

## Individual Versus Group Therapy for Obesity: Effects of Matching Participants to Their Treatment Preferences

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This study examined the effects of matching participants to treatments on the basis of their preferences for either individual or group therapy for obesity. Seventy-five obese adults who expressed a clear preference for either individual or group therapy were randomly assigned to either their preferred or their nonpreferred treatment modality within a 2 (individual vs. group therapy)  $\times$  2 (preferred vs. nonpreferred modality) factorial design. At posttreatment, group therapy produced significantly greater reductions in weight and body mass than individual therapy, and no significant effects were observed for treatment preference or the interaction for treatment preference by type of therapy. All treatment conditions showed equivalent improvements in psychological functioning. These findings suggest that group therapy produces greater weight loss than individual therapy, even among those clients who express a preference for individual treatment.

Behavioral weight loss interventions are typically delivered in a group treatment format with 8 to 12 members per group. This approach typically produces body weight reductions of 8 to 10 kg over the course of 16 to 24 weeks (Perri & Fuller, 1995). However, the variability in response to behavioral treatment is large, with some participants losing little or no weight while others experience losses of 15 kg or more (Foreyt & Goodrick, 1993). Matching treatments to the particular characteristics of clients may reduce the numbers of individuals with poor outcomes and may improve the overall effectiveness of interventions (Brownell & Wadden, 1991; Finney & Moos, 1986).

Several conceptual models suggest potential benefits of matching participants to their treatment preferences. The theory of planned behavior (Schifter & Ajzen, 1985), control theory (Carver & Scheier, 1982), and behavioral choice theory (Epstein, 1992) all

predict that individuals who are matched to treatment based on their personal choices (or perceived choices) would show better outcomes than would those assigned to a treatment inconsistent with their personal preferences.

Thus, our primary objective for this study was to test whether matching obese people to their preference for group or individual treatment would improve weight loss outcome. We hypothesized that participants matched to their preferred choice of treatment modality would show better weight loss outcome than those assigned to their nonpreferred modality.

Few randomized studies have compared individual versus group treatment for obesity. Kingsley and Wilson (1977) found equivalent weight losses for those in individual therapy and those in group therapy but better long-term effects for group treatment. Typical of "first generation" behavioral weight loss treatments, the Kingsley and Wilson study had a brief intervention period (8 weeks), showed modest weight losses in the participants (5 to 6 kg), and did not include an assessment of the effects of treatment on the participants' psychological functioning. Therefore, our second goal for this study was to compare the effects of group versus individual therapy by using an extended intervention period (6 months of weekly sessions) and by including an assessment of changes in psychological functioning as well as weight change.

Although group treatment represents a cost-efficient means of treatment delivery that provides an opportunity for enhanced social support (Wadden & Foster, 1992), group interventions with 8 to 12 participants who are seen for sessions of 60–90 min offer limited opportunities for attention to the specific needs of particular individuals. Individual therapy, however, permits a greater opportunity to address personal and emotional issues, such as the impact of

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body size on mood, that clients may be uncomfortable disclosing in a group setting. Indeed, numerous studies have shown that a substantial proportion of obese individuals who seek weight loss treatment are experiencing elevated levels of psychological distress (Wadden & Stunkard, 1993). Thus, although we did not expect to observe differences between individual and group treatments in terms of weight loss, we hypothesized that there would be a relative advantage for individual over group therapy in terms of improvements in psychological functioning.

### Method

Newspaper advertisements were used to recruit adults who were 21 to 59 years of age, had a body mass index (BMI;  $\text{kg}/\text{m}^2$ ) of 28–45, were in good health, and had a physician's approval to participate in a diet plus exercise weight loss intervention. One hundred thirty-five people were screened by phone to determine study eligibility. Potential participants were excluded if they were currently in weight loss treatment, had lost 5 or more pounds (2.27 kg) in the previous 6 months, were taking appetite suppressant medication, were pregnant or planning to become pregnant, or were unwilling to accept random assignment to either individual or group treatment.

A total of 96 adults who met the study criteria noted above were provided with brief written descriptions of individual and group therapy for weight loss and were asked to indicate a treatment preference using the following 6-point Likert scale: 1 = *strongly prefer group*; 2 = *moderately prefer group*; 3 = *slightly prefer group*; 4 = *slightly prefer individual*; 5 = *moderately prefer individual*; and 6 = *strongly prefer individual*.<sup>1</sup>

Twenty-one of the 96 applicants indicated only a "slight" preference for either group or individual therapy (i.e., ratings of 3 or 4) and were excluded from further consideration. The remaining 75 individuals who expressed a clear preference for either individual ( $n = 40$ ) or group ( $n = 35$ ) therapy constituted the study sample. These participants were stratified on the basis of treatment preference and percentage overweight and then randomly assigned to receive treatment in either their preferred or nonpreferred modality. A 2 (individual vs. group therapy)  $\times$  2 (preferred vs. nonpreferred modality) factorial design was used to assess the effects of therapy type, participant preference, and the interaction of the two on treatment outcome.

The major outcome we examined was change in body weight as assessed by changes in weight and BMI from pre- to posttreatment. Height and weight were measured on a balanced beam scale equipped with a stadiometer. Secondary outcome measures included psychological functioning as assessed by the General Severity Index (GSI) of Symptoms Checklist—90—Revised (SCL-90-R; Derogatis, 1986) and by the Beck Depression Inventory (BDI; Beck, Ward, Mendelson, Mock, & Erbaugh, 1961). The GSI is a composite measure reflecting the number and intensity of psychopathological symptoms reported on the SCL-90-R. The BDI is one of the most commonly used self-report measures of depressive symptomatology. In addition to the SCL-90-R and the BDI, participants also completed posttreatment ratings of adherence to behavioral treatment techniques (Perri, Nezu, Patti, & McCann, 1989) and ratings of therapist effectiveness (Lafferty, Beutler, & Crago, 1989).

Participants in both treatment conditions received 26 weekly sessions of standard cognitive-behavioral weight management training (e.g., self-monitoring, goal setting, stimulus control, etc.). The participants were instructed to follow a low-calorie diet (i.e., 1,200 kcal/day for women, 1,500 kcal/day for men) and to complete a home-based exercise program consisting of 30 min of brisk walking per day, 6 days per week.

Doctoral candidates in clinical psychology served as therapists. Each therapist co-led a group of 8 to 12 participants and carried a caseload of 2 to 4 individual clients. Therapists were counterbalanced across treatment conditions to provide equivalence in terms of gender and experience level (i.e., years of graduate study). Therapists followed detailed treatment

manuals based on an expanded version of Johnson and Stalons's (1981) behavioral weight management program. To ensure uniformity of treatment procedures, the therapists attended weekly supervisory sessions with licensed clinical psychologists. The clinical supervisors (Michael G. Perri and Arthur M. Nezu) had extensive previous experience in the behavioral treatment of obesity. During the supervisory meetings, audiotapes of the treatment sessions were reviewed, and intervention procedures for the following week were rehearsed. Therapists and supervisors were unaware of the participants' pretreatment preferences for individual or group treatment.

In the group therapy conditions, each session was 90 min in duration. At the outset of each session, all group members were weighed and had their self-monitoring records reviewed, including records of daily caloric consumption, exercise completed, and the use of behavioral weight-management strategies. Next, each group member gave a brief report of progress since the previous session, and the group leaders facilitated a group discussion focused on providing positive feedback for progress and group problem solving of difficulties reported by participants. In the final segment of the session, the therapists introduced and explained a new eating- or exercise-related treatment strategy, supplemented by a written handout.

In the individual therapy conditions, each session was 45 min in duration. At the outset of each session, the participant was weighed, and self-monitoring records were reviewed, including records of daily caloric consumption, exercise completed, and the use of behavioral weight-management strategies. The participant then reported on progress since the previous session, and the therapist provided positive feedback to support progress and engaged the participant in problem solving to deal with any reported obstacles. Next, the therapist introduced and explained a new eating- or exercise-related treatment strategy supplemented by a written handout. The topics reviewed and materials distributed were identical to those used in the group therapy conditions. In the balance of time remaining in individual sessions (usually 15–20 min), the participant and therapist were free to address any issue raised by the participant, provided that it pertained to weight or the weight loss effort (e.g., past patterns of weight gain, the impact of emotions on eating, self-image, family support). During this segment, the therapists were free to implement cognitive-behavioral treatment procedures, if judged appropriate to the context of the session (e.g., cognitive therapy techniques for depressed mood).

### Results

Preliminary analyses of variance (ANOVAs) showed that participants in the four conditions did not differ significantly in baseline measures of age, weight, height, or BMI. Table 1 summarizes the baseline characteristics of the study sample. Of the 75 participants who began treatment, 58 completed the 6-month program, yielding a treatment completion rate of 77%. There were no significant differences in attendance or completion rates as a function of type of therapy or assignment to preferred or nonpreferred modality. Attendance rates for completers were equivalent across the four conditions ( $M = 86\%$ , range = 84% to 87%).

Table 2 presents the weight-related outcomes by treatment condition. A multivariate analysis of variance (MANOVA) of change in the weight-related outcomes indicated a significant main effect for type of treatment, Wilks's  $\Lambda = .856$ ,  $F(2, 53) = 4.47$ ,  $p = .016$ ; the main effect for treatment preference and the interaction

<sup>1</sup> Applicants who inquired about the relative effectiveness of group versus individual treatment were told that previous research had shown that participants in individual and group programs achieve similar reductions during the initial phase of treatment.

Table 1  
Baseline Characteristics of the Study Sample by Treatment Condition

Characteristic	Treatment condition <sup>a</sup>							
	PG (n = 20)		NG (n = 20)		PI (n = 19)		NI (n = 16)	
	M	SD	M	SD	M	SD	M	SD
Age (years)	44.20	9.70	47.44	6.30	46.53	9.22	45.44	10.85
Weight (kg)	99.50	14.52	94.79	12.15	96.97	14.69	97.47	13.73
Height (m)	1.62	0.56	1.62	0.67	1.66	0.94	1.66	0.67
Body mass index (kg/m <sup>2</sup> )	37.72	4.82	35.97	3.84	35.42	4.21	35.57	4.19

Note. P = preferred treatment modality; N = nonpreferred treatment modality; G = group therapy; I = individual therapy.

<sup>a</sup> The number of men in each condition was as follows: PG = 2, NG = 3, PI = 5, NI = 4.

effect for Treatment Preference  $\times$  Type of Therapy were not significant ( $ps > .30$ ).<sup>2</sup> Group therapy produced significantly greater decreases in body weight and BMI than did individual therapy. The mean weight loss for participants receiving group therapy was  $11.00 \pm 4.77$  kg versus  $9.09 \pm 3.65$  kg for individual therapy. Participants in the group therapy condition had a mean BMI reduction of  $4.18 \pm 1.81$  kg/m<sup>2</sup> versus  $3.28 \pm 1.13$  kg/m<sup>2</sup> for those in individual therapy. The effect size for treatment type ( $\eta^2 = .14$ ) was moderately large (Cohen, 1977).

Because a 10% reduction in body weight is recognized as a "clinically significant" change (National Institutes of Health, 1998), we examined the percentage of participants in each treatment condition who achieved body weight reductions of 10% or more. The results showed that clinically significant losses were achieved by 18 of the 40 participants in the group therapy condition (45%) and by 10 of the 35 participants in the individual therapy condition (29%),  $\chi^2(1, N = 75) = 2.15, p = .14$ .

Table 3 presents the psychological functioning outcomes by condition. Separate repeated measures (pretreatment to post-treatment) MANOVAs on the psychological outcomes indicated significant main effects for time on the GSI, Wilks's  $\Lambda = .413, F(1, 51) = 72.43, p < .0001$ , and on the BDI, Wilks's  $\Lambda = .497, F(1, 51) = 51.59, p < .0001$ . However, for both measures, the main effects and interaction effects for type of therapy and treatment preference did not reach significance ( $ps > .10$ ). Participants in all conditions showed significant improvements in psychological functioning from pre- to post-treatment (see Table 3). The effect sizes for improvement in psychological functioning were large ( $\eta^2$  for GSI = .59;  $\eta^2$  for BDI = .50).

Analyses of participant ratings of adherence to treatment strategies indicated equivalent levels of adherence across conditions; there were no significant main effects or interaction effects for treatment preference or type of therapy (all  $ps > .20$ ). Post hoc analyses of specific weight-management strategies indicated that participants in group treatment reported that they used "portion control" (i.e., limiting self to one portion) to a greater extent than did participants in individual treatment ( $p < .05$ ).

The ANOVA on the participant ratings of therapist effectiveness at posttreatment revealed a significant main effect for type of therapy, favoring individual therapy over group therapy,  $F(1, 48) = 8.00, p < .01$ . Participants in individual treatment evaluated their therapists more favorably than those in group treatment on a

number of items, including "Showed that he/she understands me," "Asked for my thoughts and opinions," and "Explained material in a clear way" (all  $ps < .05$ ).

Supplemental post hoc analyses were carried out to explore potential contributors to the differences in weight loss between the participants in the group versus individual treatment conditions. An examination of self-reported daily caloric intake during Weeks 12 and 24 showed a trend,  $F(1, 54) = 2.77, p < .10$ , suggesting that whereas participants in individual treatment experienced a nonsignificant increase in caloric consumption during the interval from Week 12 to Week 24, participants in group treatment significantly reduced their caloric intake during this time period ( $p < .05$ ).

## Discussion

Group treatment resulted in greater weight losses than did individual treatment, even for those clients with a preference for individual therapy. Matching clients with their preferences for individual or group therapy did not enhance treatment outcome in terms of either weight loss or improvements in psychological functioning.

The matching of individuals to treatments has been proposed as a means of improving outcome in psychological treatments, yet demonstrations of its utility have proven illusive; witness the findings of the Project MATCH Research Group (1997) in the alcoholism treatment area. Similarly, in obesity treatment, there have been few successful demonstrations of the utility of treatment matching based on patient characteristics (Brownell & Wadden, 1991).

Although the results of this study failed to support our hypothesis that matching participants with their therapy preference would provide weight loss, the findings demonstrated better weight loss outcome for the group intervention compared with individual treatment. Both types of treatment produced significant reductions in body weight ( $Ms = 11\%$  and  $9\%$  for group and individual therapy, respectively). The magnitude of these reductions com-

<sup>2</sup> An examination of the weight data excluding male participants yielded the same pattern of results. Similarly, an intent-to-treat analysis of the weight outcome for all participants who began treatment (substituting baseline weights for participants who dropped out) also showed the same patterns of results.

Table 2  
Weight-Related Outcomes by Treatment Condition

Outcome	Treatment condition							
	PG ( <i>n</i> = 16)		NG ( <i>n</i> = 14)		PI ( <i>n</i> = 13)		NI ( <i>n</i> = 15)	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Body weight								
Pretreatment	98.38	11.14	94.28	13.72	98.86	15.73	96.86	13.98
Posttreatment	87.53	11.26	83.11	12.29	90.38	15.09	87.24	13.02
Net change	-10.85	4.06	-11.19	5.60	-8.48	3.00	-9.61	4.17
Body mass index								
Pretreatment	37.19	4.11	36.01	4.36	35.84	4.52	35.66	4.12
Posttreatment	33.08	4.08	31.76	4.02	32.78	4.54	32.19	4.60
Net change	-4.11	1.57	-4.25	2.11	-3.06	1.05	-3.47	1.20

Note. P = preferred treatment modality; N = nonpreferred treatment modality; G = group therapy; I = individual therapy.

pare favorably with the results of "second generation" behavioral interventions, which have typically produced body weight reductions of about 9% (Perri & Fuller, 1995).

Although the difference in weight losses between the group and individual treatments was statistically significant, the magnitude of the between-groups difference (1.9 kg) is unlikely to be clinically meaningful. Nonetheless, the finding of equivalent, if not superior, weight loss benefits for group versus individual treatment argues for the use of the group approach as a lower cost, desirable first line of clinical care.

All four conditions in this study demonstrated significant improvements in psychological functioning from pre- to post-treatment. The participants in individual therapy were provided with greater opportunity to address personal weight-related issues than were those in group therapy. Contrary to our expectation, individual therapy did not produce greater improvement in this domain than group therapy. However, it should be noted that the participants in this study as a group did not display clinically elevated levels of distress at baseline. Whether individual therapy with distressed obese clients treated would produce a different pattern of findings remains unknown (Wadden & Stunkard, 1993).

Also unknown is whether a different pattern of results would have emerged with more-experienced clinicians providing individual therapy. However, the participants in individual therapy in this study appeared satisfied with the care they received from therapists. Indeed, they rated their therapists more favorably than those in group treatment. Because the same therapists provided both individual and group treatment, it is likely that the higher ratings received by the individual therapists were due to the greater attention received by participants in individual therapy.

Three limitations of this study are worth noting. First, potential participants were aware of the possibility that they could be assigned to either group or individual treatment. Consequently, individuals with a very strong antipathy toward group treatment may not have volunteered to participate, thereby limiting our ability to conduct a full test of the matching hypothesis. Second, binge eating was not assessed in our sample. The effectiveness of treatment may be moderated by binge eating, particularly when binge eating occurs in combination with depressed mood (Sherwood, Jeffery, & Wing, 1999). Finally, this study examined the effects of conditions at posttreatment only. Follow-up data were not available to assess the long-term maintenance of changes accomplished in individual and group treatments.

Table 3  
Psychological Functioning Outcomes by Treatment Condition

Measure	Treatment condition							
	PG ( <i>n</i> = 16)		NG ( <i>n</i> = 14)		PI ( <i>n</i> = 13)		NI ( <i>n</i> = 15)	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
General Severity Index of SCL-90-R								
Pretreatment	53.53	7.59	56.07	7.55	52.92	8.58	48.62	9.22
Posttreatment	44.40	10.43	42.86	9.40	46.54	5.72	39.54	8.27
Net change	-9.13	9.61	-13.21	6.76	-6.38	8.63	-9.08	7.47
Beck Depression Inventory								
Pretreatment	7.27	6.19	8.36	6.44	6.39	4.27	5.39	4.27
Posttreatment	1.93	3.35	3.43	5.69	3.08	3.45	1.77	1.88
Net change	-5.34	4.97	-4.93	4.98	-3.31	3.97	-3.62	3.45

Note. P = preferred treatment modality; N = nonpreferred treatment modality; G = group therapy; I = individual therapy; SCL-90-R = Symptoms Checklist-90—Revised.

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