The Measurement of Social Physique Anxiety

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A 12-item self-report scale was developed to assess the degree to which people become anxious when others observe or evaluate their physiques. The Social Physique Anxiety Scale (SPAS) demonstrated both high internal and test-retest reliability. It also correlated appropriately with concerns regarding others' evaluations and with feelings about one's body. Validity data showed that women who scored high on the SPAS were heavier and had a higher percentage of body fat than those who scored lower. In addition, high scorers reported significantly greater anxiety during a real evaluation of their physiques, further supporting the validity of the scale. Possible uses of the SPAS in basic research involving physique anxiety and in applied fitness settings are discussed.

People's perceptions of their physiques constitute a central yet insufficiently researched aspect of exercise psychology. For example, it can be argued that physique related perceptions both promote and impede physical training. On one hand, dissatisfaction with one's physique is a primary motivator of exercise behavior. However, people's concerns about the appearance of their physiques during exercise may deter some from participating in fitness programs. This article introduces the concept of social physique anxiety—anxiety that people experience in response to others' evaluations of their physiques. After reviewing the literature relevant to body image, we describe the development and validation of the Social Physique Anxiety Scale, a self-report measure that may prove useful in understanding and treating people's body concerns in fitness settings.

Although conceptually distinct, social physique anxiety is related to the concept of body image, first defined by Schilder as “the picture of our body which we form in our mind” (Schilder, 1935, p. 11). (See also VanderVelde, 1985.) Another related concept, body affect (also called body esteem), refers to the degree of satisfaction or dissatisfaction an individual has regarding various aspects of his or her body (Secord & Jourard, 1953). Introduction of the term “body cathexis” was an attempt to dissociate people's subjective feelings about their bodies from the objective size and shape of one's body. In 1953 Secord and Jourard
developed the Body Cathexis Scale, thus being the first researchers to objectively measure body-relevant affect.

Early research on body image and affect focused on body image disturbances in clinical populations. For example, some studies have involved perceptual distortions of the body resulting from sources such as neurological impairment (Gerstmann, 1958; Kolb, 1959) and physical deformities (MacGregor, Abel, Lauer, & Weissman, 1953; Schonfeld, 1962). Research on nonclinical populations showed that perceptual distortion of physical appearance also occurs in individuals of normal body weight (Cappon & Banks, 1968; Schonbuch & Schell, 1967). Gray (1977) found body image distortions in normal college students, with approximately 50% misperceiving their weight-related appearance. Similarly, Miller, Linke, and Linke (1980) reported that 54% of college undergraduates surveyed were dissatisfied with their weight. In addition, Hueneman, Shapiro, Hampton, and Mitchell (1966) found that the adolescents they surveyed were generally dissatisfied with their weight, stature, and body dimensions.

Studies investigating gender differences in body image and affect consistently show that men and women differ in perception of and dissatisfaction with their bodies (Berscheid, Walster, & Bohnstedt, 1973; Fischer, 1970; Gray, 1977; Jourard & Remy, 1955; Kurtz, 1969). In particular, women consistently overestimate their body size more than men (Hueneman et al., 1966), whereas men are less critical of their bodies, perceiving both their size and shape as normal (Clifford, 1971; Guggenheim, Pozanski, & Kaufman, 1973; Hueneman et al., 1966; Miller et al., 1980). A recent survey found that female college students had a desired weight that was 14 pounds lighter than their actual weight (Miller et al., 1980). This study also found that 70% of the female subjects thought they were at least slightly overweight even though only 39% could be classified as such from skinfold measurements and self-reported weights. In contrast, only 18% of the males overestimated their body size.

Not surprisingly, individuals with a high percentage of body fat are particularly prone to disturbances in body image (Young & Reeve, 1980) and likely to exhibit low body-esteem (Dwyer, Feldman, Seltzer, & Mayer, 1969; Mendelson & White, 1985; Miller et al., 1980). Obese individuals consistently make errors in judging their body size (Cappon & Banks, 1968; Leon, 1976; Stunkard & Burt, 1967a, 1967b) and score more negatively on body-affect measures compared to their normal weight counterparts (Allon, 1979; Gray, 1977; Hendry & Gillies, 1978).

Many studies have focused on the relationship between body-image/affect and overall self-image. Feelings about the body are correlated with feelings about the self in general (Lerner, Karabenick, & Stuart, 1973; Padin, Lerner, & Spiro, 1981; Rohrbacker, 1973; Rosen & Ross, 1968). Secord and Jourard (1953) demonstrated a direct relationship between body image and self-esteem that has particular relevance to exercise and mental health. In their landmark body-self cathexis study, they found that college students who had a negative body image tended to have low self-esteem. For both males and females, dissatisfaction with body image is associated with low self-esteem (Hawkins, Turrell, & Jackson, 1983), insecurity (Hurlock, 1967), and depression (Marsella, Shizuru, Brennan, & Kameoka, 1981; Noles, Cash, & Winstead, 1985).

Despite the attention given to people’s perceptions of and feelings about their bodies, little consideration has been given to people’s concerns with others’
perceptions of their bodies. Because the impressions people make on others have implications for a variety of social and material outcomes, they are concerned with making good impressions on others and become socially anxious when they feel unable to make such impressions (Schlenker & Leary, 1982). To the extent that others' judgments are affected in part by their perceptions of one's physical characteristics (e.g., Dion, Berscheid, & Walster, 1972), people generally wish to be perceived as attractive, or at least not as unattractive.

Further, the realization that others are evaluating one's body unfavorably often results in what we call social physique anxiety. As used here, social physique anxiety is defined as a subtype of social anxiety that occurs as a result of the prospect or presence of interpersonal evaluation involving one's physique. By physique, we mean one's body form and structure, specifically body fat, muscle tone, and general body proportions.¹

Youngsters learn to become distressed about their body shape and size at an early age. As VanderVelde (1985, p. 532) points out, "every child learns that such bodily features as size, weight, strength, complexion, or looks are used with often painful accuracy by peers, classmates, teachers, and coaches to determine the pecking order in social and athletic activities. Bodily 'flaws' become social liabilities and ever-present potentials for rejection and humiliation."

Many people—those who think others view their bodies favorably or who are disinterested in others' reactions to their physiques—may rarely experience social physique anxiety. Other individuals, 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. Compared to people who are low in social physique anxiety, those who are highly anxious are likely to avoid situations in which their physique is under the scrutiny of others (e.g., swimming in public), become very distressed when their physiques are on display, avoid activities that accentuate their physiques (including aerobic activities that might be beneficial to them), suffer depression related to their bodies, and attempt to improve their physiques through a variety of means, some of which may be harmful (e.g., fasting, exercising in rubber suits). Because of the importance of physique anxiety to fitness-related perceptions and specific exercise behavior, and for understanding and treating bodily anxieties, we developed and validated a 12-item measure of social physique anxiety.

Study 1: Scale Development

In the initial phase of scale development, we generated a pool of 30 self-report items that dealt with physique anxiety. Each item referred to self-reported anxiety (tension, nervousness) or its opposite (relaxation, comfort) arising as a result of others' evaluations of one's body. These questions were reviewed by a number of individuals with expertise in body movement, psychology, or exercise science. Based on their evaluation of item clarity, content validity, and appropriateness for both sexes, the pool was narrowed to 22 items.

A sample of 195 subjects, 97 females and 98 males, recruited from introduc-

¹We use the term social physique anxiety to emphasize that this construct involves concerns with others' evaluations of one's physique rather than bodily concerns that involve one's ability to perform certain physical tasks.
Social Physique Anxiety

Subjects and Procedure

To examine the degree to which each of the statements was characteristic or true of them on 5-point scales. A principal components analysis (PCA) showed that 14 of the 22 items loaded greater than .60 on a single unrotated factor. Of these items, 3 were discarded due to redundancy and another item was added.

This 12-item scale was administered to 89 subjects, 46 females and 43 males. All items correlated at least .50 with the sum of all other items, and Cronbach’s alpha coefficient was .90, indicating high interitem reliability. Eight-week test-retest reliability was .82. The final version of the Social Physique Anxiety Scale (SPAS) is shown in Table 1 together with the loadings from the PCA. (A second PCA on a sample of 56 undergraduates virtually replicated this pattern.) Means and standard deviations for two university samples are shown in Table 2.

Study 2: Construct Validation

Results

As shown in Table 3, the SPAS correlated moderately with measures that tap general concerns with others’ evaluations—interaction anxiousness and fear of negative evaluation. Physique anxiety is related to general concerns with others’ evaluations, but the magnitude of the correlations suggests that physique anxiety and social anxiety are not isomorphic. The SPAS also correlated significantly with public self-consciousness—the degree to which people think about observable aspects of themselves ($r = .30$ with private self-consciousness partialled out). However, as expected, scores on the SPAS did not correlate with private self-consciousness ($r = .05$ with public self-consciousness partialled out).

Correlations with the measures of body cathexis and body esteem were moderate to high. Importantly, for women, physique anxiety correlates most highly with measures relevant to weight and general physical attractiveness, demonstrating that scores on the SPAS are most closely related to concerns with aspects of physique. Finally, the low correlations between the SPAS and social desirability indicate that responses on the scale are not affected by respondents’ attempts to present themselves in a socially desirable fashion.

Study 3: Criterion-Related Validation

To examine the criterion-related validity of the SPAS, a study was conducted to compare the reactions of women who scored low or high in social physique anxiety during an actual evaluation of their physiques, a procedure that was designed to parallel evaluations commonly performed in exercise-based programs. Initial support for the validity of the SPAS would be obtained if high scorers expressed greater apprehension and tension during such an evaluation than low scorers.
Table 1
Social Physique Anxiety Scale

<table>
<thead>
<tr>
<th>Item</th>
<th>Loading from PCA</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I am comfortable with the appearance of my physique/figure*</td>
<td>.80</td>
</tr>
<tr>
<td>2. I would never worry about wearing clothes that might make me look too thin or overweight*</td>
<td>.55</td>
</tr>
<tr>
<td>3. I wish I wasn’t so uptight about my physique/figure</td>
<td>.74</td>
</tr>
<tr>
<td>4. There are times when I am bothered by thoughts that other people are evaluating my weight or muscular development negatively</td>
<td>.62</td>
</tr>
<tr>
<td>5. When I look in the mirror I feel good about my physique/figure*</td>
<td>.70</td>
</tr>
<tr>
<td>6. Unattractive features of my physique/figure make me nervous in certain social settings</td>
<td>.67</td>
</tr>
<tr>
<td>7. In the presence of others, I feel apprehensive about my physique/figure</td>
<td>.68</td>
</tr>
<tr>
<td>8. I am comfortable with how fit my body appears to others*</td>
<td>.74</td>
</tr>
<tr>
<td>9. It would make me uncomfortable to know others were evaluating my physique/figure</td>
<td>.66</td>
</tr>
<tr>
<td>10. When it comes to displaying my physique/figure to others, I am a shy person</td>
<td>.64</td>
</tr>
<tr>
<td>11. I usually feel relaxed when it is obvious that others are looking at my physique/figure*</td>
<td>.75</td>
</tr>
<tr>
<td>12. When in a bathing suit, I often feel nervous about the shape of my body</td>
<td>.78</td>
</tr>
</tbody>
</table>

Note. For each item, respondents indicate the "degree to which the statement is characteristic or true of you" on a 5-point scale (not at all, slightly, moderately, very, extremely characteristic). Asterisks represent questions to be reverse scored before summing.
### Table 2
**Means and Standard Deviations for the SPAS**

<table>
<thead>
<tr>
<th>Subjects</th>
<th>Mean</th>
<th>Standard deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sample 1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Males (n = 98)</td>
<td>30.2</td>
<td>7.50</td>
</tr>
<tr>
<td>Females (n = 97)</td>
<td>37.9</td>
<td>9.78</td>
</tr>
<tr>
<td>Sample 2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Males (n = 115)</td>
<td>30.1</td>
<td>8.49</td>
</tr>
<tr>
<td>Females (n = 114)</td>
<td>37.0</td>
<td>10.01</td>
</tr>
</tbody>
</table>

### Table 3
**Correlates of Social Physique Anxiousness**

<table>
<thead>
<tr>
<th>Total (n = 195)</th>
<th>Women (n = 97)</th>
<th>Men (n = 98)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interaction Anxiousness Scale (Leary, 1983c)</td>
<td>.33**</td>
<td>.40**</td>
</tr>
<tr>
<td>Fear of Negative Evaluation Scale (Leary, 1983b)</td>
<td>.35**</td>
<td>.47**</td>
</tr>
<tr>
<td>Body Cathexis Scale (Secord &amp; Jourard, 1953)</td>
<td>-.51**</td>
<td>-.58**</td>
</tr>
<tr>
<td>Body-Esteem Scale (Franzoi &amp; Shields, 1984)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(a) Sexual attractiveness/upper body strength</td>
<td>—</td>
<td>-.36**</td>
</tr>
<tr>
<td>(b) Weight concern/physical attractiveness</td>
<td>—</td>
<td>-.82**</td>
</tr>
<tr>
<td>(c) Physical condition/physical condition</td>
<td>—</td>
<td>-.43**</td>
</tr>
<tr>
<td>Langston’s Body Size/Weight Body Cathexis Subscale (1979)</td>
<td>—</td>
<td>-.79**</td>
</tr>
<tr>
<td>Social Desirability Scale (Reynolds, 1982)</td>
<td>-.07</td>
<td>-.16</td>
</tr>
</tbody>
</table>

*Note. Correlations with the Body-Esteem Scale are not reported for the total sample because the three subscales involve different items for men and women.*

*p<.05; **p<.01.*
Method

Subjects. Subjects were 56 undergraduate women, 28 of whom scored in the upper third on the SPAS and 28 of whom scored in the lower third. Women were chosen as subjects because we expected physique concerns to be more pronounced among women than men. Mean age was 18.4 years.

Procedure. Subjects were tested individually. Upon arriving at the laboratory, they were weighed and then seated in a reclined chair where they read the following instructions:

The upcoming fitness evaluation will consist of two parts. First, I am going to conduct a brief interview concerning your physique. The information to be collected concerns your body fat and muscular tone. And second, with the aid of a laboratory assistant, I will actually measure your body fat and muscular tone.

Following these preliminary steps, the women participated in the fitness evaluation that consisted of three phases. In Phase 1, individuals were asked various questions about their body fat and muscular tone. Questions were written such that all answers would be brief (e.g., a yes/no format) and the total time was 1 minute. For example, concerning body fat the women were asked, “Do you feel some parts of your body have more fat than others?” With respect to muscular tone, a typical question was, “Do you feel it is attractive for women to have a lean toned appearance?” Phase 2 involved assessment of percent fat via skinfold calipers. The measurements were read aloud and recorded by an assistant. This procedure also lasted 1 minute. Finally, in Phase 3, an EMG biofeedback instrument was attached to the individual’s thigh, and she was told that this device measured muscle tone by way of electrical impulses. The values were once again read aloud to a laboratory assistant.

Following this, participants completed a posttask questionnaire that employed 11-point Likert scales to assess how stressed they felt during the fitness evaluation, the degree of comfort with the experimental procedure, and the extent to which they had had negative thoughts while the experimenter was evaluating their body fat and muscular tone. In addition, eight drawings were presented in sequence, each characterizing a body form that was slightly larger than the preceding drawing. Individuals were asked to select the figure that best characterized their physique. The experimenter, who was blind to these choices, also selected a drawing deemed appropriate for each individual.

Results

As expected, high SPA women reported being significantly more stressed during the physique evaluation ($M=4.9$) than low SPA women ($M=3.1$), $t(54)=2.14$, $p<.04$. Women who scored high on the SPAS also indicated that they felt less comfortable about having their body evaluated by the researcher ($M=6.4$ and 7.9 for high and low SPA subjects, respectively), $t(54)=3.69$, $p<.001$. Furthermore, high physique-anxious women reported more frequent negative thoughts about their body’s appearance during the evaluation ($M=7.6$) than did low physique-anxious women ($M=5.4$), $t(54)=5.90$, $p<.001$. Together, these data provide evidence that scores on the SPA are related to state physique anxiety experienced during an actual evaluation of one’s physique.
The objective physique measures suggest that the concerns of the high SPA women may have been partly justified. High SPA women weighed significantly more ($M=63.8\,\text{kg}$) than low SPA women ($M=57.0\,\text{kg}$), $t(54)=6.75, p<.001$. Further, they were taller ($M=166.1\,\text{cm}$ and $163.9\,\text{cm}$ for high and low SPA women, respectively), $t(54)=3.18, p<.01$, and had a significantly higher percent body fat than low SPAs ($M=31.6\%$ and $28.1\%$ for highs and lows), $t(54)=5.92, p<.001$. These differences were detectable by the researchers, who rated the high SPA women significantly larger ($M=2.8$) than the low SPA women ($M=2.2$), $t(54)=2.88, p<.01$. Not surprisingly, high SPAs also rated themselves larger ($M=3.2$) than low SPAs ($M=2.6$), $t(54)=3.05, p<.01$.

Although the SPAS clearly distinguished people who were concerned about the physique evaluation, further evidence of its usefulness would be provided if scores on the SPAS predicted individuals’ reactions beyond other, more objective indices of physique and fitness. Hierarchical multiple regression analyses were conducted on individuals’ ratings of how stressed they felt during the physique evaluation and how often they had negative thoughts about their body’s appearance during the test. On the first step of the analysis, individuals’ weights, percent body fat, and body self-ratings were entered as predictors. On Step 2, scores on the SPAS were entered to determine whether the SPAS accounted for variance in subjects’ reactions after variance explained by the other three predictors was partialled out.

Taken together, weight, body fat, and body self-rating accounted for 10% of the variance in self-reported stress during the evaluation, $F(3,52)=1.87, ns$. With these factors in the equation, SPAS scores accounted for an additional 23% of the variance, $F(1,51)=18.12, p<.01$.

On the frequency of negative body-relevant thoughts, weight, body fat, and body self-rating together accounted for 22% of the variance, $F(3,52)=4.77, p<.05$. When SPAS scores were added to the equation on Step 2, the multiple $R$-squared was .39, an increase of 17%, $F(1,51)=14.64, p<.01$. Thus, the SPAS accounts for variance in reactions to physique-related settings that is not explained by standard measures of physique and fitness.

**Discussion**

Although psychologists have long been interested in people’s reactions to others’ evaluations (Leary, 1983a), researchers in the area of exercise and sport have largely ignored the domain of social evaluation as it pertains to body-related concerns. Without question, a significant barrier to empirical study of this nature has been the absence of sound psychometric tools. The development of the Social Physique Anxiety Scale promises to fill this void. Scores on the SPAS correlated as expected with measures of social anxiety and body esteem. More important, women who scored high on the SPAS experienced more distress when confronted with a fitness-related evaluation than those who scored low on the measure. Whereas high scores on the SPAS appear to have some objective basis in anthropometry and body composition, the SPAS is not redundant with these measures nor is it isomorphic with body image. That is, in a hierarchical regression performed on subjective responses to the fitness evaluation, SPAS contributed significantly to variance in self-reported stress and negative thoughts after forcing the entry of percent fat, body weight, and a body image index.

The SPAS may be useful in a number of research and applied contexts.
First, as noted previously, it is common for people to experience considerable distress regarding others' perceptions of their bodies (e.g., Gray, 1977; Miller et al., 1980). The SPAS provides a useful means of identifying highly physique-anxious people. Armed with the SPAS, we may begin to explore why certain people become physique anxious whereas other, equally unfit, individuals do not. Furthermore, we can examine the link between general interpersonal concerns (as reflected, for example, in the social anxiety literature; Leary, 1983a) and interpersonal concerns that are specific to one's physique.

Second, physique anxiety has implications for the physical activities people engage in, where and with whom they do so, and the enjoyment they derive from such involvement. Research should begin to explore the impact of physique anxiety on recreational activities, particularly on the degree to which concerns with others' evaluations inhibit people from participating in physical activities that would be beneficial to them. Ironically, individuals who have the greatest need for aerobic exercise may be among the most reluctant to engage in it because of their concerns with others' impressions of them. As Blumenthal (1984, p. 54) observed, overweight people often do not exercise "because they feel self-conscious if others see them huffing and puffing." Moreover, similar to the design of our fitness evaluation, many exercise programs employ periodic assessments to track client progress. Our data suggest that the negative impact of social evaluation threat from these protocols could easily work against their informational value.

Third, the SPAS should also be useful in research that studies ways to lower physique anxiety. Although physique-related concerns are natural in a society that stresses fitness, excessive concerns—those that create chronic dysphoria or deter participation in sport activities—are often problematic. Research is needed on ways of reducing physique anxiety, both among individuals who are justly concerned with their body's appearance and among those whose body and/or self-image is negatively distorted. The large literature in clinical and counseling psychology that deals with the treatment of general social anxiety may provide insights in this regard (Jones, Cheek, & Briggs, 1986; Leary, 1983a). The effects of reducing physique anxiety on alleviating people's general social concerns will also be informative. Preliminary evidence suggests that improved fitness may build self-confidence and reduce anxiety (e.g., Sacks & Sachs, 1981).

Finally, the SPAS may be useful to professionals in fitness settings as a means of identifying physique-anxious clients and as a vehicle for discussing bodily concerns with them. Before the scale can be used effectively in such settings, however, additional research is needed to establish norms across diverse groups.

References


**Acknowledgment**

We would like to thank William Hottinger for his valuable input on this study.

*Manuscript submitted*: March 3, 1988

*Revision received*: July 6, 1988