

## A COMPARISON OF TWO PSYCHOLOGICAL TREATMENTS FOR BULIMIA NERVOSA

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(Received 7 April 1986)

**Summary**—Two standardized psychological treatments for bulimia nervosa were studied. A cognitive behavioural approach was compared with a form of short-term focal psychotherapy. Twenty-four patients who met strict diagnostic criteria for bulimia nervosa were randomly allocated to the two treatments. All the interviews were tape-recorded so that checks on their content could be made. Assessments took place at the beginning and end of treatment, and at 4-, 8- and 12-month follow-up. None of the patients dropped out of treatment or follow-up, but 1 patient from each treatment group had to be withdrawn on clinical grounds. Patients in both groups made substantial improvements which were well maintained over the 12-month treatment-free follow-up period. The cognitive behavioural approach was superior to short-term focal psychotherapy in terms of its effect on the patients' overall clinical state, their general psychopathology and social adjustment, and their assessment of their outcome.

### INTRODUCTION

Bulimia nervosa is an eating disorder in which there is a profound and distressing loss of control over eating. Patients with this disorder have grossly disturbed eating habits in which there are episodes of bulimia, although their weight usually lies within the normal range as a result of behaviour designed to control body weight. Such behaviour includes extreme dieting, self-induced vomiting, the taking of purgatives or diuretics and excessive exercising (Fairburn, Cooper and Cooper, 1986).

The interpretation of the findings of research into bulimia nervosa has been complicated by the use of two different sets of diagnostic criteria. In North America the DSM-III criteria are generally employed (APA, 1980), whereas in Britain Russell's (1979) criteria are preferred. Whilst the two sets of criteria appear to be designed to identify people with essentially the same disorder, they embrace different, but overlapping, populations (Fairburn and Garner, 1986). Nevertheless, despite the confusion that has resulted from the use of two different sets of diagnostic criteria, research conducted in the U.S.A. and Britain indicates that amongst young adult women bulimia nervosa is a significant source of psychiatric morbidity (Cooper and Fairburn, 1983; Pyle, Mitchell, Eckert, Halvorson, Neuman and Goff, 1983).

Little is known about the treatment of bulimia nervosa (Fairburn, 1985a; Wilson, 1986). Pharmacological and psychological treatments have been advocated. Most of the pharmacological studies have been concerned with the use of antidepressant drugs. Five placebo-controlled studies have been reported and these have produced conflicting findings (Pope, Hudson, Jonas and Yurgelun-Todd, 1983; Sabine, Yonace, Farrington, Barratt and Wakeling, 1983; Mitchell and Groat, 1984; Walsh, Stewart, Roose, Gladis and Glassman, 1984; Hughes, Wells, Cunningham and Ilstrup, 1986). Three of the studies suggest that antidepressants have a beneficial effect, at least in the short-term. However, none of the studies has systematically examined the maintenance of change nor have the effects of drug discontinuation been investigated.

Even less information is available on the effects of psychological forms of treatment. A wide range of treatments has been advocated, and these treatments have been administered both in individual and group formats (e.g. Fairburn, 1981; Rosen and Leitenberg, 1982; Lacey, 1983; Johnson, Connors and Stuckey, 1983; Roy-Byrne, Lee-Benner and Yager, 1984; Mitchell, Hatsukami, Goff, Pyle, Eckert and Davis, 1985a; Schneider and Agras, 1985; Rossiter and Wilson, 1985; Ordman and Kirschenbaum, 1985; Giles, Young and Young, 1985). None has been satisfactorily evaluated. There have been two controlled studies. The first involved a comparison

of group cognitive behaviour therapy with a form of non-directive group psychotherapy (Kirkley, Schneider, Agras and Bachman, 1985). The cognitive behavioural treatment was found at the end of treatment to have had a greater effect on eating habits than the comparison approach, but this difference was no longer present at 3-month follow-up. The treatments were no different with regard to their effect on other measures of psychological adjustment. In the second study an exclusively verbal cognitive treatment was compared with a treatment in which behavioural (exposure with response prevention) and cognitive procedures were combined (Wilson, Rossiter, Kleifield and Lindholm, 1986). The combined treatment was found to be markedly superior to the purely verbal treatment and in most cases the improvements were sustained.

This paper is concerned with a study which compared two different psychological treatments for bulimia nervosa. One of the treatments, the cognitive behavioural approach, was found in an earlier uncontrolled investigation to benefit many of these patients and the improvements were well maintained (Fairburn, 1981). The present study had two principal aims: first, to determine whether the findings of the earlier investigation would be replicated under standard conditions; and second, to determine whether the effects of cognitive behaviour therapy are likely to be the result of the specific behavioural and cognitive techniques that characterize this approach rather than being the product of other less specific factors.

## METHOD

### *Patients*

#### *Recruitment*

A letter was sent to all general practitioners and psychiatrists in the Oxford area requesting the referral of patients for possible inclusion in a study of the treatment of bulimia nervosa. They were asked to refer patients who complained of having lost control over eating and who used self-induced vomiting as a means for compensating for overeating. The patients who were referred were assessed by a psychiatrist (C.G.F.) who elicited biographical data and determined whether they met the following criteria for entry into the study:

- (1) female and aged over 17 yr;
- (2) fulfil a strict operational definition of bulimia nervosa based upon the diagnostic criteria of Russell (1979)—see Fairburn and Cooper (1984a);
- (3) weigh above 79% of the matched population mean weight, or MPMW (Geigy, 1962);
- (4) give informed consent after the study had been fully explained.

In addition, the following exclusion criteria were applied:

- (1) co-existing major psychiatric disorder other than a depressive, anxiety or obsessional state;
- (2) current physical dependence on alcohol or drugs;
- (3) need for hospitalization, either because of the risk of suicide or because of poor physical health;
- (4) on-going treatment from another source;
- (5) not being available both for the full course of treatment and for three assessment interviews over the following 12 months.

### *Design*

Twenty-four patients who met the selection criteria were entered into the study. In the absence of data on which to conduct a power analysis this sample size was chosen on the basis of the maximum number of patients feasible given practical constraints. A form of restricted randomization was used to allocate half the patients to cognitive behaviour therapy and half to short-term focal psychotherapy, and a third to one therapist and two-thirds to the other. Treatment was started within a fortnight of the initial assessment and lasted a fixed period of 18 weeks. For the 12 months following the course of treatment patients were asked not to obtain further treatment

for their eating problem or for other psychological problems without first consulting their therapist or the independent assessor.

### *Assessment*

#### *Procedure*

A trained assessor (M.O'C.), blind to the patients' treatment condition, conducted the assessment interviews. All interviews were tape-recorded. The first assessment interview immediately followed the preliminary diagnostic assessment described above. Subsequent assessment interviews took place at the end of treatment, and after 4-, 8- and 12-month follow-up. To maximize compliance patients' travelling expenses were paid for the follow-up interviews. The follow-up interviews did not involve further treatment from the therapists.

#### *Measures*

*Specific psychopathology.* A semi-structured pre-coded interview was used as the principal measure of specific psychopathology. The interview focused on the preceding 4 weeks. Standard probe questions and definitions were used. Replies were coded during the interview. The principal behavioural items concerned the frequency of episodes of bulimia, self-induced vomiting and purgative use. Further details of the interview and its reliability have been provided elsewhere (Fairburn and Cooper, 1984a). Patients also completed the self-report Eating Attitudes Test (EAT), a measure of disturbed eating habits and concerns about food, eating, body weight and shape (Garner and Garfinkel, 1979; Garner, Olmsted, Bohr and Garfinkel, 1982).

*General psychopathology.* The following measures were used.

(i) *The Present State Examination (PSE; Wing, Cooper and Sartorius, 1974)*, a standardized psychiatric interview which provides a detailed description of mental state in terms of symptoms and syndromes.

(ii) *The Montgomery and Asberg Depression Rating Scale (MADRS; Montgomery and Asberg, 1979)*, an interview measure of depressive symptoms which is sensitive to change. In view of the difficulty assessing the appetite of patients with bulimia nervosa, the MADRS item 'reduced appetite' was omitted, and the MADRS total score was correspondingly adjusted by prorating. The reliability of the MADRS and PSE interviews was high and has been reported in detail elsewhere (Cooper and Fairburn, 1986).

*Social adjustment.* The British adaptation (Cooper, Osborn, Gath and Feggetter, 1982) of the self-report Social Adjustment Scale (SAS) of Weissman and Bothwell (1976) was used. This measure provides an assessment of social functioning in a wide range of role areas.

*Suitability, expectancy and 'subjective outcome'.* Each patient rated the suitability of the treatment on a 4-point scale (1, not at all suitable; 2, slightly; 3, moderately; 4, markedly suitable) before treatment, after eight sessions and at the end of treatment. The patients' expectations of improvement were also rated on a similar 4-point scale both before treatment and after 8 sessions. At the end of treatment and at each follow-up assessment patients rated on equivalent scales the extent to which they regarded themselves as having an eating problem or other psychological difficulties.

*Global clinical state.* A means of quantifying the patients' overall state was devised using a clinically determined scheme similar to that of Garfinkel, Moldofsky and Garner (1977). The resulting 'global clinical score' was based upon the patients' level of specific and general psychopathology and on their social adjustment. Details of the measure are given in the Appendix. Out of a maximum score of 15 points, the specific psychopathology contributes a possible 8 points, and general psychopathology and social adjustment a possible 7 points.

### *Treatments*

The two treatments were conducted on an outpatient basis. Treatment sessions were twice weekly for the first month, weekly for the following 2 months and fortnightly during the final 6 weeks (i.e. 19 sessions over 18 weeks). The therapists followed detailed treatment manuals which specified the conduct and content of the treatment. All interviews were tape-recorded.

*Cognitive behaviour therapy (CBT)*

This treatment was specifically designed for patients with bulimia nervosa. Previous reports have described in outline the treatment procedure (Fairburn, 1981, 1984) and a version of the manual used in this study has been published (Fairburn, 1985b). The treatment is semi-structured, problem oriented and primarily concerned with the patient's present and future rather than his or her past. It is an active treatment with responsibility for change residing with the patient. The therapist provides information, advice, support and encouragement. Three stages in the treatment may be distinguished. In the first stage (Weeks 1–4, Appointments 1–8), the main emphasis is on establishing some degree of control over eating using largely behavioural techniques. These include self-monitoring, the prescription of a pattern of regular eating and stimulus control measures similar to those used in behavioural treatments for obesity. In addition, patients are provided with information about body weight regulation, dieting and the adverse effects of using self-induced vomiting or purgatives as means of weight control. The second stage (Weeks 5–12, Appointments 9–16) is more cognitively oriented. It includes strategies designed to reduce the tendency to diet, training in problem-solving and cognitive restructuring procedures. The final stage (Weeks 13–18, Appointments 17–19) is largely concerned with the maintenance of progress following the end of treatment. It focuses on measures designed to reduce the risk of relapse.

*Short-term focal psychotherapy (STP)*

The comparison treatment was designed specifically for this study and was intended to be as credible as the cognitive behavioural treatment. It was modelled on Rosen's method of structured brief psychotherapy (Rosen, 1979) and adapted to suit patients with bulimia nervosa. The adaptations were primarily based on Bruch's writings about psychotherapy with patients with anorexia nervosa (Bruch, 1973) and on Stunkard's psychotherapeutic approach to the treatment of overweight people who binge-eat (Stunkard, 1976, 1980). Central to the treatment was the notion that eating problems constitute a maladaptive solution for other 'underlying difficulties'. The major aim was to help patients identify such difficulties and to understand how the eating problem had served to disguise and, in some instances, to perpetuate them. There were four main adaptations to Rosen's method. First, particular attention was paid to the events and feelings which provoke episodes of overeating. According to Stunkard, bulimic episodes can serve as markers of difficulties which might otherwise remain undetected. To facilitate recall and discussion of such episodes, patients were asked to record their eating habits and the circumstances under which overeating occurred. Second, the therapists adopted Bruch's fact-finding non-interpretative style of psychotherapy in which particular emphasis is placed upon helping patients recognize and develop confidence in their own opinions, feelings and needs. Third, information was given on body weight regulation, dieting and the adverse effects of using self-induced vomiting or purgatives as means

Table 1. Comparison of the two forms of treatment

| <i>Features in common</i>                                                               |     |     |
|-----------------------------------------------------------------------------------------|-----|-----|
| Treatment structure (i.e. number and frequency of treatment sessions)                   |     |     |
| Provision of a coherent treatment rationale and instillation of hope                    |     |     |
| Monitoring of eating habits                                                             |     |     |
| Provision of information relevant to bulimia nervosa                                    |     |     |
| Examination of circumstances under which overeating occurred                            |     |     |
| <i>Distinctive features</i>                                                             |     |     |
|                                                                                         | CBT | STP |
| Behavioural techniques designed to modify eating habits                                 | +++ | —   |
| Behavioural and cognitive techniques designed to modify concerns about shape and weight | +++ | —   |
| Training in problem-solving                                                             | +++ | —   |
| Exploration of the origins of the eating problem                                        | +   | +++ |
| Examination of background maintaining factors                                           | +   | +++ |
| Emphasis upon termination as a 'loss'                                                   | —   | +++ |
| Preparation for difficulties in the future                                              | +++ | +   |

of weight control. Lastly, the treatment was structured so that STP matched CBT both in intensity and duration.

In the first stage of this treatment (Weeks 1–4, Appointments 1–8) ‘underlying difficulties’ were identified both from a detailed review of the patient’s past and from examination of the circumstances under which overeating tended to occur. Once identified, such problems then became the focus of treatment. Their influence over the patient’s life was examined and possible means of change were explored. Towards the end of treatment (Appointment 15 onwards), when the subject of termination became a major additional issue, the therapists attempted to instil hope for the future. With the exception of the self-monitoring of eating habits, none of the specific behavioural or cognitive techniques used in the cognitive behavioural treatment were employed.

The characteristics of the two treatments are compared in Table 1.

#### *Therapists*

One therapist was a senior clinical psychologist (J.K.) and the other was a senior psychiatrist (C.G.F.). Both had experience using both forms of treatment. The therapists met regularly to review the progress of the study and to discuss problems implementing the two forms of treatment. The tape-recordings of the treatment interviews were used for this purpose.

#### *Statistical Analyses*

Since the data on the frequency of bulimic episodes and vomiting did not meet the assumptions underlying parametric tests, they were analysed using non-parametric statistical procedures. The Mann–Whitney *U*-test was used to compare the two treatment groups, and to assess within-group changes the Wilcoxon matched-paired signed-ranks test was employed. To reduce the influence of the wide range in the pre-treatment frequencies of bulimic episodes and vomiting (bulimic episodes, range 6–100 episodes over the preceding 4 weeks; self-induced vomiting, range 7–249 episodes), percentage change scores were used for these computations. All other variables were analysed using two sets of parametric statistical tests. First, in order to examine the immediate effects of treatment, a 2 (treatment group)  $\times$  2 (time) analysis of variance (ANOVA) was conducted for each dependent variable with repeated measures on the second factor (i.e. before and after treatment). Second, to assess the relative maintenance of treatment effects in the two groups, a 2 (treatment group)  $\times$  4 (time—end of treatment, and 4-, 8- and 12-month follow-up) analysis of covariance (ANCOVA) was computed for each dependent variable with the pre-treatment level of the dependent variable used as the covariate.

### RESULTS

Forty-six patients were referred for possible inclusion in the trial. Thirty-five patients fulfilled our operational diagnostic criteria for bulimia nervosa as well as the DSM-III criteria for the syndrome bulimia (APA, 1980). The characteristics of these 35 patients have been described in full elsewhere (Fairburn and Cooper, 1984a). Eleven of these patients were excluded since they were not available either for the full course of treatment or for follow-up. None of the other exclusion criteria applied. The remaining 24 patients were entered into the study.

#### *Characteristics of the Patients*

The mean age of the 24 patients was 22.9 yr ( $SD = 4.4$ ) and 5 were married. They had grossly disturbed eating habits: 11 (46%) experienced bulimic episodes at least once a day and 18 (75%) vomited this often. Their mean age at the onset of bulimic episodes and of self-induced vomiting was 20.0 yr ( $SD = 4.2$ ) and 19.5 yr ( $SD = 3.4$ ), respectively. In almost every case the disorder had persisted virtually uninterrupted since its onset.

The weight of the majority of patients was within the normal range (mean weight = 96.9% MPMW,  $SD = 9.4$ ) although, as is characteristic of patients with bulimia nervosa, a history of weight disturbance was common. The mean lowest weight since menarche was 82.7% MPMW ( $SD = 12.2$ ) and the mean highest weight was 113.0% MPMW ( $SD = 13.8$ ). The severity of the patients’ eating problems was evident in their high score on the EAT (mean score = 48.8,  $SD = 17.8$ ) and their low desired weight (mean desired weight = 86.6% MPMW,  $SD = 6.6$ ).

Only 5 of the patients had not received psychiatric treatment in the past. Nine had received treatment for anorexia nervosa and a further 3 had been treated for bulimia nervosa, 6 patients had received treatment for depressive symptoms. Other psychiatric problems included frequent panic attacks, disabling pre-examination anxiety and total sexual unresponsiveness. Eleven of the patients had received some form of psychotherapy. None of the patients had a history of alcohol or drug-related problems.

The mean total score of the patients on the PSE (i.e. the mean aggregate of the symptom scores) was 22.4 (SD = 9.0) which is almost identical to that of a local outpatient sample of patients with major depressive disorder (mean score = 22.5, SD = 7.2) (Cooper and Fairburn, 1986). Nineteen patients (79%) had a PSE Index of Definition (ID) of  $\geq 5$  and were therefore 'PSE cases' (Wing, Mann, Leff and Nixon, 1978). The mean score on the MADRS was high at 26.5 (SD = 8.3). Again, this score is almost identical to that of the sample of patients with major depressive disorder (mean score = 26.1, SD = 6.3).

The patients were divided into the two treatment groups using the form of restricted randomization described earlier. On the great majority of variables there were no differences between the groups at the 5 or 10% levels. However, compared with the STP group, the CBT patients were younger ( $P < 0.05$ ) and somewhat heavier ( $P < 0.1$ ).

#### *Overall progress of the patients*

None of the 24 patients dropped out of treatment or follow-up, although 2 patients had to be withdrawn on clinical grounds. Not one of the remaining 22 patients received further help from any source for their eating problem or for other psychological problems, either during treatment or during the 12-month follow-up period.

One of the two patients who were withdrawn had received 8 CBT sessions. During this period she became profoundly depressed and suicidal. The intensity of her depressive symptoms and, in particular, her poor concentration, made treatment increasingly difficult. She was admitted to a psychiatric hospital because continuing outpatient treatment became neither practicable nor clinically appropriate. The other patient was withdrawn after 15 STP sessions. Treatment was discontinued because of the unremitting severity of her purgative abuse (up to 60 Nylax<sup>®</sup> daily) and because of associated physical complications. She was subsequently admitted to a psychiatric hospital in London where she made limited progress.

The following within-group and between-group analyses were conducted on the data from the 22 patients who completed the 19 weeks of treatment and 12-month follow-up. The omission of the 2 patients who were withdrawn had no significant effect on the pre-treatment group comparison reported above.

#### *Suitability, Expectancy and Conduct of Treatment*

Both treatments were acceptable to the patients. The suitability of treatment was rated by the patients before treatment, after 8 sessions and at the end of treatment and, with only two exceptions, treatment was rated as 'moderately' or 'markedly' suitable. There were no differences between the two groups in these ratings. The patients' expectations of improvement were equivalently high and again there were no differences between the two treatment groups. Both at the beginning of treatment after 8 sessions, all but 2 patients expected to be very much better by the end.

An independent assessor (P.J.C.) rated tape-recordings of a sample of 12 treatment interviews. These consisted of 6 CBT sessions and 6 STP sessions, half of which were conducted by one therapist and half by the other. In every case the type of treatment was correctly identified. An analysis of their content indicated that the two treatments differed in the expected direction in terms of the provision of behavioural instructions and the use of cognitive procedures, as well as with regard to the exploration of the origins of the eating problem and the examination of background maintaining factors.

#### *Global Clinical State*

In both treatment groups there was a decrease in the mean global clinical score reflecting an improvement in overall clinical state (see Fig. 1 and Table 2). An ANOVA revealed a significant

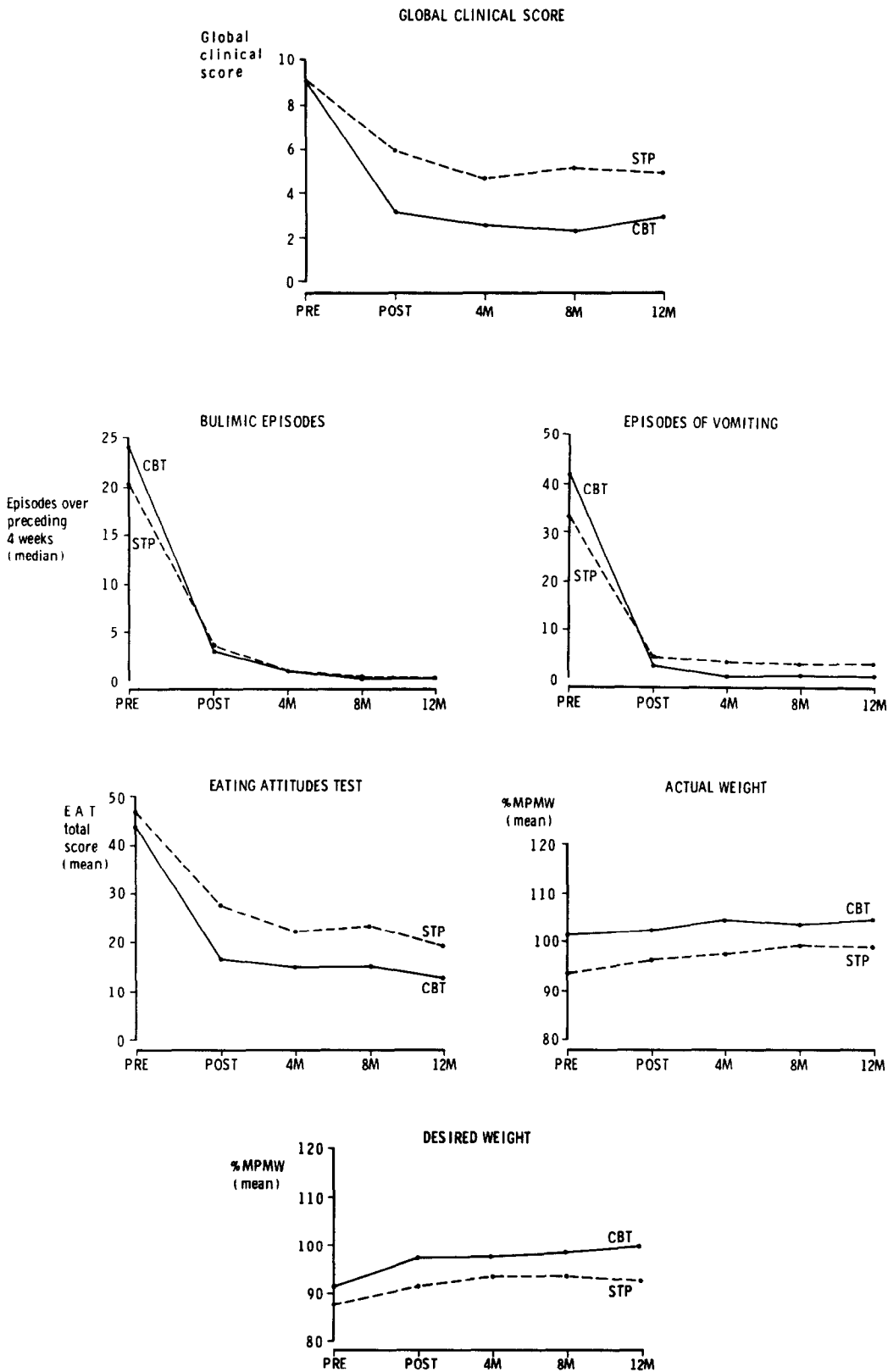


Fig. 1. Changes in global clinical score and various aspects of specific psychopathology during treatment and follow-up in patients treated with CBT or STP.

Table 2. Measures (mean and SDs) of psychopathology in the two treatment groups before and after treatment and during follow-up ( $n = 11$  for both treatment groups)

| Measure                            |     | Treatment    |              | Follow-up (in months) |              |             |
|------------------------------------|-----|--------------|--------------|-----------------------|--------------|-------------|
|                                    |     | Pre          | Post         | 4                     | 8            | 12          |
| <i>Global clinical score</i>       | CBT | 9.1 (2.5)    | 3.1 (2.6)    | 2.6 (2.3)             | 2.2 (1.7)    | 2.5 (1.8)   |
|                                    | STP | 9.1 (2.6)    | 5.9 (3.1)    | 4.6 (4.1)             | 5.1 (3.4)    | 4.9 (3.6)   |
| <i>Specific psychopathology</i>    |     |              |              |                       |              |             |
| Frequency of bulimic episodes*     | CBT | 24           | 3            | 1                     | 0            | 0           |
|                                    | STP | 20           | 4            | 1                     | 0            | 0           |
| Frequency of episodes of vomiting* | CBT | 42           | 3            | 0                     | 0            | 0           |
|                                    | STP | 33           | 4            | 3                     | 3            | 3           |
| EAT total score                    | CBT | 44.0 (13.5)  | 16.9 (9.9)   | 15.0 (7.0)            | 15.1 (10.3)  | 12.7 (7.8)  |
|                                    | STP | 46.7 (18.3)  | 28.7 (17.2)  | 22.2 (17.1)           | 23.6 (15.7)  | 19.5 (13.8) |
| Actual weight (%MPMW)              | CBT | 101.4 (10.4) | 102.4 (11.3) | 104.4 (11.2)          | 103.5 (11.7) | 104.6 (9.7) |
|                                    | STP | 93.6 (6.8)   | 96.1 (7.3)   | 97.2 (6.5)            | 99.0 (7.2)   | 98.9 (7.2)  |
| Desired weight (%MPMW)             | CBT | 91.6 (5.9)   | 97.2 (7.5)   | 97.6 (6.5)            | 98.3 (9.4)   | 99.9 (10.1) |
|                                    | STP | 87.5 (6.0)   | 91.7 (5.9)   | 93.1 (5.4)            | 93.4 (5.1)   | 92.3 (6.0)  |
| <i>General psychopathology</i>     |     |              |              |                       |              |             |
| PSE total symptom score            | CBT | 21.2 (9.0)   | 6.9 (6.7)    | 5.5 (3.3)             | 5.2 (3.9)    | 4.8 (4.3)   |
|                                    | STP | 22.8 (9.6)   | 12.8 (8.0)   | 11.9 (10.0)           | 13.1 (9.0)   | 11.2 (15.4) |
| MADRS total score                  | CBT | 25.8 (8.1)   | 11.5 (5.9)   | 9.6 (3.7)             | 8.8 (5.7)    | 9.2 (7.2)   |
|                                    | STP | 26.2 (8.6)   | 16.7 (8.4)   | 14.5 (10.5)           | 17.9 (8.7)   | 17.6 (7.0)  |
| <i>Social adjustment</i>           |     |              |              |                       |              |             |
| SAS-M overall role area score      | CBT | 2.5 (0.5)    | 1.9 (0.3)    | 1.8 (0.2)             | 1.7 (0.4)    | 1.9 (0.5)   |
|                                    | STP | 2.5 (0.6)    | 2.1 (0.6)    | 2.0 (0.5)             | 2.1 (0.6)    | 2.1 (0.6)   |

\*Median frequency over preceding 4 weeks.

main effect of time [ $F(1, 20) = 63.7$ ,  $P < 0.0001$ ] but not of treatment group, as well as a significant interaction effect between treatment group and time [ $F(1, 20) = 6.0$ ,  $P < 0.03$ ]. The source of interaction was examined using Tukey honestly significant difference tests: these showed that both groups improved significantly ( $P < 0.01$ ); and, although the two groups did not differ prior to treatment, they were different after treatment ( $P < 0.05$ ) with the CBT group having significantly lower scores. An ANCOVA showed a significant main effect of treatment group [ $F(1, 19) = 6.8$ ,  $P < 0.02$ ], but no significant time or interaction effects, indicating that the significant difference between the two treatment groups was maintained throughout the period of follow-up.

### *Specific psychopathology*

Both forms of treatment resulted in a substantial decrease in the level of specific psychopathology and this improvement persisted throughout the 12-month follow-up period (see Fig. 1 and Table 2). The frequency of bulimic episodes and self-induced vomiting decreased significantly with both CBT and STP ( $P < 0.005$ ) and this improvement was sustained throughout follow-up. Only one difference was found between the two treatment groups, either at the end of treatment or at any stage during follow-up: at 8-month follow-up the patients in the CBT group had experienced a significantly greater reduction in their frequency of vomiting than those in the STP group ( $P < 0.05$ ).

The improvement in the specific psychopathology was more extensive than a simple decrease in the frequency of bulimic episodes and vomiting. For example, an ANOVA on the EAT revealed a significant main effect of time [ $F(1, 20) = 74.6$ ,  $P < 0.0001$ ] but not of treatment group nor was there an interaction between the two. This indicates that patients in both treatment groups improved significantly but there was no difference between the two conditions. An ANCOVA also revealed a main effect of time [ $F(3, 60) = 3.2$ ,  $P < 0.03$ ] which shows that both groups improved even further during the period of follow-up. Throughout follow-up there was a tendency for patients who received CBT to have lower scores on the EAT than those who received STP [ $F(1, 19) = 2.6$ ,  $P = 0.12$ ]. There was no interaction effect indicating that the temporal pattern of changes was similar in both groups. With regard to body weight (%MPMW), both treatments resulted in a statistically significant increase [ $F(1, 20) = 6.9$ ,  $P < 0.02$ ], but there were no group or interaction effects. An ANCOVA showed that in both treatment groups the increase in weight continued throughout the 12-month follow-up period [ $F(3, 60) = 3.1$ ,  $P < 0.04$ ]. Again there were no group or interaction effects. The actual amount of weight gained by the patients over the entire period of treatment and follow-up was modest in clinical terms (mean increase = 1.8 kg, SD = 3.0

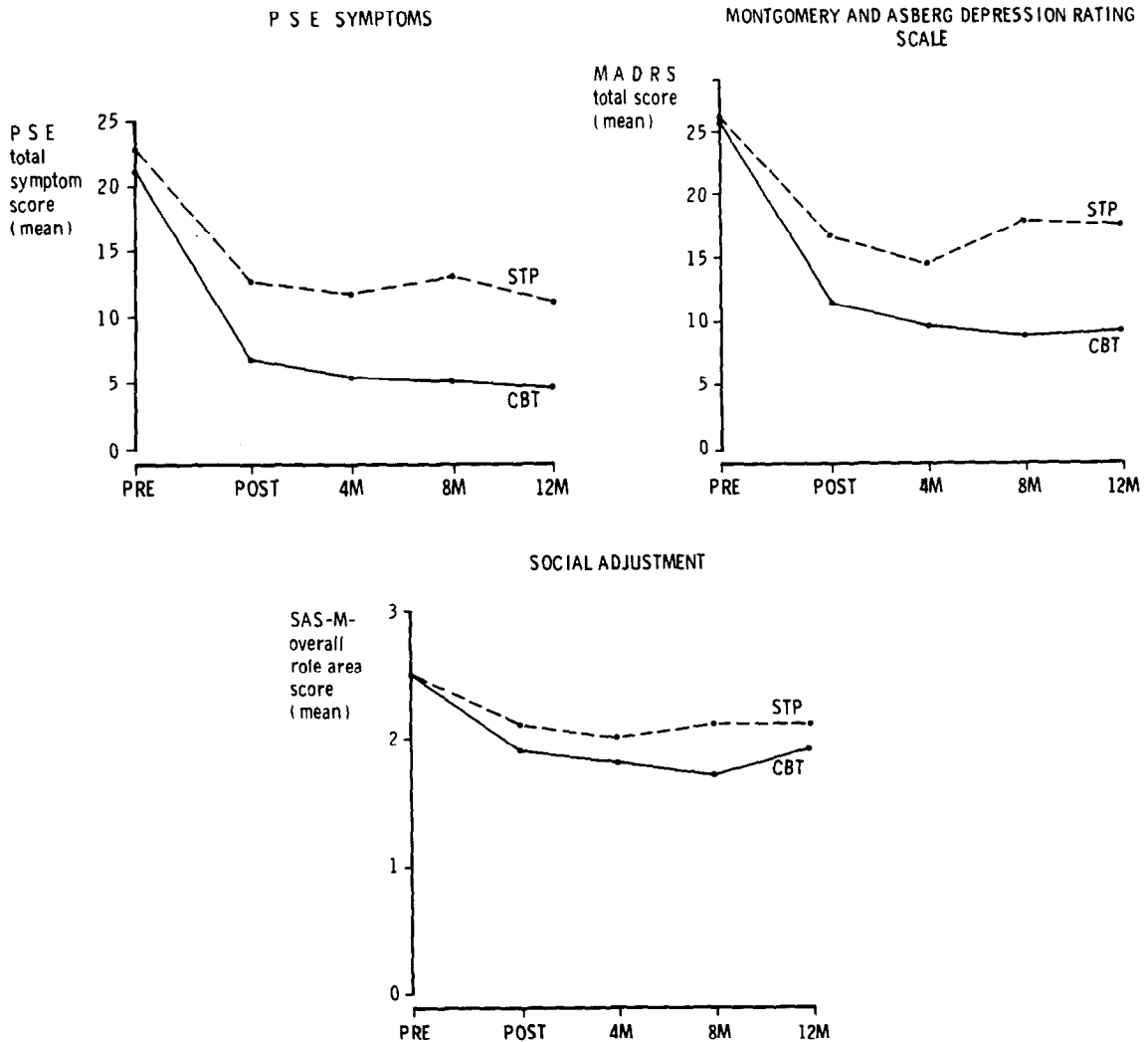


Fig. 2. Changes in general psychopathology and social adjustment during treatment and follow-up in patients treated with CBT or STP.

for CBT patients; 3.2 kg,  $SD = 3.1$  for STP patients). The desired weight of the two treatment groups increased significantly during treatment [ $F(1, 20) = 28.7$ ,  $P < 0.0001$ ], but there was no difference between the two groups. An ANCOVA showed that the increase in desired weight was maintained to similar extent in both groups.

#### General psychopathology and social adjustment

Both treatments also resulted in a substantial decrease in the level of general psychopathology (see Table 2 and Fig. 2). With regard to total scores on the PSE and MADRS, an ANOVA revealed significant time effects [ $F(1, 20) = 48.4$ ,  $P < 0.0001$ , and  $F(1, 20) = 37.0$ ,  $P < 0.0001$ , respectively], but no group or interaction effects indicating that both treatment groups improved significantly but there was no difference between them. An ANCOVA for both variables with the pre-treatment levels as covariates revealed treatment group main effects [ $F(1, 18) = 4.8$ ,  $P < 0.05$ , and  $F(1, 17) = 5.9$ ,  $P < 0.03$ , respectively], but no effects of time or any interaction effects. Thus these data show that, compared with those who received STP, patients who received CBT had throughout the period of follow-up both lower levels of general psychopathology and lower levels of depression, as reflected by their scores on the PSE and MADRS respectively.

The changes in the two groups' social adjustment resembled the changes in general psychopathology. An ANOVA revealed a significant time effect [ $F(1, 20) = 26.5$ ,  $P < 0.0001$ ] but no group

Table 3. 'Subjective outcome' of the patients in the two treatment groups (see the text for derivation of categories)

| 'Subjective outcome' | Good | Moderate | Mediocre | Poor |
|----------------------|------|----------|----------|------|
| CBT ( <i>n</i> = 11) | 4    | 6        | 1        | 0    |
| STP ( <i>n</i> = 11) | 3    | 3        | 2        | 3    |
| Total patient group  | 7    | 9        | 3        | 3    |

or interaction effects indicating that patients in the two treatment groups improved to an equivalent degree. An ANCOVA showed no time or interaction effects but a tendency for a significant group effect [ $F(1, 16) = 3.8$ ,  $P < 0.07$ ], showing that during follow-up the social adjustment of CBT patients tended to be better than that of the STP patients.

### *Subjective Outcome*

The patients' own perception of their outcome was assessed. Patients were asked by the independent assessor whether they considered themselves as having an 'eating problem' (undefined) and on the basis of their replies to questioning were categorized as having 'no eating problem', a 'mild eating problem' (i.e. some difficulties, but not interfering with day-to-day life), 'a moderate eating problem' (i.e. definite difficulties, slightly interfering with day-to-day life) or 'a severe eating problem' (i.e. marked difficulties, definitely interfering with day-to-day life). A similar rating scheme was used to assess the patients' views on whether they had 'other psychological problems' (also undefined). Patients were classed as being in a satisfactory state if they fell into one of the two milder categories, both with regard to having an eating problem and to having other psychological problems. The patients' state at each of the three follow-up assessment interviews was then used to categorize them into one of four outcome groups: a 'good' outcome group in which they were classed as being in a satisfactory state on all three occasions; a 'moderate' outcome group in which they fulfilled these criteria on two occasions; a 'mediocre' group in which these criteria were fulfilled on just one occasion; and a 'poor' outcome group in which these criteria were not fulfilled on any one of the three occasions. Thus this categorization of outcome is based on the patients' subjective state over the entire 12-month follow-up period. Table 3 shows the distribution of the patients amongst these four outcome categories. There is a trend which suggests that the two groups differed in their subjective rating of outcome. Whereas 10 of the 11 CBT patients consistently viewed themselves either as having no eating problem or other psychological problems, or as only having minor problems which were not of sufficient severity to interfere with everyday life (i.e. a 'good' or 'moderate' outcome), only 6 of the 11 STP patients did so [Fisher's exact test (two-tailed)  $P = 0.15$ ].

### *Other Changes*

#### *Rumination and spitting*

Prior to treatment two patients reported regularly regurgitating food which would then be chewed. In addition, another two repeatedly spat out food to avoid absorbing it. With the exception of one patient in whom rumination persisted unchanged, these practices ceased by the end of treatment and remained absent during follow-up.

#### *Menstruation*

It was only possible to assess the menstrual function of 6 of the patients who completed treatment since the remainder took oral contraceptives at some stage during the 16 months of the study. Prior to treatment 5 of these 6 patients reported having disturbed menstrual function, the most common problem being highly irregular menstruation. By the end of treatment the menstrual disturbance of these 5 patients had lessened in severity and at 12-month follow-up all 5 reported having normal regular menstrual periods. These patients were not underweight prior to treatment (mean weight = 105.8% MPMW) and they gained little weight during the entire period of the study (mean weight gain = 2.0 kg). This suggests that their disturbed menstrual function was not weight-related, but instead was secondary to some other aspect of the disorder.

## DISCUSSION

Undoubtedly the most striking finding of the study is that both groups improved substantially in response to these relatively brief forms of treatment. The improvement was evident in all aspects of the patients' functioning including their specific and general psychopathology and their level of social adjustment, and it was maintained over the 12-month treatment-free follow-up period.

Certain differences between the two groups existed prior to treatment: in particular, the CBT group were younger and slightly heavier. Careful inspection of the data within each treatment group suggests that neither age nor pre-treatment weight had a discernible effect on outcome. Furthermore, when the effects of age and weight were statistically controlled for by computing partial correlations, the relationships between the treatment groups and each of the dependent variables did not substantially change. Thus the differences observed between the two treatment groups may be attributed to the distinctive properties of the two treatments themselves.

Comparison of the two treatment groups indicates that whilst both treatments had a dramatic effect on the specific psychopathology of the disorder, and especially on the frequency of bulimic episodes and of vomiting; on measures of overall clinical state, general psychopathology, social adjustment and subjective state, patients in the CBT group improved to a greater degree than those who received STP. Indeed, the overall outcome of patients in the CBT group was most impressive: few of the patients experienced episodes of bulimia or vomiting; their mean score on the EAT was similar to that of women in the community; their level of neurotic symptoms in general and depressive symptoms in particular was low; none were 'cases' on the PSE; all but one consistently rated themselves during the period of follow-up either as having no eating problem or other psychological problems, or as having minor problems which were not of sufficient severity to interfere with everyday life; and none thought they needed further help. These data support the findings of the earlier uncontrolled study of this treatment (Fairburn, 1981), thereby lending weight to the suggestion that this is one way of helping many patients with this disorder.

In interpreting the findings of this study certain methodological issues need to be considered. First, the mode of recruitment ensured that the patients studied are likely to be representative of those seen by general psychiatrists in Britain. Referral was by local general practitioners and psychiatrists and, unlike many other studies of the treatment of bulimia nervosa, there was neither the soliciting of 'patients' by advertisement, nor the acceptance of referrals from outside the catchment area of the hospital. It is also worth noting that there was no requirement that patients consent in advance to obey certain preconditions, for example, abstinence from binge-eating and vomiting. As a result, two-thirds of the referred patients who fulfilled our operational definition of bulimia nervosa actually entered the study. The only exclusion criterion which had to be applied was not being available either for the full course of treatment or for follow-up. The patients thus selected were similar in their clinical and demographic characteristics to patient series reported elsewhere (e.g. Pyle, Mitchell and Eckert, 1981; Herzog, 1982; Mitchell, Hatsukami, Eckert and Pyle, 1985b). They could not be considered a 'mild' group given the severity of their psychopathology and the fact that all but 5 had previously received psychiatric treatment.

A second methodological point concerns assessment. Bulimia nervosa is a complex condition with many different facets. Given the broad range of its psychopathology, it is surprising that so few aspects of the disorder have been assessed in studies of its treatment. In this study an attempt was made to measure the multiple features of the disorder using standardized instruments whenever possible. This allowed important group differences to be detected in general psychopathology and social adjustment, in addition to the changes in specific psychopathology. It is relevant that preference was given to interview measures since several central features of bulimia nervosa are variable in form. For example, bulimic episodes usually become attenuated during the course of treatment but are consistently labelled by patients as 'binges'. Interview measures which employ standard definitions are able to detect subtle changes of this kind.

A third methodological point concerns the psychological treatments themselves. These were carefully defined. The treatments were matched in terms of their duration and the frequency of therapy sessions, and they were applied in a standard fashion. Treatment manuals specified the strategies and techniques to be used and an analysis of a sample of tape-recordings of therapy sessions confirmed that these rules were followed. Thus the shared and distinctive features of the two treatments actually received by the patients are known (see Table 1). It should also be noted

that both treatments were rated by the patients as being highly suitable and that the two patient groups' expectations of improvement were equally high. The fact that none of the patients dropped out also indicates that the two treatments were credible.

The design did not include either a waiting-list or an attention-placebo control group since the principal clinical report on bulimia nervosa suggested that it was resistant to most forms of treatment (Russell, 1979); and our own clinical experience was that patients did not improve without specific treatment. With one exception, the recent studies which have included a waiting-list control group (Lacey, 1983; Ordman and Kirschenbaum, 1985) or treatment with placebo (Pope *et al.*, 1983; Sabine *et al.*, 1983; Walsh *et al.*, 1984; Hughes *et al.*, 1986) have found that patients in these groups improve to a limited extent, if at all. The exception is the study by Mitchell and Groat (1984) which found that there were some improvements in the eating habits of a group of patients treated with an inert placebo drug. However, these improvements were not substantial; they were in the short-term (8 weeks); and behavioural techniques were used in conjunction with the placebo. Thus current research evidence supports the omission of a waiting list or an attention-placebo control group.

The nature of the follow-up period also merits comment. Additional treatment during follow-up has confounded the interpretation of several studies of the treatment of bulimia nervosa. In contrast, none of the patients in this study received additional psychiatric or psychological treatment from any source, either during the treatment phase or during the 12-month follow-up period. Thus it is possible to draw conclusions about the maintenance of change.

The study has one major limitation, its sample size. The number of patients in each treatment group was small and this necessarily limits the conclusions that can be drawn. In particular, the sample size was not sufficiently large to ensure that clinically important differences would be detected. Thus, in comparing the two treatment groups, it is not possible to interpret non-significant differences. Instead it is only appropriate to base conclusions upon the statistically significant findings.

Certain specific findings merit comment. First, whilst it was expected that patients in the STP group would show an improvement in their level of general psychopathology and social adjustment, the marked change in their eating habits was not predicted. Rather than being due to what are sometimes termed 'non-specific' therapeutic factors common to many psychological forms of treatment, this change may have been the product of two elements specific to this particular form of focal psychotherapy, namely the provision of information about the disorder and the self-monitoring of eating habits. Educating these patients about body weight regulation, dieting and the adverse consequences of using vomiting or purgatives as means of weight control may have encouraged them to change. In addition, it is well-established that self-monitoring promotes behaviour change (Nelson, 1977). To clarify the contribution of these two elements, a modified form of this treatment needs to be studied from which these components have been excluded.

The superior effect of CBT on the general psychopathology and social adjustment of these patients is both of theoretical interest and clinical importance, particularly since this effect was maintained throughout the 12-month follow-up period. It is unlikely to have been secondary to the treatment's effect on eating habits since these improved substantially in both groups, although it must be noted that during follow-up more patients from the CBT group regarded themselves as being free from eating problems. It also cannot be attributed to the use of cognitive techniques to modify depressive thinking since the cognitive procedures were focused exclusively on the modification of these patients' extreme concerns about shape and weight. One possible explanation concerns the emphasis in CBT on *self-control* and on the acquisition of new skills such as problem-solving. Patients in the CBT group may have developed a greater sense of being able to control their behaviour and, since loss of control was their usual presenting complaint, the resulting sense of mastery may have been particularly potent in lessening their degree of psychological disturbance. In addition, by providing patients with a practical means for coping with difficulties which in the past would have been a source of distress and in many instances the precipitant of a bulimic episode, the training in problem-solving may have contributed importantly to the maintenance of the improvement in their psychiatric state. The measures designed to prevent relapse also may have had a similar effect.

Certain findings of the study are of general interest with regard to bulimia nervosa and its

treatment. First, as in the earlier study of CBT (Fairburn, 1981), it was found that clinical improvement does not necessitate weight gain. There is a substantial body of evidence suggesting that people with bulimia nervosa may be prone to be overweight (Fairburn and Cooper, 1982, 1984a, b; Garner, 1985; Garner, Garfinkel and O'Shaughnessy, 1983; Garner, Olmsted and Garfinkel, 1985a; Russell, 1979). Thus, whilst they may have a normal weight according to population norms, they may be maintaining their weight significantly below its 'natural' level. These considerations have led some clinicians to suggest that, like patients with anorexia nervosa, patients with bulimia nervosa need to gain weight, even if this means attaining an above average weight (Garner, 1985; Garner, Rockert, Olmsted, Johnson and Coscina, 1985b; Russell, 1979, 1983). The findings of this study do not support this view. Despite the impressive improvement in the eating habits of most of the patients the amount of weight gained was small. Thus it does not seem appropriate for those treating patients with bulimia nervosa to argue that weight gain is necessary for recovery. Indeed, most patients with bulimia nervosa can be reassured that, although some increase in weight usually occurs, the amount of weight gained is small. A second point of general interest concerns the depressive symptoms of these patients. It is clear from this study that in most cases these symptoms respond to psychological forms of treatment. In only one case was it judged necessary to direct treatment at the depressive symptoms themselves and this patient had to be withdrawn from the study. Thus, whilst depressive symptoms are undoubtedly a prominent feature of bulimia nervosa (Cooper and Fairburn, 1986), they do not necessarily require treatment in their own right.

Certain other findings are relevant to the general management of the disorder. First, it is confirmed that most patients can be managed on an outpatient basis. The indications for the hospitalization of these patients are limited (Fairburn, 1985a). Second, although these patients have a reputation for not complying with treatment (Russell, 1979), it is clear that this reputation is not necessarily justified. Third, it seems that relatively brief treatments of the type used in this study can benefit many of these patients and that often no additional treatment is necessary. In contrast some behavioural treatment programmes for bulimia nervosa are described as 'initial interventions', the implication being that further treatment will be required (Johnson *et al.*, 1983; Connors, Johnson and Stuckey, 1984; Mitchell *et al.*, 1985a). However, whilst the maintenance of change in both treatment groups was striking, it must be acknowledged that a 12-month period of follow-up is short in the context of a disorder of this type. For this reason the long-term outcome of these patients is being studied.

*Acknowledgements*—We are grateful to the general practitioners and psychiatrists who referred patients for inclusion in this study. We should also like to thank Professor Michael Gelder, Drs David Clark, Derek Johnston, Pavlos Anastasiades and Paul Salkovskis of the Oxford University Department of Psychiatry for their advice and encouragement. We are also indebted to Dr Klim McPherson of the Department of Social and Community Medicine for advising us on certain points concerning the analysis and interpretation of the data. This study was funded by a grant from the Medical Research Council. C. G. Fairburn is supported by a Senior Lectureship award from the Wellcome Trust. All correspondence should be addressed to C. G. Fairburn.

## REFERENCES

- APA; American Psychiatric Association (1980) *DSM-III: Diagnostic and Statistical Manual of Mental Disorders*, 3rd edn. APA, Washington, D.C.
- Bruch H. (1973) *Eating Disorders: Obesity, Anorexia Nervosa, and the Person Within*. Basic Books, New York.
- Connors M. E., Johnson C. L. and Stuckey M. K. (1984) Treatment of bulimia with brief psychoeducational group therapy. *Am. J. Psychiat.* **141**, 1512–1516.
- Cooper P. J. and Fairburn C. G. (1983) Binge-eating and self-induced vomiting in the community: a preliminary study. *Br. J. Psychiat.* **142**, 139–144.
- Cooper P. J. and Fairburn C. G. (1986) The depressive symptoms of bulimia nervosa. *Br. J. Psychiat.* **148**, 268–274.
- Cooper P. J., Osborn M., Gath D. and Feggetter G. (1982) Evaluation of a modified self-report measure of social adjustment. *Br. J. Psychiat.* **141**, 68–75.
- Fairburn C. G. (1981) A cognitive behavioural approach to the management of bulimia. *Psychol. Med.* **11**, 707–711.
- Fairburn C. G. (1984) Bulimia: its epidemiology and management. In *Eating and Its Disorders* (Edited by Stunkard A. J. and Stellar E.). Raven Press, New York.
- Fairburn C. G. (1985a) The management of bulimia. *J. psychiat. Res.* **19**, 465–472.
- Fairburn C. G. (1985b) Cognitive behavioural treatment for bulimia. In *Handbook of Psychotherapy for Anorexia Nervosa and Bulimia* (Edited by Garner D. M. and Garfinkel P. E.). Guilford Press, New York.
- Fairburn C. G. and Cooper P. J. (1982) Self-induced vomiting and bulimia nervosa: an undetected problem. *Br. med. J.* **284**, 1153–1155.

- Fairburn C. G. and Cooper P. J. (1984a) The clinical features of bulimia nervosa. *Br. J. Psychiat.* **144**, 238–246.
- Fairburn C. G. and Cooper P. J. (1984b) Binge-eating, self-induced vomiting and laxative abuse: a community study. *Psychol. Med.* **14**, 401–410.
- Fairburn C. G. and Garner D. M. (1986) The diagnosis of bulimia nervosa. *Int. J. Eat. Disord.* **5**, 403–419.
- Fairburn C. C., Cooper Z. and Cooper P. J. (1986) The clinical features and maintenance of bulimia nervosa. In *Physiology, Psychology and Treatment of the Eating Disorders* (Edited by Brownell K. D. and Foreyt J. P.). Basic Books, New York.
- Garfinkel P. E., Moldofsky H. and Garner D. M. (1977) The outcome of anorexia nervosa: significance of clinical features, body image and behaviour modification. In *Anorexia Nervosa* (Edited by Vigersky R. A.). Raven Press, New York.
- Garner D. M. (1985) Iatrogenesis in anorexia nervosa. *Int. J. Eat. Disord.* **4**, 701–726.
- Garner D. M. and Garfinkel P. E. (1979) The Eating Attitudes Test: an index of the symptoms of anorexia nervosa. *Psychol. Med.* **9**, 273–279.
- Garner D. M., Olmsted M. P., Bohr Y. and Garfinkel P. E. (1982) The Eating Attitudes Test: psychometric features and clinical correlates. *Psychol. Med.* **12**, 871–878.
- Garner D. M., Garfinkel P. E. and O'Shaughnessy M. (1983) Clinical and psychometric comparison between bulimia in anorexia nervosa and bulimia in normal-weight women. In *Understanding Anorexia Nervosa and Bulimia: Report of the Fourth Ross Conference on Medical Research*. Ross Labs, Columbus, Ohio.
- Garner D. M., Olmsted M. P. and Garfinkel P. E. (1985a) Similarities among bulimic groups selected by weight and weight history. *J. psychiat. Res.* **19**, 129–134.
- Garner D. M., Rockert W., Olmsted M. P., Johnson C. and Coscina D. V. (1985b) Psychoeducational principles in the treatment of bulimia and anorexia nervosa. In *Handbook of Psychotherapy for Anorexia Nervosa and Bulimia* (Edited by Garner D. M. and Garfinkel P. E.). Guilford Press, New York.
- Geigy (1962) Average weights of adults (*Build and Blood Pressure Study*). Society of Actuaries, Chicago, Ill., 1959). In *Documenta Geigy, Scientific Tables*. Geigy Pharmaceuticals, Manchester, Lancs.
- Giles T. R., Young R. R. and Young D. E. (1985) Behavioural treatment of severe bulimia. *Behav. Ther.* **16**, 393–405.
- Herzog D. B. (1982) Bulimia: the secretive syndrome. *Psychosomatics* **23**, 481–484.
- Hughes P. L., Wells L. A., Cunningham C. J. and Ilstrup D. M. (1986) Treating bulimia with desipramine: a double-blind placebo-controlled study. *Archs gen. Psychiat.* **43**, 182–186.
- Johnson C., Connors M. and Stuckey M. (1983) Short-term group treatment of bulimia: a preliminary report. *Int. J. Eat. Disord.* **2**, 199–208.
- Kirkley B. M., Schneider J. A., Agras W. S. and Bachman J. A. (1985) A comparison of two group treatments for bulimia. *J. consult. clin. Psychol.* **53**, 43–48.
- Lacey J. H. (1983) Bulimia nervosa, binge eating and psychogenic vomiting: a controlled treatment study and long outcome. *Br. med. J.* **286**, 1609–1613.
- Mitchell J. E. and Groat R. (1984) A placebo-controlled, double-blind trial of amitriptyline in bulimia. *J. clin. Psychopharmac.* **4**, 186–193.
- Mitchell J. E., Hatsukami D., Goff G., Pyle R. L., Eckert E. D. and Davis L. E. (1985a) Intensive outpatient group treatment for bulimia. In *Handbook of Psychotherapy for Anorexia Nervosa and Bulimia* (Edited by Garner D. M. and Garfinkel P. E.). Guilford Press, New York.
- Mitchell J. E., Hatsukami D., Eckert E. D. and Pyle R. L. (1985b) Characteristics of 275 patients with bulimia. *Am. J. Psychiat.* **142**, 482–485.
- Montgomery S. A. and Asberg M. (1979) A new depression scale designed to be sensitive to change. *Br. J. Psychiat.* **134**, 382–389.
- Nelson R. O. (1977) Methodological issues in assessment via self-monitoring. In *Behavioural Assessment: New Directions in Clinical Psychology* (Edited by Cone J. D. and Hawkins R. P.). Brunner/Mazel, New York.
- Ordman A. M. and Kirschenbaum D. S. (1985) Cognitive-behavioural therapy for bulimia: an initial outcome study. *J. consult. clin. Psychol.* **53**, 305–313.
- Pope H. G., Hudson J. I., Jonas J. M. and Yurgelun-Todd D. (1983) Bulimia treated with imipramine: a placebo-controlled, double-blind study. *Am. J. Psychiat.* **140**, 554–558.
- Pyle R. L., Mitchell J. E. and Eckert E. D. (1981) Bulimia: a report of 34 cases. *J. clin. Psychiat.* **42**, 60–64.
- Pyle R. L., Mitchell J. E., Eckert E. D., Halvorson P. A., Neuman P. A. and Goff G. M. (1983) The incidence of bulimia in freshmen college students. *Int. J. Eat. Disord.* **2**, 75–85.
- Rosen B. (1979) A method of structured brief psychotherapy. *Br. J. med. Psychol.* **52**, 157–162.
- Rosen J. C. and Leitenberg H. (1982) Bulimia nervosa: treatment with exposure and response prevention. *Behav. Ther.* **13**, 117–124.
- Rossiter E. M. and Wilson G. T. (1985) Cognitive restructuring and response prevention in the treatment of bulimia nervosa. *Behav. Res. Ther.* **23**, 349–359.
- Roy-Byrne P., Lee-Benner K. and Yager J. (1984) Group therapy for bulimia: a year's experience. *Int. J. Eat. Disord.* **3**, 97–116.
- Russell G. F. M. (1979) Bulimia nervosa: an ominous variant of anorexia nervosa. *Psychol. Med.* **9**, 429–448.
- Russell G. F. M. (1983) Anorexia nervosa and bulimia nervosa. In *Handbook of Psychiatry; Vol. 4, The Neuroses and Personality Disorders* (Edited by Russell G. F. M. and Hersov L.). Cambridge Univ. Press, Cambs.
- Sabine E. J., Yonace A., Farrington A. J., Barratt K. H. and Wakeling A. (1983) Bulimia nervosa: a placebo controlled double-blind therapeutic trial of mianserin. *Br. J. clin. Pharmac.* **15**, 195S–202S.
- Schneider J. A. and Agras W. S. (1985) A cognitive behavioural group treatment for bulimia. *Br. J. Psychiat.* **146**, 66–69.
- Stunkard A. J. (1976) *The Pain of Obesity*. Bull, Palo Alto, Calif.
- Stunkard A. J. (Ed.) (1980) Psychoanalysis and psychotherapy. In *Obesity*. Saunders, Philadelphia, Pa.
- Walsh B. T., Stewart J. W., Roose S. P., Gladis M. and Glassman A. H. (1984) Treatment of bulimia with phenelzine: a double-blind placebo-controlled study. *Archs gen. Psychiat.* **41**, 1105–1109.
- Weissman M. M. and Bothwell S. (1976) Assessment of social adjustment by patient self-report. *Archs gen. Psychiat.* **33**, 1111–1115.
- Wilson G. T. (1986) Cognitive-behavioural and pharmacological therapies for bulimia. In *Physiology, Psychology and Treatment of the Eating Disorders* (Edited by Brownell K. D. and Foreyt J. P.). Basic Books, New York.

- Wilson G. T., Rossiter E., Kleifield E. I. and Lindholm L. (1986) Cognitive-behavioural treatment of bulimia nervosa: a controlled evaluation. *Behav. Res. Ther.* **24**, 277-288.
- Wing J. K., Cooper J. E. and Sartorius N. (1974) *The Measurement and Classification of Psychiatric Symptoms*. Cambridge Univ. Press, Cambs.
- Wing J. K., Mann S. A., Leff J. P. and Nixon J. M. (1978) The concept of a 'case' in psychiatric population surveys. *Psychol. Med.* **8**, 203-217.

## APPENDIX

### *The Measure of 'Global Clinical State'*

This measure was based upon the patients' level of specific and general psychopathology and on their social adjustment. Out of a maximum score of 15 points, specific psychopathology contributed a possible 8 points, and general psychopathology and social adjustment a possible 7 points.

#### *Specific psychopathology*

##### (i) Severity of symptoms (based on the total score on the EAT)

- 0—EAT score 0-9
- 1—EAT score 10-19
- 2—EAT score 20-29
- 3—EAT score 30-39
- 4—EAT score 40-49
- 5—EAT score >49

##### (ii) Degree of weight disturbance (%MPMW)

- 0—90-109% MPMW
- 1—80-89% or 110-119% MPMW
- 2—75-79% or 120-125% MPMW
- 3—<75% or >125% MPMW

#### *General psychopathology*

##### Degree of psychiatric disturbance [based upon the PSE 'Index of Definition' (ID)]

- 0—ID 1 or 2
- 1—ID 3
- 2—ID 4
- 3—ID 5 (threshold disorders)
- 4—ID >5 (definite disorders)

#### *Social adjustment*

This rating was based upon the interviewer's assessment of the patients' level of functioning at work, within family relationships and in social contacts outside the home. Each role area was rated separately with 1 point being given if there was poor or impaired performance (i.e. maximum score = 3 points).