

# Psychologic Factors in Weight Control

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MY ROLE here today is not entirely a comfortable one, for I am not an experimental psychologist, a neurophysiologist, an anthropologist, a clinical psychologist, or a psychiatrist. I come as a nutritionist with a practical dietetic background supplemented with training in laboratory research. My interests are definitely in the applied field and primarily in human studies. Perhaps the greatest contribution a nutritionist can make to this group is a statement of her increasing recognition of the tremendous role played by psychologic, cultural, and sociologic factors in the feeding of people. It is well known to any of us who work in the field of human nutrition that our theoretical knowledge of the biochemistry and physiology of nutrition far outstrips the application of this knowledge to the welfare of human beings. There is great need for more cooperative thinking and working between social and biologic scientists on the problems incidental to achieving a better nourished population. We need more biologists who recognize the significance of psychologic influences on every physiologic process in the integrated individual; equally we need more psychologists and social scientists who understand our bungling appreciation of what they have to offer, who will meet us at least half way, in seeking more realistic solutions of our problems.

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Certainly anyone who has worked extensively with either obese or excessively thin individuals can have no question in his mind but what nutrition and behavior are related. Here behavior affects nutrition leading to over- or under-nutrition, which in turn may lead to further behavior problems. For the past fifteen years we have been working with obese patients.<sup>1,2</sup> At first the work was purely clinical; more recently it has been on a research basis, involving both metabolic and clinical studies. We have learned a great deal about how obese patients act and to some extent how they think and feel. Five studies have been concerned with metabolic responses to weight reduction using carefully supervised dietary regimens.<sup>3-8</sup> A total of 50 obese college men and women have served as subjects. It is in connection with problems which arose in these studies that our interests in the psychologic aspects of obesity crystallized.

## METHODS

In the first metabolic study undertaken, the only criteria used in selection of subjects were the following: sufficient degree of obesity; no physical reason for not undertaking weight reduction; and an apparently sincere desire to co-operate in the study. As this initial group contained at least one compulsive eater,<sup>4</sup> it became obvious that these criteria were not sufficient to insure satisfactory subjects. Some means had to be found of selecting individuals who were sufficiently stable to be cooperative. At this point we enlisted the aid of two colleagues in the Department of Clinical and Preventive Medicine: Dr. C. D. Darling, a psychiatrist, and Dr. John Summerskill, a clinical psychologist. Three general questions were raised for discussion: (1) Are all obese persons emotionally unstable? (2) Are there specific personality characteristics which predispose to obesity? (3) Is success in dieting



related to measurable personality factors? The intent of the last question was to see whether by some psychologic instrument one could screen candidates for a controlled weight reduction experiment. At that time six of the ten subjects for the first metabolic experiment were still on our campus. Their co-operation was enlisted in a study undertaken by Drs. Darling and Summerskill and directed toward the three questions listed above.

Each of the women received a one-hour psychiatric interview and three hours of psychologic testing. The purpose of the psychiatric interview was to obtain a rating of the individual's emotional stability, but not to provide therapy or a differential diagnosis as such. Psychologic tests were administered in this order: (a) Thurstone Personality Schedule; (b) Bell Adjustment Inventory; (c) Bernreuter Personality Inventory; and (d) Minnesota Multiphasic Personality Inventory. The psychiatric interview and the psychologic testing were carried out independently and results compared later with the nutritionist's ratings with respect to each subject's performance in the diet experiment.

#### OBSERVATIONS

Details of the results are reported elsewhere.<sup>9</sup> In general, they indicated that obesity may be associated with varying states of emotional adjustment from essentially normal to seriously disturbed. Also, among the poorly adjusted subjects no single or unique personality pattern was evident either in the psychiatric interviews or by psychologic tests. Findings obtained by psychiatric interview concerning emotional adjustment were in agreement with the findings by psychologic testing. Emotional adjustment scores in turn showed a high positive relationship with dieting performance. Indications were that brief pencil and paper psychologic instruments such as the Bell Adjustment Inventory might be effective in eliminating individuals for whom participation in rigorous dieting could lead to undesirable consequences. The Bell test was selected for further study because of its apparent validity and its ease of administration and scoring.

Our next metabolic study offered an oppor-

tunity to examine the use of the Bell Adjustment Inventory as a procedure for selecting individuals suitable for controlled dieting. The nutritionist selected subjects as before, i.e., without regard to emotional status. The clinical psychologist then administered the Bell Adjustment Inventory, and an additional test not used in the previous testing, the Psychosomatic Inventory to the 11 subjects before dieting began. Deliberately, the nutritionist was not informed as to the results. At the end of the experiment, cooperation in dieting was related to emotional adjustment, as measured by the two instruments. Both the Bell Adjustment Inventory and the Psychosomatic Inventory appeared to be highly effective as predictive devices for choosing subjects who could cooperate successfully in controlled weight reduction. This has been reported in the literature<sup>9,10</sup> and since then the two tests have been used successfully in the selection of subjects for three additional metabolic studies of weight reduction of obese college men.<sup>3,7,8</sup>

We also have investigated the feasibility of using the Bell Adjustment Inventory for the selection of obese patients most likely to succeed in weight reduction in a clinic. Perhaps if I tell you about our experiences in the clinic you will see why we were interested in such a device. For some two and one-half years an internist and a nutritionist operated an experimental community nutrition clinic for the express purpose of studying weight reduction. The plan of study and results are described elsewhere.<sup>11</sup> Suffice it here to say that every effort was made to have conditions as conducive as possible to maximum success in weight reduction. The success of our patients in achieving weight reduction was not outstanding; yet it was as good if not better than that of any similar study reported in the literature.

To what was success or lack of success due? In the individual patients, we believed success was related largely to emotional stability and to strength of motivation. Our estimations of emotional stability were made on the basis of rather long and intimate contacts. To us, patients seemed to fall into one of three groups: (1) those who appeared reasonably



stable with few or no emotional problems; (2) those who gave repeated evidence of being tense, anxious or insecure; (3) those who appeared to have deeper emotional problems.

Evaluations of success in weight reduction were made independently by the therapists and then related to a previous independent classification of each patient into one of the three groups listed above. Study of the relationship showed that, in general, patients falling in the first group, the reasonably stable, had a high degree of success in weight reduction. The second group, the moderately tense, anxious or insecure patients, were less successful and what success they had depended on several factors, such as whether or not the patient was able to gain insight into the purpose food served for him, whether he was able to resolve his anxiety, and finally, how strongly he appeared to be motivated. These individuals definitely gained weight during periods of anxiety and tension, either fairly continuously or intermittently when they used food in an attempt to find relief. The third group, with "deeper emotional problems," consisted largely of failures with regard to weight reduction. From this standpoint, therapy was a complete waste of time for them. In some cases, attending the clinic appeared helpful in that various somatic symptoms were relieved without specific treatment and these patients were eager to continue to attend the clinic. In other patients, however, the experience seemed harmful, in that feelings of guilt and frustration appeared to be added to their problems. For the few in the third group who were successful in weight reduction, evidences of emotional instability seemed to be increased. One definitely felt that members of this group should not have been referred to the weight reduction clinic.

Our clinic experience would seem to point to the urgent need for screening of patients, by suitably trained personnel, before they are referred to the usual weight reduction clinic or before a weight reduction regimen is instituted by a physician. If such a screening were made, the frustration of both patient and therapists would be lessened, to say nothing of

effecting a great saving in time and money. A psychiatrist or clinical psychologist could make such evaluations. Unfortunately, at least partially because of the lack of sufficient suitable personnel, this is not often done. Hence, the discovery of a pencil and paper test satisfactory for that purpose, which others might use, would be a real help. I should like to tell you of our experience in this direction.

Since the Bell Adjustment Inventory had proven an effective tool in selecting subjects for our metabolic studies, it was decided to include the test in our clinic procedure. Some 90 patients were given the Bell inventory early in their contacts with the clinic and then attended the clinic long enough to make possible an evaluation of their success in weight reduction. The inventories were given, scored, and held in confidence by the public health nutritionist who served as receptionist at the clinic. She had been trained in the administration and scoring of the test by Dr. Summerskill. The internist and nutritionist were not informed as to the test results, with respect to each patient. Later, the success in weight reduction of the patients was evaluated independently, for another purpose, by each of the therapists. At the conclusion of the clinic experiment, the Bell emotional adjustment score of each patient was related to his success with respect to weight reduction—the higher the score, the poorer the subject's adjustment. Table I gives the number of persons falling in each category as well as the mean emotional adjustment score attained by the individuals in each case.

Fifty-two per cent of the patients with above average emotional adjustment were successful in weight reduction; another 42 per cent had "some success." In contrast, 64 per cent of those with below average emotional adjustment were totally unsuccessful, only 32 per cent had "some success," and only one patient in this group was successful. For the patients with average emotional adjustment the greatest percentage, 45, had "some success." Further examination of the records of the six individuals who were successful from the average group showed that they all had



TABLE I

Relationship Between Success in Weight Reduction and Bell Emotional Adjustment Score—Nutrition Clinic Patients

Weight reduction	Bell Emotional Adjustment Score						Total Mean score
	Above average		Average		Below average		
	No. of persons	Mean score	No. of persons	Mean score	No. of persons	Mean score	
Successful	16	3.2	6	9.3	1	18.0	5.5
Some Success	13	3.1	17	11.7	7	19.9	10.3
Unsuccessful	2	4.5	14	11.7	14	21.3	15.7

reason to be highly motivated; four had physical conditions such that weight reduction made them considerably more comfortable and two, for reasons of prestige, could not have allowed themselves to fail. Further study of the records of the individuals with average emotional adjustment scores leads us to believe that the individuals succeeded largely in proportion to their motivation to lose weight or to the conduciveness for weight reduction of their life circumstances at the moment. During the period of study several members of this group had very trying life situations which the therapists felt interfered with performance. Several had no real desire to lose weight; their physicians had urged them to do so, but personally they were indifferent. Furthermore, in the "unsuccessful" category of the patients with average scores, were at least six individuals whom the therapists felt, from material gathered in therapeutic contacts over many weeks, were definitely unsatisfactory in emotional adjustment. Further investigation showed that the actual Bell scores for several of these individuals were only a point or two above the unsatisfactory range.

#### DISCUSSION

From our experience in the use of the Bell Adjustment Inventory with clinic patients, it would seem that the test might be quite useful in screening patients to be referred to weight reduction therapy. One might expect those with above average emotional adjustment to be reasonably successful in weight reduction; those with below average adjustment would be likely to be unsuccessful and perhaps better not referred. The group with average emotional adjustment would offer

the greatest challenge to the physician or nutritionist. Patients with strong motivation and with good life situations would seem to have a fair chance of some success; conversely those with little motivation and trying life situations would probably not succeed. Those with scores just above the unsatisfactory range probably would not be successful. For patients with average emotional scores just starting therapy, probably an attempt should be made to determine the strength of their motivation, if any, and to help them analyze their reasons for resisting achievement. If this can not be done, probably therapy should not be long continued. We feel an attempt should also be made early in therapy to ascertain immediate life circumstances which might make it inadvisable for patients of only average emotional adjustment to undertake the stress of weight reduction. Certainly our experience with the use of the Bell Adjustment Inventory was sufficiently encouraging to warrant further consideration and study.

So much for our experience with the use of a psychologic instrument for predicting success in weight reduction performance whether in metabolic studies or in the clinic. Before closing, there are two or three additional miscellaneous observations I should like to report. The first is this: Among the 168 obese patients followed in the clinic one could find individuals whose use of food was illustrative of most any of the uses suggested by Bruch,<sup>12</sup> Conrad,<sup>13</sup> Hamburger,<sup>14</sup> and others in the psychiatric literature. However, it is not for a non-psychiatrically trained person to present such case studies but merely to support their observations. We should like to stress again that many apparently well-adjusted



people were found in the obese group we observed. Another point is that in our metabolic studies, even among our emotionally-well-adjusted obese young men who were being reduced on a controlled dietary regimen, adequate in all nutrients except calories, we observed many of the same behavior responses reported in the Minnesota Human Starvation Studies,<sup>15</sup> for example general tiredness; weakness especially in climbing stairs; irritability over minor annoyances such as a slight delay in a meal or a later arrival inadvertently being served first; moodiness; increase in psychosomatic complaints; constant talk about food; great preoccupation with ideal weights and the rate of weight loss; either the gulping down of food or undue prolongation of the meal by nursing each morsel; and tremendous increase in the quantities of tea, coffee, and cigarettes consumed during the periods of caloric restriction. Reactions similar to those reported from Minnesota also were found at the "celebration" banquet at the end of the study when, in spite of all the boasting done in advance about what could be eaten, eyes proved far bigger than stomachs.

Finally, another area of research in the psycho-biologic field has been suggested by results from some of our metabolic studies as well as those of others. In both of our studies in which obese young women served as subjects, as weight reduction progressed negative calcium balances were observed on calcium intakes which had led to retentions in the pre-reduction obese state. Brown *et al.*<sup>16</sup> and Leverton and associates<sup>17,18</sup> have reported similar findings. So far there has been no physiologic explanation. My feeling was that stress of some kind, perhaps on an emotional basis, was involved. Then at the 1955 annual meeting of the American Dietetic Association, Stearns<sup>19</sup> reported metabolic studies with 10 young pregnant unmarried women whose emotional problems varied from none at all to grave distress. When the calcium and vitamin D intakes were ample, calcium retention appeared to vary inversely as the amount of emotional disturbance. Furthermore, Malm and Nicolaysen<sup>20</sup> now have a

report in press with evidence that in adult male prisoners the efficacy of calcium absorption seemed to be influenced markedly by the emotional state of the individual. With improvement in the emotional state went improvement in calcium utilization.

These studies open a whole area for further research, both in animals and humans, on the effect of emotional states on the biochemical and physiologic metabolic responses. Coupled with the great need for further understanding of human motivation so evident to one interested in clinical dietetics, nutrition education and food acceptance, there seems to be ample evidence that we have only begun to explore the relationships between nutrition and behavior. Our great need is for more scientists, both biologic and social, who are willing to meet each other more than halfway to cultivate the rich rewards of work in psychodietetics.

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