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A Comparison of Lenient and Strict Operant Conditioning Programmes in Refeeding Patients with Anorexia Nervosa

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Summary: The present paper compares a lenient and a strict operant conditioning programme in refeeding patients with anorexia nervosa. Sixty-five consecutive in-patients participated in the study. We found no significant difference in the rate of weight-gain between the two treatments. There were, however, a number of practical advantages in using the more lenient programme: it was more economical of nursing time, and patients were more accessible to psychotherapy. The programme was also more acceptable to the patients.

The treatment of anorexia nervosa is difficult and controversial. There is substantial agreement, however, that restoration of normal body weight is mandatory, and refeeding is a key aspect of intervention (Russell, 1981). Admission to hospital is usually necessary, and behaviour modification techniques have been advocated to assist in the restoration of body weight.

Anorexia nervosa patients exhibit a variety of weight-losing behaviours: it is perhaps for this reason that techniques directed at rewarding weight gain are more effective than those that focus on eating behaviour *per se* (Touyz *et al*, 1980). The most frequently employed behavioural programme is one which makes the patient's access to pleasurable activities contingent on weight gain (Bachrach *et al*, 1965). This is usually achieved by confining the patient to bed, removing most of her possessions, and then constructing an individualized schedule of reinforcers. Bruch (1974) criticises such treatment, claiming that it may lead to resentment on the part of the patient, which seriously impedes subsequent psychotherapy and the resolution of underlying conflicts.

With these criticisms in mind, we wish to propose an alternative behavioural programme which allows patients to maintain a greater degree of control over the refeeding process without adversely affecting the rate of weight gain.

Method

Patients

Our sample consisted of 65 in-patients with anorexia nervosa (as defined by Russell, 1970). They were consecutive admissions to a hospital and were under the consultant care of one of us (P.B.). Clinical data on the subjects is presented in Table I.

Treatment programmes

The patients were divided into two cohorts. The first 31 were treated using traditional strict bed-rest programme, with an individualized schedule of reinforcers for each 0.5 kg of weight gained.

TABLE I

Clinical data on admission for 65 patients with anorexia nervosa, grouped into two cohorts according to treatment programme

	Strict programme ($n = 31$)	Lenient programme ($n = 34$)
Age range	13–31 years	13–35 years
Mean age	18.26 years	20.59 years
Female:male	29:2	34:0
Marital status	1 married	7 married
First-admission patients	71%	68%
Second-admission patients	16%	15%
Third-or-more admission	13%	18%
Body weight on admission (% SBW*)	70.6 %	72.3 %
% patients at or below 60% SBW*	16.7 %	12.0 %
Dieters	77.42%	70.59%
Vomiters and purgers	22.58%	29.41%

*SBW: Standard Body Weight derived from the tables of the Society of Actuaries (1959).

The next 34 patients were treated using a lenient and flexible behavioural programme. After an initial week of bed-rest, a contract was made with each patient to gain a minimum of 1.5 kg per week. Provided they complied with this requirement, patients were free to move around the unit. They understood that if they failed to achieve the weekly target of weight gain, they would be required to spend the following week in bed-rest. No further restrictions were imposed, and patients had unlimited access to their personal possessions. In all other respects, the treatment regimens for the two groups were similar.

Treatment was undertaken by a multidisciplinary team comprising a consultant psychiatrist, a clinical psychologist, a dietician, a family therapist, an occupational therapist and skilled nursing staff. A broad-spectrum, multimodal approach was used. 'Multimodal therapy' is a comprehensive approach to psychotherapy: its major advantage is that it provides a systematic framework for formulating presenting symptoms in a logical manner (Lazarus, 1981). It closely resembles the problem-oriented-record approach in medicine (Weed, 1968).

Target weights were determined by the consultant, with reference to a chart of desirable body weights (Society of Actuaries, 1959). The number of calories per meal was decided by the dietician attached to the unit and was reviewed on a regular basis. Patients ate their meals in the dining room and all meals were supervised by the nursing staff. Patients were weighed daily at 7.00 a.m. Besides dietary counselling, patients received supportive psychotherapy and attended group therapy and occupational therapy.

The subjects stayed in hospital for approximately nine weeks—six weeks for refeeding and a further three-week maintenance period during which they were encouraged to stay on the ward in order to stabilize their eating behaviour and maintain their weight at the desired level.

Data collection

Mean daily weight gain was calculated from daily weight charts. The total duration of the stay in hospital, and the length of time spent on weight maintenance, were derived from the hospital notes.

Patients' co-operativeness during treatment was assessed by two of us who were at the time blind to the nature of the study. We read through the medical and nursing reports of all the patients and on that basis rated their degree of co-operation on a four-point scale.

Results

Our findings are shown in Table II. As it turned out, patients on the more lenient programme needed to gain slightly less weight than those on the stricter programme (15.9 per cent of standard body weight as compared with 19.7 per cent). Mean daily weight gain, however, did not differ significantly between the two groups, and similar proportions of patients in the two groups reached the target weight set by the consultant and maintained it over the maintenance period prior to discharge.

TABLE II

Response to treatment: a comparison between the anorexics on the strict behavioural programme and those on the lenient programme

	Strict programme (n = 31)	Lenient programme (n = 34)
Body weight on admission (% SBW*)	70.6%	72.3%
Mean target weight (% SBW)	90.3%	88.2%
% patients reaching target	80.0%	82.3%
% patients maintaining target weight at discharge	80.0%	82.3%
Mean duration of maintenance	20.2 days	24.5 days
Mean daily weight gain during refeeding	0.21 kg	0.20 kg

The mean weekly weight gain in each group for the first six weeks of refeeding is shown in Fig. 1. A trend analysis revealed no statistically significant difference in the rate of weight gain between the two groups. However, it is of interest to note that patients on the lenient programme showed a greater weight gain earlier in treatment, while those on the stricter programme tended to show a greater weight gain later during refeeding.

Thirty patients (88 per cent) on the lenient programme failed at least once to achieve the weekly

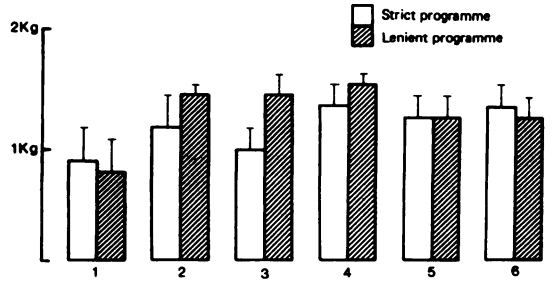

FIG 1.—Mean weekly weight gain during the first six weeks of refeeding, for patients on the strict and the lenient programmes. The T-bar indicates one SEM.

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weight gain of 1.5 kg but in only four instances was it necessary to impose bed-rest for two or more weeks. It is worth noting that 24 per cent of the patients on the lenient programme were rated as being extremely co-operative, compared with 10 per cent of patients on the stricter programme. However, the difference between the two groups in this respect failed to achieve statistical significance.

Discussion

The two groups in the present study were not identical in composition, but such slight differences as were present are inevitable in a cohort study, and there was no significant difference between groups on the important variables of age, weight (expressed as percentage of standard body weight on admission) and the proportion who were first admissions.

Our most important observation was that the mean daily weight gain did not differ significantly between the two treatment programmes.

The mean daily weight gain on both programmes also compares favourably with the best figures reported by other authors using behavioural techniques. Thus Agras *et al* (1974) cited a rate of 0.20 kg/day using a programme which included large meals, reinforcers for weight-gain and feedback. Halmi *et al* (1975) reported the same rate after using a programme of strict bed-rest and reinforcers contingent upon weight-gain. Bhanji and Thompson (1974) obtained a slightly lower rate (0.16 kg/day) using a similar programme. More recently, Eckert *et al* (1979) compared the amount of weight gained in patients on a behaviour modification programme with that achieved by milieu therapy. They found no statistically significant difference between the two groups, but there was a tendency for the patients receiving behaviour-modification treatment to gain more weight. Agras and Werne (1978) have also reported much lower rates of weight-gain in regimens using psychotherapy or counselling as the principal form of therapy.

There were practical advantages in using the lenient programme compared with the srtict one. The lenient programme was seen as more acceptable by most of our patients, and there was a general consensus among staff members that patients on the lenient programme were better motivated towards other aspects of treatment than those on the strict programme. The lenient programme also required less nursing time, and so was more economical, and it provided less opportunity for patients to manipulate individual staff members in connection with their treatment. As a result, the staff were able to use their time more constructively, in both group therapy and supportive psychotherapy with patients. This was very much in keeping with our overall aim of providing a comprehensive multimodal approach to treatment (Lazarus, 1981). Bruch (1974) has stressed the importance of an integrated approach in treating patients with anorexia nervosa. She has criticised behaviour therapists for their 'naive assumption that the restoration of normal body weight was sufficient treatment'. She has suggested that in-patients gain weight under the 'pressure of persuasion, fear or threat and literally eat their way out of hospital', so that there is subsequently a high rate of relapse. We believe that our lenient treatment programme, despite its behavioural basis, provides sufficient opportunity for psychotherapeutic contact and for patients to maintain their autonomy during treatment to avoid these criticisms.

The ultimate test of treatment programmes in patients with anorexia nervosa is to demonstrate improvement at long-term follow-up. However, some of the patients on our lenient programme were treated during 1982 and it is at the moment far too early to assess their outcome. Morgan and Russell (1975) suggest that at least four years should lapse between treatment and follow-up in order to allow meaningful conclusions. We do intend to follow-up our patients in due course.

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