BODY IMAGE DISTORTION IN NON-EATING DISORDERED WOMEN AND MEN

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Abstract—This study of body image perception in 100 non-eating disordered women and men demonstrates that overperception of body widths, whilst accurately perceiving a neutral object, is not restricted to populations with eating disorders, nor is it peculiar to women. Men consistently overestimated body widths to the same extent as female subjects. Overall, 84% of women and 52% of men wished to weigh less. Considering those subjects within the 10% range of Mean Matched Population Weight (MMPW), men wished to be 0.75 kg heavier, whilst women at MMPW wished to weigh 3.25 kg less. For women, the subjects who were most satisfied with their actual weight were those who were well below MMPW. There is a tendency that the greater the deviation of weight from normal, in either direction, the greater the degree of body width overestimation. These results suggest that the overperception of body width is more related to current weight than to concern about weight and shape, or to the presence or absence of an eating disorder. They question the use of empirical body size estimation measurement in eating disordered populations.

INTRODUCTION

The issue of body image distortion in relation to the eating disorders has given rise to a considerable amount of research. Overestimation of body widths has been demonstrated in anorectic [1, 2], obese [3] and bulimic female populations [4, 5]. However, many studies have failed to demonstrate a significant difference in overestimation between eating disordered patients and non-eating disordered controls [4, 6–9, 23].

The literature on body image perception in non-eating disordered populations is scarce, most data being that available on control subjects. Because of the predominance of eating disorders amongst young women both subjects and control groups are usually female. Little attention has been paid to the issue of body image perception in men.

Those studies which have considered male body image focus more on the satisfaction with body shape and self-image, rather than subjective estimation of size. Jourard and Secord [10] studied the relationship between several body measurements and satisfaction with those measurements. They found that amongst males, increased measurements were correlated with increased satisfaction with regard to their shoulder and chest widths and to their height. Calden, Lundy and Schlafer [11], found that men expressed a wish to be larger in most dimensions, that is to be taller; to have broader chests and shoulders and to be more muscular, whilst women wished to be smaller in every dimension except bust size. Diabase and Hjelle [12], found that male college students preferred to be a mesomorphic shape. With regard to male satisfaction with weight it has been found that deviation from

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normal weight in either direction increased dissatisfaction [13]. Obese men were more dissatisfied than thin men and thin men more than average weight men with their bodies [14].

Klesges [15] found that whilst overweight men and women tended to underestimate the degree of their obesity, normal and under weight women thought they were more overweight than they actually were. Normal and underweight men were very accurate at assessing their relative weight. A study of women with bulimia at normal body weight showed overestimation of body width to be more marked in those subjects furthest for MMPW [4]. Comparing male and female satisfaction with weight it has been found that men wish to weigh 3 lbs more and women 7 lbs less on average [11]. Huenemann [16], showed that 77% of female adolescents wished to lose weight and 55% of male adolescents wished to gain weight, whilst Nylander [17], found that 53% of 20 yr old women feel themselves to be fat, compared to only 9% of 20 yr old men.

With regard to actual size estimation Schontz [18], found that women overestimated body part sizes whilst men were more accurate, and also that women tended to judge their bodies on a part to part basis whereas men made whole body judgements. Huenemann [16], found that women had a much clearer view of what they liked and disliked about their bodies than men.

This study presents for comparison the body width perceptions of non eating disordered women and men, and considers the influence of current weight upon body size estimation. Given that the eating disorders affect predominantly females, we hypothesised that women would overestimate body width more than men. The study also investigates the ideal desired weights of both sexes and the deviation of these from current weight.

METHOD

The subjects consisted of 100 volunteers, who were asked to participate in a brief, body perception experiment. These were 50 women and 50 men from the staff and students of the hospital, (doctors, nurses, secretarial staff and medical, psychology and occupational therapy students) who in a confidential questionnaire declared no current or previous history of an eating disorder and were not on a strict reducing diet. A further six volunteers, all women, withdrew from the study when they learnt they would be weighed. All subjects were asked in a questionnaire to give their desired body weight and whether they disliked one body part or characteristic in particular and if so, which part. The subjects were weighed, their heights measured and the dimensions of chest waist and hip widths were measured with an anthropometer.

Body image was measured using a visual size estimation apparatus which was similar to that described by Slade and Russell [1]. The apparatus was modified so that subjects could operate it by remote control. Most subjects presented mid to late morning and none had recently ingested a large meal. Standing approximately 2 m from the apparatus the subjects were asked to move two lights on the bar until the distance between them corresponded as accurately as they could judge to their body widths at waist, chest and hip level. Subjects were also asked to estimate the width of a box file, placed where it could not be viewed concurrently with the apparatus. Each width was estimated four times, twice moving the lights into the middle and twice moving the lights out, results were averaged. The order in which the widths to be estimated were requested was randomised to minimise practice effect.

For each region of each subject a body perception index (BPI) was calculated by expressing the estimated width as a percentage of the actual width. For each subject a weight index (WI) was calculated by expressing weight as a percentage of mean matched population weight (MMPW) with reference to standard tables [18]. The subjects were divided into weight groups on the basis of this weight index: 1. light (WI < 95%); 2. normal (WI 95–105%); 3. intermediate (WI 105–120%); 4. heavy (WI < 120%). Only two women had a weight index in excess of 120%, this group was not included in the statistical analysis of the female weight group results.
RESULTS

As shown in Table I there was no difference in age between the female and male groups although height and weight were significantly different, as would be expected. It is of interest to note that the weight indices of the two groups were significantly different.

Each body width was greatly overestimated by both groups, whilst the width of the neutral object was accurately perceived. Each body width was significantly more overestimated than the neutral object by each group \((a = 0.001)\). Although women consistently overestimated each body width more than the men, the difference between the two groups was not statistically significant (see Table II).

<table>
<thead>
<tr>
<th>Body part</th>
<th>Males ((N = 50))</th>
<th>Females ((N = 50))</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (yr)</td>
<td>22.56 3.75</td>
<td>22.28 4.69</td>
</tr>
<tr>
<td>Height (cm)</td>
<td>178.02 5.93</td>
<td>166.16 7.00</td>
</tr>
<tr>
<td>Weight (kg)</td>
<td>74.18 8.86</td>
<td>59.83 6.72</td>
</tr>
<tr>
<td>Weight index (%)</td>
<td>108.18 11.90</td>
<td>102.80 9.2</td>
</tr>
</tbody>
</table>

Both men and women overestimated their hip widths least. Waist width was most markedly overestimated by women whilst chest width was overestimated most by the men.

Thirty-seven women and 22 men named a body part or characteristic which they particularly disliked. There was no relationship between the body part most disliked and that most distorted. Women most often reported particularly disliking their hips \((36\%)\), whilst 12\% of women disliked either their chest, waist or legs. Only one woman disliked her height, feeling she was too tall. Most men reported a dislike of their stomach, or ‘beer gut’, 26\%, with 4\% disliking either their chest, waist, feet or height (feeling too short). Three men described themselves as ‘too skinny’ and wanted more muscle bulk.

Comparison of body perception index by weight index groups showed a U-shaped distribution for each body part in both women and men with light and heavy subjects overestimating more than those at normal weight (see Figs 1 and 2). However, although the trend is clear the differences between weight index groups fail to reach statistical significance, except for waist width in the men, \(F = 0.0029\). As shown
in Table III the mean discrepancy between actual and desired weight was significantly greater for women than for men. The discrepancy between actual and desired body weight by weight index group for women is shown in Fig. 3. The discrepancy between actual and desired body weight by weight index group for men is shown in Fig. 4.

**TABLE III. MEAN ACTUAL WEIGHT, DESIRED WEIGHT AND RATIO OF DESIRED TO ACTUAL WEIGHT FOR MALE AND FEMALE SUBJECTS**

<table>
<thead>
<tr>
<th></th>
<th>Males (N = 50)</th>
<th>Females (N = 50)</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actual weight</td>
<td>74.18 1.25</td>
<td>59.83 0.95</td>
<td>0.001</td>
</tr>
<tr>
<td>Desired weight</td>
<td>72.6 1.08</td>
<td>55.9 0.78</td>
<td>0.001</td>
</tr>
<tr>
<td>Ratio of desired</td>
<td>98.3 0.93</td>
<td>93.7 0.86</td>
<td>0.001</td>
</tr>
<tr>
<td>to actual wt.</td>
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**FIG. 1.**—Mean overestimation of each body part by weight index group: female subjects.

**FIG. 2.**—Mean overestimation of each body part by weight index group: male subjects.
FIG. 3.—Desired and actual body weight compared to mean matched population weight in female subjects by weight index groups.

DISCUSSION

In 1979 Casper and co-workers [8] stated that overestimation of body size ‘can not be considered a feature unique to anorexia nervosa’. This study demonstrates that overestimation of body widths is not even restricted to women, regardless of the presence of an eating disorder. Men significantly overestimate their body widths, compared to a neutral object, to the same extent as female subjects.

Several studies of body width estimation present data from non eating disordered women used as control subjects. Our finding that non eating disordered subjects overestimated body widths is congruent with the results of several authors [4, 6–9, 23]. Interestingly the results are noticeably discrepant from those reported by Slade and Russell [1] in their control group using a similar apparatus. This discrepancy may be due to methodological differences: our use of remote control; randomised estimations of widths; different distance of subjects from the apparatus. However, Button, Fransella and Slade [7], in an exact replication of Slade and Russell’s procedure, using age matched controls, showed no difference in the body width estimations of anorectic and control groups, who both overestimated.

Studies of anorectic and obese subjects at the extremes of body weight have shown that these patients greatly overestimate body image perceptions. Few studies have considered body image perception between these weight extremes. A study of bulimic patients at normal body weight, which used the methods described in this paper [4] showed that body width estimation was significantly related to body weight index of the subject within a normal range of weight. Those subjects who
were closest to MMPW distorting body widths and least. This study demonstrates a similar trend for both male and female subjects with increased deviation of body width estimation with increased deviation from MMPW.

Surprisingly there was no correlation between the body part most disliked and that most distorted in these groups. In agreement with Huenemann et al. [16], we found that women were more likely to report a particularly disliked body part. Men mentioned more general features such as height and overall bulk, although ‘beer guts’ were a cause of concern.

In agreement with previous studies [11, 16], this study confirmed that non-eating disordered men are more satisfied with their body weight than non-eating disordered women. Although overall figures indicate that men wished to weigh slightly less, when the discrepancy of actual and desired weight is examined by weight index groups the picture which emerges is that men at their MMPW all wished to be 0.75 kg heavier whilst women at MMPW wished to weigh 3.25 kg less. Overall 42
women wished to weigh less whilst only 26 men had a desired weight less than their actual weight. The greatest discrepancy between actual and desired weight being in the heaviest weight groups for both sexes.

This discrepancy in desired weight between the sexes probably reflects the greater emphasis in Western culture on slimness as desirable in women. The sensitivity of weight as an issue for women is highlighted by six women having withdrawn from the study on learning that they would be weighed. No men refused to be weighed. For men society puts greater emphasis on height and muscularity. However, these differences in how men and women view the body do not seem to be reflected in their abilities to estimate body widths. Neither does the degree of overperception demonstrated in these non-eating disordered subjects differ noticeably from that reported in eating disordered populations [4, 6, 8, 20].

Body image perception is a complex phenomena and many authors have stressed the importance of attitudinal and emotional components [21]. Clinically, the impression is that important differences appear in this area between eating disordered and asymptomatic subjects, and between women and men. It may be that newer techniques of measurement such as distorting photographs and video images will prove more differentially sensitive to the differences between these groups [21]. Additionally, it may be important to continue to develop measures such as the ‘Body Concept Questionnaire’ [12], and the ‘Body Disparagement Scale’ [22] to provide data beyond that generated by body size estimation.

REFERENCES