

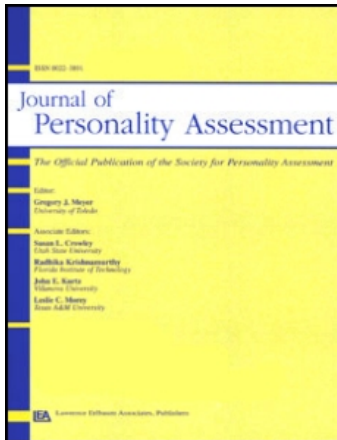
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## Journal of Personality Assessment

Publication details, including instructions for authors and subscription information:

<http://www.informaworld.com/smpp/title-content=t775653663>

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Online Publication Date: 01 June 1991

**To cite this Article** Wooley, Orland W. and Roll, Samuel(1991)'The Color-A-Person Body Dissatisfaction Test: Stability, Internal Consistency, Validity, and Factor Structure',*Journal of Personality Assessment*,56:3,395 — 413

**To link to this Article:** DOI: 10.1207/s15327752jpa5603\_3

**URL:** [http://dx.doi.org/10.1207/s15327752jpa5603\\_3](http://dx.doi.org/10.1207/s15327752jpa5603_3)

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# The Color-A-Person Body Dissatisfaction Test: Stability, Internal Consistency, Validity, and Factor Structure

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Stability, internal consistency, validity, and factor structure of the Color-A-Person Body Dissatisfaction Test (CAPT) were assessed. Two- and 4-week test-retest correlations for college students and alpha coefficients for students and eating-disorder patients ranged from .70 to .89. Factor structure was unaffected by gender and clinical status. Correlations were mostly between  $-.40$  and  $-.60$  with Rosenberg's (1965) Self-Esteem Scale and Secord and Jourard's (1953) Body Cathexis Scale (BCS). Men higher on Body Mass Index (BMI) liked upper body parts; women higher on BMI disliked lower body parts. Treatment for bulimia affected both body image tests comparably.

In a comprehensive and authoritative work on body image, Fisher (1986) noted that many investigators have studied the satisfaction and dissatisfaction people feel toward their own bodies by having them rate how much they like or dislike various body parts. This article introduces a new body dissatisfaction test, the Color-A-Person Test (CAPT). The CAPT is similar to those discussed by Fisher, such as Secord and Jourard's (1953) Body Cathexis Scale (BCS), in that subjects indicated five levels of body dissatisfaction. However, the CAPT is a nonverbal measure, instead of a list of body parts, it consists of two outline drawings representing the human body—a front view and a side view. Subjects color the

area inside the lines in the manner of a coloring book to indicate different levels of satisfaction or dissatisfaction with their bodies.

The Secord-Jourard type scale requires the subject to make a judgment about each of a set number of body parts or characteristics; parts to be rated are determined before the subject's responses. Body parts are not delineated on the CAPT. Boundaries between shoulder and arm or between abdomen and midriff, for example, do not exist for the subject as he or she completes the CAPT; there is no set number of judgments to be made. The CAPT is designed to measure dissatisfaction with body parts only; not body-related aspects such as "back view of the head" (Secord & Jourard, 1953, p. 344).

## METHOD

### Design and Rationale

Data from three different tests and three different samples of subjects were analyzed. Two of the samples were composed of nonclinical subjects: female and male college students. The other sample was composed of clinical subjects: female eating-disorder patients.

The nonclinical subjects were administered the CAPT and Rosenberg's (1965) Self-Esteem Scale twice. For one of the samples the test-retest interval was 2 weeks; for the other it was 4 weeks.

The clinical subjects were administered the CAPT and Secord and Jourard's (1953) BCS twice; during the test-retest interval the patients participated in a 4-week intensive treatment program for bulimia at the Eating Disorders Clinic in the Psychiatry Department of the University of Cincinnati Medical School (S. C. Wooley & O. W. Wooley, 1985).

These various testings, samples, and intervals allowed for the following determinations and comparisons:

1. Calculation of test-retest correlations over two time intervals and of coefficient alphas.
2. Comparison of women versus men to determine if there are gender differences in body dissatisfaction.
3. Comparison of patients versus nonpatients (female) to validate the CAPT as a measure of body dissatisfaction.
4. Correlations between the CAPT and the BCS and the Self-Esteem Scale to assess the validity of the CAPT.
5. Comparison of pre- versus posttreatment BCS and CAPT scores to assess the CAPT's relative ability to measure change in body dissatisfaction.
6. Factor analyses to assess the psychometric appropriateness of two composites scores, each made up of a subset of CAPT body parts.

## Subjects

At the University of Cincinnati, 90 students were tested at a 2-week interval; 72 completed both tests on both occasions. At the University of New Mexico, 45 students were tested at a 4-week interval; 40 completed both tests on both occasions.

Before and after treatment for bulimia, 137 patients were tested; 103 completed both the CAPT and the BCS on both occasions. The difference between the mean age of the patients (24.0 years) and that of the female college students from the two nonclinical samples combined (20.5 years) was significant,  $t = 4.19$ ,  $p < .0001$ .

The patients weighed less than the college women ( $p < .06$ ), reported lower lowest adult weights ( $p < .0001$ ), and had lower BMIs ( $p < .01$ ). The patients' mean differences among present, highest, and lowest adult weights were all greater than those for college women ( $p < .0001$  in all three cases).

## Procedures: Nonclinical Subjects

All tests were administered twice to approximately 35–45 subjects at a time. Female and male students were seated on opposite sides of the room to minimize self-consciousness.

## Procedures: Clinical Subjects

The CAPT and the BCS were administered on the first and next-to-last day of a 4-week treatment program for bulimia. The treatment groups consisted of 6 to 8 women; all members of a given group were tested together.

## TESTS

### The CAPT

The CAPT consists of two outline gender-appropriate drawings of the human body and five markers of five different colors (blue, green, black, yellow, and red). The drawing used in this study are presented in Figure 1. The actual height of the drawings as administered is about 36.8 cm for females and about 41.9 cm for males, on sheets of paper 27.9 × 43.2 cm.

*Dissatisfaction (composite) scores.* In this study the CAPT was scored for 16 body parts, which are shown in Figure 2. The instructions called for subjects to use red markers for *very dissatisfied*, yellow for *dissatisfied*, black for *neutral*, green for *satisfied*, and blue for *very satisfied*. Parts as delineated in Figure 2, which were

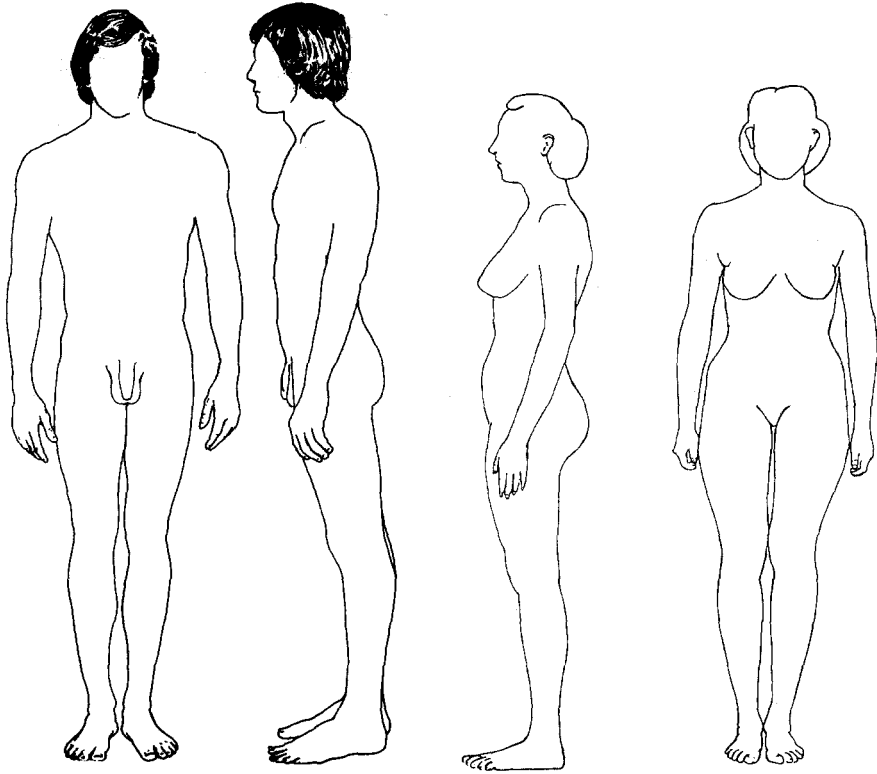


FIGURE 1 Outline drawings of adult man and woman used in CAPT.

colored predominantly *red*, indicating the highest level of *dissatisfaction*, were scored 5. Parts mostly filled in with *blue*, indicating the highest level of *satisfaction*, were scored 1. Parts filled in with the three remaining colors were scored 4, 3, and 2 for *dissatisfied*, *neutral*, and *satisfied*, respectively.

Three dissatisfaction scores are calculated and used in data analyses: CAPT total (the mean of all 16 body parts shown in Figure 2), and two composite scores: CAPT Score I (the mean of abdomen, hips, buttocks, and thighs) and CAPT Score II (the mean of the remaining body parts except genitals, i.e., hair, face, feet, ankles, legs, hands, lower arms, upper arms, shoulders, breast/chest, and midriff).

*Discrimination score.* To give a measure of how finely differentiated or discriminated the subject's body image is, separately colored areas are counted for the front and side view drawings; the mean of the two values is the discrimination score. To count as discriminated, an area has to be of a different color from all adjacent areas.

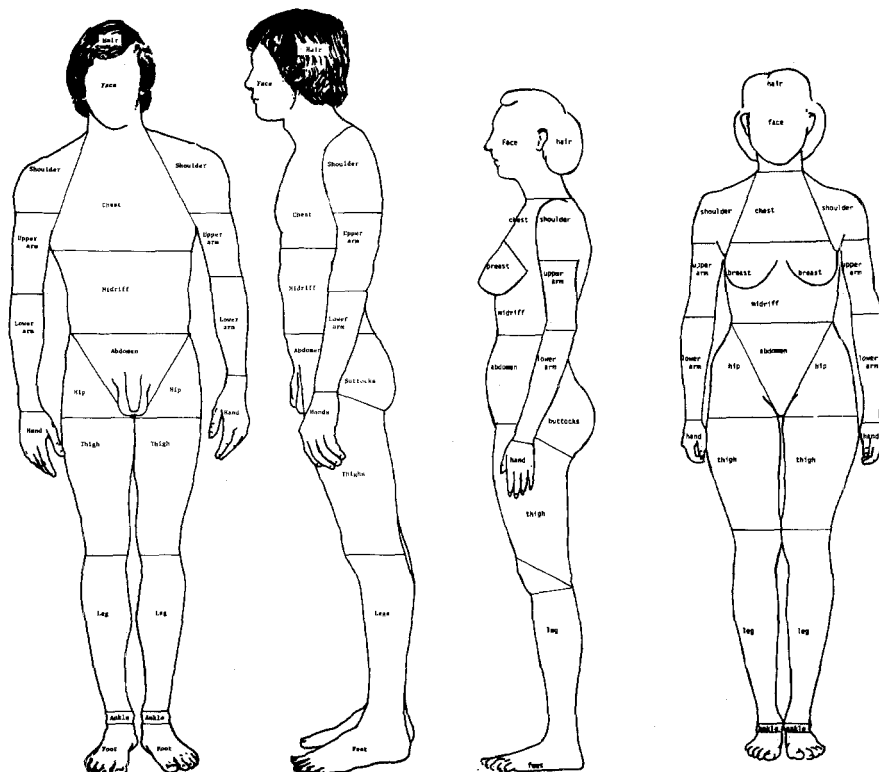


FIGURE 2 Scoring templates for CAPT.

### Self-Esteem Scale

This scale (Rosenberg, 1965) consists of 10 items having to do with liking and/or approving of the self, such as: "I take a positive attitude toward myself." Silber and Tippett (1965) reported a test-retest correlation of .85 over 2 weeks and correlations of .56 to .83 with similar measures and clinical assessments. Robinson (1980) found a correlation of .60 with Coopersmith's (1981) Self-Esteem Inventory.

### BCS

This scale (Secord & Jourard, 1953) consists of a list of 46 names of body parts and characteristics. Subjects rate their satisfaction with each of these items on a 5-point scale. The average rating is the measure of body satisfaction. Secord and

Jourard reported split-half reliability coefficients of .78 for men and .83 for women. Tucker (1981) reported a 2-week test-retest reliability coefficient of .87 for the scale.

## RESULTS

### Stability Over Time of the CAPT and Self-Esteem Scores

Table 1 presents the mean scores from the first (Time 1) and the second (Time 2) administration, and the correlations between Time 1 and Time 2 values for the nonclinical samples. There were no statistically significant differences between Time 1 and Time 2 or between the two nonclinical samples on the CAPT total score, Score I, Score II, discrimination, or the Self-Esteem Scale.

Test-retest reliabilities, for the CAPT scores, and for the Self-Esteem Scale range from .72 to .89. There were no significant gender differences.

### Changes in Body Dissatisfaction With Treatment

Table 2 presents the mean CAPT and BCS scores for the clinical subjects before and after their treatment. Dissatisfaction and BCS scores changed in the direction of increased satisfaction and the discrimination score decreased ( $p < .0001$  in all cases).

Paired *t* tests comparing 1-year follow-up scores from 64 patients (whose pre- and posttreatment scores were not significantly different from those of patients not followed up) with their posttreatment scores yielded the following:

TABLE 1  
Mean CAPT and Self-Esteem Scores and Test-Retest Correlations for Nonclinical Subjects

Score	Time 1		Time 2		Correlation
	M	SD	M	SD	
University of Cincinnati					
CAPT total	2.44	.54	2.44	.58	.84
CAPT I	2.84	1.02	2.79	1.11	.83
CAPT II	2.30	.54	2.33	.52	.78
CAPT discrimination	8.12	3.14	7.86	3.54	.72
Self-esteem	32.26	3.96	32.47	4.70	.83
	(n = 90)		(n = 72)		
University of New Mexico					
CAPT total	2.31	0.51	2.25	.61	.85
CAPT I	2.78	1.07	2.64	1.24	.89
CAPT II	2.14	0.53	2.11	.51	.75
CAPT discrimination	9.05	3.85	8.11	4.13	.81
Self-esteem	32.53	4.55	33.50	5.05	.82
	(n = 45)		(n = 40)		

TABLE 2  
Mean CAPT and BCS Scores for Clinical Subjects Before and After Treatment

Score	Pretreatment		Posttreatment	
	M	SD	M	SD
CAPT total	3.23	.62	2.58	.55
CAPT I	4.22	.85	3.44	.93
CAPT II	2.82	.64	2.25	.55
CAPT discrimination	11.49	3.46	8.84	3.84
BCS	2.84	.50	3.40	.52

Note. All pretreatment/posttreatment differences significant at .0001; n = 103; includes only patients who completed both tests on both occasions.

total score, 2.38 at 1-year follow-up versus 2.51 at posttreatment ( $p < .05$ ); Score I, 3.02 versus 3.37 ( $p < .002$ ); Score II, 2.14 versus 2.18 (ns); discrimination score, 8.27 versus 8.95 (ns).

**Internal Consistency Reliability of the CAPT Dissatisfaction Scores**

Coefficient alphas (Cronbach, 1951) for the students ranged from .70 to .88 for the CAPT dissatisfaction scores (total score, Score I, and Score II). Table 3 presents the coefficient alphas for all three dissatisfaction scores for Time 1 and Time 2, for all students, and for women and men separately. Coefficient alphas for the patients were .82, .76, and .74 for CAPT total, Score I, and Score II for the pretreatment scores; .84, .82, and .77 for the posttreatment scores.

**Correlations Among CAPT Scores**

For the students, the correlation between Score I and Score II was .20 at Time 1 and .46 at Time 2. For the patients, the pretreatment correlation between the two scores was .50; the posttreatment correlation was .40.

For the students, the correlations of the discrimination score with total, Score I, and Score II ranged from .20 to .34. For the patients, the correlations were negative before treatment (-.14, -.10, and -.12) and positive after treatment (.20, .29, and .12).

TABLE 3  
Alpha Coefficients for CAPT Scores for Nonclinical Subjects

Sample	Time 1				Time 2			
	Total	Score I	Score II	n	Total	Score I	Score II	n
All subjects	.78	.85	.72	135	.84	.88	.71	112
Women	.78	.82	.74	71	.85	.87	.73	58
Men	.75	.81	.71	64	.80	.83	.70	54

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### Relative Degree of Body Dissatisfaction Among Eating-Disorder Patients and College Women

Independent *t* tests comparing female college students at Time 1 and eating-disorder patients before treatment revealed that CAPT mean scores were significantly greater for the patients than for the students ( $p < .0001$  in all cases). At the second testing, only Score I was greater for the patients ( $p < .04$ ).

The only significant Age  $\times$  CAPT correlations across or within groups was for Score I for patients,  $r = -.21$ ,  $p < .02$ . Because greater age was associated with lower dissatisfaction, the age difference cannot account for the patient-nonpatient differences.

### CAPT and BCS in Eating-Disorder Patients

Correlations between the BCS and CAPT scores are as follows: BCS versus total, pretreatment  $r = -.57$ ,  $p < .0001$ , posttreatment  $r = -.59$ ,  $p < .0001$ ; versus Score I, pretreatment  $r = -.31$ ,  $p < .002$ , posttreatment  $r = -.37$ ,  $p < .0002$ ; versus Score II, pretreatment  $r = -.60$ ,  $p < .0001$ , posttreatment  $r = -.59$ ,  $p < .0001$ ; versus Discrimination, pretreatment  $r = .13$ , *ns*, posttreatment  $r = -.22$ ,  $p < .03$ .

### Gender Differences (Nonclinical Subjects)

Among the nonclinical subjects, there were significant gender differences on CAPT Score I, and to a lesser extent on CAPT total, but not for Score II and discrimination, nor were there gender differences for self-esteem.

Table 4 presents means and standard deviations of all test scores for female and male college students from both administrations (Time 1 and Time 2) for both samples. Women always had a significantly greater Score I than did men, but never so for Score II. Score I was always significantly greater than Score II for women, but never so for men.

### Body Dissatisfaction and Self-Esteem (Nonclinical Subjects)

Correlations between the CAPT and the Self-Esteem Scale scores were generally higher for female college students than for male students. Table 5 presents correlations for Time 1 and Time 2, for all students, and for females and males, separately. The correlations for women were significantly larger than those for men for CAPT total score and Score I at Time 2.

TABLE 4  
Mean CAPT and Self-Esteem Scores for Nonclinical Subjects

Score	Time 1					Time 2				
	Women		Men		<i>p</i>	Women		Men		<i>p</i>
	M	SD	M	SD		M	SD	M	SD	
University of Cincinnati										
Total	2.55	.59	2.26	.45	.01	2.54	.67	2.33	.44	-
I	3.22	1.01	2.32	.87	.0001	3.16	1.21	2.36	.78	.001
II	2.28	.53	2.26	.54	-	2.31	.55	2.31	.48	-
Discrimination	8.36	3.38	7.64	3.15	-	8.18	3.60	7.48	3.48	-
Self-esteem	32.55	4.41	32.16	4.02	-	32.41	4.68	32.55	4.80	-
	(n = 47)		(n = 43)			(n = 39)		(n = 33)		
University of New Mexico										
Total	2.52	.50	2.16	.51	.02	2.43	.59	2.08	.59	.07
I	3.21	1.05	2.40	.99	.01	3.09	1.17	2.23	1.18	.03
II	2.28	.64	2.10	.42	-	2.19	.55	2.05	.47	-
Discrimination	9.03	4.00	9.07	3.82	-	8.24	4.43	8.00	3.94	-
Self-esteem	31.25	4.92	33.62	3.60	-	31.95	5.93	34.91	3.71	-
	(n = 24)		(n = 21)			(n = 19)		(n = 21)		

TABLE 5  
Correlations Between CAPT and Self-Esteem Scores for Nonclinical Subjects

Score	Sample			Probability Female/Male Difference
	All Subjects	Women	Men	
Time 1				
Total	-.53**	-.61**	-.43**	.08
I	-.34**	-.41**	-.24	-
II	-.46**	-.51**	-.38*	-
Discrimination	-.29**	-.39**	-.15	-
	(n = 135)	(n = 71)	(n = 64)	
Time 2				
Total	-.57**	-.69**	-.35*	.01
I	-.47**	-.64**	-.19	.003
II	-.48**	-.55**	-.36*	-
Discrimination	-.17	-.25	-.05	-
	(n = 112)	(n = 58)	(n = 54)	

\**p* < .01. \*\**p* < .001.

### FACTOR ANALYSES

Using a criterion of eigenvalues greater than 1, principal components factor analyses of Time 1 and pretreatment data yielded five factors for the female college students, six factors for the male college students, and five factors for the eating-disorder patients, accounting for 71.5%, 76.4%, and 64.0% of the total variance, respectively. Table 6 lists the loadings in each of the factors.

TABLE 6  
Factor Loadings for Rotated Factors From a Principal Components Factor Analysis for 16 Body Parts on the CAPT

Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6
Female College Students <sup>a</sup>					
Buttocks (.85)	Lower Arms (.87)	Legs (.94)	Face (.74)	Breasts (.78)	
Genitals (.84)	Upper Arms (.80)	Ankles (.94)	Hair (.69)		
Hips (.81)	Hands (.71)		Feet (.62)		
Thighs (.75)	Shoulders (.67)		Midriff (.38)		
Abdomen (.61)					
Male College Students <sup>a</sup>					
Thighs (.87)	Lower Arms (.90)	Ankles (.91)	Midriff (.84)	Chest (.93)	Hair (.77)
Buttocks (.85)	Upper Arms (.80)	Legs (.90)	Abdomen (.75)		Genitals (.50)
Hips (.73)	Hands (.73)	Feet (.75)	Face (-.53)		
	Shoulders (.60)				
Patients <sup>b</sup>					
Hips (.85)	Lower Arms (.85)	Ankles (.87)	Face (.77)	Breasts (.75)	
Buttocks (.74)	Hands (.65)	Legs (.73)	Hair (.70)	Midriff (.70)	
Abdomen (.65)	Shoulders (.60)	Feet (.56)			
Thighs (.64)	Upper Arms (.54)				
Genitals (.58)					

<sup>a</sup>Based on Time 1 data. <sup>b</sup>Based on pretreatment data.

There is considerable similarity between the factors for female and male college students and between the female college students and the eating-disorder patients. Factor 1 for the female college students and the male students share three body parts: hips, buttocks, and thighs. The makeup of Factor 2 for the college women is identical to that of Factor 2 for the college men, and the fifth factors for the two genders are almost identical.

The first and second factors for the female students and the patients contain the same body parts; the remaining factors for the respective sets correspond quite closely.

The first factors for all three data sets show substantial overlap with Score I. Factor 1 for the female college students and Factor 1 for the patients both included the Score I parts plus genitals; Factor 1 for the male college students includes all Score I parts except Abdomen.

Table 7 presents the three factors for female and male students and for patients that emerged from three-factor solution factor analyses after varimax rotation. The percent of total variance accounted for is 56.4% in the case of the female students, 52.1% for the male students, and 48.7% for the patients.

TABLE 7  
Factor Loadings for Rotated Factors From Three-Factor Solution Factor Analysis for 16 Body Parts on the CAPT

Factor 1	Factor 2	Factor 3
<b>Female College Students<sup>a</sup></b>		
Hips (.90)	Upper Arms (.79)	Legs (.89)
Genitals (.80)	Lower Arms (.79)	Ankles (.89)
Buttocks (.79)	Hands (.72)	Hair (.49)
Abdomen (.78)	Shoulders (.67)	Face (.48)
Thighs (.65)		Feet (.39)
Midriff (.43)		Breasts (.28)
<b>Male College Students<sup>a</sup></b>		
Hips (.87)	Lower Arms (.87)	Ankles (.83)
Thighs (.77)	Upper Arms (.83)	Legs (.75)
Buttocks (.75)	Shoulders (.77)	Feet (.63)
Abdomen (.74)	Hands (.66)	Genitals (.46)
Midriff (.69)	Chest (.44)	Face (.43)
	Hair (.22)	
<b>Patients<sup>b</sup></b>		
Hips (.80)	Shoulders (.79)	Ankles (.75)
Buttocks (.73)	Lower Arms (.68)	Feet (.75)
Thighs (.71)	Breasts (.62)	Legs (.60)
Abdomen (.61)	Upper Arms (.62)	Hands (.54)
Genitals (.58)	Midriff (.43)	
	Hair (.42)	
	Face (.30)	

<sup>a</sup>Based on Time 1 data. <sup>b</sup>Based on pretreatment data.

Again, women's and men's factors are very similar, as are the factors for the female students and the patients. Also, the first factors for the three data sets are all similar to Score I.

Coefficient alphas for the factors (excluding loadings less than .40) are: women, .81, .75, and .72; men, .83, .79, and .67 for Factors 1, 2, and 3, respectively (Time 1 data).

### Body Dissatisfaction and Weight-Related Variables

**BMI.** The correlations of the Time 1 and pretreatment CAPT dissatisfaction scores with BMI for female students, male students, and eating-disorder patients are presented in Table 8. Correlations between Score I and BMI were significant in all cases. None of the other correlations were significant.

The positive correlations in Table 8 indicate that the fatter or heavier (relative to height) subjects are, the more dissatisfied they are with their own abdomen, buttocks, hips, and thighs; this is especially true of college women.

The negative correlation in Table 8 between BMI and Score II for men, though nonsignificant ( $r = -.23, p < .07$ ), suggests that the heavier (relative to height) males are, the less dissatisfied they are with Score II parts.

To investigate further, Score II was broken down into two subscores, Score IIA and Score IIB. Score IIA consists of the mean dissatisfaction scores for all body parts loading more than .40 on Male Factor 2 in Table 7 (i.e., chest, shoulders, arms, and hands). Score IIB consists of the mean of the dissatisfaction scores for the body parts making up Male Factor 3 in Table 7 (i.e., ankles, legs, feet, genitals, and face; all of which load higher than .40).

For men, Score IIA correlated  $-.31$  with BMI at Time 1,  $p < .01$ ; Score IIB correlated  $-.15$  at Time 1, *ns*. For women, both Score IIA and Score IIB correlated  $-.03$  with BMI at Time 1, *ns*.

Table 9 presents the mean Score I and Score IIA for men and women above and below the median for BMI of their respective samples for Time 1; the same patterns emerge when Time 2 data is analyzed in this way. Table 9 shows that for

TABLE 8  
Correlations Between CAPT Scores and BMI for Nonclinical and Clinical Subjects

Score	Nonclinical Subjects <sup>a</sup>		Clinical Subjects <sup>b</sup>
	Women	Men	Women
Total	.19	-.05	.12
I	.38***	.26*	.19**
II	-.03 (n = 71)	-.23 (n = 14)	.04 (n = 123)

<sup>a</sup>Based on Time 1 data. <sup>b</sup>Based on pretreatment data.

\* $p < .04$ . \*\* $p < .03$ . \*\*\* $p < .001$ .

TABLE 9  
 Mean Score I and Score IIA<sup>a</sup> for Nonclinical Subjects Above and Below the Median for BMI

	Men			Women		
	<i>Below Median</i>	<i>Above Median</i>	<i>p</i>	<i>Below Median</i>	<i>Above Median</i>	<i>p</i>
Score I						
M	2.23	2.45	—	2.81	3.61	.001
SD	0.75	1.05		1.09	0.78	
Score IIA						
M	2.58	2.02	.003	2.39	2.11	—
SD	0.73	0.71		0.61	0.75	

Note. Based on Time 1 data.

<sup>a</sup>See text for definition of Score IIA.

women, it is the waist-to-knees region (i.e., Score I parts) that is affected by BMI, with relatively heavier women showing the greater degree of body dissatisfaction; for men, it is the upper body (chest, shoulders, arms, and hands) where BMI has its effect, with the relatively less heavy men showing the greater amount of body dissatisfaction.

Self-Esteem for male subjects below the median for BMI was lower than for those above the median ( $p < .001$  at Time 1,  $p < .009$  at Time 2). There were no such differences for women.

*Other weight-related variables.* Among the college women significant correlations between CAPT total score and weight, highest adult weight and lowest adult weight, and between Score I and these same variables ranged from .27 to .35.

The only other correlations greater than .25 (absolute value) involved lowest adult weight among patients, posttreatment: Score II,  $-.34$ ,  $p < .001$ ; and BCS,  $.27$ ,  $p < .003$ .

## DISCUSSION

### Test-Retest Reliability (Stability) and Internal Consistency Reliability

The test-retest reliability coefficients and coefficient alphas reported here for the dissatisfaction scores and discrimination score on the CAPT are in the .70s and .80s. The CAPT appears to be equally stable for college students of either gender, and as stable over a 4-week interval as over a 2-week interval. Its internal consistency is equally evident for college students and eating-disorder patients.

The test-retest reliability coefficients for the CAPT total score and Score I are

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comparable to that for the BCS reported by Tucker (1981) who used a 2-week test-retest interval. The coefficient alphas for the CAPT dissatisfaction scores for students and for patients are comparable to the split-half reliability coefficients reported by Secord and Jourard (1953) for the BCS for men and women, respectively, and to coefficient alphas reported by Franzoi and Shields (1984) for the factors making up their Body Esteem Scale (a derivative of the BCS).

### Relative Degree of Body Dissatisfaction Among Eating-Disorder Patients and College Women

Before a body dissatisfaction test can be considered valid, it must be shown to yield higher pretreatment scores for eating-disorder patients than for women of comparable age who are not eating disordered. In the present study, the pretreatment values for the eating-disorder patients were greater than those for the college women on all four CAPT scores (total, Score I, Score II, and discrimination). The group difference was greatest on Score I, and it was only on Score I that the two groups differed on second testing after the patients had gone through a 1-month intensive treatment program.

The present study does not represent an ideal test in this regard because the college women were, on the average, younger than the eating-disorder patients, and were not screened for eating disorders, so that some of them may have been bulimic or anorexic. With respect to the age difference between the two groups, the present results show that age cannot account for the difference in body dissatisfaction between the two groups. Likewise, the possibility that some of the college women may have been eating disordered would only tend to reduce the difference in body dissatisfaction between the two groups.

Just as binge/purging "distracts attention away from core dysphoric states" (Strober, 1984, p. 19), bulimics' extra measure of body dissatisfaction may serve to create "special arousal states which cover up others that are less acceptable" (Fisher, 1986, p. 319).

### The CAPT Dissatisfaction Scores: Score I and Score II

The factor analytic results are in fair agreement with Fisher's (1986) statement that the major regions defined by body dissatisfaction ratings are the face, the extremities, and the torso (pp. 133-134).

In this study, for both women and men, the face and extremities appear to be part of the same factor (see Factor 3 for women and men in Table 7), and the torso divides into two factors (see Factors 1 and 2 for women and men in Table 7). Perhaps, it is because the face in the CAPT drawings is blank (see Figure 1) and because it is scored as only one part that a separate face factor did not emerge from the present data.

The present factor analytic results confirm what was evident in previous

studies using the CAPT (O. W. Wooley, 1985, 1986, 1987): Those parts of the body from the waist to the knees (the abdomen, hips, buttocks, and thighs) are perceived and evaluated as a unit. It is there that the fear and dislike of fatness is embodied. Because women and adolescent girls are more stigmatized by fat than men and boys, and because they are, on the average, fatter from the waist to the knees than men and boys, they show a disproportionate dissatisfaction with that region of the body.

This pattern of high body dissatisfaction localized in this region of the body was evident among females in samples of sixth graders, high school students, medical students, college athletes, volunteers from an audience attending a play, therapists attending a workshop, college students, professional businesswomen, and members of a health class. This pattern was not evident among a sample of fourth- and fifth-grade children; among these presumably prepubertal children, girls were more dissatisfied with their own bodies than boys were with their own bodies, but the difference in dissatisfaction between the genders was not disproportionate for the waist-to-knees portion of the body (O. W. Wooley, 1986, 1987).

The pattern seen in prior studies was fully replicated in the present study: Compared to college men, college women revealed greater body dissatisfaction, but only from the waist to the knees.

However, there is present evidence for a counterpattern indicating an area of special importance for men: the upper body, including chest, shoulders, arms, and hands. Men who are thickset, broad, or heavy relative to height (i.e., those who have higher BMIs) are more satisfied with this area of the body than are men who are leaner, thinner, narrower, or lighter relative to height. Calden, Lundy, and Schlafer (1959) and Fisher (1986) concurred that men with big upper body parts tend to like them, women with big lower body parts tend not to like them.

It should be kept in mind that, even at its strongest, the association of BMI and body dissatisfaction among college women accounts for only 14% of the variance in the waist-to-knees dissatisfaction scores; that is, the square of .38, the correlation between BMI and Score I for women at Time 1 (see Table 8).

Little support is provided by the present results for having different scores for women and men. The various body parts appear to be grouped into similar structures or along similar dimensions for both women and men.

### The CAPT Discrimination Score

Possible clues to the meaning and usefulness of the Discrimination score include the finding that it is relatively elevated among eating-disorder patients before treatment and decreases after treatment. Fisher (1986) pointed out that the degree of compartmentalization of body perception can range from localized to



global, and that bodily features perceived as defects are isolated and defended against to protect self-esteem (see Fisher, 1986, pp. 634–635).

One possibility is that because eating-disorder patients perceived all or part of the waist-to-knees region of their bodies as defective prior to treatment, their body images were compartmentalized in the manner described by Fisher (1986). The decrease in the Discrimination score with treatment may represent a reversal of this process.

Among the college students tested here, there were no gender differences observed for the discrimination score. In prior studies using the CAPT (O. W. Wooley, 1985, 1986, 1987), female subjects have exhibited more differentiated body images than have male subjects. In these prior studies, when body dissatisfaction was high in one class of subjects relative to another, for example, among females (vs. males) and Whites (vs. Blacks), the discrimination score was also high (Fox, 1986) for the one class relative to the other. The main difference between the male college students in this study and the subjects in other studies is age: The other subjects have generally been younger, that is, ninth and tenth graders, sixth graders, and fourth and fifth graders (O. W. Wooley, 1987). Perhaps, it is not until college age that the typical man's body image is as highly differentiated as the typical woman's.

### Body Dissatisfaction and Self-Esteem

Our results are in fair agreement with Fisher's (1986) review in which he discerned a trend for a closer link between self-esteem and body satisfaction for women than for men; men's self-esteem is more influenced by "perceived body effectiveness" (p. 129).

### The CAPT and the BCS

Of the 46 BCS items, only 9 (i.e., hair, hands, arms, chest, hips, legs, ankles, feet, and face) are scored on the CAPT. Twenty-five BCS items are of such a nature that they cannot be explicitly scored on the CAPT (e.g., height, elimination, breathing, sleep, voice), although attitudes toward these probably do affect CAPT scores in some cases.

Given the low degree of specific item overlap between the two instruments, it is not surprising that they share only about 30–35% of their variance. Two other studies report results very close to those reported here: In a study of ninth and tenth graders, Fox (1986) found a correlation of  $-.57$  between CAPT total score and the BCS; in a study of female college students, Aerni (1987) found a correlation of  $-.66$  between the two tests.

The two tests give comparable results as measures of improvement as a result

of treatment. The eating-disorder patients showed a mean 20% reduction in their CAPT total scores and a mean 20% increase in the BCS scores after treatment compared to their pretreatment scores (see Table 2).

### The Weaker Sex?

The major focus of this study has been on women. The first author's experience treating women with eating disorders led to the present efforts to explore women's dissatisfaction with the waist-to-knees area; this experience has perhaps also created a bias to see women as having less body security than men. Fisher (1986) reached a conflicting conclusion using the concept/technique of barrier responses for measuring "body image boundary definiteness": subjects respond to Rorschach ink blots; responses representing an expression of definite boundaries, such as "cave with rocky wall," "man in armor," and "turtle with shell," count toward the barrier score. "The Barrier score is an index of feelings about the boundary regions of one's body" (p. 343).

Persons with high barrier scores have been found to be more autonomous, more motivated to achieve, more likely to interact with others, more interested in communication, and better able to maintain poise in stressful situations than low barrier scorers.

Fisher (1986) consistently found that, contrary to stereotype, women have more definite body images than do men. Fisher speculated that the reason may be cultural and stem from women's capacity to bear children and from the greater pressure on women to equate self-worth with physical attractiveness.

It may be, then, that because the culture discourages a man to be interested in his body, it is less socially desirable for men to disclose dissatisfaction with their bodies; this may account for a part of the consistent gender differences observed in studies of body satisfaction/dissatisfaction.

### Potential Advantages of the CAPT?

The CAPT can be conceptualized as having some of the objective qualities of tests that require a rating of body parts, and some of the projective potential of tests that require the drawing of a person. Like the former, scoring of the CAPT can be done by minimally trained scorers, yielding meaningful group data as shown here. Like the latter, the pictorial quality of the test encourages the subject to project unique aspects of the body image onto the page.

Posttest questioning might be required or desired in some cases of acute body image disturbance, such as patients experiencing intrusive memories of sexual or physical trauma (see the following examples). Systematic questioning might be needed to clarify evaluative attitudes toward the body and might also yield additional body image variables upon which to compare different conditions or populations. For example, discriminations linked by posttest questions to past

traumas might be counted, categorized (i.e., sexual, physical, abusive, nonabusive), and used to assess the efficacy of therapeutic interventions.

Examples of projections informally observed with the CAPT include the following:

1. A woman committing suicide by starvation drew a blue (for *very satisfied*) skeleton inside the drawing and colored the rest of the space black (for *very dissatisfied*).
2. A bulimic woman recovering from cervical and breast cancer crisscrossed the abdominal region with chaotic black lines, failed to color the genital region, and colored one breast brown (*dissatisfied*) and the other blue (*very satisfied*).
3. A bulimic woman who had recently had an abortion colored a black (*very dissatisfied*) oval-shaped area in the middle of the abdomen and then superimposed closely spaced parallel green (*satisfied*) lines over the entire abdominal area.
4. A woman who had been forced at knifepoint to submit to oral sex put a black (*very dissatisfied*) rectangle over the lower part of the face where the mouth would be.
5. A teenage girl colored red (*very dissatisfied*) the hand corresponding to the one she had been forced to masturbate an adult male molester with and the other hand blue (*very satisfied*).
6. A bulimic woman drew a "smiley face" on her CAPT and later in treatment complained that her face ached from the false smile she felt compelled to wear.
7. A bulimic exmodel covered most of her body blue (*very satisfied*), but put so much black (*very dissatisfied*) on those parts where she felt fat that the fluid soaked through the paper.
8. Several obese women, using colors representing the highest level of dissatisfaction colored outside the drawings, creating a much "fatter" representation.

This study was conducted to determine various psychometric properties of one way of scoring the CAPT and was not designed to assess its usefulness as a projective instrument. Future studies will evaluate the capacity of the CAPT in eliciting idiosyncratic responses which may have diagnostic/predictive value.

## REFERENCES

- Aerni, S. E. (1987). *A comparison of body dissatisfaction among black and caucasian female undergraduate college students*. Unpublished master's thesis, University of Cincinnati, College of Nursing and Health, Cincinnati, OH.

- Calden, G., Lundy, R. M., & Schlafer, R. J. (1959). Sex differences in body image concepts. *Journal of Consulting Psychology, 23*, 378.
- Coopersmith, S. (1981). *The antecedents of self-esteem*. Palo Alto, CA: Consulting Psychologists Press.
- Cronbach, L. J. (1951). Coefficient alpha and the internal structure of tests. *Psychometrika, 16*, 297-334.
- Fisher, S. (1986). *Development and structure of the body image* (Vols. 1-2). Hillsdale, NJ: Lawrence Erlbaum Associates, Inc.
- Fox, E. (1986). *The relationship between sex and race to body image perception among obese and overweight adolescents using two body image measures*. Unpublished master's thesis, University of Cincinnati, College of Nursing and Health, Cincinnati, OH.
- Franzoi, S. L., & Shields, S. A. (1984). The body esteem scale: Multidimensional structure and sex differences in a college population. *Journal of Personality Assessment, 48*, 173-178.
- Robinson, J. (1980). *Measures of social psychological attitudes*. Ann Arbor, MI: Institute for Social Research, University of Michigan.
- Rosenberg, M. (1965). *Society and the adolescent self-image*. Princeton, NJ: Princeton University Press.
- Secord, P. F., & Jourard, S. M. (1953). The appraisal of body-cathexis: Body-cathexis and the self. *Journal of Consulting Psychology, 17*, 343-347.
- Silber, E., & Tippett, J. (1965). Self-esteem: Clinical assessment and measurement validation. *Psychological Reports, 16*, 1017-1071.
- Strober, M. (1984). Stressful life events associated with bulimia in anorexia nervosa. *International Journal of Eating Disorders, 3*, 3-16.
- Tucker, L. A. (1981). Internal structure, factor satisfaction, and reliability of the body-cathexis scale. *Perceptual and Motor Skills, 53*, 891-896.
- Wooley, O. W. (1985, August). *Color-a-person: A new body image test*. Paper presented at the American Psychological Association Convention, Los Angeles, CA.
- Wooley, O. W. (1986). *Body dissatisfaction: Studies using the color-a-person body image test*. Unpublished manuscript.
- Wooley, O. W. (1987, August). *On target: Body dissatisfaction and media images*. Paper presented at the American Psychological Association Convention, New York, NY.
- Wooley, S. C., & Wooley, O. W. (1985). Intensive outpatient and residential treatment for bulimia. In D. Garner & P. Garfinkel (Eds.), *Handbook of psychotherapy for anorexia nervosa and bulimia* (pp. 391-430). New York: Guilford.

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Received January 2, 1990

Revised May 4, 1990