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EFFECTIVENESS OF HYPNOSIS AS AN ADJUNCT TO BEHAVIORAL WEIGHT MANAGEMENT

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This study examined the effect of adding hypnosis to a behavioral weight-management program on short- and long-term weight change. One hundred nine subjects, who ranged in age from 17 to 67, completed a behavioral treatment either with or without the addition of hypnosis. At the end of the 9-week program, both interventions resulted in significant weight reduction. However, at the 8-month and 2-year follow-ups, the hypnosis clients showed significant additional weight loss, while those in the behavioral treatment exhibited little further change. More of the subjects who used hypnosis also achieved and maintained their personal weight goals. The utility of employing hypnosis as an adjunct to a behavioral weight-management program is discussed.

With the identification of obesity as a major health hazard has come an increased interest in the development of effective methods of weight reduction (Abrams & Follick, 1983; Davis & Dawson, 1980). Yet, with the possible exception of behavioral treatments, weight-management programs have not been generally successful (Abrams & Follick, 1983; Jeffery, Gerber, Rosenthal, & Lindquist, 1983; Leon, 1976). The small amount of weight lost during treatment has been of questionable clinical value (Foreyt, Mitchell, Garner, Gee, Scott, & Gotto, 1982; Jeffery, Vender, & Wing, 1983) and typically has been regained after treatment has been terminated (Foreyt et al., 1982; Graham, Taylor, Hovell, & Siegel, 1983; Jeffery et al., 1978; Leon, 1976).

While considerable empirical support exists for the short-term effectiveness of behavioral weight management, the long-term results have been less impressive (Jeffery et al., 1978; Kingsley & Wilson, 1977; Leon, 1976). Many studies that reported significant weight loss have provided no follow-up data (Foreyt et al., 1982; Leon, 1976); of those investigations with long-term results, few have found continued weight reduction after termination of treatment, and fewer yet have provided clarification of the factors that promote the maintenance of weight loss (Graham et al., 1983; Wilson, 1978).

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A common explanation for the limited long-term efficacy of behavioral approaches to obesity is that the clients have not integrated adequately the weight-control techniques acquired during treatment into their daily routines, nor have they been sufficiently motivated to continue using them after therapist intervention has been terminated (Davis & Dawson, 1980; Jeffery et al., 1983; Kingsley & Wilson, 1977). The factors that contribute to successful initial weight loss seem insufficient for maintenance or further weight change. Effective behavioral weight management requires the establishment of feedback and reinforcers that will continue beyond the training period (Jeffery et al., 1983; Kingsley & Wilson, 1977; Wilson, 1978).

Although hypnosis has long been used successfully as an adjunct to behavior therapy (Dengrove, 1976; Kroger, 1977; Lewis, 1979; Surman, 1979), few studies have been conducted on the hypno-behavioral treatment of obesity. Most weight-loss programs that have used hypnosis have relied primarily on suggestions of changes in weight or diet. However, the research on hypnotic approaches to weight management suggests questionable efficacy (Cohn, 1979; Leon, 1976; Mott & Roberts, 1979) and suffers from a lack of experimental rigor and an overuse of case studies and narratives (Mott & Roberts, 1979; Stanton, 1975). While hypnosis, particularly self-hypnosis, generally has been found to increase client involvement in the therapeutic process (Kroger, 1977; Spiegel & Spiegel, 1978), hypnosis has not been successful by itself as a treatment strategy for obesity (Leon, 1976; Mott & Roberts, 1979). These findings may be the result of an overreliance on hypnotic suggestion in the absence of a behavioral change program. Mott (1982) has noted that it is more appropriate to consider hypnosis as a facilitator of a specific intervention than as a treatment per se.

The combination of hypnotic and behavioral approaches to obesity appears to offer considerable promise. Hypnosis, with its characteristic deep relaxation and intensified concentration (Kroger, 1977; Spiegel & Spiegel, 1978), may increase client attention to the behavioral program and provide sufficient reinforcement for clients to continue practicing the more adaptive eating behaviors acquired during treatment. Possibly self-hypnosis could replace Stuart's (1967) booster sessions and Davis and Dawson's (1980) use of hypnotic tapes to promote maintenance of weight change.

The purpose of this study was to evaluate the short- and long-term effectiveness of hypnosis as an adjunct to a behavioral weight-management program. Also of interest was the extent to which the inclusion of hypnosis resulted in continued client utilization of the newly acquired eating patterns after termination of treatment.

Method

Subjects

One hundred and fifty-six subjects were selected from individuals who responded to newspaper advertisements that requested participants in a weight-management program. Applicants were screened for special dietary restrictions, serious medical and psychological problems, and substance abuse. In questionable cases, the supervising physician or therapist was contacted. The initial sample consisted of 2 males and 154 females with an average age of 25 years and an age range of 17 to 67 years. Equal numbers of participants were assigned randomly to one of the two treatment conditions. They then were assigned randomly to one of the therapists such that each therapist worked with an approximately equal number of clients in each condition.

Therapists

Thirteen female and 14 male psychology students served as experimenters. These individuals were selected on the basis of their academic record, interests, training, and experience. All experimenters underwent an 8-week training program, which provided instruction in the theoretical foundations and practical applications of the relevant

behavioral and hypnotic weight-management techniques. After training, each therapist interned under supervision with two clients for 9 weeks. Data gathered during this period were not included in the statistical analysis.

Treatment Procedures

Behavioral. The goal of this treatment was to familiarize the participants with their present inappropriate eating habits and to enable them to learn behaviors more conducive to weight loss and maintenance. Consistent with the results of previous research (Foreyt et al., 1982; Jeffery, Wing, & Stunkard, 1978), individualized treatment programs were developed to meet each client's unique needs. Also, because some studies have found the inclusion of a fee to increase weight loss and maintenance (Jeffery et al., 1983), clients were charged a deposit of $20., refundable based on the degree of successful completion of the program.

Each subject met with a therapist once a week for 9 weeks. During the first meeting, data were collected on weight history and prior weight loss attempts, and an overview of the program was presented. Initial weights were taken, and weight goals were set. The participants then were instructed in self-monitoring skills and asked to maintain a written weight diary for 1 week. Subjects were told to expect an average weight loss of 1 to 2 pounds (.45 to .90 kg) per week, in contrast to many diet programs, which typically lead to more rapid weight change.

At the second session, the weight diary was reviewed for patterns of inappropriate eating, and clients were taught relevant stimulus-control techniques to enable them to identify and minimize stimuli that preceded poor eating behaviors or to develop more adaptive responses. Clients then were weighed and the first three rules presented. The first rule required that no formal dietary or exercise program be followed. It was emphasized that permanent weight loss would result only from changes in patterns of eating rather than short-term alterations in diet or activity level. The second and third rules required increased attending to food-intake behaviors and limited eating to specific reinforcers, satisfaction of hunger and stimulation of taste buds. At the end of the session, all subjects wrote down and were asked their understanding of the rules, including how they anticipated their eating habits and weight would be affected. They then were taught progressive relaxation and asked to read the rules to themselves while in a relaxed state at least once per day, and preferably before each meal.

During the third through ninth sessions, additional rules were presented similarly if the clients evidenced difficulty losing weight. The therapists continued to monitor and reinforce the subjects for following the program. Eating behaviors exhibited during the previous week were reviewed and the effects of the program discussed.

All subjects received the same rules in the same order, although not necessarily at identical points in their program. Each subsequent rule required progressively more attention to food intake. Rules ranged from experiencing each bite of food with all the senses to counting bites per meal. The emphasis was on slowing down food consumption, recognizing and modifying responses to stimuli that preceded maladaptive eating behaviors, charting weight changes, and developing enduring methods of self-reinforcement for successful weight loss.

Hypnosis. This treatment was identical to the behavioral intervention except for three additions. During the first session, the nature of hypnosis and its proposed use in the treatment were presented. Subjects were asked to practice the method of self-hypnosis outlined by LeCron (1964) at least once per day for at least 4 days. At the second session, hypnosis and self-hypnosis were discussed further. In lieu of reading the rules to themselves in a relaxed state, the clients were asked to practice self-hypnosis at least once per day, preferably before each meal, and to give self-suggestions that reiterated the program rules and their importance in losing weight. During the second

and subsequent sessions, the therapists placed the subjects in the hypnotic state using a progressive-relaxation form of induction. Suggestions were presented to the subjects that reviewed the program rules and the potential benefits of continuing to follow them.

Maintenance. At the final session, personalized maintenance programs were developed for all subjects. Subjects were encouraged to continue to use stimulus-control techniques and to chart their weight and to review periodically the program rules while relaxed or hypnotized. A set of individualized short- and long-term reinforcers were identified to motivate continued weight loss and maintenance.

Follow-up. In addition to data collection during the therapy, follow-up data were collected after approximately 8 months and 2 years from termination of the treatments. Subjects again were weighed at the university clinic by one of the experimenters. Additionally, at the 2-year follow-up, the subjects were asked to complete a questionnaire that surveyed their appraisal of the effectiveness of the program both during and subsequent to treatment. The questionnaires were returned anonymously.

Results

Pretreatment Analyses

One-way analyses of variance indicated that there were no significant differences between the treatment groups in initial weights ($F[1, 107] = .03, p > .10$) or percentage overweight using the Metropolitan Height and Weight Tables (1983) ($F[1, 107] = .58, p > .10$). Nor were there significant intergroup differences when these data were reanalyzed using only those subjects who completed the program and were also available for the follow-up. For the behavioral group, initial weights averaged 69.7 kg (22.9% overweight) with a range of 53.1 kg to 142.9 kg (.4% to 98.8% overweight); the hypnosis group averaged 70.2 kg (25.4% overweight) with a range of 51.7 kg to 136.1 kg (.8% to 104.7% overweight).

Attrition

Thirty-seven subjects failed to complete the weight program, 16 (20%) from the hypnosis treatment and 21 (27%) from the behavioral intervention. Drop-outs were defined as individuals who attended fewer than half of the nine sessions. Additionally, 5 clients in each condition were unable to be reached for follow-up and were not included in the data analysis. This difference in attrition was not significant ($\chi^2[2, N = 156] = .91, p > .10$). The final sample consisted of 57 hypnosis and 52 behavioral clients.

Weight Loss

Although subject weight was recorded at each meeting, only the data collected at the initial session, final session, and 8-month and 2-year follow-ups were used in the statistical analysis. A 2 × 4 (Treatment × Time) repeated measures analysis of variance showed a significant reduction in subject weight ($F[3, 321] = 88.2, p < .001$), but no overall difference between the treatments ($F[1, 107] = .91, p > .05$). The significant interaction, however, points to differential program effectiveness over time ($F[3, 321] = 27.4, p < .001$). Post hoc comparisons that used Duncan's multiple range test revealed that although both interventions resulted in a significant weight change from the initial to final sessions, only the group that utilized hypnosis continued to lose a significant amount of weight; the behavioral group was able to maintain the weight loss during treatment, but did not show any additional change by the follow-ups. (See Table 1.)

An ANOVA performed on percent over standard weights (Metropolitan Height and Weight Tables, 1983) yielded similar results. The nonsignificant treatment effect ($F[1, 107] = 1.0, p > .05$) and significant time effect ($F[3, 321] = 92.9, p < .001$) and interaction ($F[3, 321] = 26.0, p < .001$) paralleled the data analysis on absolute weight change and showed similar trends on the group means. (See Table 1.)

Table 1
Mean Weight and Percent Overweight by Treatment and Time

Treatment	*N*	Measures	Time of measurement: Initial	Final	6 months	2 years
Hypnosis	57	Weight (kg)	70.2_a	66.2_b	62.0_c	60.3_d
		% overweight	25.4	18.1	10.6	8.3
Behavioral	52	Weight (kg)	69.7_a	66.7_b	66.5_b	66.6_b
		% overweight	22.9	17.5	16.9	17.3

Note.—Means that have the same subscript are not significantly different at $p < .01$.

Goal Weight Attainment

Since the success of a weight-loss program also may be measured in terms of the proportion of subjects who attain their desired weights (Foreyt et al., 1982; Jeffery et al., 1983; Wilson, 1978), an additional analysis was performed on the percentage of individuals who reached their weight goals by the 2-year follow-up. While the behavioral and hypnosis groups had approximately the same mean weight-loss goals at the start of treatment (13.7 kg and 15.2 kg, respectively, $F[1, 107] = .58, p > .05$), significantly more of the hypnosis subjects (41%) reached or exceeded their goals than those in the behavioral condition (11%) ($\chi^2[1, N = 109] = 3.82, p < .05$). Not surprisingly, subjects with smaller weight-loss goals were more likely to attain them.

Follow-up Questionnaire

Question 1 of the follow-up questionnaire asked subjects how satisfied they were with their present weight, from very satisfied (scored as 1) to very unsatisfied (scored as 5). Question 2 required them to rate the effectiveness of the program, from very effective (1) to not at all effective (4). The next three items gathered data on how often the subjects followed the program rules during the treatment, at the 8-month follow-up, and at the 2-year follow-up. These items were scored as 1 (with each meal) through 7 (rarely or not at all). Additional items queried how the subjects learned about the program, what they liked and disliked about it, and whether they would recommend it to friends; these items were not coded.

One-way ANOVAs on each coded item revealed the subjects in the hypnosis group generally were more satisfied with their present weights ($F[1, 107] = 15.8, p < .001$) and were more apt to attribute their success or failure to the weight program ($F[1, 107] = 8.7, p < .005$). Interestingly, although subjects in both conditions reported that they followed the program rules approximately twice a day during treatment ($F[1, 107] = .3, p > .05$), by the 8-month follow-up the hypnosis clients still were using the program an average of five times per week, while the behavioral subjects reported that they followed the program about twice to three times weekly ($F[1, 107] = 14.9, p < .001$). By the 2-year follow-up, the subjects in the hypnosis condition reported that they followed the program three times per week, while the behavioral clients had dropped to an average of less than weekly ($F[1, 107] = 36.3, p < .001$).

Finally, because little relationship has been found between weight loss and reported behavior change (Jeffery, Vender, & Wing, 1978), the items that requested data on frequency of following the program during treatment and at the 8-month and 2-year follow-ups were correlated with weight change during these periods of time. All correlations were significant at $p < .001$, which suggests that a strong relationship existed between reported behavior change from following the program and weight change (rs of .48, .44, and .35 respectively, $df = 107$), although the relationship diminished over time.

Discussion

The results of this study strongly support the use of hypnosis as an adjunct to the behavioral treatment of obesity. Consistent with earlier reports, the behavioral intervention led to a significant weight loss during treatment and maintenance of this change by the 2-year follow-up. The addition of hypnosis, however, resulted not only in a significant reduction in subject weight during the program, but also in continued weight loss after therapist contact was terminated. Moreover, a greater percentage of the hypnosis clients had attained their goal weights by the 2-year follow-up.

These findings also compare favorably with those in the hypnosis literature. Treatments that primarily employ direct hypnotic suggestion of weight reduction generally have been ineffective, possibly because of the lack of inclusion of a program that incorporates systematic changes in food intake (Leon, 1976). In contrast, the use of a combined hypno-behavioral approach in this investigation resulted in significant weight loss. This lends further support to the view that hypnosis is most effective when employed as part of a total treatment regimen (Mott, 1982; Schubert, 1983).

The better long-term efficacy of the hypnosis condition may be the result of two factors. First, hypnosis, when used as an adjunct to treatment, has been found to facilitate the acquisition of more adaptive behaviors (Brodie, 1964; Kroger, 1977; Kroger & Fezler, 1976). Thus, the subjects who used hypnosis as a part of their weight program may have been able to integrate more readily the program rules into their behavioral repertories. Second, and perhaps more importantly, behavioral weight-management studies that report successful long-term change typically have developed incentive systems to bridge the gap between the short-term reinforcers provided during treatment and the long-term goal of weight reduction (Abrams & Follick, 1983; Jeffery et al., 1983; Kingsley & Wilson, 1977; Leon, 1976). While weight loss requires learning new skills, weight maintenance also necessitates continued motivation and commitment (Kingsley & Wilson, 1977). In this study, client reports revealed a general decrease in frequency of program adherence from the treatment to the 2-year follow-up; however, the decrease was significantly less for the hypnosis subjects than those in the behavioral condition. The significant relationship between the hypnosis treatment and alterations in weight and eating patterns suggests that hypnosis may have served as an effective motivator for subjects to continue practicing the more adaptive eating behaviors acquired during treatment.

Although these findings are optimistic about the utility of including hypnosis in a behavioral weight-management program, some caution is indicated. First, while the weight of subjects in the hypnosis condition changed significantly from the beginning of treatment through the follow-ups, none of the clients who were seeking a loss of at least 30 kg attained their goal weights. Most, in fact, regained the weight lost in treatment. The positive correlation between initial weight and weight change from the end of treatment to the 2-year follow-up suggests that this program is generally more effective for small or moderate weight loss ($r[107] = .28, p < .01$). A longer or more intense treatment (Jeffery, Wing, & Stunkard, 1978) might have improved the success rate for the severely obese. Second, while the correlations between weight loss and client reports of program adherence attained statistical significance, only 12% to 23% of the variability in subject weight change can be attributed to modifications in eating behaviors. Although this is an improvement over previous findings (Jeffery, Vender, & Wing, 1978), it is limited in clinical significance. Finally, only 76% of the subjects who began treatment actually completed the program, which tempers the findings of this study.

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