

Expectation, Fantasy, and Weight Loss: Is the Impact of Positive Thinking Always Positive?¹

Gabriele Oettingen²

University of Pennsylvania

Thomas A. Wadden

University of Pennsylvania School of Medicine

We investigated the impact of expectation and fantasy on the weight losses of 25 obese women participating in a behavioral weight reduction program. Both expectations of reaching one's goal weight and spontaneous weight-related fantasies were measured at pretreatment before subjects began 1 year of weekly group-treatment. Consistent with our hypothesis that expectation and fantasy are different in quality, these variables predicted weight change in opposite directions. Optimistic expectations but negative fantasies favored weight loss. Subjects who displayed pessimistic expectations combined with positive fantasies had the poorest treatment outcome. Finally, expectation but not fantasy predicted program attendance. The effects of fantasy are discussed with regard to their potential impact on weight reduction therapy and the need for further studies of dieters' spontaneous thoughts and images.

KEY WORDS: fantasy; expectation; obesity; weight reduction.

¹We thank Lori Kuznar, Kathy Letizia, Anand Lotte, Kim Shah, and Angelika Lengfelder for their assistance in gathering and analyzing the data. Peter M. Gollwitzer and Fritz Strack made valuable comments on an earlier version of this manuscript. This research was supported by fellowships from the German Research Foundation and the John D. and Catherine T. MacArthur Foundation, Health and Behavior Network, to the first author and by a National Institute of Mental Health Research Scientist Development Award to the second author.

²Correspondence concerning this article should be addressed to Gabriele Oettingen, who is now at the Max Planck Institute for Human Development and Education, Lentzeallee 94, 1000 Berlin 33, Germany.

A growing body of literature suggests that positive thinking enhances mental health and well-being (Taylor & Brown, 1988). Studies have identified a group of individuals who hold unrealistically positive views of themselves (Brown, 1986; Lewinsohn, Mischel, Chaplin, & Barton, 1980), overestimate their ability to control their environment (Langer, 1975), and look overoptimistically to the future (Perloff & Fetzner, 1986). Such positive thinking, despite being illusory, is associated with increased happiness, productivity, and creativity (Taylor & Brown, 1988), as well as physical health (Scheier & Carver, 1987). Persons with an optimistic outlook also cope more successfully with a variety of adverse life situations (Bandura, 1986).

A separate line of research has investigated strategies to facilitate coping with physical illness and medical procedures. Here, accurate and thus often negative information improves patients' adjustment and recovery (Johnson, Lauver, & Nail, 1989). A meta-analysis by Suls and Wan (1989) directly posed the question whether accurate information about upcoming medical problems is helpful or harmful. A combination of accurate information about the anticipated procedures (i.e., procedural information) and descriptions of the sensations that would be seen, heard, felt, smelled, and tasted (i.e., sensory information) had the strongest effect on reducing negative affect, reports of pain, and rated distress in response to medical procedures. Similar findings come from investigations with children who actively seek information about upcoming surgical or diagnostic procedures (see Peterson, 1989).

These two lines of research suggest that positive expectations, as described by Taylor & Brown (1988), may be independent of the tone of the images and fantasies in which persons engage when anticipating future events. This is because expectations are based on probability judgments pertaining to the occurrence of certain desirable or undesirable events (Bandura, 1986; Bernier & Avard, 1986). The research on coping with medical problems, however, does not refer to such judgments. Instead, patients focus on mental images stemming from the sensory and procedural information they received about the upcoming experiences.

These considerations lead us to suspect that the concepts of expectation and fantasy may differ in quality and may have different impacts on behavior. Thus, an ex-smoker may be confident of her ability to abstain from smoking at an upcoming party, but nevertheless fantasize about the nagging temptations of having a cigarette when enjoying a drink with a friend who smokes. Images of succumbing to such temptations might lead her to develop strategies to contend with the anticipated situations. Covert modeling, hypnosis, guided imagery, and related therapies encourage patients to fantasize about upcoming events as a means of preparing themselves for high-risk situations (Marlatt & Gordon, 1985). The present study

investigated the expectations of success and weight- and food-related fantasies of 25 obese women participating in a weight-reduction study. We wished to determine the effects of expectation on weight loss, as well as the effects of subjects' fantasies regarding their eating behavior and body weight.

METHOD

Subjects

Subjects were 25 obese women who were randomly selected from a larger study on the long-term treatment of obesity by behavior therapy and very-low-calorie diet (Wadden, Foster, & Letizia, 1990). Subjects had an average age of 39.5 years ($SD = 9.8$), weight of 106.4 kg ($SD = 16.9$) and body mass index (weight in kilograms/height in meter squared) of 39.1 ($SD = 6.3$). Subjects were recruited by means of newspaper advertisements seeking women at least 25 kg overweight. Prior to treatment, subjects completed a thorough medical evaluation (Wadden & Stunkard, 1986) and gave their informed consent to participate in the study, which was approved by the University of Pennsylvania's Committee of Studies Involving Human Beings.

Procedure

Subjects were randomly assigned to one of two dietary conditions: (1) very-low-calorie diet (VLCD) ($n = 13$); or (2) balanced-deficit diet (BDD) ($n = 12$). Subjects in both conditions attended weekly treatment sessions (of 90 min) for 52 weeks and were instructed in cognitive-behavioral methods of weight control (Brownell, 1989; Wadden & Stunkard, 1986). Subjects paid \$600 of which \$150 were returned upon completion of the program.

VLCD Condition. Subjects in this condition consumed a 1200-kcal diet the first week, a 420-kcal liquid diet for weeks 2–17, and a refeeding diet from weeks 18–23 (Wadden et al., 1990; Wadden & Stunkard, 1986). They followed a self-selected diet of approximately 1000–1500 kcal/day for the remainder of treatment. While consuming the very-low-calorie diet, subjects were seen every other week by an internist and had their electrolytes measured (Wadden & Stunkard, 1986).

BDD Condition. Subjects in this condition consumed a 1000- to 1500-kcal/day diet throughout treatment. The diet provided approximately 15–20% calories from protein, 50–55% from carbohydrate, and 30% from fat.

Measures

Weight Goal and Expectation. At pretreatment, each subject indicated the number of pounds she wished to lose in the program and the likelihood of her reaching this goal. Expectation of reaching the goal weight was measured by three related questions: (1) "How likely do you think it is that during this weight reduction program you will lose the amount of weight (that you have specified)?"; (2) "Do you feel that you will be successful in the weight loss program?"; and (3) "How confident are you that after this program is completed, you will have lost the amount of weight you indicated in question number 1?" Questions were answered using 7-point scales (1 = low, 7 = high). These three items yielded a Cronbach's alpha of .73; thus, they were combined into a single "expectation" score. To check if our measure of overall expectation covered subjects' self-efficacy expectations, we included a question composed of two parts: First, subjects indicated "to what extent do you believe that the following, if applied regularly, will contribute to your losing the amount of weight indicated in question number 1?" Subjects scored six choices: dieting, exercise, will power, preplanning weight control behaviors, adherence to the program, and a final factor subjects chose themselves. Subjects were then asked, "How likely do you think it is that you will be able to perform these behaviors (indicated in the preceding question)?" Subjects answered all questions on a 7-point scale (1 = low, 7 = high). This measure of self-efficacy showed a correlation coefficient of $r = .77$ with the measure of overall expectation. Therefore we did not include it in the analysis as a separate measure.

Weight-Related Fantasy. Each subject was asked to vividly imagine herself as the main character in four hypothetical weight- and food-related scenarios. Two stories were designed to elicit fantasies about the subject's weight loss, whereas two others described encounters with tempting foods. Each story led to an unspecified outcome which subjects were asked to complete (in writing) by describing the stream of thoughts and images that occurred to them. Care was taken to make the scenarios open-ended in order to elicit a variety of responses. One of the scenarios is described below:

You have just completed Penn's weight loss program. Tonight you have made plans to go out with an old friend whom you haven't seen in about a year. As you wait for your friend to arrive, you imagine

Subjects rated the positivity, negativity, and intensity of their responses to each scenario, as well as their imagined body shape (using 7-point scales; 1 = low, 7 = high). After completing one scenario, they proceeded to the next. Scores were averaged across all four stories to form positivity,

negativity, intensity, and body shape scales. The internal consistency of the four stories, as measured by Cronbach's alpha, was sufficiently high (positivity: .70, negativity: .65, intensity: .71, body shape: .69).

There was a strong inverse relationship between the positivity and negativity scales ($r = -.94$). Thus, we subtracted the negativity from the positivity scale to obtain a comprehensive valence scale, ranging from -6 to $+6$. The more positive the fantasies subjects reported, the higher the scores on the valence scale. Since this valence scale was not related to the intensity scale ($r = .09$), we did not include the intensity measure in our analyses. Finally, a high correlation ($r = .72$) between the valence and the body shape scale was observed, indicating that the content of positive fantasies pertained to dieting and losing weight and not to the joy of eating and gaining weight.

RESULTS

Weight Loss

Weight was measured using a balance-beam scale. At weeks 17 (end of VLCD, $N = 25$) and 52 (1 year, $N = 20$), weight losses for the VLCD subjects were 17.1 kg ($SD = 5.4$) and 16.1 kg ($SD = 10.5$), respectively. Losses for the BDD subjects were 11.1 kg ($SD = 10.1$) and 14.8 kg ($SD = 11.5$). Analyses of covariance (with initial weight taken as the covariate) showed that conditions tended to differ at week 17, $F(1, 22) = 3.00$, $p = .10$, but not at week 52, $F(1, 17) = .51$, n.s. Partial correlation analyses, removing the effect of condition, showed that initial weight was not significantly related to weight loss at any time ($r_s < .27$, n.s.).

Expectation and Fantasy

Subjects' expectation and fantasy scores showed a significant positive correlation ($r = .45$, $p < .05$; expectation: $M = 6.2$, $SD = .7$; fantasy: $M = 2.5$, $SD = 2.6$), indicating that expectation and fantasy shared common variance. Fantasy and weight loss were consistently negatively correlated at weeks 17 and 52 ($r = -.34$, $p = .05$, and $r = -.31$, $p = .09$), whereas there was no systematic correlation between expectation of success and weight loss (r_s between $-.07$ and $.22$). Finally, both expectation and fantasy did not differ between VLCD and BDD conditions (both $p_s > .58$).

Table 1. Multiple-Regression Analyses on Prospective Weight After 17 and 52 Weeks

Predictor variable	Weight after 17 weeks		Weight after 52 weeks	
	β	F	β	F
Initial weight	.86	81.65 ^c	.76	37.71 ^c
Fantasy	.14	1.72	.34	6.22 ^a
Expectation	-.07	.53	-.31	5.85 ^a
Fantasy \times Expectation	-.25	9.59 ^b	-.25	5.14 ^a

^a $p < .05$.

^b $p < .01$.

^c $p < .001$.

Multiple Regression Analyses. Subjects' weight data were examined further by two hierarchical regression analyses. Initial weight, fantasy, and expectation were entered simultaneously in the first step, and the interaction between fantasy and expectation in the second. Weights at weeks 17 and 52 were the dependent variables of the two analyses, respectively.

The results are summarized in Table 1. Negative fantasies and positive expectations were both associated with increased weight loss at week 52. Step 2 of the regression analyses revealed that the main effect of fantasy and expectation was qualified by a significant Fantasy \times Expectation interaction. This interaction was also significant in predicting weight loss at week 17. According to followup analyses (Cohen & Cohen, 1983), the significant interaction terms of the prospective analyses indicated that pessimists (i.e., those entertaining low expectations of success) with positive fantasies were less successful in losing weight than were pessimists with negative fantasies. Weight loss of optimistic subjects (i.e., those entertaining high expectations of success) was not affected by their fantasy scores. Figure 1 depicts the estimated regression lines representing predicted percent weight change after 17 and 52 weeks.

Attendance. Subjects attended an average of 33.6 sessions ($SD = 8.3$, range: 11–43). Attendance correlated significantly with expectation ($r = .56$, $p = .002$), but not with fantasy ($r = .00$, n.s.). A third hierarchical regression analysis revealed a significant relationship between optimistic expectations and program attendance ($\beta = .71$, $F(2, 22) = 14.44$, $p = .001$), whereas both the effects of fantasy and its interaction were negligible.

The three regression analyses reported were repeated with dietary condition as a fourth predictor variable. Consistently, dietary condition did not account for a significant portion of the variance nor did it change the effects of any of the other predictor variables.

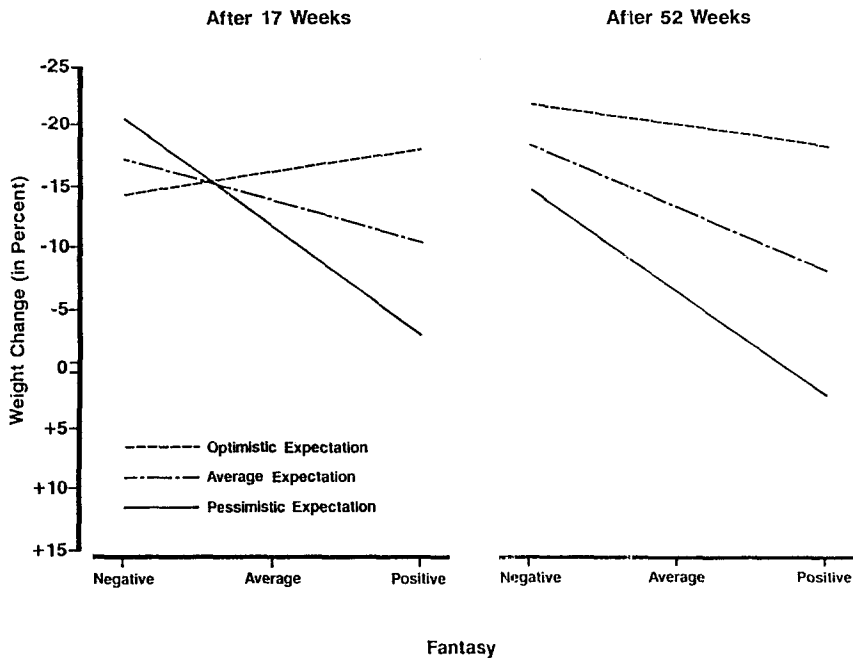


Fig. 1. Percent weight change after 17 and 52 weeks as a function of negative, average, and positive fantasies and pessimistic, average, and optimistic expectations.

DISCUSSION

Both expectations and fantasies predicted weight loss, although in opposite directions. The more positive a subject's *expectation* of success, the more weight she lost. The more positive her *fantasy* about weight reduction, however, the smaller her weight loss. Individuals with negative expectations and positive weight-related fantasies had by far the poorest treatment outcome, as illustrated in Fig. 1.

Our findings are consistent with those of previous studies showing a positive relationship between weight loss and both optimistic expectations (Wadden & Flaxman, 1981) and self-efficacy (Bernier & Avard, 1986; Edell, Edington, Herd, O'Brien, & Witkin, 1987; Forster & Jeffrey, 1986; Glynn & Rudermann, 1986). Thus dieters' judgments concerning performance of weight control behavior and overall weight loss provide useful means (though clearly modest) of identifying persons at risk of a poor outcome. The present results also confirm previous findings that both negative

expectations and low self-efficacy appear to be associated with increased attrition (Bernier & Avard, 1986).

Our findings concerning the relationship of fantasies to weight loss are, to our knowledge, the first of their kind and should be considered exploratory. Persons who engaged in fantasies which they rated as having a negative quality were more successful in losing weight than persons who rated their fantasies more positively. Apparently, images of staying obese and failing to resist food-temptations promoted weight loss. Although these findings may at first seem surprising, they uphold our considerations that expectations and fantasies differ in their impact on behavior. Moreover, fantasies, unlike expectations which influenced reflected decisions (i.e., whether to attend program meetings), might have predominantly affected spontaneous or reactive eating behavior. Subsequent discussions with subjects revealed that negative fantasizing was indeed used as a means of preparing for upcoming temptations and hardships. Thus, in their preparatory fantasies, subjects spontaneously created food- and weight-related problems and rehearsed responses to them, in much the same manner that patients are taught to prepare for high-risk situations (Marlatt & Gordon, 1985). Subjects who reported very positive fantasies, however, appeared to daydream that weight loss would occur effortlessly and without suffering. Such wishful thinking did little to facilitate successful weight control in either the short or the long term (as shown in Fig. 1). Moreover, hopeful fantasies were particularly harmful to subjects who estimated their chances of success to be comparatively low.

Dieters are frequently thought to have maladaptive cognitions which hinder their successful treatment, and cognitive therapy is now an integral part of behavior therapy for obesity (Bennett, 1986; Brownell, 1989; Collins, Rothblum, & Wilson, 1986). Nevertheless, little is known about overweight individuals' spontaneous cognitions, daydreams, and fantasies. The results of this pilot study suggest that the impact of positive thinking is not always positive. Moreover, it would appear useful to differentiate between expectations and fantasies when considering the effects of cognition on success in a weight loss program. Further studies are clearly needed in which larger numbers of subjects and different health problems are examined.

REFERENCES

- Bandura, A. (1986). *Social foundation of thought and action*. Englewood Cliffs, NJ: Prentice-Hall.
- Bennett, G. A. (1986). Cognition rehearsal in the treatment of obesity: A comparison against cue avoidance and social pressure. *Addictive Behaviors*, 11, 225-237.

- Bernier, M., & Avard, J. (1986). Self-efficacy, outcome, and attrition in a weight-reduction program. *Cognitive Therapy and Research, 10*, 319-338.
- Brown, J. D. (1986). Evaluations of self and others: Self-enhancement biases in social judgments. *Social Cognition, 4*, 353-376.
- Brownell, K. D. (1989). *The LEARN program for weight control*. Dallas, TX: Brownell and Hager.
- Cohen, J., & Cohen, P. (1983). *Applied multiple regression/correlation analysis for the behavioral sciences*. Hillsdale, NJ: Erlbaum.
- Collins, R. L., Rothblum, E. D., & Wilson, G. T. (1986). The comparative efficacy of cognitive and behavioral approaches to the treatment of obesity. *Cognitive Therapy and Research, 10*, 299-317.
- Edell, B. H., Edington, S., Herd, B., O'Brien, R. M., & Witkin, G. (1987). Self-efficacy and self-motivation as predictors of weight loss. *Addictive Behaviors, 12*, 63-66.
- Forster, J. L., & Jeffrey, R. W. (1986). Gender differences related to weight history, eating patterns, efficacy expectations, self-esteem, and weight loss among participants in a weight reduction program. *Addictive Behaviors, 11*, 141-147.
- Glynn, S. M., & Ruderman, A. J. (1986). The development and validation of the eating self-efficacy scale. *Cognitive Therapy and Research, 10*, 403-420.
- Johnson, J. E., Lauver, D. R., & Nail, L. M. (1989). Process of coping with radiation therapy. *Journal of Consulting and Clinical Psychology, 57*, 358-364.
- Langer, E. J. (1975). The illusion of control. *Journal of Personality and Social Psychology, 32*, 311-328.
- Lewinsohn, P. M., Mischel, W., Chaplin, W., & Barton, R. (1980). Social competence and depression: The role of illusory self-perceptions. *Journal of Abnormal Psychology, 89*, 203-212.
- Marlatt, G. A., & Gordon, J. R. (Eds.) (1985). *Relapse prevention: Maintenance strategies in the treatment of addictive behaviors*. New York: Guilford Press.
- Perloff, L. S., & Fetzer, B. K. (1986). Self-other judgments and perceived vulnerability of victimization. *Journal of Personality and Social Psychology, 50*, 502-510.
- Peterson, L. (1989). Coping by children undergoing stressful medical procedures: Some conceptual, methodological, and therapeutic issues. *Journal of Consulting and Clinical Psychology, 57*, 380-387.
- Scheier, M. F., & Carver, C. S. (1987). Dispositional optimism and physical well-being: The influence of generalized outcome expectancies on health. *Journal of Personality, 55*, 169-210.
- Suls, J., & Wan, C. K. (1989). Effects of sensory and procedural information on coping with stressful medical procedures and pain: A meta-analysis. *Journal of Consulting and Clinical Psychology, 57*, 372-379.
- Taylor, S. E., & Brown, J. D. (1988). Illusion and well-being: A social psychological perspective on mental health. *Psychological Bulletin, 103*, 193-210.
- Wadden, T. A., Foster, G. D., & Letizia, (1990). *Long-term treatment of obesity with and without very-low-calorie diet*. Manuscript submitted for publication.
- Wadden, T. A., & Flaxman, J. (1981). Hypnosis and weight loss: A preliminary study. *International Journal of Consulting and Clinical Psychology, 29*, 162-173.
- Wadden, T. A., & Stunkard, A. J. (1986). Controlled trial of very low calorie diet, behavior therapy, and their combination in the treatment of obesity. *Journal of Consulting and Clinical Psychology, 54*, 482-488.