety Scale (SPAS). The SPAS developed by Hart et al. (1989) is used to assess the degree of anxiety from the perception that others are devaluing one's body. Subjects respond to 12 items based on the degree to which the items are true for them and values are summed from a low score of 12 to a high score of 60. Higher scores are indicative of greater SPA. The 5-point Likert scale is anchored by 5 (extremely) and 1 (not at all). An example of one question from the SPAS is "In the presence of others, I feel apprehensive about my physique/figure." Item 2 ("I would never worry about wearing clothes that might make me look

thin or overweight”) was altered to reflect a positive statement, “I would worry about wearing clothes that might make me look too thin or overweight.” based on previous recommendations (Lantz et al., 1991; McAuley & Burman, 1993; Petrie et al., 1996). Adequate internal consistency ($r = .90$), predictive validity, and construct validity have been documented (Crawford & Eklund, 1994; Hart et al., 1989; McAuley & Burman, 1993).

Self-Esteem (SE). Rosenberg’s (1965) self-esteem scale is a 10-item scale that measures global self-esteem with scores ranging from 1 (strongly disagree) to 4 (strongly agree). Total scores range from 10 to 40 with higher scores indicative of more favorable self-esteem. An example of an item is “On the whole, I am satisfied with myself.” Adequate internal consistency ($r = .92$), test-retest reliability ($r = .85$) and convergent validity and discriminant validity have been demonstrated (Wylie, 1974).

Body Satisfaction (BCS). The Body Cathexis Scale developed by Secourd and Jourard (1953) is a measure of the degree of feeling of dissatisfaction with various parts of the body and is a 24-item scale with scores ranging from 1 (very satisfied) to 5 (very dissatisfied). Total scores range from 24 to 120 with higher scores indicative of a higher level of body dissatisfaction. Adequate internal consistency and test-retest reliability have also been demonstrated for the BCS (Seggar, McCammon, & Cannon, 1988).

Procedure

Prior to testing, human subjects approval was obtained from University institutional review boards. Data was collected by administration of a questionnaire packet that included Rosenberg’s SE Scale (Rosenberg, 1965), The BCS (Secord & Jourard, 1953) and the SPAS (Hart, Leary, & Rejeski, 1989) and order of the scales was counterbalanced. Questionnaire packets were preceded by demographic information that included age, height, weight, racial background, and how many days per week, on average, males engaged in strength training and aerobic exercise. In this study, frequency of aerobic exercise was the primary interest and type of aerobic exercise was not assessed. In order to collect data from weight training males, data were collected in free weight rooms of three separate universities. Males were approached prior to their workouts and asked to participate in the study. Those who agreed to participate signed informed consent and were given the inventory packet to complete prior to beginning their exercise session. Data was also collected from males enrolled in randomly selected classes who were not currently involved in regular weight training or aerobic exercise.

Results

Comparison of Body Dissatisfaction Levels on Social Physique Anxiety Scores

Table 1 presents descriptive results for study variables divided by racial background. Median split scores on the BCS were used (Median = 62) to separate males into high and low body dissatisfaction groups. Results of an independent t-test comparing high and low body dissatisfaction groups on SPA revealed that males classified as high in body dissatisfaction showed significantly higher ($M=35.34$, $SD=6.72$) SPA compared to males classified as low in their body dissatisfaction ($M=29.46$, $SD=5.99$) ($t(555) = -9.90$, $p<.0001$, $ES=.78$).

Table 1
Means and Standard Deviations for Study Variables Combined and Separated by Racial Background and Weight Training Frequency

Full Sample	Training Frequency	Age	Height	Weight	SE	BCS	SPAS
Non-weight training (n=129)		22.75 (5.41)*	1.80 (.07)	81.04 (14.54)	34.52 (4.96)	61.54 (17.41)	32.66 (8.03)
1-3 Days/Week (n=208)		21.96 (3.36)	1.81 (.08)	82.42 (14.51)	35.15 (4.37)	61.31 (14.12)	31.35 (6.95)
4+ days / Week (n=220)		21.45 (2.37)	1.82 (.08)	82.54 (18.53)	34.92 (4.83)	59.93 (16.21)	31.09 (7.57)
Race	Training Frequency	Age	Height	Weight	SE	BCS	SPAS
Caucasian							
Non-weight training (n=115)		22.79 (5.66)*	1.81 (.07)	81.53 (14.93)	34.33 (5.02)	61.80 (16.78)	32.71 (8.04)
1-3 Days/Week (n=154)		22.03 (3.28)	1.82 (.08)	82.68 (13.28)	35.10 (4.45)	60.64 (12.81)	31.61 (6.75)
4 + Days/Week (n=138)		21.37 (2.43)	1.82 (.08)	84.81 (16.00)	34.83 (4.80)	59.91 (13.89)	32.03 (7.43)
African-American							
Non-weight training (n=14)		22.42 (2.84)	1.76 (.08)	77.11 (10.41)	36.14 (4.24)	59.43 (22.60)	32.21 (8.22)
1-3 Days/Week (n=54)		21.76 (3.59)	1.80 (.08)	81.67 (17.69)	35.30 (4.20)	63.20 (17.33)	30.59 (7.51)
4+ Days/Week (n=82)		21.58 (2.27)	1.80 (.08)	85.95 (22.24)	35.08 (4.91)	59.96 (19.63)	29.51 (7.58)

* Standard deviations are in parentheses.

Race by Weight Training (2 x 3) MANCOVA on Social Physique Anxiety, Body Dissatisfaction, and Self-Esteem

The MANCOVA allowed for answering the research question "Are there certain differences on SPA, body dissatisfaction, and self-esteem for males of different racial background and weight training frequency, after removing the effects of body mass index?" Weight training was selected as an independent variable for this analysis since little is known regarding the relationship between strength training and SPA. Results from the overall MANCOVA indicated a significant multivariate interaction between racial background and strength training frequency on the criterion variables of SPA, body dissatisfaction, and self-esteem, using body mass index as the covariate (*Wilk's Lambda* = .95, $F(3,553) = 8.96$, $p < .001$, $ES = .05$). Controlling for BMI, a comparison of SPA across racial background indicated that African-American males had lower SPA ($M = 28.92$, $SD = 6.88$) compared to Caucasian males ($M = 31.35$, $SD = 6.88$, $F(1,556) = 8.61$, $p < .004$, $R^2 = .05$), but no differences in SPA were found across strength training frequency ($F(7,532) = .52$, $p = ns$). Controlling for BMI, body dissatisfaction was not significant in differentiating racial background ($F(1,532) = .06$, $p = ns$), nor was body dissatisfaction significant in differentiating strength training frequency ($F(7,532) = .88$, $p = ns$). Finally, controlling for BMI, self-esteem was not significant in differentiating between racial background ($F(1,532) = 1.09$, $p = ns$) nor was self-esteem significant in differentiating between strength training frequency ($F(7,532) = 1.38$, $p = ns$).

Hierarchical Regression Results for Social Physique Anxiety, Body Dissatisfaction, and Self-Esteem

Table 2 provides the zero-order correlations among the variables within the study. Two separate two-step hierarchical regression analyses were performed to determine the predictors of SPA, while controlling for BMI as a primary physiological correlate within the model. In order to control for racial background differences in the prediction of the criterion variable, separate regression analyses across racial background were conducted on SPA. Table 3 provides a summary table of the regression analysis for Caucasian males while Table 4 provides a summary table of the regression analysis for African-American males. In each analysis, the first model provided information on the effect of BMI on SPA based on previous findings that BMI is a primary physiological correlate of SPA (Deihl et al., 1999), while the second model provided information on the effect of each predictor while controlling for all other variables. The differences between R^2 in the first and second model provided information on whether body dissatisfaction, self-esteem, strength training frequency, and aerobic exercise frequency significantly added to the model, after removing the effects of body mass index.

Table 2
Zero-Order Correlations among Study Variables by Racial Background

Caucasian Males						
	BMI	Strength	Aerobic	SE	BCS	SPA
BMI	—					
Strength	.04	—				
Aerobic	-.04	.32**	—			
SE	-.03	.06	.05	—		
BCS	.07	-.05	-.14*	-.31**	—	
SPA	.20*	-.03	-.06	-.37**	.47**	—
African-American Males						
	BMI	Strength	Aerobic	SE	BCS	SPA
BMI	—					
Strength	.06	—				
Aerobic	.15	.05	—			
SE	.10	.02	.08	—		
BCS	.31**	-.03	-.17*	-.39**	—	
SPA	.10	-.12	-.10	-.47**	.47**	—

* $p < .05$ ** $p < .001$

BMI = Body Mass Index; SE = self-esteem; BCS = body dissatisfaction; SPA = social physique anxiety

Caucasian Males. For Caucasian males, results from the first model indicated a significant overall effect for BMI ($F(1,405) = 17.88, p < .0001, R^2 = .04, ES = .04$), indicating that by itself, there was a significant relationship between body mass index and SPA. Examination of the unstandardized beta ($b = .38$) indicated that as BMI increased, SPA increased as well. In the second model, SPA was regressed on BMI along with body dissatisfaction, self-esteem, strength training frequency, and aerobic exercise frequency. Results of this analysis indicated

that BMI was significant ($p < .0001$) after accounting for all other variables. The second overall model was also significant ($F(5, 406) = 35.96, p < .0001, R^2 = .31, ES = .45$). The test for significance of R^2 increase between model 1 and model 2 was significant ($F(5, 406) = 69.23, p < .001$) indicating that body dissatisfaction, self-esteem, and BMI accounted for a significantly greater proportion of variance than BMI alone. Specifically, within the second model, body dissatisfaction ($t(406) = 8.72, p < .0001, b = .20$), self-esteem ($t(406) = -5.75, p < .0001, b = -.39$) and BMI ($t(406) = 4.13, p < .0001, b = .32$) were significant to the model. Together, these results indicate that BMI, body dissatisfaction, and self-esteem were all significant and accounted for 22% of the unique variance in SPA. Specifically, for Caucasian males, higher levels of SPA were related to higher BMI, higher body dissatisfaction, and lower self-esteem.

African-American Males. For African-American males, results of the first model indicated a nonsignificant overall model ($F(1, 149) = 1.39, p = .24, R^2 = .01$), indicating that for African-American males, BMI itself was not a significant predictor of SPA. The second overall model was significant ($F(4, 149) = 13.74, p < .0001, R^2 = .32, ES = .48$) and indicated a meaningful increase (R^2 change = .30) in model prediction. The test for the significance of R^2 increase between model 1 and model 2 was significant ($F(5, 406) = 83.33, p < .001$) indicating that self-esteem and body dissatisfaction accounted for a significantly greater proportion of variance than BMI alone. Specifically, within the second model, self-esteem ($t(149) = -4.40, p < .0001, b = -.57$) and body dissatisfaction ($t(149) = 3.75, p < .0003, b = .12$) were significant to the model and accounted for 16% of the unique variance in SPA. Lower self-esteem and higher body dissatisfaction were therefore predictive of higher SPA in African-American males.

Table 3
Regression Results on Social Physique Anxiety for Caucasian Males

Model	Variable	beta	Beta	T	p	Unique Var.	Correlations				
							BMI	BCS	SE	Strength	Aerobic
Model 1	BMI	.38*	.21	4.23	.0001	.04	—				
Model 2	BMI	.32	.17	4.13	.0001	.03	—				
	BCS	.20	-.38	8.72	.0001	.13	.31	—			
	SE	-.39	-.25	-5.75	.0001	.06	.10	-.40	—		
	Strength	-.03	-.01	-.18	.86	.000	.06	.03	.02	—	
	Aerobic	.06	.02	.36	.72	.000	.15	-.18	.08	.05	—

* Y intercept = 25.57

Table 4
Regression Results on Social Physique Anxiety for African-American Males

Model	Variable	beta	Beta	T	p	Unique Var.	Correlations				
							BMI	BCS	SE	Strength	Aerobic
Model 1	BMI	.14	*.10	1.18	.24	.01	—				
Model 2	BMI	.07	.04	.58	.56	.002	—				
	BCS	.12	.31	3.75	.0003	.07	.31	—			
	SE	-.57	-.34	-4.40	.0001	.09	.10	-.40	—		
	Strength	-.49	-.11	-1.56	.12	.01	.06	.03	.02	—	
	Aerobic	-.08	-.02	-.28	.78	.000	.15	-.18	.08	.05	—

* Y-intercept = 42.63

Discussion

The purpose of this study was to extend SPA research to the population of males of various race/ethnic backgrounds and to an exercise domain (weight training) that has been less frequently studied. The current results support the notion that racial background is a significant cultural variable capable of influencing SPA. The MANCOVA results indicated that, after controlling for BMI, racial background was capable of accounting for differences in SPA, but not global self-esteem or body dissatisfaction, even under conditions of similar weight training frequency. Previous literature on SPA with females (McAuley et al., 1995) has indicated that aerobic exercise frequency was not related to increased SPA. Current results support this finding in that males' self-reported frequency of strength training or aerobic training did not influence SPA. However, the significant main effect for racial background supports that cultural ideals regarding body-image may be important in male as well female populations (Abood & Chandler, 1997). Body mass index means were similar for Caucasians ($M = 25.16$, $SD = 3.94$) and African-Americans ($M = 25.71$, $SD = 5.12$) yet African-American males were less anxious about their physical appearance. While this difference was significant, males' SPA levels across both races ($M = 31.35$, $SD = 7.47$) were lower than those previously reported for females ($M = 37.9$, $SD = 9.78$; Eklund & Crawford, 1994), but similar to previous samples of college age males ($M = 30.2$, $SD = 7.50$; Hart et al., 1989). Body esteem measures have shown to be a significant influence on self-esteem, and individuals who have

indicated a greater dislike for their bodies as measured by weight concern (Martin et al., 1997) and body esteem (Bartlewski, Van Raalte, & Brewer, 1996) have reported elevated SPA. The multiple regression results extend this relationship in that, regardless of exercise frequency or race, males with greater body dissatisfaction had greater SPA. Intercorrelations revealed that body dissatisfaction was equally correlated ($r = .47, p < .0001$) for Caucasian and African-American males, indicating one's appraisal of body satisfaction appears to be a primary variable associated with SPA.

While SPA, body dissatisfaction and self-esteem have been shown to be interrelated (Crawford & Eklund, 1994) MANCOVA results indicated that only SPA scores differentiated males on racial background, after controlling for BMI, and that exercise frequency did not differentiate any of the psychological variables. This is in contrast to previous results that have concluded that more frequent exercise is associated with greater SPA (Frederick & Morrison, 1996) and that SPA is a predictor of exercise behavior (Lantz et al., 1997). There are several reasons that may exist for the discrepancies in these findings.

First, self-presentational theory (Leary & Kowalski, 1995) suggests that there are specific relations among anthropometric, affective, motivational, and behavioral variables. Because exercise has been shown to reduce factors thought to be associated with SPA such as body composition (McAuley et al., 1995) and body esteem (Bartlewski et al., 1996), exercise participation may moderate the effects of changes in physiological indicators on perceptual variables related to SPA (McAuley et al. 1996). However, individuals who are uncomfortable with how their body appears to others may not present themselves in situations where their bodies can be seen. Thus, it is possible that individuals with greater SPA may exercise to cope with this anxiety, but in a private setting. Second, while there are many reasons why males engage in exercise, one potential reason is to improve physical appearance. Consistent findings have shown associations between SPA and reasons for exercise, with positive correlations between SPA and self-presentational reasons for exercise such as body tone, physical attractiveness and weight control (Crawford & Eklund, 1994; Eklund & Crawford, 1994) and many males in the current study may have exercised for improved health or fitness reasons, which may have accounted for the lack of significance between exercise frequency and SPA. This conclusion is tenuous since reasons for exercising were not directly measured. Third, original research examining the SPA construct (Crawford & Eklund, 1994; Eklund & Crawford, 1994) has indicated that favorability of exercise settings emphasizing physique are negatively related to SPA. Males in the current study were assessed in free-weight rooms, characterized by full-length mirrors and presence of other exercisers. Thus, in the present study, subjects with higher SPA levels may not have been adequately assessed because their self-presentational anxiety would have prevented them from being assessed in such a public setting.

Similar to previous research with females (Crawford & Eklund, 1994; Eklund & Crawford, 1994; Hart et al., 1989; McAuley & Burman, 1993), overall results from this study support that males with higher body dissatisfaction have higher SPA. This conclusion was strengthened by the results of regression results indicating that body dissatisfaction itself accounted for significant unique variance in SPA for both Caucasian ($R^2 = .13$) and African-American males ($R^2 = .07$). Body dissatisfaction, therefore, seems to be an important predictor of SPA in both males and females, regardless of frequency of exercise patterns. These results support findings with females (Abood & Chandler, 1997) that indicated differences in body dissatisfaction across race regardless of physical characteristics.

While BMI was predictive of SPA in Caucasian males, it was not a significant predictor of SPA in African-American males, indicating that while there may be differences in body acceptance across race, the psychological correlates of body dissatisfaction, and self-esteem remain important predictors of SPA. These findings for body satisfaction support previous research indicating that SPA in males was significantly correlated with physical self-perception (Petrie et al., 1996), and discrepancies between perceived actual and ideal body image may be equally detrimental for males and females (Bezner et al., 1997). Contrary, however, to Martin et al. (1997), a much lower percentage of variance in SPA was accounted for by body dissatisfaction and self-esteem. Martin et al. (1997) reported that self-esteem accounted for 45% of the variance in SPA and noted that constructs specific to body esteem (weight concern and physical condition) may become woven into global self-esteem. Thus, it appears that had physical aspects of self-esteem been assessed, a greater percentage of variance in SPA may have been explained. In addition, the subjects in the Martin et al. (1997) study were elite youth athletes. Therefore, their perceptions regarding physical appearance were more salient and important in evaluating reactions from others, thus more central to their self-esteem.

Another consideration relevant to the current study is the finding that self-esteem is developed by regular exercise and muscle development (Fox & Corbin, 1989). Correlational indices indicated that self-esteem and weight training frequency were virtually unrelated ($r = .06$), yet, self-esteem was significantly negatively related to SPA ($r = -.40, p < .0001$). The finding that self-esteem was not related to weight training frequency is not surprising in that previous research (Sonstroem & Morgan, 1989) has indicated that exercise induced improvements are specific to physical aspects of self-esteem. Future studies examining SPA in males may need to incorporate a physical dimension of self-esteem, as body esteem has been shown to be negatively related to objective body weight and account for additional variance in SPA beyond that attributable to body fat (Martin et al., 1997). Specifically, physical aspects of self-esteem may measure self-image concerns that are more relevant to exercise settings (Franzoi & Shields, 1984). Exercise experience may also be a mediating variable in the exercise-SPA rela-

tionship. Inexperienced exercisers have shown more SPA than experienced exercisers (Bartlewski et al., 1996; Hart & Gill, 1993) and frequent weight trainers in the current study may have been more desensitized to excessive anxiety associated with exercise in a public context. This conclusion appears plausible, but tenuous since subjects were not asked specific questions regarding weight-training experience.

Cultural ideals have been shown to shape individuals' body-image experiences and the extent to which one utilizes dieting, exercising, and other measures to manage body-image experiences. Indeed, the current finding that African-American males had lower body dissatisfaction is consistent with the contention that cultural variables are important in body image experiences. It is not known why this current difference existed, however, it may be due to a greater acceptance in body type differences that has been shown to account for lower prevalence of body dissatisfaction in African American females compared to Caucasian (Abood & Chandler, 1997).

The current results indicate that weight training frequency and racial background do not interact to mediate the relationship between exercise and SPA. However, there are several considerations that should be pointed out within the context of this study. First, the measures of body dissatisfaction and self-esteem used in this study were global measures. Previous study in the area of body image dissatisfaction has indicated that body esteem (Martin et al., 1997) is also a predictor of SPA and that body satisfaction indices are different across gender (Silberstein et al., 1988). Specifically, Silberstein et al. (1988) indicated that three factors of body esteem that emerged for men included "physical attractiveness", "upper body strength", and "physical condition". Therefore, more accurate relationships between exercise, racial background, and SPA may need to include gender-specific, multidimensional factors that may be more relevant in males.

Second, since the current sample of college age males were non-athletes, their reasons for exercise may have been different than athletes or high volume exercisers. Women have been shown (Silberstein et al., 1988; Vitulli & DePace, 1992) to exercise more for weight control reasons, and while not measured in the current study, a large number of males may have been exercising for health and fitness reasons instead of self-presentational motives. In addition, several researchers (Harter, 1993; Martin et al., 1997) have argued that self-presentational concerns may be more problematic with training regimes of higher volume (including athletes) because their negative body image is more closely associated with their self-esteem. Thus, while the current design categorized males according to exercise frequency, volume of training (intensity) was not directly assessed. Thus, for example, in order to find relationships more indicative of weight training and SPA, it may be necessary to include an index of current muscularity (Pope et al., 1997) and dietary patterns (Blouin & Goldfield, 1995; Pope et al., 1993),

and weight training intensity, as has been done in bodybuilders. Finally, a greater proportion of variance of SPA in males may be accounted for by incorporating more specific measures to physical self-esteem (Fox & Corbin, 1989; Franzoi & Shields, 1984)

Overall, this study extends the SPA literature in that body dissatisfaction and self-esteem are related to SPA in males. Exercise frequency and racial background did not interact to differentially determine body dissatisfaction and SPA. Future studies examining these particular variables in males may need to incorporate male weight trainers who engage in higher volumes of training and should assess reasons for exercise, experience with exercise, and physical aspects of self-esteem as potential mediating variables.

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