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THE RELATIONSHIP BETWEEN WEIGHT LOSS AND LOCUS OF CONTROL,
POSSIBLE SELVES, SELF-ESTEEM,
ANXIETY AND OPTIMISM/PESSIMISM

A Thesis
Presented to the
Faculty of
California State
University, San Bernardino

In Partial Fulfillment
of the Requirements for the Degree
Master of Arts
in
Psychology

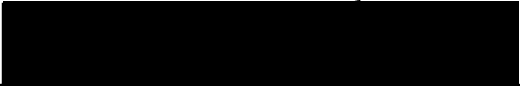
by
Cimi Perryl Ruderman
April, 1990


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May 9 1990

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ABSTRACT

The present study examined the relationship between successful weekly weight loss and possible selves, weight locus of control, self-esteem, anxiety, emotional eating and optimism/pessimism. Ninety-six subjects participated from Nutri/System's San Bernardino center. Subjects filled out questionnaires assessing each personality measure, as well as demographic and weight-related information. After an eight-week time period in which subjects participated in the Nutri/System weight loss program, their weight was recorded. A multiple regression was performed using a ratio of weekly weight loss relative to the program's anticipated weekly weight loss as the criterion; and locus of control, self-esteem, anxiety, emotional eating and optimism/pessimism as the predictors. The results from this first regression yielded no significance. A factor analysis was run on the "past", "now" and "probable" self-descriptors used in the possible selves scale. Significant factor loadings from the "past", "now" and "probable" factor analyses were then run in separate regressions with the criterion. Factor 4, which consisted of the "now" self-descriptors, "not in control", "weak", and "unhappy", was found to significantly predict weight loss. Also,

factor 3 from the "probable" self-descriptors, which consisted of "not in control", "weak", "drug dependent" and "incompetent", was found to significantly predict weight loss. Research regarding intentions, perceived behavioral control, and within subject variability is discussed in light of the poor predictability of personality measures.

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The support and love I received over the years outside the academic environment, however, made it possible for me to come this far. Whenever I was frustrated, disgusted, and even happy, I was fortunate enough to have my parents, Joe and Naomi Ruderman, listen to me with open and understanding ears. A special thanks goes to my friend, Barry Bierschbach, who made me feel like I had the support and backing of the National Guard during my years as a student. Finally, I would like to thank my fiance, Craig Morgan, for giving me the space and time I needed away from him in order to complete my thesis.

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INTRODUCTION

In general, homo-sapiens are no longer characterized as hunters and food collectors. In affluent countries such as the United States, it is not uncommon to have bottled water, cold milk, ripe fruit and fresh and frozen food items delivered to one's doorstep. The relative ease of obtaining food, coupled with a rise in the sedentary work force that typically accompanies "information societies", has understandably initiated a weight conscious culture. The tendency to miscalculate the balance between energy intake and energy expenditure has resulted in large numbers of overweight Americans. In fact, it has been estimated (Kreutler, 1980) that 70 million American adults are overweight. With this many people plagued with a weight problem, it is easy to deduce that simply cutting back on calories proves difficult for those trying to reduce. Faced with this challenge, many dieters may turn to diet books, exercise videotapes, hypnosis or professional diet centers in order to take off their unwanted pounds. The unfortunate reality faced by most dieters is that the weight they struggle to lose is likely to be gained back once they quit their diet. This is referred to as the "yo-yo" syndrome. Fortunately, some dieters beat the odds of this syndrome and

are successful at maintaining their weight loss. What differentiates those who are successful from those who are not? The intent of this research is to measure specific aspects of a dieter's personality that might function as predictors of successful weight loss.

Personality, however, is only one of many variables researchers measure to investigate weight loss. The literature on obesity has been approached from behavioral (Williams, Martin & Foreyt, 1976), socio-cultural (Rosenberg, 1965), and physiological (Drewnowski, 1988) perspectives as well. Although investigating the problem of obesity from all of these perspectives would be optimal, it clearly would be impractical. For this reason, researchers understandably choose either a cognitive or a physiological perspective when planning their research design. This is not to say, however, that one theoretical perspective will yield "better" results than another. What it does suggest is that there are a multitude of research designs that attempt to answer the same research question.

Before discussing the personality literature, it is useful to gain an understanding (from a physiological perspective) as to why some individuals are more successful than others when losing weight. The research regarding the physiological mechanisms involved in the regulation of food intake (Faust, 1981) might suggest that no matter what psychological or behavioral changes are made in a person's

life, he/she is destined to be fat or thin. This does not mean the obese are completely incapable of losing weight. However, it does suggest that weight loss will be temporary due to the physiological mechanisms at play. Clearly, it is useful to understand the regulatory mechanisms involved in food intake.

Regulatory Mechanisms Involved in Hunger and Satiety

Many of the physiological mechanisms associated with food intake have been identified (Wurtman & Wurtman, 1977): e.g., various hypothalamic regions, catecholaminergic and serotonergic pathways and associated transmitter substances, gastro-intestinal, pancreatic, thyroid, adrenal, gonadal and pineal hormones, oropharyngeal sensation, gastric contraction and distention, glucose availability and utilization and glucose sensitive cells. However, many feedback mechanisms have yet to be identified and classified in regard to their structural and functional roles associated with hunger and satiety. Wurtman and Wurtman (1977) maintain that, although some of the physiological regulatory mechanisms may play a strategic and direct role on feeding behavior, others may not. Clearly, it is improper to assume that any one feedback control and for that matter, any combination of feedback controls (which includes the entire feedback system) can singly explain the complex phenomenon of onset and termination of eating behavior. However, insightful research (Anderson, Li &

Glanville, 1984) has been conducted on the regulatory mechanisms associated with glucose and fats. These two nutrient regulators are particularly important for those trying to lose weight. For this reason, research discussing the role and function of each of these nutrients will be presented.

The Role of Glucose in Hunger and Satiety

It is not surprising that humans have a definite affinity for sweet-tasting foods (Beidler, 1982). Examples of common sweet-tasting foods which are readily consumed by Americans include chocolate bars, honey, candied yams and chocolate-chip cookies. Perhaps, innate affection for sweets is largely due to the preferable energy source they provide (e.g., glucose). It is well known (e.g., MacDonald, 1988) that glucose is the most common source of energy available to cells. In fact, the brain (which is not insulin dependent) selectively uses glucose as a primary energy source, unless a prolonged fasting phase persists (usually two or more weeks) and then it uses ketone bodies (which are end-products of oxidized fatty acids) as an alternate source of energy (Aoki, 1981). The preference of glucose as an energy source, especially in the case of the brain, has led many to support the notion of the "glucostatic" theory of feeding regulation.

According to Anderson, Li and Glanville (1984), feeding behavior is controlled by glucose availability and/or

utilization in the brain. The glucostatic theory seems reasonable, given that the brain contains appetite regulatory mechanisms (e.g., the ventromedial hypothalamus, medial hypothalamus, lateral hypothalamus, etc.) that are dependent on glucose for energy (Hoebel, 1985). The glucostatic theory suggests that any fluctuation in blood glucose level will be detected by glucose-sensitive receptors which are commonly referred to as "glucoreceptors". Glucoreceptors can be viewed as detectors that function to monitor the status of blood glucose levels in order to maintain a homeostatic concentration.

Since the primary goal is to maintain a relatively constant blood concentration, it is noteworthy to point out what happens during "normal" fluctuations in blood glucose level. Research suggests (Ritter, Ritter & Barnes, 1986) that a 7% drop in blood glucose concentration occurs prior to the initiation of meals in rats. Comparable results were also obtained by Campfield, Brandon and Smith (1985). Campfield et al. reported that the level of blood glucose declined by 12% approximately five minutes prior to eating. What is interesting about Campfield et al.'s research is that a change in blood glucose level is occurring prior to any digestion of food. This naturally leads to a number of implications for those trying to lose weight. First of all, changes in blood glucose level may occur prior to eating. Once the brain "perceives" food ingestion, it immediately

sends three primary absorptive phase signals: there is an increase in salivation, an increase in gastric enzymes, and an increase in insulin. The release of insulin creates a drop in glucose level which causes a feeling of hunger. Therefore, before food is ingested, insulin is already decreasing the level of blood glucose concentration. What this means for dieters is that all they have to do is simply think about eating a chocolate chip cookie for example, and this will cause a decline in blood glucose. However, a drop in blood glucose causes an increase in hunger. Obviously, the feeling of hunger makes most people feel the urge to eat. Unfortunately, it is difficult to fight this urge for many dieters. Clearly, fluctuations in blood glucose level, especially for those who are sensitive to changes, may make it that much more difficult to lose weight.

The second major implication from Campfield et al.'s research is that simply anticipating the consumption of food may lead to feelings of hunger. Anticipating food may occur in a number of situations. Individuals may be daydreaming about chocolate cake or pizza if they have been on a diet for three months and ultimately cause a drop in blood glucose level. Moreover, the sight of food may send the same "anticipatory" messages to the brain, causing the same hazardous effects (i.e., a drop in blood sugar). Although the consequences of this "anticipatory" effect are healthy (i.e., the anticipation of food prepares the body for the

digestion of food) it clearly may have detrimental consequences for the dieter. Ultimately, it may lead to an overall level of increased hunger and a greater probability of not losing weight. The important point is that understanding the physiological role of glucose as a regulatory mechanism is clearly useful for those trying to lose weight.

The Role of Fats in the Regulation of Food Intake

The role of lipids may be responsible for the long-term regulation of feeding behavior (Faust, 1981). This is referred to as the lipostatic or set point theory. Hoebel and Teitelbaum (1966) suggest that the mechanism controlling the regulation of feeding behavior is determined by means of a "set point". Forced fed animals that are made obese via injections of insulin will subsequently decrease their food intake until their original weight has been achieved. Conversely, animals forced to starve will subsequently increase their food intake until their original weight has been regained. What this means is that the size of the fat cell seems to be regulated. Therefore, any increase or decrease in fat cell size is likely to be "corrected". The fat cells in dieters who have recently lost weight may in fact feel "starved". Due to the regulatory mechanisms controlling the homeostases of lipids, dieters are likely to feel the need to increase their consumption of food intake. Because of the set point theory, it is understandable why

dieters typically end up gaining their weight back. There is little wonder that only 1 to 2% maintain their weight loss after five years (Craddock, 1973).

Another problem associated with lipids is that it takes relatively little calories to sustain fat in comparison to muscle. This means that the obese naturally have a lower metabolism than leaner individuals. Consequently, the plight of obesity may become worsened as a function of excess fat tissue. When the obese decide to lose weight, they may find it more difficult to be successful than those who only have a few pounds to lose. It is evident that obese dieters experience a significant drop of 15 to 30% in their basal metabolic rate (Shils & Young, 1988). As the diet proceeds, the obese must increasingly continue to reduce their caloric intake if they want to lose weight. It is easy to understand the frustration of the obese because the more weight they lose, the more difficult it becomes to reduce. Perhaps, what is even more devastating is when the obese quit their diet. Their reduced metabolic rate will make it that much easier to regain their lost weight. In fact, the obese will store fat at accelerated rates because they become insulin insensitive. Insulin insensitivity ultimately means that more insulin will be released and more hunger will result. Of course, the hungrier a person is, the more likely he/she will eat. It is clearly important for those trying to lose weight to understand the role

lipids play in the regulation of food intake. The role of glucose and fat cells in the regulation of eating patterns may ultimately be demonstrated to be the most important factors, but clearly, other variables will continue to exert some degree of influence in avoidance of obesity.

Behaviorism and Weight Loss

Simply watching television reminds consumers of the behavioral approaches used in many of the professional diet centers. Nurti/System especially emphasizes the importance of behavior modification classes for clients trying to reduce weight. In fact, in addition to a weekly weigh-in, each client is expected to attend a 30-minute behavioral education class. These classes are specifically designed to modify eating behavior. For example, clients are taught to control the "external cues" associated with eating. In other words, do not stock the cupboards full of potato chips, candy bars and cookies. Keep ice-cream out of the freezer and, when attending a party, stay away from the table with a lavish arrangement of food. The client is clearly taught that out of sight means out of mind.

Researchers have reached conflicting results regarding the various techniques used to reduce weight. For example, aversive therapy has been compared to the popular Take Off Pounds Sensibly (TOPS) program (Foreyt & Kennedy, 1971). After pairing noxious odors with favorite tasting foods, the researchers concluded that aversive therapy was more

effective than TOPS for those people trying to lose weight. Fortunately, most behavioral programs, such as Nutri/System and Jenny Craig, do not use such extreme aversive techniques. Instead, they focus on teaching clients to control their environment in order to avoid the external cues that might provoke eating. The important point to consider is that behavioral programs can provide some dieters with useful techniques for reducing their weight. However, certain limitations exist that are inherent in behavioral approaches. Losing weight is not just a matter of linking the right response to the right stimulus (Stunkard, 1989). Metabolism, exercise and personality are clearly important elements to consider. Moreover, actual eating behaviors of overweight individuals may not differ from normal weight individuals. The more muscle an individual has, the more calories are necessary to sustain his or her weight. Conversely, fat takes relatively little calories to sustain. Therefore, a person's muscle-to-fat ratio can account for the fact that overweight individuals may, in fact, have to eat less than leaner individuals. Clearly, obesity may have non-learned elements that behavior modification techniques cannot affect (Mahoney, 1975).

Personality and Weight Loss

In light of these limitations, it is understandable why some theorists have taken a less stimulus-oriented approach. Instead of modifying the behavior after it has been made,

researchers are now focusing on what happens before the behavior has occurred. Specifically, what are dieters thinking, feeling and experiencing before they nibble. Why are they choosing to eat or to not eat? The answer to this important question presumably lies in the dieter's cognitions. For this reason, some researchers have investigated cognitive factors as predictors of weight loss (Markus, Hamill & Sentis, 1987).

One such cognitive factor that theorists refer to is an individual's schema. Schemas (Mischel, 1981) are "cognitive categories that serve as frames of references for processing and evaluating experiences" (p.592). Markus, Hamill and Sentis (1987) investigated the role of self-schemas and their effects on weight-relevant information. Subjects were presented with three different stimulus conditions to which they responded: adjectives describing fatness and thinness; thin, average and fat body silhouettes; and pictures of food. The schematic subjects (those who were actively concerned with body weight) exhibited clear and consistent discrimination across the three stimulus domains, as compared to the aschematic subjects (those who were not as actively concerned about their body weight). What this suggests is that individuals who constantly think about being fat may have more difficulty losing weight. Moreover, Markus and her colleagues suggest that individuals who "think fat" even

after losing weight, may find it challenging to keep this weight off because they still feel and think of themselves as fat.

Another possible explanation that may differentiate successful from unsuccessful dieters is whether they are optimistic or pessimistic about losing weight. Sheier and Carver (1985) refer to optimism as generalized expectancies for favorable life outcomes. Optimists, therefore, expect their lives and/or behavior(s) to turn out well, whereas pessimists expect their lives and/or behavior(s) to not turn out well. The focal point for both optimists and pessimists is expectancy. Where they differ, of course, is whether they expect a favorable or unfavorable outcome. Research on dispositional optimism (Sheier, Weintraub & Carver, 1986) suggests a positive correlation between optimism and problem-focused coping. As might be expected, pessimism was related to disengagement of the goal, denial and focusing on stressful feelings. These findings suggest that optimists, because of their favorable expectancies, engage in goal-directed behavior that is more likely than pessimists to pay off. Relating this to weight, pessimistic dieters may be focusing on their feelings that deter their weight loss efforts. For example, they may view dieting as a losing proposition, or they may feel that no matter how hard they try, they will never be able to lose the weight. Moreover, why should pessimist dieters even try to lose

weight when he/she is probably going to gain the weight back anyway, as was done in the past. Clearly, pessimists may have a natural handicap over optimists when both are trying to lose weight. This lays the groundwork for the first prediction: individuals who are trying to lose weight will be more successful if they are generally optimistic rather than generally pessimistic.

A second important personality attribute in weight loss is locus of control. Locus of control refers to whether an individual views positive or negative consequences of events on internal (they are individually responsible), or external factors (outside or beyond the control of the individual). Rothstein (1986) investigated the relationship between locus of control on weight loss and maintenance of weight loss. Rothstein's subjects filled out the Reid and Ware Three Factor Internal-External Scale which measures locus of control. She found the maintainers to be significantly more internal than the regainers. These findings suggest that individuals who possess an internal locus of control feel responsible for losing and maintaining their weight. In support for these findings, Wishnatzky (1986) also found that those who lost and maintained their weight contributed their success to personal control rather than to external forces. Wishnatzky, however, used the Health Locus of Control Scale to measure whether subjects were internals or externals. She suggested that the regainers (those dieters

who had lost their weight and gained it back) attributed their weight gain to the difficulties they had losing weight and were found to be more emotionally reliant on others. Individuals with an external locus of control may, therefore, not feel accountable or personally responsible for their weight loss or weight gain due to the tendency they have to blame external factors for experiences that affect their lives.

Although supportive findings have been reported regarding the research on locus of control, these conclusions are not universal. Gierszewski (1983) investigated the relationship between weight loss and locus of control. Forty-six female subjects were exposed to both nutrition and weight control programs. After a six-month period of time, scores were obtained on their weight and locus of control measures using the Health Locus of Control Scale and a modified version of the Weight Locus of Control Scale. No relationship was found between locus of control and weight loss. Given the discrepancies in the literature, the current research seeks to provide further insight regarding this question. The second prediction, then, is that individuals who have an internal locus of control for weight will be more successful in their weight loss efforts than those individuals who have an external locus of control.

Another factor that may affect weight loss is anxiety. Mischel (1981) refers to anxiety as a "learned fear that lessens a person's ability to identify immediate objective threats, which is accompanied by physiological arousal and bodily distress. This can lead to a disruption or disorganization of effective problem solving and cognitive control, including difficulty in thinking clearly and coping effectively with environmental demands" (p.413-414). Individuals often report an increase in food consumption in response to feelings of distress and/or anxiety (Lowe & Fisher, 1983). For example, Lowe and Fisher and subjects record their mood prior to eating for 12 consecutive days. They concluded that eating in response to affect was a function of being overweight (i.e., the heavier the subject, the greater the likelihood she will emotionally eat). Furthermore, subjects' distressed response eating led to increased snack and meal consumption. Evidence supporting the relationship between eating and feelings of distress and anxiety have been confirmed in other research (Edelman, 1984; Ganley, 1988; Van-Strien & Bergers, 1988; Van-Strien, Frijters, Roosen, Knuijman-Hijl & Defares, 1985).

The research conducted on the psychological relationship between anxiety and eating is supported by the physiological evidence. Gold and Sternbach (1984) investigated the physiological changes that were associated with anxiety-related eating. Their findings suggest that

anxiety-related eating is associated with an increase in the release of opiates in both human and animal subjects. Individuals experiencing psychological anxiety may, therefore, feel an urge to eat in order to reduce their distress. Because the physiological research has evidenced an increase in opiate release stemming from anxiety-related eating, it is understandable why individuals would feel a sense of anxiety reduction after eating. In fact, Hoebel (1985) suggests that similarities exist between addiction to food and addiction to morphine. This may explain what gives food its reward-serving properties. The physiological and psychological research supporting the relationship between anxiety and eating leads to the third hypotheses which has two parts. First, individuals who have a high level of anxiety will be less successful at losing weight than individuals with a low level of anxiety. Secondly, those who cope with their anxieties by eating will be less successful at losing weight than those who do not cope with their anxieties by eating.

A fourth personality variable that will be investigated is self-esteem, which refers to an individual's feeling of self-worth. Research investigating the relationship between weight loss and self-esteem suggests that women's obsession with societal pressures often results in dieting efforts whether or not the individual needs to lose weight. Due to the incredibly low rate of success in losing and maintaining

weight, the majority of women who diet end up regaining all of their weight. This cycle of losing and regaining may lead to feelings of failure and low self-esteem which may carry from one diet attempt to the next. This, of course, may continually make each new diet that much more difficult than the previous diet. In fact, women, in particular, may eat in response to feeling lower self-esteem (Forster & Jeffrey, 1986). Other evidence (Wishnatzky, 1986) suggests that individuals who successfully lost and maintained their weight attributed this to a positive self concept and, therefore, felt that they had the ability to achieve their goal of losing weight. Conversely, those with poor self-esteem did not feel they had the ability to achieve success and regained their weight. It seems evident that self-esteem is related to weight loss which leads to the fourth hypothesis. Individuals with high self-esteem will be more successful than individuals with low self-esteem when losing weight.

The final personality measure to be investigated is the notion of the possible self. Markus and Nurius (1986) suggest that possible selves represent individuals' ideas about what they would like to become and, therefore, serve as incentives for behavior. According to Markus and Nurius, "...beliefs about efficacy can be particularly influential to the extent that they are linked to specific, clearly envisioned possible selves" (p.961). In order to

measure the notion of the possible self, Markus and Nurius developed a list of self descriptors (e.g., overweight, intelligent, successful, etc). Subjects responded to each of the self-descriptors under four different considerations: (a) whether the item had described them in the past, (b) whether the item was ever considered as a possible self, (c) how probable the possible self was for them, and (d) how much they would like the item to be true for the (p.958). They found significant correlations between the "past" and "now" self-descriptors ($r=.68$), the "possible" and "now" self-descriptors ($r=.21$), and the "negative past" and "possible" self-descriptors ($r=.55$). In another study (Porter, Markus & Nuris, 1984, as cited in Markus & Nuris, 1986) they collected data from 60 subjects, 30 of which had experienced a life crisis and 30 who had not experienced a crisis, in order to determine how possible selves might function as incentives. The "crisis" subjects were divided into two groups: those who felt that they had recovered from their crisis and those who felt that they had not recovered. Those subjects who felt they had not yet recovered were significantly more likely to describe their "possible selves" as unimportant, weak, depressed and failing, whereas, the recovered group described their "possible selves" as optimistic, long-lived, helpful, with lots of friends, happy, satisfied, confident and secure. Interestingly, subjects were not found to differentiate on

"now" self-descriptor items. Therefore, crises subjects who evaluated themselves as "having recovered" were currently no better off than subjects who did not consider themselves as "having recovered". The researchers suggested that those subjects who considered themselves recovered were able to envision positive possible selves. In turn, these possible selves gave them feelings of self-efficacy, and mastery, which were interpreted by subjects as "having felt recovered".

In light of these findings, the notion of the possible self may be a useful measure when applied to weight loss. Overweight individuals who presently view themselves as a "fat-self", yet have considered themselves in the future as a "thin-self" may be motivated to accomplish this "possible self". The self-conception of "I will always be fat", versus, "I could be thin", is an important distinction. Those individuals who refer to themselves as being fat in the future, compared to those individuals who refer to themselves as thin in the future, use different references to guide their evaluations. The "will always be fat" individual will have no motivation or incentive to change, whereas the "could be thin" individual can activate this belief as an incentive to lose weight. Because Markus and Nurius (1986) found correlations between the "past" and "now" self-descriptors, the "now" and "possible" self-descriptors and the "past" and "possible" self-descriptors,

three predictions will be made. First, individuals with negative "past" self-descriptors will be less likely to lose weight than individuals with positive "past" self-descriptors. Secondly, individuals with negative "now" self-descriptors will be less successful at losing weight than individuals with positive "now" self-descriptors. Finally, individuals with negative "probable" selves will be less successful losing weight than individuals with positive "probable" selves.

METHOD

Subjects

Eighty-one female and 15 male subjects, ranging in age from 18-70 with a mean age of 38, were sampled from Nutri/System's San Bernardino center. Three male and 24 female subjects quit the diet during the period of the study. However, all 96 subjects were included in the analyses. Subjects were treated in accordance with the ethical standards of the American Psychological Association.

Measures

In addition to weighing in on a standard medical scale at the beginning and end of the study, subjects received questionnaires that measured the five predictor variables (e.g., possible selves, locus of control, self-esteem, optimism/pessimism and trait anxiety) (see appendices A-E) and they also answered questions regarding weight and demographic information (e.g., original weight, current weight, goal weight sex, age, ethnicity, etc.) The first scale on the questionnaire was a modified version of the Possible Selves Scale (Markus & Nurius, 1986). Using a 5-point Likert scale, subjects rated how closely 21 self-descriptors described them in the past five years, now, and how probable it was to describe them in the future. Ten

of the self-descriptors were positive (i.e., thin and attractive) and eleven of the self-descriptors were negative (i.e., ugly and fat.)

The second measurement used was the Weight Locus of Control Scale (WLOC) Saltzer, 1982). This scale is specifically designed to measure whether individuals have an internal or external approach to weight loss. The WLOC consists of 4 items, 2 of which are internally worded and 2 of which are externally worded. Ratings are made on a 6-point scale in which subjects indicate their disagreement or agreement with statements. Possible scores range from 4-24, with a score of 4 indicating extremely internal and a score of 24 indicating extremely external. Test-retest reliability was reportedly .67 ($p < .001$, $n=110$) and, Cronbach's alpha was .58.

The Rosenberg Self-Esteem Scale (Rosenberg, 1965) measures an individual's self-esteem. Subjects placed a check mark next to the appropriate 4-point Likert-scale response, which ranged from "strongly agree" to "strongly disagree." Questions were worded such that a "strongly agree" response reflected a high self-esteem for some items and a low self-esteem for other items. Possible scores ranged from 10-40, with low scores meaning high self-esteem and high scores meaning low self esteem.

Also used in the study was the Life Orientation Test (LOT), which measures dispositional optimism (Sheier &

Carver, 1985). The LOT utilizes 12 statements which are rated on a 5-point scale (e.g., 'I agree a lot', to 'I disagree a lot'). Scores range from 12-60, with low scores indicating optimism and high scores indicating pessimism. Test/retest reliability was .79 and Cronbach's alpha was .76 (Scheier, Weintraub & Carver, 1986).

Finally, the Taylor Manifest Anxiety Scale (Meyers, 1989, as cited in Bolt, 1989) was used to measure trait anxiety. This is a true-false questionnaire wherein some items marked true are indicative of anxiety while others marked true are not. Possible scores can range from 0-23. Embedded in the Taylor Manifest Anxiety Scale were four questions designed by the present study's author to measure emotional eating. The four emotional eating questions that correspond to numbers 8, 15, 19 and 21, can be found in Appendix E. These four items are also true-false questions, and possible scores ranged from 0-4. The reliability analysis on these four emotional eating questions yielded an alpha of .74.

The criterion variable, successful weekly weight loss, took into consideration subjects' average weekly weight loss relative to what Nutri/System expected them to lose on a weekly basis. Successful weight loss represented subjects' proportion of weight lost. In order to calculate the criterion, other measures were obtained. First, actual weight loss was calculated by subtracting subjects' ending

weight from their original weight when they started the program (e.g., actual weight loss = original weight minus ending weight). Secondly, expected weight loss was calculated by subtracting subjects' goal weight from their original weight (e.g., expected weight loss = original weight minus goal weight). Next, actual weight loss was divided by the total number of weeks each subject had been on the program in order to compute average weekly weight loss (e.g., average weekly weight loss = actual weight loss/total number of weeks on program). Expected weekly weight loss was then calculated by dividing the total number of weeks each client was expected to be on the program into expected weight loss (e.g., Expected weekly weight loss = expected weight loss/expected number of weeks on program). It should be noted that Nutri/System forecasts the number of weeks clients are expected to be on the program by considering their age, sex, height, and bone structure. This forecast of expected number of weeks on the program enables both the clients and the present study to determine expected average weekly weight loss. Finally, average weekly weight loss was divided by expected weekly weight loss to get the criterion, successful weekly weight loss (e.g., successful weekly weight loss = average weekly weight loss/expected weekly weight loss).

Procedure

Subjects were asked to volunteer by the behavioral

counselors working at Nutri/Systems' San Bernardino weight loss center. At the beginning of each behavior modification class, the counselor explained to the subjects that participation in the study was voluntary and that the study was related to weight loss. Those clients who volunteered filled out the questionnaire in the classroom. The questionnaire took approximately 30 minutes to complete. Subjects' current weight and other weight-related information was recorded at this time. Subjects followed Nutri/System's weight loss program for an 8-week period. The reason for using 8 weeks was to control for the bias in weight loss observed during the first 2 weeks. During the first 2 weeks on a diet, individuals typically experience the most significant amount of weekly weight loss. This rapid weight loss is not due to the amount of fat lost, but rather, to the amount of water lost. Therefore, an 8-week time period can represent a better estimate of subjects' average weekly weight loss, while still controlling for subject mortality effects due to extended measurement. Following this 8-week period of time, subjects' weight loss was recorded. It should be noted that Nutri/System is not an eight-week program. Instead, clients stay on the program as long as it takes them to lose their weight. Once they have reached their goal weight, clients attend a maintenance program for one year.

RESULTS

A multiple regression was performed on the data using successful weekly weight loss as the criterion, and locus of control, self-esteem, optimism, anxiety, emotional eating, "past" self-descriptors, "now" self-descriptors, and "probable" self-descriptors as the predictor variables. The initial results yielded no significant relationships among these variables. Table 1 includes the means and standard deviations for each of the predictor variables and the criterion used in the first regression.

After the initial regression was performed, three factor analyses with varimax rotations were performed on the "past", "now" and "probable" self-descriptors in order to determine whether the items in the possible selves scale were conceptually the same. The individual self-descriptors that significantly loaded into each factor from the "past", "now" and "probable" self-descriptors are presented in Table 2. Table 3 presents the significant factor loadings (criterion = eigenvalue $>$ 1.0) from the "past", "now" and "probable" self-descriptors, as well as means, standard deviations, eigenvalues, and percentages of variance accounted for by each factor. It is evident from Table 3 that five factors emerged from the "past"

Table 1

Mean and Standard Deviation Scores for Emotional Eating, Anxiety, Locus of Control, Self-Esteem, Optimism, Past Self-Descriptors, Now Self-Descriptors, Probable Self-Descriptors and Successful Weekly Weight Loss.

Personality Measure	<u>M</u>	<u>SD</u>
Emotional Eating	2.67	1.92
Anxiety	8.08	5.91
Locus of Control	6.92	3.12
Self-Esteem	17.85	5.30
Optimism	26.58	8.11
Past Self-Descriptors	2.71	.90
Now Self-Descriptors	2.29	.71
Probable Self-Descriptors	1.76	.65
Successful Weekly Weight Loss	.57	.29

Table 2

Significant Factor Loadings from the Past, Now and Probable
Self-Descriptors

"Past"	"Now"	"Probable"
<u>Factor 1</u>	<u>Factor 1</u>	<u>Factor 1</u>
Happy	Overweight	Lazy
Satisfied	Fat	Ugly
Esteem	Thin	Attractive
Confident	Attractive	Confident
Weak	Ugly	<u>Factor 2</u>
Independent	<u>Factor 2</u>	Failure
Drug Dependent	Incompetent	Fat
Ugly	Inferior	Overweight
<u>Factor 2</u>	Anxious	<u>Factor 3</u>
Overweight	Failure	Weak
Fat	<u>Factor 3</u>	Incompetent
Thin	Health Conscious	Drug Dependent
Attractive	Successful	Not in Control
Not in Control	Independent	<u>Factor 4</u>
<u>Factor 3</u>	Satisfied	Happy
Successful	<u>Factor 4</u>	Satisfied
Lazy	Not in Control	<u>Factor 5</u>
Health Conscious	Weak	Anxious
<u>Factor 4</u>	Happy	Inferior

Table 2 (cont'd)

"Past"	"Now"	"Probable"
Competent	<u>Factor 5</u>	<u>Factor 6</u>
Incompetent	Drug Dependent	Competent
Failure	Confident	Esteem
<u>Factor 5</u>	Esteem	<u>Factor 7</u>
Anxious	<u>Factor 6</u>	Independent
Inferior	Lazy	Successful
	Competent	

Table 3

Factor Analysis Loadings for "Past", "Now" and Probable"
 Self-Descriptors with Means, Standard Deviations,
 Eigenvalues and Percentages of Variance.

"Past" Self-Descriptors

<u>Factor</u>	<u>M</u>	<u>SD</u>	<u>Eigenvalue</u>	<u>Percentage of Variance</u>
1	2.43	.69	6.2	29.5
2	3.72	.76	2.2	10.4
3	2.63	.73	1.5	7.1
4	2.00	.73	1.4	6.7
5	2.70	1.0	1.1	5.1

"Now" Self-Descriptors

<u>Factor</u>	<u>M</u>	<u>SD</u>	<u>Eigenvalue</u>	<u>Percentage of Variance</u>
1	2.96	.74	5.4	26.0
2	1.90	.68	2.0	9.4
3	2.10	.63	1.7	8.0
4	2.17	.67	1.4	6.7
5	1.90	.57	1.3	6.1
6	1.85	.65	1.2	5.8

"Probable" Self-Descriptors

<u>Factor</u>	<u>M</u>	<u>SD</u>	<u>Eigenvalue</u>	<u>Percentage of Variance</u>
1	1.38	.55	3.6	17.1
2	1.67	.90	2.6	12.4
3	1.78	.93	1.7	7.9
4	1.30	.45	1.5	7.1

Table 3 (cont'd)

<u>Factor</u>	<u>M</u>	<u>SD</u>	<u>Eigenvalue</u>	<u>Percentage of Variance</u>
5	1.85	1.0	1.4	6.5
6	1.60	.65	1.2	5.9
7	1.50	.70	1.2	5.6

self-descriptors, six from the "now" self-descriptors, and seven from the "probable" self-descriptors. The significant factors obtained from the factor analyses became the new predictor variables. Three separate regressions were performed using the "past", "now", and "probable" self-descriptor factors, with the criterion, successful weekly weight loss. No significance was found from the "past" regression. However, results from the "now" regression yielded significance for Factor 4 ($R^2=.04, p < .05$, 2-tailed) which consisted of the three "now" self-descriptors, not in control, weak and unhappy. Factor 4 significantly correlated with the criterion ($r=-.21, p < .024$, 2-tailed). Moreover, results from the "probable" regression yielded significance for Factor 3 ($R^2=.06, p < .05$), which consisted of the four self-descriptors, incompetent, drug dependent, weak and not in control. Factor 3 significantly correlated with successful weekly weight loss ($r=-.25, p < .019$, 2-tailed).

Several other notable findings deserve mentioning. Table 4 lists the intercorrelations between the five predictor variables and the present author's measure of emotional eating. It is interesting to note that all of the variables were related to one another except for weight locus of control, which did not significantly correlate with any other variables.

One-way analyses of variance were also performed to

Table 4

Intercorrelations Between the Five Predictor Variables and Emotional Eating (EE).

	<u>EE</u>	<u>Low Self-Esteem</u>	<u>High Anxiety</u>	<u>Optimism</u>	<u>Locus of Control</u>
EE	--	.48 ^a	.58 ^a	.32 ^a	.01 ^b
Low Self-Esteem		--	.80 ^a	.59 ^a	.13 ^b
High Anxiety			--	.64 ^a	.10 ^b
Optimism				--	.16 ^b
Locus of Control					--

Note: ^a $p < .001$; ^b $p > .05$

determine whether those who quit the diet were different from subjects who were still dieting or those who had met their goal. Twenty-seven subjects quit the diet, 58 were still dieting, and 11 met their goal weight. Separate analyses were run on each of the predictor variables (i.e., locus of control, optimism, anxiety, emotional eating and self-esteem) and each of the significant factor loadings from the "past" self-descriptors (i.e., Factors 1-5), the "now" self-descriptors (i.e., Factors 1-6) and the "probable" self-descriptors (i.e., Factors 1-7) with the three groups (i.e., the quitters, the dieters and the goal-reachers). The quitters were found to significantly differ from the dieters and the goal reachers, $F(2,95)=3.4, p < .04$, (criterion = Tukey, $p < .05$) when comparing their "physical-past." Moreover, the goal-reachers significantly differed from the quitters and those still dieting $F(2,95)=6.4, p < .003$, (criterion = Scheffe', $p < .05$) when comparing their "present physical" status. However, the three groups did not differ in any of the other analyses, and no other relationships were significant.

DISCUSSION

The current study failed to support the predicted relationships between locus of control, anxiety, emotional eating, self-esteem, optimism/pessimism and weight loss. However, the three "now" self-descriptors (not in control, weak and unhappy) that significantly loaded together in the factor analysis were predictive of weight loss. Moreover, the "probable" self-descriptors (weak, incompetent, drug dependent and not in control) also were related to the criterion. The commonality between the "now" and "probable" self-descriptors that were predictive of successful weight loss was "weak" and "not in control". Perhaps these two self-descriptors are important to individuals trying to diet. The results might suggest that dieters who consider it "probable" that they may be weak and not in control in the future and, who also feel that way currently, may find it particularly difficult to lose weight. Moreover, individuals might find it useful to evaluate their feelings of being "weak" and "not in control" if they are either considering losing weight, or are currently on a diet. If they feel these two self-descriptors do in fact describe them, measures should be taken to improve.

As mentioned earlier, the majority of predictions were

not born out. It may be useful to analyze these findings by assessing the nature of the criterion variable, successful weekly weight loss. First of all, the weight of the subjects ranged from 129 to 355 pounds, with an average weight of 202 pounds. Therefore, those subjects who had over 100 pounds to lose, for example, would naturally lose at a faster rate than those subjects who only had a total of 15 pounds to lose, especially at the beginning of their diet. In fact, subjects' first 2 weeks of weight loss ranged from 2-23 pounds with an average weight loss of 9 pounds. With this concern in mind, it did not seem that successful weight loss should be measured as simply number of pounds lost. For this reason, it was necessary to compare actual weight loss against Nutri/Systems' expected weight loss on a weekly basis to calculate the criterion, successful weekly weight loss. In this way, individuals, no matter how much or how little weight they had to lose, would only be compared against themselves and Nutri/Systems' standards for expected weight loss. Nutri/System determines the expected amount of time individuals should meet their goal weight by considering their age, sex, height, bone structure, and percent over desirable weight.

A shortcoming in the weight loss literature is finding a standard measure of successful weight loss. For example, Balch and Ross (1975) collected a sample of 34 subjects for their research on the relationship between locus of control

and weight loss. Subjects were informed that a moderate amount of weight loss was expected of them (e.g., 1-2 pounds) in a 9-week time period. Attendance and weight were taken each week at the behavioral sessions. With this information, Balch and Ross separated the subjects into two groups; the completers and the non-completers. Completers were defined as those subjects attending at least 75% of the 9 weekly sessions, while non-completers attended less than this percentage. Furthermore, subjects were divided into successful, versus unsuccessful, groups based upon total number of pounds lost. Interestingly, successful weight loss was simply determined by the median number of pounds lost, which incidently was 8 pounds in the 9-week period. The researchers concluded that their hypotheses were support (e.g., internals were completers and successful and externals were non-completers and not successful). However, Balch and Ross did not take into consideration total number of pounds their subjects had to lose. In fact, subjects ranged in weight from 127 to 277. Given this wide range of weight, is median pounds lost the best measure of success? This does, however, seem to be standard practice for most research regarding weight loss, which may explain the discrepancy in the findings of the current study compared to studies in the past.

In the present study, locus of control, optimism, self-esteem, anxiety and possible selves were not predictive

of weight loss. Interestingly, another model of research (Ajzen and Fishbein, 1980) points to the inherent problems associated with using personality as a measure of behavior. Ajzen and Fishbein suggest that predicting behavior by means of measuring personality traits is too global an assessment. Personality traits may influence an individual's beliefs, and this may direct behavior. However, the predictive validity of personality is simply not upheld. Instead, intentions to perform certain attributes of behavior may be a much more salient form of measurement and prediction.

Ajzen (as cited in Berkowitz, 1987) suggests in his theory of planned behavior, that intentions are the motivational force behind performing a particular behavior. Intentions are derived from three important components: attitude toward the behavior; social norms; and perceived behavioral control. The first component, attitudes toward behavior, refers to how an individual evaluates the behavior on a favorable to unfavorable continuum. Relating this to weight loss, does the individual view dieting as a winning or losing proposition? Moreover, do individuals think they will honestly be successful at losing weight, or, are their attitudes toward losing weight negative (e.g., "I don't know why I try to lose weight when I always seem to gain it back"). The second component of intentions is social norm. This refers to the way individuals perceive the social pressures of performing the behavior. How might

social norms affect the behavior of dieters? One scenario is when dieters have told all of their family, friends and co-workers that they are is on a diet. Consequently, they may or may not place a great amount of pressure on themselves to be successful at dieting because the significant others in their lives are observing their dieting efforts. Besides the pressure dieters may put upon themselves, they may, in fact, be losing weight because someone else has put pressure on him to do so. For example, it is not uncommon to hear a wife state that she is losing weight because of her husband. Maybe someone is experiencing pressure to lose weight because they have a bet with someone else. In any event, dieters clearly vary in their value regarding weight.

The last component of intentions is perceived behavioral control, which considers the relative ease or difficulty of performing the behavior, in light of past experiences and potential obstacles. For dieters, this means that they simply will not focus on this particular diet, but instead, will consider all of the previous dieting attempts made in the past. This evaluation includes thinking about why they have failed in their previous diets (if in fact they have been on other diets) and also includes considering what roadblocks they may be up against while on the current diet. For example, many "business" dieters may have to attend morning meetings filled with the smell of

freshly baked doughnuts, or they may have to schedule luncheon appointments with clients. Another common problem in the perceived behavioral control domain is social gatherings or parties, especially around holiday time. Most engagements center around a lavish arrangement of food and drinks. Put simply, people may vary in their beliefs as to whether they are able to control their weight. Clearly, perceived behavioral control and the problems and obstacles accompanying it, may pose difficulties for the dieter. According to Azjen, "the more favorable the attitude and subjective norm with respect to a behavior and the greater the perceived behavioral control, the stronger should be the individual's intention to perform the behavior under consideration" (p.44).

Schifter and Azjen (1985) used the theory of planned behavior in their research on weight loss. Their study included obtaining measurements on subjects' intentions toward losing weight, attitudes toward losing weight, social norms involved in losing weight and their perceived behavioral control toward losing weight. A hierarchical regression was performed with intentions to lose weight as the criterion. The results of this statistical analysis yielded significant regression coefficients for all three components of intentions (e.g., attitudes toward losing weight, social norms toward losing weight and perceived behavioral control toward losing weight). Moreover, both

intentions and perceived behavioral control significantly correlated with successful weight loss. What is especially noteworthy about these findings in relationship to the present study is the issue of "control". The self-descriptor "not in control" was one of the few significant predictors of weight loss in the current study and "perceived behavioral control" had the most significant correlation with weight loss in Shifter and Azjen's study. Clearly, future research on weight loss may find the measurement of perceived behavioral control and intentions to lose weight more fruitful than measurement of personality traits.

Besides the questionable use of personality traits to predict weight loss, Rodin (1981) suggests that researchers will continue to find within subject variability a hurdle in their investigations. For example, both normal and overweight individuals respond to the internal cues associated with hunger, as well as the external cues that may provoke eating. This is contrary to the theory which suggests that normal weight individuals respond to internal cues, and overweight individuals respond to external cues associated with hunger. In fact, both normal and overweight people may be affected by the external cues that cause changes in internal, physiological responses. There is clearly a complex interaction between external and internal cues associated with eating behavior. Therefore, in the

same way, the internal/external cue model may be more complex than originally thought, so too, may be the personality and behavioral models as well.

Where should researchers direct their attentions in the future? This is not a simple question to answer, but what is clear is that one simple variable will probably not yield conclusive predictive value. Researchers must, therefore, consider how psychology, physiology, environment and exercise all contribute and interact with weight control. Breaking each of these major levels of study down into measurable components will not be an easy task. However, researchers may want to consider including intentions and its three components (e.g., attitudes toward the behavior, social norms and perceived behavioral control) in their research design. Not only is there difficulty measuring all of these variables in one study, but also, there is difficulty concluding any predictive results, given the problem of within subject variability. Finally, the researcher must further consider the problems associated with the criterion, weight loss. Clearly, future studies conducted on weight loss will continue to reach conflicting results regarding the best methods used in measuring weight loss and also, they will find it challenging to control for weight loss as the criterion. Given these discouraging and often frustrating obstacles faced by researchers, they must continue to search for answers until the battle of the bulge

is solved.

Perhaps, researchers should focus their investigations on understanding how individuals physiological set-points may affect their dieting efforts. With the poor success rates reported in the literature (i.e., only 1-2% keep their weight off after a 5-year period) this might suggest that individuals weight is related to physiological set-points, rather than to personality attributes. What this means is that individuals set-points may override personality and behavioral changes associated with successful weight loss. Future research needs to investigate how individuals set points can be adjusted over a period of time, so that new, lower set-points can be maintained. Until dieters understand that physiological factors may ultimately deter their weight loss efforts, they will continue to spend billions of dollars a year on professional diet centers and weight-related products.

APPENDIX A

Possible Selves Scale

Probably everyone thinks about the future to some extent. When doing so, we usually think about the kinds of experiences that are in store for us and the kinds of people we might become. Some of these possible selves seem quite likely, while others seem unlikely, and some are hoped for while others may be a source of worry and fear. Some of us may have a large number of possible selves in mind while others may have only a few.

Listed below are a number of self-descriptors that have been generated by other people. We are interested in self descriptions that have described you in the past five years, and now. We are also interested in how probable it is that you will become this possible self.

Please respond to each of the three questions of each self-description, using the 5-point scale.

Scale: 1 2 3 4 5
 not at all a little somewhat quite a bit very much

Self- Descriptors	How much does this describe you in the past 5 years?	How much does this describe you now?	How probable is it this will describe you in the future?
----------------------	--	--	---

Fat	_____	_____	_____
Competent	_____	_____	_____

Appendix A (cont'd)

Scale: 1 2 3 4 5
 not at all a little somewhat quite a bit very much

Self- Descriptors	How much does this describe you in the past 5 years?	How much does this describe you now?	How probable is it this will describe you in the future?
----------------------	--	--	---

Not in control of your life	_____	_____	_____
Health Conscious	_____	_____	_____
Weak	_____	_____	_____
Drug Dependent	_____	_____	_____
Happy	_____	_____	_____
Satisfied	_____	_____	_____
Attractive	_____	_____	_____
Incompetent	_____	_____	_____
Confident	_____	_____	_____
Failure	_____	_____	_____
Independent	_____	_____	_____
Ugly	_____	_____	_____
Overweight	_____	_____	_____
Thin	_____	_____	_____
Lazy	_____	_____	_____
Successful	_____	_____	_____
Anxious	_____	_____	_____
High Self-Esteem	_____	_____	_____
Inferior	_____	_____	_____

APPENDIX B

Weight Locus of Control Scale

Respond to each of the following statements by marking one number for each statement on your answer sheet. Do not leave any items blank. For each statement, indicate whether or not it fits you and your feelings about things by choosing one of the following answers.

- Scale:
- 1 = I strongly disagree
 - 2 = I disagree
 - 3 = I slightly disagree
 - 4 = I slightly agree
 - 5 = I agree
 - 6 = I strongly agree

Please be as honest and accurate as you can throughout. Try not to let your response to one statement influence your responses to other statements. There are no "correct" or "incorrect" answers. Answer according to your own feelings, rather than how you think "people" would answer.

- 1. Whether I gain, lose, or maintain my weight is entirely up to me. _____
- 2. Being the right weight is largely a matter of good fortune. _____
- 3. No matter what I intend to do, if I gain or lose weight, or stay the same in the near future, it is just going to happen. _____
- 4. If I eat properly and get enough exercise and rest, I can control my weight in the way I desire. _____

APPENDIX C

Self-Esteem Scale

Please indicate the extent to which you agree or disagree with the following statements by filling in a number from the scale below in the space following each statement:

Scale: 1 = Strongly agree
 2 = Agree
 3 = Disagree
 4 = Strongly Disagree

1. I feel that I'm a person of worth, at least on an equal plane with others. _____
2. I feel that I have a number of good qualities. _____
3. All in all, I am inclined to feel that I am a failure. _____
4. I am able to do things as well as most other people. _____
5. I feel I do not have much to be proud of. _____
6. I take a positive attitude toward myself. _____
7. On the whole, I am satisfied with myself. _____
8. I wish I could have more respect for myself. _____
9. I certainly feel useless at times. _____
10. At times, I think I am no good at all. _____

APPENDIX D

Life Orientation Test (LOT)

Respond to each of the following statements by marking one number for each statement on your answer sheet. Do not leave any items blank. For each statement, indicate whether or not it fits you and your feelings about things by choosing one of the following answers.

Scale: 1 = I agree a lot--this is very much like me
2 = I agree a little--this is a little like me
3 = I'm in the middle--I neither agree nor disagree
4 = I disagree a little--this is a little unlike me
5 = I disagree a lot--this is very much unlike me

Please be as honest and accurate as you can throughout. Try not to let your response to one statement influence your responses to other statements. There are no "correct" or "incorrect" answers. Answer according to your own feelings, rather than how you think "most people" would answer.

1. In uncertain times, I usually expect the best. _____
2. It's easy for me to relax _____
3. If something can go wrong for me, it will _____
4. I always look on the bright side of things _____
5. I'm always optimistic about my future _____
6. I enjoy my friends a lot _____
7. It's important for me to keep busy _____
8. I hardly ever expect things to go my way _____
9. Things never work out the way I want them to _____

Appendix D (cont'd)

10. I don't get upset too easily _____

11. I'm a believer in the idea that "every cloud
has a silver lining" _____

12. I rarely count on good things happening to me _____

APPENDIX E

Taylor Manifest Anxiety Scale and
the *Four Emotional Eating Questions

Please read each statement and decide whether you feel, in general, that it is mostly true as applied to you or mostly false. Please circle the appropriate letter (T-true, F-false) directly to the right of each statement. Answer "True" to positively stated questions if they are true as often or more often than stated. For example, answer "True" to "Occasionally, I play poker" if you play occasionally or more often.

1. I find it hard to keep my mind on a task or job. T F
2. I am happy most of the time. T F
3. Sometimes I feel so stressed out that I feel like I am going to explode. T F
4. I believe I am no more nervous than most others. T F
5. I am more sensitive than most other people. T F
6. I am a high-strung person. T F
7. On a few occasions, I have given up doing something because I thought too little of my ability. T F
- * 8. Food seems to comfort me when I am uptight. T F
9. At times, I think I am no good at all. T F
10. I am usually calm and not easily upset. T F
11. I am not unusually self-conscious. T F

Appendix E (cont'd)

- | | | |
|--|---|---|
| 12. I work under a great deal of pressure. | T | F |
| 13. I am inclined to take things hard. | T | F |
| 14. I sometimes find it difficult to deal with my everyday stress. | T | F |
| * 15. Eating seems to calm my nerves. | T | F |
| 16. Life is a strain on me much of the time. | T | F |
| 17. I certainly feel useless at times. | T | F |
| 18. I sometimes feel that I am about to go to pieces. | T | F |
| * 19. When I get nervous, I want to eat. | T | F |
| 20. I have sometimes felt that difficulties were piling up so high that I could not overcome them. | T | F |
| * 21. When I am stressed out, food makes me feel better. | T | F |
| 22. I cannot keep my mind on one thing. | T | F |
| 23. I have periods of such great restlessness that I cannot sit long in a chair. | T | F |
| 24. I feel anxiety about something or someone almost all of the time. | T | F |
| 25. I frequently find myself worrying about something. | T | F |
| 26. I shrink from facing a crisis or difficulty. | T | F |
| 27. I am certainly lacking in self-confidence. | T | F |

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