

The Perceived Effectiveness of Continuing Care and Group Support in the Long-Term Self-Help Treatment of Obesity

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Abstract

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Objective: Obesity is increasingly considered a chronic disease requiring continuing care, but professional long-term treatment for most patients is not available. This study examined treatment recipients' perception of the effectiveness of different components of a group self-help, continuing-care treatment program for obesity.

Research Methods and Procedures: Members ($n = 120$) and volunteer leaders ($n = 66$) of a self-help, continuing-care treatment program of previously demonstrated effectiveness (mean treatment duration, 40.6 months; mean weight lost, 14.1 kg) rated how helpful and effective they found the various therapeutic strategies used by this program. The strategies examined were continuing care, group support, behavior therapy, motivational enhancement strategies involving positive reinforcement, and motivational enhancement strategies involving punishment.

Results: The single most highly valued aspect of treatment was the provision of continuing care, followed by group support. Greater success at achieving one's goal weight was associated with perceptions of greater effectiveness of the program's strategies overall ($r = 0.219, p < 0.005$), of

continuing care ($r = 0.225, p < 0.005$), and of positive reinforcement strategies ($r = 0.223, p < 0.01$). Participants who had successfully attained their goal weight perceived behavior therapy strategies as more effective than did participants who had not reached their goal weight [$t(170) = 2.93, p < 0.005$].

Discussion: The high ratings given to continuing care and group support strategies indicate the acceptability of supportive self-help treatment for obesity administered over the long term. The findings suggest that continuing care and group support should be made available to participants in the self-help treatment of obesity.

Key words: continuing care, self-help, behavior therapy, group support, perceived effectiveness

Introduction

In the treatment of obesity, weight loss is almost inevitably followed by weight regain. The long-term maintenance of weight lost may well be the most difficult challenge faced by obese people and those who care for them. Pharmacotherapy studies have repeatedly shown that treatment is effective only while it is being employed. For example, after losses of 10.2% (10.3 kg) with 12 months of orlistat treatment, 12 subsequent months of placebo administration led to significant weight regain: "Cessation of orlistat therapy resulted in a marked rebound effect" (1). Just 4 weeks after stopping a 12-month course of sibutramine (15 mg), patients had regained 18% of the 4.9 kg they had lost (2). It had been initially hoped that behavioral treatment would continue to exert an effect after treatment was stopped, but this does not seem to be the case. For example, a 24-week university-based behavioral treatment, initially producing a 13.0-kg loss, resulted in a net loss of 3.5 kg from baseline at 3 years (3) and a gain of 2.7 kg above baseline at 5 years (4). It is clear that when treatment stops, weight is usually regained.

Although standard, time-limited treatments have almost never produced long-term maintenance of initial weight

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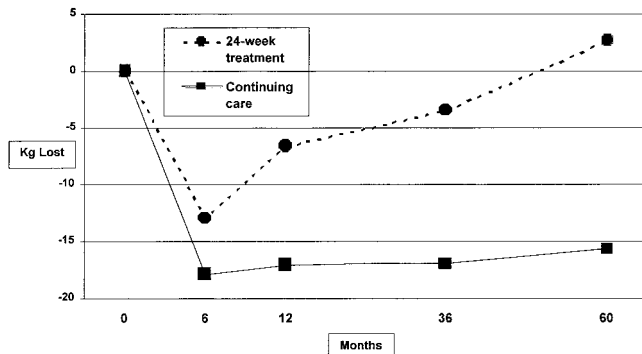


Figure 1: Weight lost (kilograms) at 6, 12, 36, and 60 months as a result of two treatments offering behavior therapy: standard university-based behavior therapy administered over 24 weeks (3,4) and the TBMP, offering behavior therapy on a continuing care basis (7).

losses, two studies of treatment programs that have offered long-term continuing care have demonstrated long-term weight losses. These programs have used different methods, including behavior therapy (5) and meal replacements (6). Bjorvell and Rossner (5) treated obese patients with initial very-low-calorie-diet and behavior modification in a 6-week hospital-based program followed by 4 years of weekly maintenance meetings and the opportunity to reenter hospital-based treatment if needed. Weight losses at 4 years were 12.6 kg. Flechtner-Mors et al. (6) found weight losses of 8.4% of initial weight (9.5 kg) among obese patients given energy-controlled meal and snack replacements over a 3-month treatment and throughout a 48-month maintenance period. Both of these treatment programs were professionally administered, time-intensive, and costly.

In contrast to the poor maintenance in conventional treatments, the Trevoze Behavior Modification Program (TBMP)¹ has demonstrated long-term effectiveness in observational studies. The 61% of members who were still in treatment at 1 year had lost 18.5% (17.1 kg) of their original weight. At 5 years, the 22% of members who were still in treatment had kept off 17.3% (15.7 kg) of their initial weight (7). These findings were closely replicated in a follow-up investigation of several smaller satellite groups that provided the same treatment as the original Trevoze program (8). Although long-term treatment programs for comparison are rare, the Trevoze program's attrition rates are comparable with those found in a lengthy randomized controlled trial of orlistat (9), in which 67% of participants remained at 1 year and 46% remained at 2 years, similar to the 70% and 44% reported by Latner et al. (8). However, although comparable with other studies, these attrition rates are still high. Figure 1 contrasts the long-term results of two

treatments offering behavior therapy: a conventional 24-week university-based behavioral treatment (3,4) and the continuing-care Trevoze program (7).

The Trevoze program features several elements. First, continuing care is made available for the lifetime of program members; the program is volunteer-staffed and charges no fees. Second, the modality of treatment is group self-help. Groups are led and the program is run by successful program members, with weekly meetings and monthly newsletters offering social support. Third, standard behavioral strategies are taught: moderate caloric restriction, stimulus control, self-monitoring of food intake, and increased physical activity. Fourth, specific strategies are aimed at enhancing members' motivation to comply with treatment. These include opportunities to obtain positive reinforcement for successful progress in the program. For example, completion of an initial 5-week trial period, during which attendance is mandatory and specific, assigned weight loss goals must be achieved, entitles program applicants to full membership. Subsequently, four levels of maintenance status, each attained after weight goals are achieved, culminate in independence level. Independence level, achieved when members have maintained their goal weight for at least 4 months, involves the option to no longer attend meetings and the requirement to mail in weekly records of one's current weight. Moreover, successful members are invited to volunteer as staff or group leaders. Additional motivational strategies present the possibility of punishment or loss of privileges. Termination, or dismissal from the group, results when members fail the initial trial period or fail to meet their assigned weight goals during the first 4 months of membership. More experienced members who fail to meet their weight goals are granted a temporary parole status, followed by termination if failure continues. Finally, the one-time rule dictates that terminated members, or those who drop out of their own accord, are never permitted to rejoin.

It is unknown what components of this treatment program account for its unusual results. It is possible that the enduring effectiveness of continuing-care programs (e.g., 5,7) is due to the consistent application of specific behavioral strategies. On the other hand, it is possible that the aspect of treatment that is most essential for long-term success is the ongoing availability of care. For example, treatment administered over 40 weeks led to more sustained weight losses and maintenance relative to the same treatment administered over 20 weeks (10). Individuals attempting to maintain weight that they have lost have consistently identified a primary need for maintenance programs that include ongoing support offered at low or no cost (11). Continuing care may be necessary for the effective treatment of obesity, but the only financially feasible way to provide such care, given the extent of the problem, may be through low-cost self-help programs (12). However, it is unknown how acceptable

¹ Nonstandard abbreviations: TBMP, Trevoze Behavior Modification Program.

participants find long-term self-help and which components of self-help group treatment its recipients consider to be effective. The present study examined perceptions of the effectiveness of the different components of treatment by participants in a self-help, continuing-care program.

Research Methods and Procedures

Participants

Participants included 186 randomly selected individuals enrolled in the Trevoze program: 66 who were current or former group leaders or assistant leaders (leaders) and 120 who had never been leaders (members). Participants who had been in the program for at least 2 months were allowed to participate. In keeping with the program's self-help structure, program leaders were volunteers who were experienced members of the group and had been trained at annual leaders' training workshops led by the program director (M.L.J.). Group leaders also met regularly to receive additional training and discuss progress and problems. Because leaders were, thus, trained to provide uniform treatment across different groups, data from different groups (which usually contain ~10 members each) were combined.

Measures

A 45-item questionnaire examined participants' perceptions of the helpfulness and effectiveness of the specific strategies of the Trevoze program. The 45 program strategies listed were generated in consultation with the program director and several experienced program leaders and members. These individuals were asked to generate lists of all techniques, strategies, and policies used as part of the Trevoze program. The items initially listed by each individual were then reviewed by the authors to confirm that these were strategies that were specifically endorsed by the Trevoze program. Participants were asked to rate each strategy on a five-point Likert scale (1, not at all helpful/effective; 2, slightly helpful/effective; 3, moderately helpful/effective; 4, very helpful/effective; and 5, extremely helpful/effective). The questionnaire also assessed whether participants were leaders, former leaders, or members, and whether they belonged to the main group located in Trevoze, PA, or to one of the program's smaller satellite locations. Finally, participants were asked to indicate the length of time they had been in the program, their weight loss goal, and weight lost (or maintained) to date. Weight loss goals (the amount of weight individuals must lose) had been assigned by program leaders when individuals joined the program. These goals had been generated by computing the difference between the individual's initial weight and the top of the ideal weight range (based on tables of the Metropolitan Life Insurance Co., New York, NY) (13). Data on participants' age and weight were not available at baseline or at the time of measurement. However, because participants' weight loss

goals equaled the difference between their initial weight and maximum ideal weight, these goals provided a measure of degree of overweight.

Statistical Analyses

A theoretically driven approach to subscale construction was used because the constructs under study and their components (the program's treatment strategies) were pre-determined. Because these constructs were categories of treatment strategies, their components (e.g., behavior therapy) consisted, by definition, of those treatment strategies used by the program as part of these categories (e.g., self-monitoring). Therefore, four intuitively derived subscales were extracted from the questionnaire, based on the Trevoze program's major strategies for treatment, described above. Cronbach's α was computed for the total scale and for the four subscales. Mean subscale scores were obtained by summing the ratings of all items within each subscale set and dividing by the number of items within the scale. Independent-samples Student's *t* tests compared leaders and members for total scale and subscale scores. Pearson product-moment correlations were run to identify correlates of these scores. Using independent-samples Student's *t* tests, ratings of those participants considered to have currently met their goal weight (defined by the program as those having lost at least 90% of their weight loss goal) were compared with participants who currently had lost <90% of their weight loss goal. Finally, multiple regression analysis was performed to determine the possible predictors of success at weight loss, examining background variables and questionnaire responses. Success at weight loss was operationally defined as the proportion of one's weight loss goal that was actually lost, or $[\text{weight lost}/\text{weight loss goal}] \times 100$.

Construction of Total Scale and Subscales

Item-total correlations were performed on all 45 items, and any item that failed to correlate at least 0.30 with the total score was eliminated. This resulted in the elimination of three items. The resulting 42-item scale yielded a total effectiveness scale score with an internal consistency (Cronbach's α) of 0.87.

The intercorrelations within each of the four subscales were examined, and items correlating <0.30 with subscale totals were not included in that subscale. Five such items were removed from the subscales for this reason but were retained in the total scale.

First, a subscale of behavior therapy techniques (termed "modifications" by the program) included six items such as Modification 1, eat in same place; Modification 2, no sheet, no eat (the program's catchphrase for self-monitoring); Modification 4, leaving food over; and Modification 5, exercise segment [Cronbach's $\alpha(186) = 0.79$]. A second subscale, group support, included 12 items, such as social

Table 1. Means (SD) for current and former leaders vs. members: treatment length, weight goals and losses, and ratings on effectiveness scales and subscales

	Leaders	Members	<i>t</i>
Length of membership (months)	65.68 (48.81)	26.40 (27.54)	6.88*
Weight loss goal (kg)	17.77 (8.33)	17.94 (8.65)	0.13
Actual weight lost (kg)	16.15 (8.25)	13.02 (6.55)	2.77*
Success at weight loss (% of goal lost)	93.50 (37.03)	76.69 (25.94)	3.49†
Effectiveness scale: total score (1 to 5)	4.07 (0.46)	3.72 (0.59)	4.20†
Continuing care item ^{a‡}	4.81 (0.39)	4.67 (0.62)	1.62
Group support subscale ^b	4.27 (0.50)	4.16 (0.54)	1.35
Behavior therapy subscale ^c	4.03 (0.72)	3.77 (1.01)	1.93
Motivational enhancement-positive reinforcement subscale ^d	3.93 (0.65)	3.47 (0.73)	4.30†
Motivational enhancement-punishment subscale ^e	3.69 (0.93)	2.86 (1.59)	3.89†

* $p < 0.01$.† $p < 0.001$.‡ Paired Student's *t* tests, adjusted for multiple comparisons ($p < 0.015$), demonstrated that these means (for all participants combined) were significantly different from each other, as indicated by different superscripts.

support at group meetings, sharing what worked for you, seeing other successful members as role models, and the Modifier newsletter [$\alpha(186) = 0.77$].

The third subscale, motivational enhancement-positive reinforcement, included 11 items such as the chance to volunteer for TBMP as a leader, coleader, or assistant leader, the opportunity to achieve maintenance level, and the chance to volunteer for TBMP as office staff, newsletter writer, or weigh-in staff [$\alpha(186) = 0.71$]. The fourth subscale, motivational enhancement-punishment, included items such as the fear of termination, one-time-only opportunity (cannot rejoin), rules about weight loss requirements, and rules about attendance [seven items, $\alpha(186) = 0.78$]. Combined, the 16 positive reinforcement and punishment motivational enhancement items yielded a subscale with an internal consistency of 0.86.

To examine the independence of these subscales, the intercorrelations across the four different subscales were examined. These correlations were all significant at the $p < 0.05$ level (with r values ranging from 0.18 to 0.58). This suggests that, although these subscales correlated with each other a small to moderate amount, they also had substantial non-overlapping components and were, indeed, semi-independent constructs. All subscale means were also significantly correlated with the total scale score at the $p < 0.01$ level (with r values ranging from 0.52 to 0.83).

Two individual items (that did not belong to any subscale) assessed the perceived effectiveness of continuing care and receiving treatment at no cost: having the group available long term and having the group available free of

charge. In addition, two items relating to independence level assessed the perceived effectiveness of the opportunity to achieve independence level and the requirement to mail in one's weight information and self-monitoring records at independence level. Finally, four additional items that met criteria for inclusion in the total scale (item-total correlations of at least 0.30, as discussed above) did not belong to any subscale. These items pertained to the group's keeping a waiting list, the group's focus on weight maintenance, and two criteria for admission into the group: past weight loss experience and motivation to lose weight now. Thus, the total scale consisted of the four subscales described above (32 items) and these additional eight items.

Results

Mean weight loss, to date, of all participants was 14.1 kg, and their mean membership length, to date, was 40.6 months, consistent with previous reports on the Trevoise program (7,8). Mean weight loss goal (distance between initial weight and the top of the ideal weight range) was 17.9 kg. Program leaders surpassed members on weight lost and length of membership, but not weight loss goals, as shown in Table 1. Therefore, success at weight loss ([weight lost/weight loss goal] \times 100) was higher for leaders than for members. Participants in the central Trevoise location (21%) did not differ from those in smaller satellite groups (79%) on treatment length, weight loss goals, or success at weight loss.

Participants found the following four types of program strategies, represented by each of the four subscales, to be

Table 2. Correlates of effectiveness ratings (*r* values)

	Length of membership	Success at weight loss (% of goal lost)	Weight loss goal (kg)
Effectiveness scale: total score	0.217*	0.219*	-0.025
Continuing care item	0.160†	0.225‡	0.036
Group support subscale	0.130	0.072	0.018
Behavior therapy subscale	0.074	0.000	0.058
Motivational enhancement-positive reinforcement subscale	0.287*	0.223‡	-0.072
Motivational enhancement-punishment subscale	0.129	0.246‡	-0.029
Lack of membership costs	-0.199‡	0.089	-0.033
Opportunity to achieve independence level	-0.025	-0.019	-0.223‡
Mailing in sheets at independence level	0.168†	0.039	-0.193‡
Actual weight lost (kg)	0.009	0.334*	0.737*
Length of membership		0.221‡	-0.131
Success at weight loss (% of goal lost)	0.221‡		-0.205‡

* $p < 0.005$.† $p < 0.05$.‡ $p < 0.01$.

effective in the following order: 1) group support (mean = 4.2), 2) behavior therapy (mean = 3.9), 3) motivational enhancement-positive reinforcement (mean = 3.6), and 4) motivational enhancement-punishment (mean = 3.2). In addition, of all individual items, the single most highly rated item was the availability of continuing care (mean = 4.7).

Leaders had higher total effectiveness scores than members. Leaders also rated both motivational enhancement-positive reinforcement and motivational enhancement-punishment more highly than members did, as shown in Table 1. Participants from the central Trevoise location did not differ from satellite group participants on total scale ratings, ratings of subscales, or ratings of continuing care.

Several significant correlates of effectiveness ratings were identified, as shown in Table 2. First, length of membership was positively correlated with total scale scores, perceived effectiveness of motivational enhancement-positive reinforcement, and continuing care. The only item that negatively correlated with membership length was perceived effectiveness of the lack of treatment costs.

Second, greater weight loss success was correlated with five measures: longer membership, higher total effectiveness scores, higher ratings of continuing care, and higher ratings of motivational enhancement-punishment and motivational enhancement-positive reinforcement subscales.

Third, having a larger weight loss goal (indicating greater obesity) was highly correlated with more actual weight lost. However, it was negatively correlated with weight loss success (the percentage lost of one's weight loss goal), and

with ratings of the items, the opportunity to achieve independence level and having to mail sheets in at independence level.

Using the program's criteria for reaching one's goal weight (i.e., having achieved at least 90% of one's goal weight loss), participants were categorized either as having met their goal (47%) or as not having met their goal (53%). One subscale difference was found between these groups; ratings of the effectiveness of behavior therapy were higher among members who had reached their goal [$t(170) = 2.93$, $p < 0.005$].

Finally, regression analysis identified three significant predictors of success at weight loss [$R^2 = 0.130$, $F(2160) = 7.95$, $p < 0.001$]: total effectiveness scale rating ($\beta = 0.17$, $p < 0.05$), rating of continuing care ($\beta = 0.19$, $p < 0.05$), and weight loss goal ($\beta = -0.22$, $p < 0.01$).

Discussion

Participants in a continuing-care, self-help treatment program for obesity rated the availability of long-term care more highly than any other aspect of treatment. In addition, a higher rating of continuing care (along with higher ratings of total effectiveness and smaller weight goals) was one of the predictors of weight loss success. These findings are consistent with the guidelines for weight loss and maintenance by the National Heart, Lung, and Blood Institute (14), which emphasize that after the initial 6 months of weight loss treatment, losses will be regained unless a weight maintenance program is continued indefinitely. The suc-

successful treatment of obesity “may require ongoing, lifelong care” (15). That participants highly rated continuing care administered in the context of a supportive group format suggests that a self-help form of delivery for obesity treatment is acceptable over the long term.

Longer duration of membership was associated with greater value placed on positive reinforcement strategies, possibly because the opportunities to benefit from this reinforcement increase over time. This finding suggests that positive rewards for participation (administered in the context of continuing care) may facilitate long-term participation in treatment and consequent weight maintenance. There may also be some overlap between positive reinforcement and punishment because these two motivational subscales were moderately correlated [$r(186) = 0.427, p < 0.001$]. The availability of tangible positive reinforcements for continued successful participation in the Trevoise program may set up an approach-oriented process in which behaviors are motivated by the desire to attain positive goals (16). In contrast, participants in a 26-week weight loss program exhibited decreased positive reactions to the weight loss experience over time, along with a decreased belief that the benefits of weight loss outweighed its costs (17). The authors concluded that the “lack of sustained reward. . . may be the primary cause of the failure of people to maintain weight loss efforts.”

Previous research on positive reinforcement strategies found that monetary incentives to lose weight (up to \$25/wk) did not improve weight loss or prevent weight regain at 18 months relative to standard behavioral treatment (18). However, the incentives offered for continued successful participation in the Trevoise program may be more salient or more personally meaningful than the monetary incentives used in previous research. Another example of substantial, graduated incentives designed to be personally meaningful and to bolster the individual’s treatment goals were those given by Higgins et al. (19) to reinforce cocaine abstinence during outpatient counseling. These incentives reinforced abstinence directly and enhanced the effects of counseling alone.

The problem of waning positive reactions to weight loss relative to its costs (17) might also be addressed by several of the group support strategies used in the Trevoise program (e.g., discussing successes at meetings, sharing what worked for you). The positive affirmations of success that members make throughout group meetings and regularly at the end of every meeting might enhance and sustain participants’ appreciation of the benefits of their weight loss. They might also neutralize the potential increase in the perceived costs of weight control efforts over time (20). Similarly, for emotional disorders, the long-term effectiveness of treatments may depend on the retrieval strength and storage strength of positive associations; therefore, long-term treatment efficacy should involve overlearning through

the repeated practice of therapeutic strategies (21). Positive affirmations of success by members may be uniquely possible and effective in the Trevoise program because individuals repeatedly failing to meet program weight loss or attendance requirements are withdrawn.

The negative correlation between membership length and ratings of the helpfulness of the program’s being available free of charge is surprising and deserves consideration. It may reflect the willingness of more experienced members to pay for membership. Alternatively, experienced members may think of themselves as already having paid with their service to the program as volunteers. Thus, they may not agree that the program is actually free of charge; instead, having given of their time, they may feel that the technical absence of monetary costs does not confer any particular benefit. The finding demonstrates that near the beginning of participation, the lack of costs of self-help is perceived as more helpful than it is perceived to be later on, when individuals might be willing to spend money or time to receive ongoing care.

Individuals who had more weight to lose (to reach their goal weight) lost more actual weight but achieved a lower proportion of their total weight loss goal; similarly, greater success at weight loss was predicted by more modest weight goals. Heavier individuals rated two items related to independence level as less helpful. If individuals have regained weight, an urgent request is sent to them asking them to resume attending regular meetings until they relose this weight. The current finding suggests that heavier members do not favor this procedure and might prefer the ongoing support provided at meetings. However, it is also possible that, because of their lower relative success at reaching their goal, such members are less likely to have achieved independence level and may, therefore, rate it less highly. Foster and colleagues (22) found that patients’ satisfaction with their end-of-treatment weight was inversely correlated with the discrepancy between this weight and their goal weight at baseline. In addition, patients with the highest pretreatment weights have the most unrealistic weight loss expectations (23). Thus, it is possible that heavier individuals may be more likely to be disappointed by not meeting their weight loss goals.

A strategy similar to independence level has been used in previous treatment studies. In one study, patients were given the option of reinstating treatment for a year after treatment if weight regain occurred. This strategy failed to improve maintenance after a 6-month treatment program (24). However, a similar treatment technique may have contributed to the favorable results of an unusual continuing-care program in Sweden (5). Patients were treated with an intensive, hospital-based program for 6 weeks, followed by 4 years of weekly weigh-ins and meetings with dietitians. During these 4 years, patients had the opportunity to re-enroll in intensive treatment if weight regain began.

Patients maintained substantial weight losses at 4 (12.6 kg) and 10 (10.5 kg) years (25). It is possible that the strategy of giving participants the opportunity to re-enroll in more intensive treatment is helpful only within the context of long-term care.

A limitation of the present study is the unknown validity of the scale used; members' impressions of what makes the group effective may not reflect the features that actually do account for its effectiveness. For example, patients in behavior therapy may undervalue the utility of specific behavior modification techniques and attribute the most importance to the interpersonal aspects of treatment (26). In future studies, dismantling approaches would be useful for identifying the specific effective aspects of this and other multifaceted treatment programs. Another limitation is that the current analyses did not include individuals who had dropped out or been withdrawn from treatment. Such an analysis could yield different perceptions of treatment effectiveness. Continuity of care appears useful for those who take advantage of it, but ways to promote better retention in treatment are needed. Finally, several of the items in the scale used may be more relevant to particular participants. For example, it may be difficult for a relatively new member to rate the chance to volunteer for TBMP as a leader, coleader, or assistant leader as highly effective when this chance may seem a distant prospect to that member. The higher ratings of effectiveness among leaders may be due to the greater opportunities of more experienced members to sample all of the various aspects of treatment.

Ongoing professional treatment is labor-intensive and costly (15). However, ongoing care can be provided in a self-help context; indeed, self-help might be the only financially feasible way to provide continuing care (12). Liebbrand and Fichter (27) found full maintenance of weight loss both in a group receiving a therapist-led maintenance program and in a self-management group that received materials on lifestyle change, problem solving, and relapse prevention. They concluded that maintenance programs may not require professional therapist contact to be successful. Their findings highlight the beneficial role of self-help support. The present results suggest the acceptability of group self-help as a treatment modality for the provision of continuing care. They also suggest that the elements of self-help treatment found to be most effective and helpful, continuing care and group support, should be made available to participants and included as components of the self-help treatment of obesity.

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