Chapter 2

The Development and Validation of The Body Shape Questionnaire

The development and validation of the Body Shape Questionnaire

Introduction

An extreme degree of sensitivity towards body shape constitutes a central feature of bulimia nervosa, as was discussed in Chapter 1. Patients suffering from the disorder are highly concerned with fatness, and place great importance on achieving and maintaining slim body shape (Cooper and Cooper,1987). Indeed, *a morbid fear of becoming fat* is one of the three necessary criteria for diagnosing the disorder (Russell,1979). Nevertheless, the intensity of concern with shape shown by these patients may range from dissatisfaction with specific body parts to extreme body shape disparagement in which patients find their body loathsome and repulsive. Such concerns about body shape may manifest in abnormal and maladaptive behaviour, such as frequent measuring of body parts and avoidance of exposure. Indeed, it has been suggested that an extreme level of concern with shape may be important in the maintenance of the eating disorder (Fairburn et al,1986a). Despite the importance of concern with fatness and shape in bulimia nervosa, there have been surprisingly few attempts to study this concern systematically, which is an important omission. Measuring this aspect of the specific psychopathology of the disorder would help to determine its clinical significance in terms of its relationship with severity of other symptoms and outcome from the eating disorder.

Concern with shape appears to be common among women with no eating disorder, and most women report *feeling fat* (Wooley and Wooley,1984). Such concerns are rife by the adolescent years (eg. Wardle and Beales,1986), and have been related to a range of maladaptive attitudes and behaviour both specifically associated with eating (eg. dieting, Dwyer et al,1967; and feelings of guilt after eating, Wardle and Beales,1986), and with more general disturbance (eg. depressed mood, Goldberg and Folkins,1974, Berscheid et al,1973, Marsella et al,1981, Noles et al,1985; and low self-esteem, Secord and Jourard,1953, Berscheid et al,1973, Lerner et al,1976). It is conceivable that a high level of concern with shape may evoke considerable distress in sufferers' lives, although again there have been few attempts to study systematically the nature and significance of such concern.

The dearth of research into concern with shape is at least partly due to there being no satisfactory measure of this concern. Various psychometric instruments assess bodily concerns but are unsatisfactory for measuring specific concern with body shape for a number of reasons which will be discussed.

Review of the relevant measures

Several projective tests have been designed to assess bodily concern, such as *Draw-A-Person* tests, and adaptations of the Rorschach ink blots test; but these are confounded by problems with interpretation and will not be discussed. Eight published measures are relevant to concern with body shape. Seven are in the form of self-report questionnaires, and one is a semi-structured

interview.

Four of the existing measures assess satisfaction with specific body parts: the Body Cathexis Scale (Secord and Jourard,1953), the Body Image Satisfaction Scale (Marsella et al,1981), the Body Image Questionnaire (Berscheid et al,1972), and the *Body Dissatisfaction* subscale of the Eating Disorder Inventory or EDI (Garner et al,1983). The first two simply list various body areas and respondents rate their degree of satisfaction with each area. The Body Image Questionnaire, in addition to satisfaction, includes a number of other items about the importance of appearance. The *Body Dissatisfaction* subscale of the EDI asks respondents to rate a small number of body parts in terms of satisfaction with size. The other four measures assess bodily concern aside from dissatisfaction. The Body Distortion Questionnaire (Fisher,1970) has nine subscales which deal with unpleasant bodily sensations, such as constipation and feelings of being too large. The *Appearance* subscale of the Food Fitness and Looks Questionnaire (Hall et al,1983) assesses attitudes towards cosmetic appearance. The Body Self Relations Questionnaire (Winstead and Cash,1984) has three subscales dealing with attitudes and behaviour associated with appearance, emphasising sexual attractiveness. The Eating Disorder Examination or EDE (Cooper and Fairburn,1987) is a semi-structured clinical interview comprising 62 items, 11 of which are directly relevant to concern with body shape. Since this interview was not designed to assess specific concern with shape it does not always distinguish such concern from concern with weight. In addition, since the EDE was intended for making detailed clinical assessments of patients with eating disorders it requires a trained interviewer and is unsuitable for assessing large numbers of women.

The eight published measures are of limited use for assessing concern with body shape for four main reasons. First, since only the *Body Dissatisfaction* subscale of the EDI was designed specifically to measure concern with shape as it arises in patients with eating disorders, many questions included in the measures are irrelevant to such concern. Second, although body dissatisfaction is an important aspect of concern with shape, it is only one aspect. None of the measures capture the central importance of such concerns, together with their antecedents and behavioural consequences. Third, authors commonly fail to state how items were generated (eg. Secord and Jourard,1953; Berscheid et al,1972), or say they were derived from *clinical experience* (eg. Garner et al,1983), or *intuitively* from *brainstorming sessions* (eg. Hall et al,1983), and it is possible that important aspects of concern with shape may have been omitted and unimportant ones included. Fourth, only one of the measures ie. the Eating Disorder Examination (Cooper and Fairburn,1987), includes a time scale over which responses are rated, which is important unless it is shown that concern with shape is stable over time. The concern reported by patients appears to vary in frequency and intensity but its lability has not been assessed. Also such concern may change during treatment for an eating disorder, as suggested by a study by Wooley and Kearney-Cooke (1986), and in order to assess change it is essential to define a period of time over which to rate concern with shape.

Development of the Body Shape Questionnaire

In view of the limitations of the existing assessment instruments, there was a need for a measure to assess concern with shape, which would encompass more than dissatisfaction and include a time scale upon which to rate responses. A new measure, the Body Shape Questionnaire, or BSQ was developed to satisfy these requirements. A self-report questionnaire was chosen because it is easy to administer and does not require a trained rater.

BSQ items were empirically derived from a semi-structured interview (Appendix 3) based on the concerns about body shape reported by patients with eating disorders. The interview encouraged interviewees to talk spontaneously, and was based on three aspects of concern with shape; the thoughts surrounding feeling fat, the circumstances which precede these thoughts and feelings, and behaviour which usually follows them. Twenty-eight women were interviewed:

(1) Six patients suffering from bulimia nervosa who satisfied Russell's (1979) criteria;

(2) Four patients suffering from anorexia nervosa who satisfied the research diagnostic criteria of Feighner et al (1972);

(3) Seven women who were dieting to lose weight;

(4) Three women who attended vigorous exercise classes;

(5) Eight normal young women with no specific concerns about weight or shape, or problems with eating.

These women were selected on the basis of their availability and no effort was made to attain representative samples of each group. Their age and weight are shown in Table 2.1.

Table 2.1
Age and weight of the women interviewed

	N	Age $\bar{X}$/sd	MPMW[1] $\bar{X}$/sd
Bulimia Nervosa	6	22.0	105.0
Patients		4.3	10.7
Anorexia Nervosa	4	20.3	77.6
Patients		1.6	7.2
Dieters	7	19.5	108.6
		1.0	5.3
Exercisers	3	31.7	91.0
		0.9	4.6
Normal Women	8	20.9	100.8
		3.6	7.4

1 Weight in pounds expressed as a percentage of average weight, matched for age, height and sex (Geigy,1962)

Interviews lasted between 30 minutes and an hour and were recorded and subsequently transcribed. The information thus collected was collated into similar topics discussed by different women. This resulted in 77 topics about concerns with body shape and fatness, and behaviour which preceded and followed these concerns. Examining these 77 topics, 26 were eliminated because they were conceptually similar to other topics, or because they had not been discussed by at least two women (Appendix 4). Fifty-one topics remained and a question was generated for each (Appendix 5).

At the beginning of the questionnaire subjects were asked to respond to the items in terms of frequency of occurrence over the past month on a six-point Likert scale consisting of *Never, Rarely, Sometimes, Often, Very Often and Always.*

Item Reversal

It would have been desirable if half the items on the BSQ could have been negatively keyed to avoid the possibility of response-set. However, an examination of the items indicated that it was not possible to reverse satisfactorily the wording of most questions for three reasons:

(a) Reversal introduced double negatives which could confuse subjects: eg.

(i) Have you felt excessively large and rounded? */Never*

(ii) Have you not felt excessively large and rounded? */Never*

(b) Reversing the meaning of a word did not necessarily reverse the meaning of the question: eg.

(i) Have you felt excessively large and rounded?

(ii) Have you felt excessively small and square?

(c) Reversing the meaning of a word resulted in the reversed item having two likely interpretations: eg. A response of *Never* to b(i) has one *obvious* meaning ie. the subject has not felt excessively large and rounded. A response of *Never* to b(ii) has two likely interpretations; either the subject feels large and rounded, or the subject may not think about her body size.

Due to the difficulties with reversing items they were kept in the form where all are keyed in the same direction. This has the advantage that the questions are clear and unambiguous but introduces the possibility of response-set. The questionnaire was intended to measure concern with shape and there was no reason to believe that women who differ in the level of such concern will differ in their tendency to endorse questions positively or negatively. Therefore leaving all items keyed in the same direction does not appear to be a problem for interpreting scores on the questionnaire.

Further development and validation of the BSQ

Having developed the BSQ it was necessary to refine and validate this new measure. Validation was based on clinical reports that patients with bulimia nervosa show disturbed eating attitudes and behaviour and an extreme level of concern with their shape (Fairburn and Cooper,1984a). Four predictions were made:

(1) Compared with women in the community, patients with bulimia nervosa will score higher on the BSQ;

(2) The BSQ will be related to other measures of concern with shape;

(3) Among women in the community, a high score on the BSQ will be associated with disturbed eating attitudes and behaviour;

(4) Women in the community who report symptoms of bulimia nervosa will score similarly on the BSQ compared with patients with a clinical diagnosis of bulimia nervosa, and significantly higher than women who report no symptoms of the disorder.

Method

Subjects

Subjects were members of the following four groups:

(i) *Bulimia nervosa patients:* 38 female patients were consecutively referred to two outpatient clinics between September 1985 and March 1986, and were included in the study if they satisfied Russell's (1979) diagnostic criteria for bulimia nervosa, or DSM III-R criteria for bulimic disorder (American Psychiatric Association,1987) (Appendix 2).[1] For some analyses it was possible to add 34 subsequent referrals who met these criteria, making a total sample of 72 patients;

(ii) *Undergraduate students:* 85 women in two undergraduate colleges were approached and asked to participate in a study *of particular relevance to women*;

(iii) *Occupational Therapy or O.T. students:* 132 occupational therapy students, the total number in two training classes were asked to participate in a *Questionnaire Survey.*

(iv) *Family Planning Clinic Attenders:* 371 female consecutive attenders at two family planning clinics were asked to participate in a *Questionnaire Survey.*

Procedure

To test prediction 1: Group differences in BSQ scores

All subjects were asked to complete the BSQ and additional questions, and except for patients with bulimia nervosa responses were anonymous. All patients and undergraduate students returned satisfactorily completed questionnaires. Of the O.T. students, 90.2 percent complied.

The family planning clinic attenders were asked to complete the BSQ and a background information sheet while waiting to see the doctor. Two hundred and seventy-six were able to complete the questions while waiting, and 13 either refused or returned blank questionnaires, a response rate of 95.5 percent of questionnaires completed in the clinic. Eighty-two women were unable to complete the questionnaire before seeing the doctor and were given a stamped addressed envelope with which to return it. Fifty-five, or 67.1 per cent of the 82 women returned their questionnaire by post. Since proportionately fewer questionnaires were returned by post compared with those completed in the clinic, questionnaire items for the two groups were compared using a t-test for independent samples. There were no differences on any item between those completed in the clinic and those returned by post (P>.05). It was therefore considered

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[1] A diagnosis of bulimia nervosa was made on the basis of a clinical interview by the assessing clinician. The only area of uncertainty within Russell's diagnostic criteria concerns the 'morbid fear of fatness'. It has recently been suggested (Fairburn, in press) that an operational criterion be used for this fear, where shape or weight are one of the main measures of self-evaluation. In the current study all patients scored a rating of at least 4 on questions 44 or 50 of the Eating Disorder Examination (Cooper and Fairburn,1987), ie. questions concerning the importance of weight and shape. Thus, for all patients, shape or weight was one of the main aspects of self-evaluation.

legitimate to combine the responses of both groups for data analyses, producing an overall return rate of 89.2 percent.

To test prediction 2: Concern with shape

BSQ scores were examined in relation to other measures of concern with shape. Patients with bulimia nervosa completed the *Body Dissatisfaction* subscale of the EDI (Garner et al,1983), which measures dissatisfaction with specific body parts, as was described above. For women in the community concern with body shape was assessed by three questions about whether the women were on a diet to control their weight, how afraid they were of becoming fat, and how important being slim was to them. Responses to the last two questions were made on four-point rating scales consisting of *Not at all, Slightly, Moderately,* and *Markedly,* for fear of fatness; and *Not at all, Slightly, Moderately* and *Extremely* for the importance of being slim (Appendices 6 and 7 respectively).

To test prediction 3: Disturbed eating attitudes and behaviour

Patients with bulimia nervosa and O.T. students were asked to complete the Eating Attitudes Test or EAT (Garner and Garfinkel,1979), which is a 40-item questionnaire measuring disturbed eating attitudes and behaviour.

To test prediction 4: Symptoms of bulimia nervosa

O.T. students and family planning clinic attenders were asked to report whether they currently experienced episodes of uncontrollable and excessive overeating; and whether they currently induced vomiting or used laxatives to control their weight.[2] Women who had experienced at least two episodes of overeating in the past month, and who vomited or used laxatives to control their weight, and who were *Markedly* afraid of becoming fat, were termed *probable cases* of bulimia nervosa. Women who did not overeat, and who did not use vomiting or laxatives to control their weight were termed *definite non-cases* of bulimia nervosa. *Probable cases* were compared on the BSQ with *definite non-cases* and with patients with bulimia nervosa.

Item elimination

Since a short questionnaire was considered desirable, before examining the four predictions for validation, the BSQ was reduced from 51 to 34 items using three methods to eliminate items:

(1) Inter-relationships between items were examined. For the patients and women in the community 18 items were highly correlated with other items (r=.60 or above).[3] In six of these pairs the two items appeared to measure very similar phenomena and one item from each pair was eliminated (Appendix 9).

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[2] The data collected from the clinic attenders provided an opportunity to study the prevalence of bulimia nervosa, and findings are summarized in Appendix 8.

[3] All correlations reported in this thesis were calculated using Pearson's product moment correlation unless stated otherwise.

(2) Patients and women in the community were compared on individual BSQ items using a t-test for independent samples. For 50 of the 51 items patients scored significantly higher than the women in the community (P<.05). Six items failed to discriminate between patients and women in the community at a highly significant level (P<.001) and were discarded (Appendix 10). The item concerning urge to exercise did not discriminate between patients and women in the community at this prescribed level (P=.011) but was retained on clinical grounds because it is a feature of anorexia nervosa.

(3) Items which were endorsed *Often, Very Often,* or *Always* by fewer than 25 percent of patients and five percent of women in the community were discarded on the grounds of rarity. Five items were eliminated by this method of endorsement (Appendix 11). The item concerning laxative abuse, although endorsed by only 21 percent of patients, was retained on clinical grounds because it is an important feature of bulimia nervosa, although not highly common.

Item elimination reduced the BSQ from 51 to 34 items. The final 34 item questionnaire is presented in Appendix 12.

Results

Subjects

Table 2.2 shows the age and weight of the samples. The responses of the O.T. students, undergraduate students and family planning clinic attenders were combined for initial analyses and will subsequently be referred to as the responses of women in the community.

Table 2.2
Age and weight of women who completed the BSQ

	Bulimia Nervosa Patients (N=38) $\bar{X}$/sd	Bulimia Nervosa Patients (N=72) $\bar{X}$/sd	Under-graduate Students (N=85) $\bar{X}$/sd	O.T. Students (N=119) $\bar{X}$/sd	Clinic Attenders (N=331) $\bar{X}$/sd
Age	22.2	23.0	20.0	21.3	23.8
	4.1	4.6	1.1	3.2	6.3
MPMW	102.8	102.4	99.8	98.9	97.7
	13.9	14.7	10.8	8.9	11.6

Reliability

The internal reliability of the BSQ was assessed using the combined data from the 535 women in the community and the sample of 72 patients with bulimia nervosa:

(i) Guttman's coefficient of split-half reliability was 0.94. Examining the divided halves of the BSQ, Cronbach's alpha was high and very similar for both halves; alpha=0.94 for part 1, and alpha=0.93 for part 2.

(ii) Cronbach's alpha coefficient was computed for all 34 items to indicate internal consistency and to estimate the influence of other sources of sampling error. The coefficient was 0.97.

Thus, the BSQ showed a satisfactory degree of split-half reliability and internal consistency.

Scoring the BSQ

The BSQ is scored according to its rating scale, where a score of 1 is recorded for a response of *Never* and a score of 6 for a response of *Always*. Scores are then totalled, producing a range of possible scores from 34 to 204.

Prediction 1: Group differences in BSQ scores

BSQ total scores for the women in the community and the sample of 38 patients with bulimia nervosa were compared using a t-test for independent samples. The mean score for the patients with bulimia nervosa was 136.9, sd=22.5, with a range from 67 to 186; and the mean score for women in the community was 81.5, sd=28.4, with a range from 34 to 165. The difference between the two groups was highly significant (t=11.8, df=571, P<.001).[4] Despite this difference there was some overlap, as illustrated in Figure 2.1. This shows that the degree of concern with shape varied considerably within the sample of patients with bulimia nervosa and the sample of women in the community.

In view of the considerable variability in BSQ scores, responses to the questionnaire were divided into categories based on degree of concern with shape. A score below the mean of the women in the community was labelled *No Concern* (BSQ $\leq$80); a score within one standard deviation above the mean of the women in the community was labelled *Mild Concern* (BSQ=81-110); a score greater than one standard deviation but within two standard deviations of the mean of the women in the community was labelled *Moderate Concern* (BSQ=111-140); and a score greater than two standard deviations above the mean of the women in the community was labelled *Marked Concern* (BSQ>140), (scores were rounded to the nearest ten). As can be seen from Figure 2.2, using these categories to classify BSQ scores, 87 percent of patients with bulimia nervosa showed *Moderate* or *Marked* concern with their shape, whereas only 17 percent of women in the community showed comparable levels of concern (χ^2=103.2, df=1, P<.001).

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[4] This discriminant validity was a fundamental requirement of the BSQ. It was to be expected that the patients with bulimia nervosa would score higher on the questionnaire than the women in the community since items which failed to discriminate between the two groups had been discarded. Nevertheless, the patients on average scored considerably higher than the women in the community.

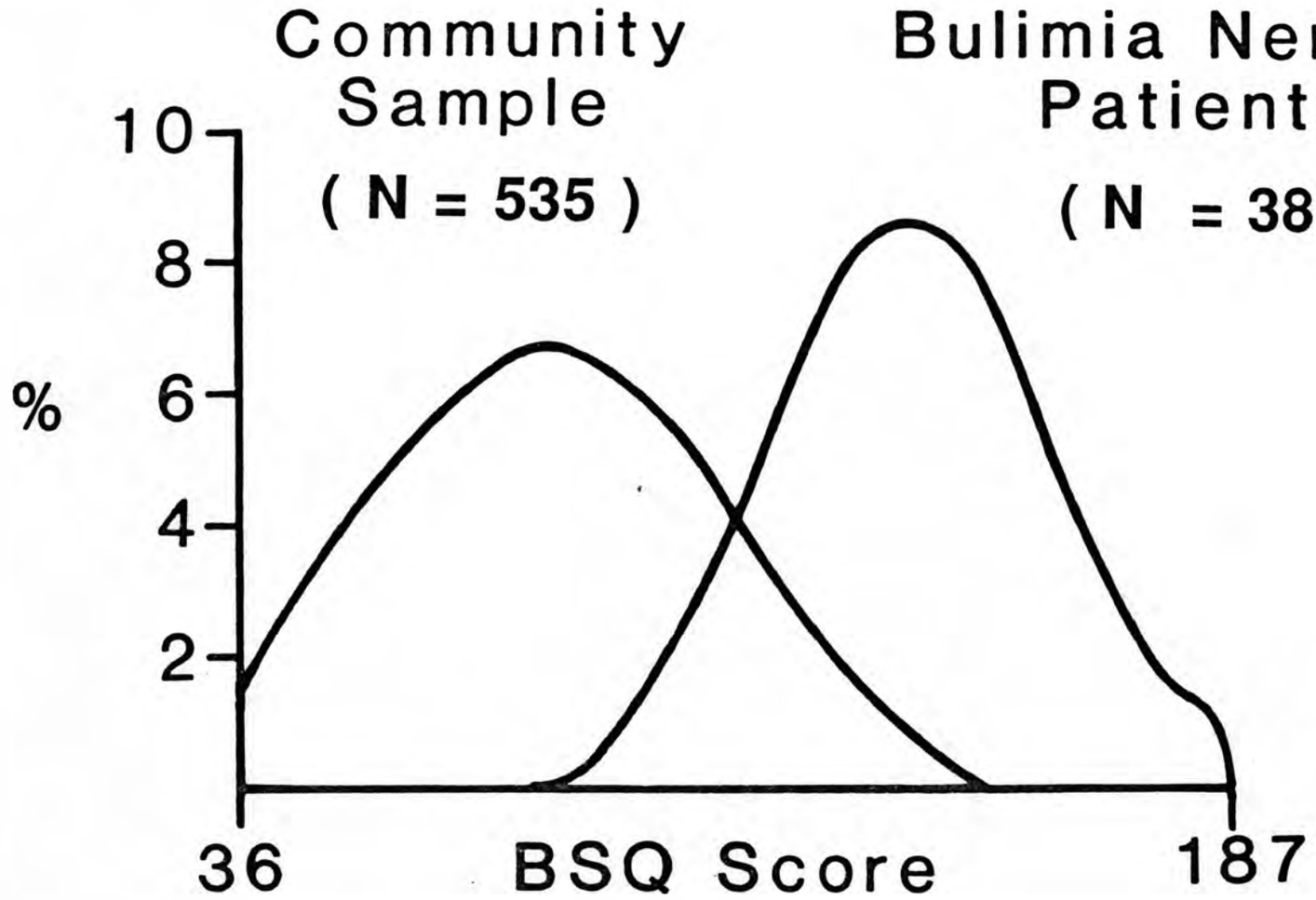

Figure 2.1
Distribution of BSQ scores

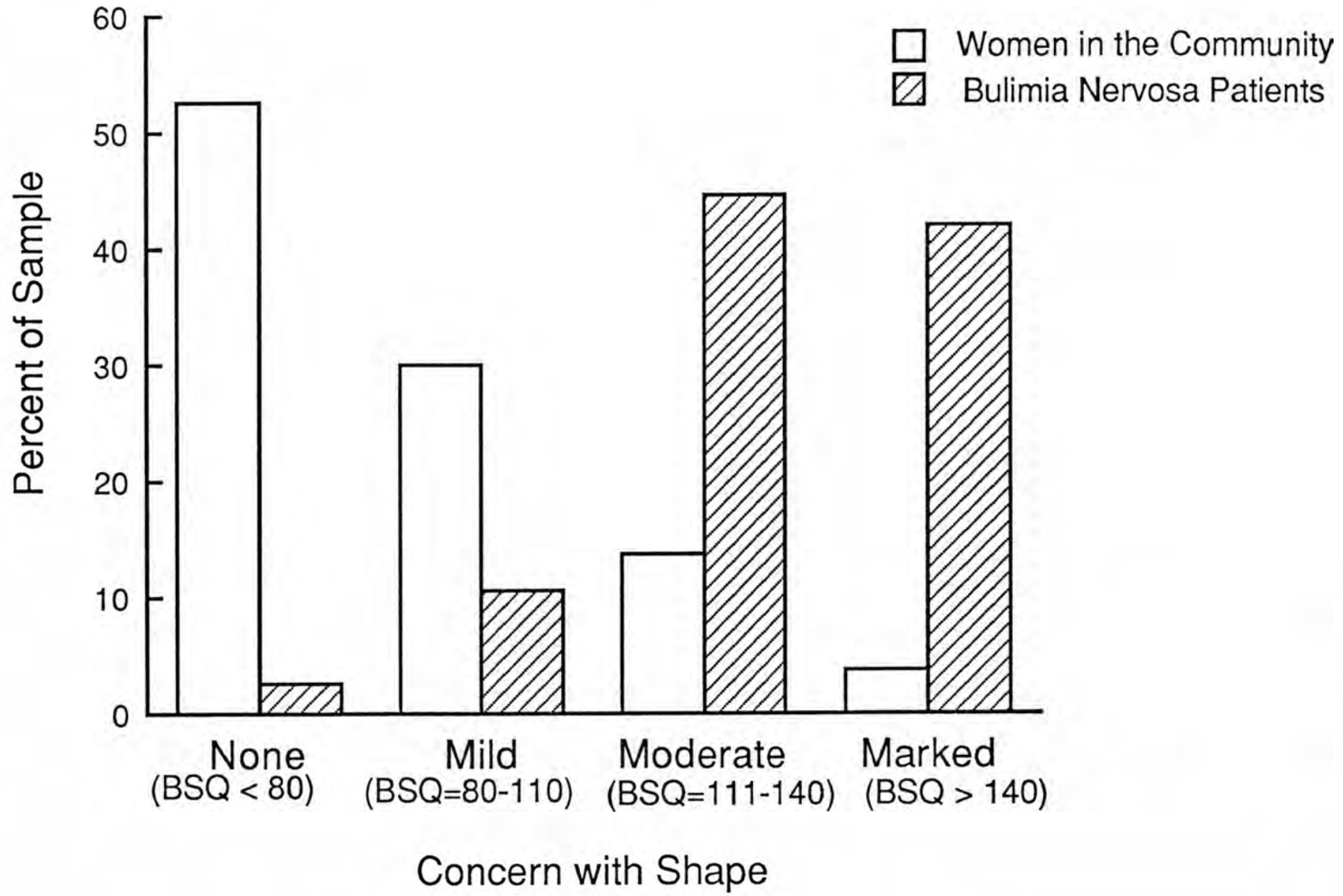

Figure 2.2

Concern with shape among patients with bulimia nervosa (N=38)
and women in the community (N=535)

Thus, prediction 1 was supported in that patients with bulimia nervosa scored significantly higher on the BSQ compared with women in the community.

Prediction 2: Concern with shape

Among the sample of 38 patients with bulimia nervosa, score on the BSQ was highly related to dissatisfaction with body shape as measured by the *Body Dissatisfaction* subscale of the EDI (r=.66, P<.001).

The women in the community were divided into two groups with high and low concern with their shape: the women were considered to be highly concerned with their shape if they were currently dieting, and if they rated themselves as *Moderately* or *Markedly* afraid of becoming fat, and if they rated slimness as *Moderately* or *Extremely* important (N=95); and the women were considered to show little concern with their shape if they were not currently dieting, if they were *Not at all* or only *Slightly* afraid of becoming fat and if they rated slimness as *Not at all* or only *Slightly* important (N=79). Using a t-test for independent samples, compared with the low concern group, the high concern group scored significantly higher on the BSQ (BSQ=55.9, sd=14.4 versus BSQ=109.0, sd=21.2; t=19.57, df=165.7, P<.001).

Thus, prediction 2 was supported in that concern with shape as measured by the BSQ was significantly associated with other indices of concern with shape.

Prediction 3: Disturbed eating attitudes and behaviour

BSQ scores were significantly related to EAT scores for the sample of 38 patients with bulimia nervosa (r=.35, P<.02) and for the O.T. students (r=.61, P<.001).

Thus, prediction 3 was supported in that a high BSQ score was associated with disturbed eating attitudes and behaviour for patients with bulimia nervosa and women in the community.

Prediction 4: Symptoms of bulimia nervosa

Ten women in the community were classified as *probable cases* of bulimia nervosa and were compared with 317 *definite non-cases* and with the sample of 38 patients. Table 2.3 shows that using a one-way analysis of variance and Scheffe's multiple range test, the *probable cases* scored significantly higher on the BSQ compared with the definite *non-cases;* and the *probable cases* did not differ significantly from the patients. However, the assumption of homogeneity of variance was not met[5] (Cochran's C=.41, P<.05). Therefore, the BSQ scores of these three groups of women were re-examined using a Kruskall-Wallis non-parametric analysis of variance. Again, *definite non-cases* scored considerably lower than *probable cases* and patients, as is shown in Table 2.3.

Thus, prediction 4 was supported in that *probable cases* of bulimia nervosa scored significantly higher on the BSQ compared with *definite non-cases*, and scored similarly to patients

[5] In all one-way analyses of variance reported in this thesis the assumption of equal variance between cells was tested using Cochran's C test.

with bulimia nervosa.

Table 2.3
Group differences in BSQ scores between patients with bulimia nervosa, probable cases of bulimia nervosa, and definite non-cases

	Definite Non-cases (N=317) $\bar{X}$/sd	Probable Cases (N=10) $\bar{X}$/sd	Bulimia Nervosa Patients (N=38) $\bar{X}$/sd			
BSQ Score	71.9[1]	129.3	136.9	F=154.5	df=2,362	P<.001
Mean Ranks	161	326	332	χ^2=108.4		P<.001

1 Significantly different from other groups (P<.05); Scheffe's multiple range test

Factor analysis of the Body Shape Questionnaire

Factor analysis was conducted on the 34 items comprising the BSQ to determine whether the questionnaire measures a unitary dimension of concern with shape, or whether such concern consists of several distinct dimensions.

The questionnaire was factor analysed using the responses of the 535 women in the community and the sample of 72 patients with bulimia nervosa, a total of 607 subjects. Although there were fewer patients than women in the community, the distribution of BSQ scores was approximately normal (Skewness=0.59). It was not possible to conduct factor analysis on a completely normal distribution of scores without omitting a number of patients who scored very highly. This was because among the women in the community there was a cluster of low scores around the minimum of 34 and it was not possible for these women to score much lower; whereas although several patients scored very highly, none approached the maximum score of 204. It was not possible to conduct the analysis on an equal number of patients and women in the community since this would not have constituted an adequate sample size.

Preliminary to factor analysis a correlation matrix was computed to examine relationships between all BSQ items. All of the 561 correlations were statistically significant (P<.00001), which was the first indication that factor analysis of the questionnaire would not prove particularly useful. When conducting such analysis it is desirable that items be highly related to some items and unrelated to others. Since all questions were significantly related to all other questions it was likely that they were all measuring the same underlying construct. However, with such a large

number of subjects a small correlation coefficient may be statistically significant, and it was therefore decided to proceed with factor analysis, bearing in mind that meaningful distinct factors might not emerge.

Bartlett's test of sphericity (14772, P<.001) and the Kaiser-Meyer-Olkin measure of sampling adequacy (.98) indicated that the items were sufficiently inter-related to proceed with the analysis. Factors were extracted using principal components analysis. Since the aim of factor analysis is to group individual items into a small number of constructs which explain sample variance, extracted factors were limited to ones with eigen values of one or more. This was because factors with eigen values of less than one are no better at explaining sample variance than individual items. Three factors were extracted, accounting for 51.9 percent, 5.3 percent, and 3.4 percent of the variance respectively, a total of 60.6 percent. Thus, only Factor 1 accounted for a substantial amount of sample variance in BSQ scores, and much of the variance was not explained within the three factor structure.

Items did not fit well onto this unrotated factor structure, with many items showing moderate loadings on more than one factor. To improve the fit between items and factors, the factors were subjected to an oblique rotation. Twenty-seven iterations produced a clearer factor structure, where most items loaded moderately or highly on only one factor. Factor loadings of .3 or above are shown in Table 2.4. It is apparent from this table that BSQ items tend to cluster into three distinct factors, as follows:

Factor 1 appears to measure *General concern with body shape* and comprises 24 questions;

Factor 2 appears to measure *Behaviour characteristic of bulimia nervosa* and comprises four questions;

Factor 3 appears to measure *Bodily self-consciousness* and comprises six questions;

The questions which form these factors are listed in Table 2.5. However, the labels applied to the factors are very general and items which fall under one heading could conceivably also fall under another. For example, items 9, 12, 15, 24, 29 and 33 which load on the general factor could be labelled *Bodily self-consciousness;* and items which load on the *Behaviour characteristic of bulimia nervosa* factor and *Bodily self-consciousness* factor could also come under the heading *General concern with body shape.*

Thus, the BSQ appears to measure a unitary dimension of concern with shape. Three extracted factors failed to account for a substantial amount of sample variance, and conceptually distinct labels could not be applied to the extracted factors.

Table 2.4
Item loadings on the three factors*

Question	Factor 1	Factor 2	Factor 3
34	.93		
2	.82		
17	.81		
22	.79		
21	.77		
6	.74		
4	.73		
23	.73		
3	.71		
15	.69		
5	.67		
9	.66		
28	.63		
30	.63		
14	.63		
12	.62		-.34
10	.62		
29	.60		-.34
1	.58		
24	.57		
16	.51		
11	.49	.44	
25	.48		
33	.46		-.38
32		.81	
26		.65	
18		.60	-.42
13		.53	
8			-.69
27			-.59
20	.40		-.50
7		.44	-.45
19	.43		-.44
31			-.44

* Loadings of .3 or above are shown

Table 2.5

The three extracted factors[1]

Factor 1 : General Concern With Body Shape

34. Has worry about your shape made you feel you ought to exercise?

2. Have you been so worried about your shape that you have been feeling that you ought to diet?

17. Has eating sweets, cakes or other high calorie food made you feel fat?

22. Have you felt happiest about your shape when your stomach has been empty (eg. in the morning)?

21. Has worry about your shape made you diet?

6. Has feeling full (eg. after eating a large meal) made you feel fat?

4. Have you been afraid that you might become fat (or fatter)?

23. Have you thought that you are the shape you are because you lack self-control?

3. Have you thought that your thighs, hips or bottom are too large for the rest of you?

15. Have you avoided wearing clothes which make you particularly aware of the shape of your body?

5. Have you worried about your flesh being not firm enough?

9. Has being with thin women made you feel self-conscious about your shape?

28. Have you worried about your flesh being dimply?

30. Have you pinched areas of your body to see how much fat there is?

14. Has being naked, such as when taking a bath, made you feel fat?

12. Have you noticed the shape of other women and felt that your own shape compared unfavourably?

10. Have you worried about your thighs spreading out when sitting down?

29. Has seeing your reflection (eg. in a mirror or shop window) made you feel bad about your shape?

1. Has feeling bored made you brood about your shape?

24. Have you worried about other people seeing rolls of flesh around your waist or stomach?

16. Have you imagined cutting off fleshy areas of your body?

11. Has eating even a small amount of food made you feel fat?

25. Have you felt that it is not fair that other women are thinner than you?

33. Have you been particularly self-conscious about your shape when in the company of other people?

Factor 2 : Behaviour Characteristic of Bulimia nervosa

32. Have you taken laxatives in order to feel thinner?

26. Have you vomited in order to feel thinner?

18. Have you not gone out to social occasions (eg. parties) because you have felt bad about your shape?

13. Has thinking about your shape interfered with your ability to concentrate (eg. while watching television, reading, listening to conversations)?

Factor 3 : Bodily Self-Consciousness

8. Have you avoided running because your flesh might wobble?

27. When in company have you worried about taking up too much room (eg. sitting on a sofa, or a bus seat)?

20. Have you felt ashamed of your body?

7. Have you felt so bad about your shape that you have cried?

19. Have you felt excessively large and rounded?

31. Have you avoided situations where people could see your body (eg. communal changing rooms or swimming baths)?

1 Items are ordered according to factor loadings

Discussion

Many young women are concerned with their shape, particularly those with eating disorders, although such concerns have received little empirical investigation because until now there has been no satisfactory measure of this concern. A 34-item self-report questionnaire named the Body Shape Questionnaire (BSQ) was developed specifically to examine such concern. The questionnaire appeared to have a homogeneous factor structure for describing concern with body shape, and although three factors were derived from factor analysis they did not appear to be useful for partitioning this concern. The questionnaire showed a high degree of split-half reliability and internal consistency. It discriminated at a highly significant level between patients with bulimia nervosa and women in the community, and therefore the discriminant validity of the questionnaire was deemed satisfactory. This was to be expected since items which were poor discriminators were eliminated from the final version. Although the BSQ discriminated at a highly significant level between patients with bulimia nervosa and women in the community, there was some overlap between these two groups, with some women in the community showing very high levels of concern with their shape. The questionnaire was not intended to be used as a screening instrument for detecting patients with eating disorders, but as a measure of one aspect of the specific psychopathology which is also present among other women to varying degrees. As such, this overlap is a strength rather than a weakness of the measure. Scores on the BSQ were related

to other indices of concern with shape and general measures of disturbed eating. Thus, the concurrent validity of the BSQ was deemed to be satisfactory.

The BSQ was developed to assist in addressing a number of questions about concern with body shape. First, it is not clear how this important aspect of the specific psychopathology of bulimia nervosa relates to other clinical features of the disorder, such as disturbed eating attitudes and behaviour and to disturbances in body size perception, and to the high level of non-specific psychopathological disturbance typically found among these patients (Fairburn and Cooper,1984a). Second, it is not clear how concern with shape relates to response to treatment and outcome from the eating disorder, and whether the level of such concern changes following treatment. Third, the significance of concern with shape among women in the community is not known, nor whether factors related to concern with shape among patients with bulimia nervosa are similarly related among women in general. It needs to be ascertained whether basic demographic variables such as age, weight and weight history are related to concern with shape, whether the sexes differ in the level of such concern, whether general mental state is related, and whether the level of such concern varies across time, such as with phase of the menstrual cycle. Subsequent chapters will explore these questions.