

# Personality Traits Associated with Body Shape

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**Abstract:** The aim of the current study was to investigate personality traits associated with body shape. In a pilot study, 12 pairs of adjectives were selected. In the main study, 91 university students rated pictures of body shape using the semantic differential method. The results show that the normal figures were rated most positively. The very thin figure was least likely to be regarded as favorable or active. Overall, figures farther from normal were rated as less active and less favorable. Thin figures were rated as more reliable than large figures.

**Keywords:** *body shape, personality, impression*

## 1. INTRODUCTION

Impression formation is the process of inferring personality traits of others from fragmentary information about them. Things such as one's clothes [1], voice [2], and movements can influence impression formation.

Body shape is also influential. For example, a thin body shape is often associated with attractiveness, success, control and freedom, while a larger body shape is associated with unattractiveness, lack of success, overeating, laziness, and lack of popularity [3]. In a study by Staffieri [4], 90 boys (6–10 years old) rated three types of images; endomorph (fat), mesomorph (muscular) and ectomorph (thin). All of the adjectives applied to the mesomorph images were desirable. The adjectives applied to the endomorph images were socially undesirable, and mainly socially aggressive. The adjectives assigned to the ectomorph images were also undesirable, mainly socially obedient.

As mentioned, it is likely that body shape provokes an impression of one's personality. Sakuta and Saito [5] investigated impressions of personality associated with body shape by using evaluation by the semantic differential method. This previous investigation was not sufficient because the selected (adjectives) were not appropriate. It is worth re-examining the influence of body shape on impressions of others' personality after carefully selecting the adjectives used.

The drive for thinness, common among young women, is a serious matter since it is considered to be a contributing factor in the occurrence of eating disorders [6]. The impression management expectation (i.e., the expectation

that one can manage the impression made on others by controlling one's body shape) entails a drive for thinness [7]. It is likely that there are impressions caused by body shape behind the impression management expectation. In other words, negative impressions for obese figures and positive impressions for thin figures entail the impression management expectations, and as a result, the drive for thinness among young women is increasing. Therefore, the drive for thinness among young women can be investigated by examining personality traits that are associated with body shape during impression formation. This pattern may differ based on gender (of the judge or the target).

Thus, the aim of the present research was to investigate impressions associated with body shape by varying the gender of both the judge and the target, and using carefully chosen adjective pairs.

## 2. PILOT STUDY

### 2.1 Objective

The aim of the pilot study was to select appropriate adjective pairs for use in the main study.

### 2.2 Method

A total of 21 college students (mean age = 21.5, SD = 2.2, 48% female) participated.

First, from Hayashi [8], adjective pairs with high factor loadings (over 0.45) were selected from each of three factors; friendliness, social desirability, and activity. Next, those pairs overlapping with Inoue and Kobayashi [9] were selected. The researchers held a discussion and decided to exclude adjective pairs difficult to define as describing one's personality and those that could

**Table 1:** The adjective pairs used in pilot study

Part 1 (Friendliness)	Part 2 (Social Desirability)	Part 3 (Activity)
Adorable-Hateful	Prudent-Thoughtless	Active-Passive
Responsible-Irresponsible	Motivated-Spiritless	Sociable-Unsociable
Pleasant-Unpleasant	Clean-Unclean	Alive-Still
Friendly-Unfriendly	Earnest-Lazy	Cheerful-Gloomy
Kind-Spiteful	Reliable-Unreliable	Lively-Quiet
Warm-Cold	Tidy-Untidy	Merry-Melancholy
Considerate-Selfish	Stable-Unstable	Talkative-Silent
Happy-Unhappy	Sensuous-Intellectual	Extravert-Introvert
		Brave-Timid

define body shape directly (e.g., like-dislike, good-bad, flashy-plain, beautiful-ugly, hard-soft, round-square, strong-feeble). A total of 25 adjective pairs (see Table 1) were used as stimuli in the pilot study.

These 25 adjective pairs were classified as within either the friendliness, social desirability, or activity factor [8], named part 1, part 2 or part 3 for participants. Participants selected the three adjective pairs that they most associated with body shape from each part.

### 2.3 Results

The final four adjective pairs were selected from each factor in ranked order (a total of 12 final adjective pairs). Within the friendliness factor, friendly-unfriendly, pleasant-unpleasant, warm-cold, and adorable-hateful were selected. Within the social desirability factor, clean-unclean, tidy-untidy, reliable-unreliable, and stable-unstable were selected. Within the activity factor, sociable-unsociable, cheerful-gloomy, lively-quiet and merry-melancholy were selected.

## 3. MAIN STUDY

### 3.1 Objective

The aim of the main study was to investigate personality traits associated with body shape.

### 3.2 Method

A total of 91 college students (mean age = 20.1,  $SD = 1.4$ , 48% female) participated.

The research was conducted at the end of a college course. Participants were told that the data would be statistically analyzed and that there would be no leakage of personal data. Participants were also informed that their participation in this research was voluntary, and there would be no consequences to their course grade if they did not participate.

To assess participants' cultural background, we inquired about the duration they had lived in Japan.

Participants were presented with five figure drawings of each gender ranging from very thin to very large [5].

The targets, which consisted of 12 pairs of adjectives selected during pilot testing and rated on a 7-point scale, were presented in random order. Participants rated the targets using the semantic differential method [10].

### 3.3 Results

The duration participants had lived in Japan ranged from 10 years to 26 years ( $M = 19.35$ ,  $SD = 2.52$ ). We split the duration they had lived in Japan by age, which ranged from 50% to 100% ( $M = 96$ ,  $SD = 10$ ). From these results, we concluded the participants were people that had a Japanese cultural background.

The mean ratings of all participants are presented in Figure 1. The thin figure and the normal figure were rated positively. However, the very thin figure was rated negatively, though it was rated slightly positively for the adjective "tidy-untidy." The large figure and the very large figure were rated positively for the adjectives "warm-cold" and "merry-melancholy," but rated negatively for the adjectives "tidy-untidy" and "clean-unclean."

Factor analysis (maximum likelihood estimation, promax rotation) was conducted. We excluded friendly-unfriendly and adorable-hateful and conducted the analysis again, because the factor loadings of those adjective pairs were less than 0.35. The loadings for each of the 10 remaining adjective pairs on each factor are presented in Table 2. We obtained three factors: Favorableness, Reliability, and Activity. Favorableness included the adjectives "pleasant-unpleasant," "stable-unstable," "merry-melancholy," and "warm-cold."

**Table 2:** Rotated Factor Loadings

Adjective pairs	Favorableness	Reliability	Activity	Communality
Favorableness				
Pleasant-Unpleasant	<b>.828</b>	.232	-.123	.710
Stable-Unstable	<b>.777</b>	.043	-.034	.589
Merry-Melancholy	<b>.776</b>	-.141	.120	.686
Warm-Cold	<b>.527</b>	-.194	.154	.364
Reliability				
Tidy-Untidy	-.112	<b>.971</b>	-.045	.856
Clean-Unclean	.033	<b>.705</b>	.074	.566
Reliable-Unreliable	.093	<b>.392</b>	.323	.443
Activity				
Sociable-Unsociable	.077	.014	<b>.752</b>	.666
Lively-Quiet	-.051	.051	<b>.750</b>	.541
Cheerful-Gloomy	.246	.009	<b>.629</b>	.690

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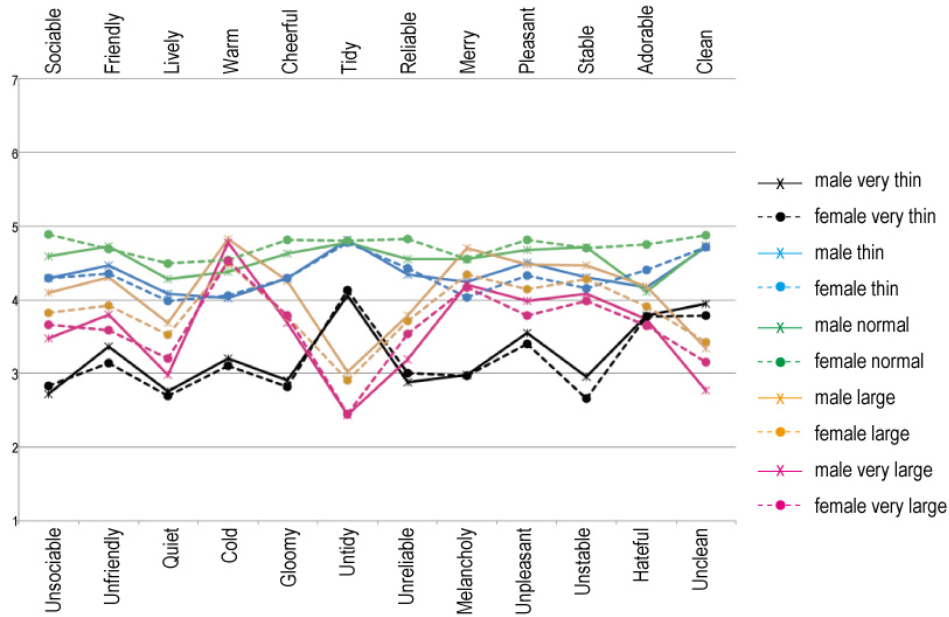


Figure 1: Mean Ratings of All Participants

Reliability included the adjectives “tidy-untidy,” “clean-unclean,” and “reliable-unreliable.” Activity included the adjectives “sociable-unsociable,” “lively-quiet,” and “cheerful-gloomy.” The correlations between factors ranged from 0.335 to 0.736 (see Table 3).

To determine whether personality traits were significantly associated with body shape, several analyses of

variance (ANOVAs) were performed. Scores for each factor (see Table 4) were examined using a series of 2 (gender of judge) × 2 (gender of target) × 5 (body shape) repeated measures analyses of variance.

For favorableness, the ANOVA showed a significant main effect of body shape ( $F(4,356) = 58.871, p < 0.001$ ). In addition, multiple comparisons showed significant differences between all of the pictures ( $p < 0.05$ ) except for thin-large and thin-very large.

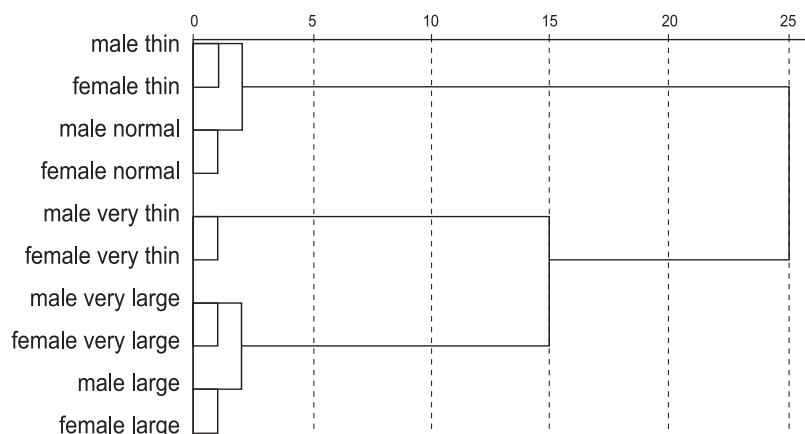
For reliability, the ANOVA showed a significant main effect of body shape ( $F(4,356) = 118.257, p < 0.001$ ). In addition, multiple comparisons showed significant differences between all of the pictures ( $p < .05$ ) except for thin-normal.

Table 3: Correlations between Factors

	Favorableness	Reliability	Activity
Favorableness	-	-	-
Reliability	.335	-	-
Activity	.736	.421	-

Table 4: Factor Scores (M: mean, SD: standard deviation)

	Favorableness				Reliability				Activity			
	Male judges		Female judges		Male judges		Female judges		Male judges		Female judges	
	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD
Male targets												
very thin	-.793	.752	-.902	.793	-.094	.768	.058	.790	-.797	.799	-.854	.770
thin	.189	.919	.230	.879	.550	.761	.755	.664	.353	.819	.312	.886
normal	.495	.723	.447	.685	.715	.786	.624	.691	.628	.731	.502	.698
large	.436	.786	.363	.629	-.512	.764	-.354	.521	.184	.737	.212	.665
very large	-.084	.951	.093	.771	-.853	.852	-.918	.634	-.304	.874	-.272	.728
Female targets												
very thin	-.953	.699	-.945	.711	-.121	.622	.098	.565	-.807	.785	-.860	.734
thin	.099	.810	.090	.761	.561	.767	.692	.580	.317	.774	.300	.777
normal	.641	.793	.469	.746	.716	.789	.757	.667	.781	.749	.699	.621
large	-.005	.903	.259	.774	-.603	.817	-.421	.593	-.151	.805	.074	.640
very large	-.192	.987	.075	.946	-.880	.954	-.735	.762	-.274	.999	-.038	.799



**Figure 2:** Result of Cluster Analysis

For activity, the ANOVA showed a significant interaction between gender of target and body shape ( $F(4,356) = 3.824$ ,  $p < 0.01$ ). We next performed a simple test of main effects. A simple main effect of gender of target was observed for the normal figure ( $F(1,445) = 3.876$ ,  $p < 0.05$ ) and the large figure ( $F(1,445) = 7.072$ ,  $p < 0.01$ ). For the normal figure, male scores were lower than female scores. In addition, for the large figure, male scores were higher than female scores. A simple main effect of body shape was observed for the male stimulus ( $F(4,712) = 50.472$ ,  $p < 0.001$ ) and female stimulus ( $F(4,712) = 55.774$ ,  $p < 0.001$ ). Next, multiple comparisons were performed. For the male stimulus, significant differences were observed between all of the drawings except thin-normal and thin-large ( $p < 0.05$ ). For the female stimulus, significant differences were observed between all of the drawings except large-very large ( $p < 0.05$ ).

A cluster analysis (Ward method, squared Euclidean distance) was conducted. As a result, we separated the stimuli into three clusters (see Figure 2). The first cluster included the male thin figure, female thin figure, male normal figure, and female normal figure. The second cluster included the male very thin figure and the female very thin figure. The third cluster included the male very large figure, female very large figure, male large figure, and female large figure. The stimuli were clustered by body shape (not by the gender of the target).

## 4. DISCUSSION

### 4.1 Structure of factors

In the pilot study, 12 adjective pairs were selected and used in the main study.

In the main study, factor analysis showed that personality traits associated with body shape consisted of three factors: favorableness, reliability, and activity. The present research

was carried out on the assumption that same structure of factors as in past research [8] were present, however a different structure was observed. Based on the results of Hayashi [8], it was expected that the adjective “stable-unstable” would belong to the same factor as “tidy-untidy,” “clean-unclean,” and “reliable-unreliable,” and the adjective “merry-melancholy” would belong to the same factor as “sociable-unsociable,” “lively-quiet,” and “cheerful-gloomy.” However, “stable-unstable” and “merry-melancholy” belonged to the same factor as “pleasant-unpleasant” and “warm-cold.” In the present research, personality traits that are associated with body shape were investigated, while past research [8] investigated the personality traits themselves. This might be the reason why a different structure was obtained. Another reason might be that only 12 adjective pairs were used in the present research.

### 4.2 Differences caused by gender of the target

For favorableness and reliability, we found a main effect of body shape but no interaction. Therefore, for favorableness and reliability, evaluations do not vary with gender of target. On the other hand, for activity, a gender of target  $\times$  body shape interaction was observed. Therefore, for activity, evaluations vary with gender of target. More specifically, the female normal figure was rated as more active than the male normal figure. This result indicates the possibility that not only a thin-large continuum but also a non-muscular-muscular scale is important for men. In addition, the male large figure was rated as more active than the female large figure. This result agrees with previous findings [11]. It was indicated that obese stereotypes were stronger in women than in men.

### 4.3 Differences caused by the gender of judge

We found that personality traits associated with body shape do not vary with gender of the judge.

#### 4.4 Personality traits associated with body shape

For the very thin and thin figures, the adjectives “tidy-untidy” and “clean-unclean” were rated more positively compared to the other adjectives. This result corresponds with previous research, as Ogden [3] indicated that thinness yields the stereotype of control. In this research, “Tidy” can be regarded as virtually the same as control.

With regard to the “warm-cold” adjective, the large figure and the very large figure were rated positively. For the adjective “tidy-untidy,” they were rated negatively. This result also corresponds with Ogden [3] who indicated that obesity yields the stereotype of laziness. In this research, “Untidy” can be regarded as virtually the same as lazy.

The normal figure was rated most positive overall. A contradiction was observed such that, whereas women rated the normal figure as most positive in terms of personality, they themselves want to be thinner [5]. Women understand latently that the normal figure is the best, but they are so influenced by the media that they want to be thinner [5].

For favorableness and activity, the farther from normal (thinner or larger), the more negatively favorableness and activity were rated. This result is consistent with the results of past work [12], which shows that the pattern of stereotypes for body shape is curvilinear. In addition, for favorableness and activity, the very thin figure was rated most negatively. Therefore, a very thin figure is least likely to be regarded as favorable or active.

For reliability, thin figures were rated higher than large figures. This result is consistent with previous work [13], which demonstrates that an obese figure gives an impression of laziness, lower levels of conscientiousness, and untidiness. These impressions imply discrimination in hiring [14], wages, and promotions [11].

We obtained three clusters from a cluster analysis. The first cluster included the thin figure and the normal figure. The second cluster included the large figure and the very large figure. The third cluster included the very thin figure. These results indicated that the very thin figure was differentiated from other body shapes.

#### 5. LIMITATIONS AND CONCLUSION

It was indicated from this study that personality traits are associated with body shape. The results showed that a normal figure was rated most positively and the very thin figure was least likely to be regarded as favorable or active. Overall, figures farther from normal were rated as less active and less favorable. A thin figure was rated as more reliable than a large figure.

However, there were a few limitations in the current study. First, the effect of culture was not investigated; although we asked the participants about their duration of residence in Japan and made sure data were obtained from participants with a Japanese cultural background. In future research, international comparisons are needed because personality traits being associated with body shape could vary by culture. Second, this study did not mention concrete examples of application; therefore, future studies that build off this one should examine clinical problems such as eating disorders.

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