

**DIFFERENCE IN SELF-CONCEPT OF INDIVIDUALS
ENROLLED AND NOT ENROLLED IN A
WEIGHT REDUCTION PROGRAM**

By

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CHAPTER I

INTRODUCTION

The prevalence of excess weight in the American population has become a growing problem and has been termed as the most common physical ailment in the United States. The United States Public Health Service (n.d.) reports that a high proportion of the population weighs more than is considered desirable for optimum health. While good nutrition and medical care have been favoring longer life, overweight has been working against it. Research has shown that the economic and social costs of being overweight are staggering and are complicated by greatly increased vulnerability to a broad range of diseases, including renal and cardiovascular diseases, cirrhosis of the liver, maturity-onset diabetes, and gallbladder diseases among many others (Mayer, 1968). Mayer reported that most extremely fat people live less zestfully, are ill more often and more seriously, and die much earlier. Their lives are less satisfying in both quality and length, and they are scolded, heckled, and blamed for their condition.

Dwyer, Feldman and Mayer (1973) define overweight as body weight in excess of an ideal weight, based on height and sex standards. This excess weight can result from excesses of bone, muscle, fat, or more rarely, fluid. Overweight is often considered to be 10 percent above the standard, while 20 percent overweight is considered to be overfat, or obese (Asher, 1974; Dwyer, Feldman and Mayer, 1973; Kreze, Zelina,

Juhas and Carbaro, 1974; Wolff and Lloyd, 1973; Deutsch, 1971; and Stunkard, 1973). Overweight has been attributed to an excess of food intake beyond the demands of energy expenditure.

Much research has been done showing the extreme complexity and the multicausal etiology of obesity and should not be dismissed as unimportant, yet there has been little systematic investigation of the factors involved in the self-concept of desired weight, overweight, and obese individuals.

Purposes of Research

The purpose of this study was to determine the difference between the self-concept of desired weight, overweight and obese individuals enrolled in a weight reduction program and those not enrolled in a weight reduction program. The researcher chose to consider two specific areas of a person's self-concept to determine if a difference existed between the self-concept of the subject and selected variables. The total self-concept of an individual which expressed the overall self-esteem of the person and the subject's image of her physical self were the two self-concept considerations viewed in this study. The implications derived from this study could provide a basis for further research which may contribute to more effective planning of weight reduction programs and educational materials.

Objectives of the Study

The objectives of the study were:

1. to develop a questionnaire to attain data concerning background characteristics of subjects,

2. to determine the self-concept of the desired weight, overweight, and obese individuals from the scores obtained from the Tennessee Self Concept Scale (Fitts, 1965);
3. to determine the difference between self-concept of desired weight, overweight, and obese individuals enrolled in a weight reduction program, and those not enrolled in a weight reduction program;
4. to determine the difference in mean self-concept score due to an interaction between desired weight, overweight, and obese individuals enrolled in a weight reduction program and those not enrolled in a weight reduction program, and selected variables such as age, onset of excess weight, income, educational level, marital status, number and age of children, and location and type of residence; and
5. to make suggestions and recommendations for dietitians who counsel overweight individuals.

Hypotheses of the Study

The following null hypotheses were examined:

1. There is no significant difference in self-concept score between desired weight, overweight, and obese individuals enrolled in a weight reduction program and those not enrolled in a weight reduction program.
2. There is no significant difference in mean self-concept score due to an interaction between desired weight, overweight, and obese individuals enrolled in a weight reduction program and those not enrolled in a weight reduction program and (a) age

of the individual, (b) onset of excess weight, (c) income of the individual, (d) educational level of the individual, (e) marital status of the individual, (f) the number and age of children in the family, (g) the location and type of residence of the individual.

Basic Assumptions of the Study

The study as determined by the specific objectives was based on the following assumptions:

1. The individuals participating in the study were honest in answering the questionnaire to the best of their ability.
2. The knowledge of how individuals perceived themselves was useful in attempting to help individuals make accurate evaluations (Fitts, 1965).
3. The research tool selected for the study was recognized as valid and reliable (Fitts, 1965).
4. Understanding the self-concept of overweight and obese individuals can contribute to more effective planning of weight reduction programs and educational materials.
5. The sample was limited to a particular group of Oklahoma residents who volunteered to participate which will limit the extent to which generalizations can be made from the data.

The identification of self-concept was limited to that which is identified by the Total Positive Score and Physical Self Score as defined by the Tennessee Self Concept Scale (Fitts, 1965) and to the administration of that instrument during the months of May, June, and July of 1977.

The accuracy of the height and weight measures for each individual was dependent upon their honesty in answering the appropriate question. Instruments were available for measuring both height and weight of the individuals. Subjects recorded their height and weight after the measurement. The determination of body build was the personal interpretation of each subject.

Definition of Terms

For a common understanding of the context in which the following terms were used, brief definitions are given:

Adult--any individual 18 years or older.

Desired weight individuals--persons who maintain a body weight within the range of 10 percent below or 10 percent above the mean of the ideal weight set by the Metropolitan Life Insurance Company according to specific height and sex standards (Appendix A, Table XXIII; Appendix B, Table XXIV).

Obese individuals--persons who exceed by 20 percent or more the mean of the ideal weight set by the Metropolitan Life Insurance Company according to specific height and sex standards (Appendix C, Table XXV).

Overweight individuals--persons who exceed by 10 percent to 20 percent the mean of the ideal weight set by the Metropolitan Life Insurance Company according to specific height and sex standards (Appendix D, Table XXVI).

Self-concept--the individual's view of herself in relation to others with respect to specific item(s) as measured by the Tennessee Self Concept Scale. The two scores which were considered in the analysis were

the Total Positive Score and the Physical Self Score which are described in detail in Chapter IV.

Tennessee Self Concept Scale--a research instrument developed by William H. Fitts (1965) to measure an individual's self-concept.

Underweight individuals--persons who are below 10 percent or more the mean of the ideal weight set by the Metropolitan Life Insurance Company according to specific height and sex standards.

Weigh-Off Program--an Oklahoma State Home Economic Cooperative Extension program. It is an adult weight reduction program designed to help women 18 years or older to lose weight through proper dieting, group interacting and understanding of the overweight program.

CHAPTER II

REVIEW OF LITERATURE

Today's society has placed great emphasis on weight control. Both physical health and fashion trends are stressing thinness as an essential element to a long and beautiful life. The problem of obesity has become one of the most preoccupying among our society, like an epidemic and attracting the attention of numerous physicians, biochemists, and psychiatrists, who devote years in examining the causes or primary motivations resulting in overweight (Pedone, 1974). Concern about the problem of obesity is not limited to one specific discipline, and it is important that such a multicasual problem be thoroughly scrutinized by a variety of concerned researchers. Yet, it is the dietitian who must assume a leadership role as a nutrition educator and researcher to design, implement, and evaluate mediums which will help meet the needs of the overweight person. Fortunately there are dietitians who realize the need for further investigation. The task is a difficult one, for the nutritionist is dealing with human behaviors--the person's likes, dislikes, habits, customs, religious beliefs, and many other variables which make each human being an individual. It is the inefficacy of many of the presently implored weight control methods to create a permanently sustained weight loss that reinforces the need for individual consideration. The dietitian's concern lies not only with correcting the

overweight problem but preventing the occurrence of obesity in future generations.

Determination of Obesity and Overweight

Much discrepancy exists throughout the literature in relation to defining the terms obesity and overweight. Mayer (1968, p. 12) defines overweight as "weight in excess of normal range (which may, as we shall see in the case of many athletes, does not involve obesity at all)." Obesity is expressed as excessive accumulation of body fat (Mayer, 1968, 1975; Pedone, 1974; and Stunkard, 1973). Pedone (1974) states that it is difficult to decide when a person is obese. He questions how it can be determined when fat is considered excessive and in relation to the amount of fat. There is not an absolute separation between the normality and abnormality. We cannot determine exactly the starting point of obesity and when a person is considered obese, but there are several methods which are currently being used to denote the starting point of obesity. The most predominant method used to determine the extent of obesity is the calculation of a person's height in inches, frame of body (large, medium, or small) and the optimal weight in pounds. These tables are made up by a long series of measurements, research and comparisons among individuals (Pedone, 1974). Obese is frequently considered to be when a person's weight exceeds by 20 percent the standard weight listed in these tables (Stunkard, 1973; Kreze et al., 1974; Deutsch, 1971; Van Itallie, 1975; and Dwyer, Feldman, and Myer, 1973). It must be taken into account that desirable or ideal weight is an individual determination. Williams (1973) noted that there is difficulty in describing the word "ideal." This term is usually defined

in reference to average weight according to height and frame, but in reality there is no such thing as an average person. In relation to the use of height-weight tables, Keys and Brozek (1976) state that:

The serious limitations of such tables--which all prove to have a common origin in the United States (Association of Life Insurance Medical Directors, 1912)--are obvious, even if we are concerned only with the matter of weight norms without commitment about their significance for obesity (p. 225).

Dwyer, Feldman, and Mayer (1973) differentiated between the terms overweight and obesity.

Body weights grossly in excess of standards are indicative of obesity. Moderate overweight sometimes, but not always, is due to obesity. Some people whose weight are normal are also obese. Thus, overweight (heaviness) and obesity (excessive fatness) are not necessarily synonymous and weight deviations give only imprecise estimates of obesity. Football players, for example, may be overweight because of their massive bone and muscular structure, yet not be overfat at all (p. 298).

Obesity is considered to be a condition characterized by the excessive accumulation of fat in the body. Stunkard (1972) suggests that although much is made of the standard height-weight tables, and people are frequently termed obese when their body weight exceeds 20 percent the standard weight listed, this measure often provides only a rough index of obesity in individuals who are mildly overweight due to a significant weight contribution made by body muscles. In the severely overweight, the use of height-weight tables does not appear to be a problem. There is no difficulty in recognizing this overweight condition and it is these people for whom it represents serious health hazards.

Prevalence of Overweight

The control of overweight is not a new problem for Americans, but it does concern some 20 to 40 million people today. It is considered a

threat to health, to social and domestic happiness and to economic security (Hafen, 1975). Asher (1974) noted that specific data on the prevalence of obesity in the United States are not available, but, conservative estimates place at 30 million the number of adults who are 20 percent or more over their ideal weight.

There are several factors which are related to the prevalence of overweight. Dwyer, Feldman, and Mayer (1973, p. 299) suggest that "prevalence of obesity varies with age, sex, probably socio-economic class, and perhaps ethnic variables such as race." These and other demographic variables are considered by many researchers to have a significant influence upon the condition of a person's weight.

Influence of Demographic Characteristics

It has been postulated that a relationship exists between age and weight gain. There is some evidence to suggest that a condition of overweight established in childhood may be self-perpetuating owing to a permanent hyperplasia of insulin insensitive fat cells (Mann, 1974) or an inhibiting of ability to regulate intake precisely to the need for calories (Hirsch and Knittle, 1970). It appears that preventive measures should be taken as early in life as possible to prevent an overweight problem because the more pronounced the obesity and the earlier in life it becomes established, the more it resists correction.

People are thought to grow heavier as they grow older, notably between the ages of 20 to 60. It is thought that after the age of 60 weight gain may diminish but sufficient data is not available to support this idea (Berlinger, 1969). Kannel and Gordon (1975) found that despite the greater affluence, women today are lighter than in previous

times. This suggests a response to current fashions. However, notwithstanding these influential psycho-social forces of fashion, youth cultism, and health concerns, weights in both sexes tend to creep inexorably upwards with age until late in life.

Although excessive weight deviations appear to be more prevalent among adults than among adolescents, adults tend to be much less concerned about their weight and less apt to take remedial measures than teenagers. In 1964 an opinion poll on a national stratified sample indicated that over 30 percent of those adults who had a weight problem were not even concerned about their weights and only 10 percent were dieting to lose weight. Approximately 20 percent were watching their weights so that they would stop gaining and the rest were concerned but took no action against overweight. A poll done in the early 1960's showed that concern with overweight in adults rarely led to dieting. The research noted that only 11 percent of the total United States' population falls in upper-class or upper-middle-class status, but that these classes contain 24 percent of all dieters (Wyden, 1965). Thus, socioeconomic factors appeared to be a determinant in the individual's satisfaction of his/her weight condition.

Influence of Socioeconomic Factors

In the past history of many cultures, overweight was viewed as a status symbol. It was a mark of distinction, an indication that a person was a member of the privileged class. Today, as members of an affluent society, most people of the United States can get more than enough to eat and overweight has ceased to be a symbol of high status.

Through all forms of media we are reminded constantly of the beauty of being slender. Overweight is no longer "socially accepted" in the United States.

In the comprehensive Midtown Study which investigated the epidemiology of mental illness, 1,660 adults were interviewed in a residential area of midtown Manhattan. The 1,660 individuals were representative of the 110,000 adults living in that area according to the 1950 United States Census. The adults were between the ages of 20 to 59 years old (Srole, 1962). The relationship of obesity to mental health was observed through the reanalysis of the original data from the midtown Manhattan study. Moore, Stunkard, and Srole (1962) expressed the belief that obesity is closely associated with some mental disturbances and that some of these disturbances may be a major cause of obesity. Because the data was not collected for the purpose of relating mental health and obesity, it was felt that bias by the investigators in regard to this area was not present. The relationship between social class and mental illness was the major focus of the Midtown Study, but unlike previous studies which have looked at the effect social class has on the mental status of a person, it was felt that mental illness may have an effect on social class, particularly in the downward direction. To further investigate this idea the researchers used a measure based upon the social class of the respondent's father, rather than his/her own social class at that time.

The two variables that were found to be the most important in evaluating the psychological functioning of various segments of the sample were age and socioeconomic status. Persons in the older age groups and of lower socioeconomic status were more likely to be mentally

ill. An impressive relationship between obesity and socioeconomic status was discovered. More than 30 percent of the women in the lowest socioeconomic category were obese and this percentage tended to decrease as the socioeconomic status increased. In the highest socioeconomic category only four percent of the adults were obese (Moore, Stunkard, and Srole, 1962).

Age also showed a relationship to obesity in the Midtown Study. A low percentage (five percent) of the younger age groups (20 to 24 years) were obese. The percentage of obese women rose sharply after age 40 and reached a peak of 34 percent at age 50 to 54. The percentage dropped to 26 percent in the oldest category. This decrease in the number of obese persons in the oldest category is probably due to the increased mortality rate among these individuals (Moore, Stunkard, and Srole, 1962).

Because of the relationship of obesity to age and socioeconomic status and, in turn, their relationship to mental health, any research on the relationship between obesity and mental illness should control for the age and social class of the respondents. When these variables were held constant, the investigators found that the obese persons scored lower on mental health measures than their non-obese controls (Moore, Stunkard, and Srole, 1962).

Characteristics of Overweight Persons from
Results of Three Opinion Polls on
National Sample

Dwyer and Mayer (1970) stated that concern with weight and dieting behavior has been widespread within the American population for some

time. It varies with regard to sex, age, educational and occupational level. The data used for this study was obtained from a source not commonly used by nutritionists. Three surveys conducted on national stratified samples of the population of the United States over the past 20 years were used as the source of information. Two of the opinion polls were conducted by the American Institute of Public Opinion in 1950 and 1956, and the third was conducted in 1966 by the Elmo Roper Company. The purpose of the study was to provide answers to the following questions: (a) What percentage of the population consider themselves to be overweight? (b) How common is dieting within the population? (c) What are the demographic characteristics of the persons who consider themselves to be overweight? With regard to the first question--What percentage of the population consider themselves to be overweight?--44 percent of the 705 women in the 1950 survey said they wanted to weigh less, while 45 percent of the 1,132 women in the 1956 survey and 42 percent of the 1,049 women in the 1966 survey also expressed the need to lose weight.

The percentage obtained in response to the question, How common is dieting within the population?, showed that 14 percent of the women in the 1950 and 1956 studies were making efforts to lose weight through dieting. In the 1966 survey 14 percent revealed that they were on a diet, while 13 percent said they diet from time to time, and 26 percent "cut down on certain fattening foods" in an effort to lose weight (Dwyer and Mayer, 1970).

The demographic characteristics of the persons who consider themselves to be overweight indicated that concern with weight and dieting behavior increased slightly with occupational status but not educational

level in men, and with both education and occupation in women. Information on concern with weight related to educational and occupational levels was available only from the 1950 and 1956 studies (Dwyer and Mayer, 1970).

Although age was not studied extensively in this research project, it appears to play a part in attitudes about weight. Upon further analysis of the 1956 data regarding discontent with weight, differences were seen by educational level only in the older age groups (35 years or older), while among those younger than 35 concern with weight could not be related to educational level (Dwyer and Mayer, 1970).

Sex differences were apparent in each area of the study. Women maintained a high and constant level of preoccupation about overweight in each survey and a higher percentage of the women also claimed to be on diets (Dwyer and Mayer, 1970).

Educational achievement showed a direct relationship to overweight in the Framingham Study (Kannel and Gordon, 1975). It was indicated that the higher the education achieved the lower the weight. Within the grade school level of educational achievement, those students who graduated weighed less than those who did not. The research revealed that these efforts were more pronounced in women than men. Female school dropouts were distinctly heavier than those who completed their course of study.

U.S. Dietary Goals

The prevalence of overweight in today's society prompted the Senate Select Committee on Nutrition and Human Needs to propose the "Dietary Goals for the United States" in the spring of 1977. The introduction of

these goals reflected the concern of its proponents for sound nutritional guidelines upon which to base eating patterns for optimal health in the United States. The report emphasized that the individual consumer needs a practical guide for the selection of a nutritional diet which will thus reduce health costs and maximize the quality of life.

The prevention of nutritional deficiency has always been a major concern of nutritionists, yet it must be recognized that the major health problems of the United States are associated with overnutrition (Hegstad, 1977). The implications for obesity were present in the first edition of the dietary goals but Dietary Goals for the United States, second edition, gave more emphasis to the widespread American health problem. The goal: "To avoid overweight, consume only as much energy (calories) as is expended; if overweight, decrease energy intake and increase energy expenditure" was one of the primary additions to the dietary goals (U.S. Senate, 2nd Ed., 1977). In his testimony at the Select Committee's July, 1976, hearings, Dr. Theodore Cooper, Assistant Secretary for Health, estimated that about 20 percent of all adults in the United States "are overweight to a degree that may interfere with optimal health and longevity" (U.S. Senate, 1st Ed., 1977, p. 1).

Causes of Overweight

Energy Intake and Expenditure

It is impossible to determine one single cause for the problem of overweight. Most investigators agree that all forms of obesity are ultimately caused by energy intake that is greater than energy expenditure. This results in the storage of surplus energy in the form of

fat (Asher, 1974; Pedone, 1974). A multitude of interactions may lead to this calorie imbalance. Wilson, Farber, Kimbrough, and Wilson (1969) stated that possibly the most prominent factor in calorie imbalance contributing to increase of obesity at all ages is decrease in physical activity. In this century, the active use of human muscle power has been replaced by relative inactivity as a result of reliance on appliances and machines powered by electricity. "It seems clear that humans tend toward obesity when their environment offers abundant food at low energy cost" (Kannel and Gordon, 1975, p. 23).

Mayer (1968, p. 93) discussed this activity as being "the result of social and economic conditions which have eliminated the need for physical work, without creating the leisure, the means, or the incentive for voluntary physical exercise." Although an imbalance in the energy intake and expenditure of an individual has been identified as a definite factor in causing an overweight condition, it cannot be denied that hereditary components should also be given consideration as possible causes of overweight.

Heredity

The major and defining abnormality of the obese is an increase in adipose tissue. This enlargement can come from an increase in either adipocyte size (hypertrophy) or cell number (hyperplasia). The cell number appears to remain fixed in the adult. As weight reduction occurs the adipose tissue decreases in total size, but the adipocytes number remains constant.

The relationship of adipose cells to obesity has received a lot of attention in the past few years. In a study conducted by Brook, Lloyd

and Wolf (1972) 54 obese children and 25 obese adults were examined as to adipose content through a series of measurements. The obese children were divided into two groups: (1) early onset (one year), and (2) late onset; while the adults were categorized as: (1) obese at childhood, and (2) obese only in adult life. It was found that the cells of the children obese by one year of age were significantly larger than those of the controls. The cells of the obese adults were also larger than those of the controls. The study also revealed that although all of the obese individuals had an increase in the size of fat cells, in only a proportion was the total number of cells also increased and that increased number of cells was associated with the age of the onset of obesity. Increased cellularity was apparent in children who had gained weight excessively during the first year of life and in adults who had a history of obesity dating from childhood. The results of this study tend to suggest that the period during which the rate of fat cell multiplication is most affected by over-nutrition extends to about the age of one year. It appears that during this period the number of fat cells is established and thereafter multiplication proceeds at a normal rate.

Knittle (1975) noted that the studies show that fat increases steadily for the first nine months of life, at which time it reaches a plateau and thereafter a slight increment occurs until about age seven. Another increase in fat then occurs. A final development of fat depot occurs during adolescence. He also suggested that once adulthood is achieved the number of adipose cells is unchanged by dieting and that this hypercellular condition persists even after marked degrees of weight loss.

The control of obesity should begin at a very early age. Concern should not only be focused on adequate intake of protein, vitamins and minerals, but caloric intake should be given serious consideration. The reduction of calories during childhood could well be an advantage in reducing the incidence of adult obesity. External influences are often termed as causes of overweight in certain individuals rather than the internal physiologic conditions which have just been discussed in the fat cell theory.

Physical Causes of Overweight

Van Itallie and Campbell (1972) found that obesity can be observed in two fundamentally different ways. One view has been that it is a condition caused by a metabolic disorder which favors increased triglyceride storage. The other approach suggests that the obese person "force feeds" himself, overeating for non-physiologic reasons.

In the study of 30 obese and non-obese hospitalized patients, Wagner and Hewitt (1975) found that obese subjects consumed their meals and chewed each mouthful in significantly less time than did non-obese subjects. Satiety was defined as a complex of sensations which compel the organism to stop eating because hunger and appetite have been satisfied, even though food is still available. Oral satiety in the obese subjects appeared to play an insignificant role in the attainment of postprandial satiety.

A series of experiments performed by Schachter (1968) and his students, provided strong support for the concept that obese individuals were relatively insensitive to physiologic cues for hunger and satiety, but that they were more than normally responsive to "external" and

sensory cues related to the eating process. Schachter felt that eating in lean persons was controlled principally by internal signals, being influenced relatively little by external cues. Obese individuals appeared to eat and, indeed, overeat in response to external and sensory cues and appeared unable to perceive the physiologic signals that presumably announce hunger and satiety in lean individuals. The work of Schachter implied that obesity develops because of a defect in the obese individual's energy regulatory processes that presumably involves a relative insensitivity to internal hunger-satiety cues (Van Itallie and Campbell, 1972). The obese person responds to the external stimuli, such as the sight of food, rather than waiting for the physical internal hunger cue. "In other words, if it looks good or tastes good and its handy, they'll eat it" (Marks, 1975, p. 67).

The "physical internal hunger cue," often referred to as contractions of the empty stomach, is considered by many to be the distinctive sign of the presence of hunger in human beings. Stunkard (1959, p. 281) investigated "the alleged association between gastric motility and the experiences of hunger" at the General Medical Clinic of the Hospital of the University of Pennsylvania. Seventeen obese and 18 non-obese female patients participated in the study. Each patient was in good health, with no condition believed to influence food intake, gastric motility, or ability to tolerate the experimental procedure. Metropolitan Life Insurance Company height-weight tables were used to calculate the percentage overweight for each obese subject. The median percent overweight was 62 with a range from 26 to 182 percent. The non-obese women were of normal weight and had no past history of overweight or underweight.

A gastric intubation procedure was used to identify gastric motility. Three variables were selected to delineate the components of the hunger experience ("hunger," "emptiness," and "desire to eat") after studying the verbal responses of 200 obese and non-obese persons. The presence or absence of the following four variables were recorded: (1) gastric motility, (2) "hunger," (3) "emptiness," and (4) "desire to eat" (Stunkard, 1959).

Results of the study stated that the non-obese women usually report "hunger" in association with gastric motility while the obese women were less likely to do so. The difference in the total number of responses of "hunger" between the two groups was significant at the .01 level of probability. In the absence of gastric motility both the obese and non-obese groups usually reported no "hunger" (Stunkard, 1959).

As a result of further investigation it was discovered that eight of the 17 obese patients suffered from what is commonly referred to as the night-eating syndrome. When the response of these eight individuals was compared with the other nine obese women, a very distinctive pattern was revealed (Stunkard, 1959).

The night-eating women were far less likely to report 'hunger' in the presence of gastric motility than were the other obese women. The mean percent of 'hunger' responses among the night-eating women was 22 as compared with 57 percent for the other obese women: comparison by means of a rank order test reveals a difference which is significant at the 5 percent level (p. 286).

A closer look shows that if the night-eating women are excluded from the comparison of obese and non-obese women, there is no significant difference between the two groups. This suggests that the failure to report "hunger" between obese and non-obese groups is entirely due to

the contribution of those women suffering from the night-eating syndrome (Stunkard, 1959).

Stunkard (1959) felt that the failure to report "hunger" arose from a denial of the sensations and impulses rather than a failure to interpret correctly those sensations and impulses. It was also suggested that the denial of hunger is related to the social pressures placed upon obese persons because of their weight condition.

People eat for many reasons, not just because they have been without food for a while. They eat because their blood sugar level has fallen, brain mechanisms urge them to eat, their stomachs are contracting, their dinner time is approaching, or they have just seen or smelled or heard about something good to eat. People eat because their parents thought that fat babies were healthy babies. Food and eating have a variety of symbolic and social values. According to a recent study, any dietary program should take into account not just calories and exercise, but mannerisms, motives, and environmental factors must be considered as well (Trotter, 1974).

Physiological Aspects of Overweight

It has been assumed and widely accepted among physicians that "perhaps 90 percent or more of all cases of overweight are psychogenic in origin--that is, rooted principally in the mind and not in the body" (Wyden, 1965, p. 262). Schachter (1971), a social psychologist, has proposed that obesity may sometimes result from a failure to differentiate between feelings of anxiety created by emotional states.

Asher (1974) emphasized the effect that society has on the overweight person. He noted that in a society that stresses thinness it

is difficult to assess whether psychological problems are the cause or result of obesity. It is apparent that society's discrimination against the obese and the pressures for thinness are enough to account for many of the psychological problems in the overweight. The researcher also suggests that these psychological problems frequently are lessened after weight reduction.

The psychological implications regarding overweight are difficult to determine. There are questions that need to be answered concerning the type of psychological disturbances which produce overeating, whether a single disturbance, or many, and whether the disturbance and the severity of the overeating are proportional. These disturbances must then be viewed according to individual circumstances.

Psychological factors may cause additional disturbances when attempts at weight reduction are made. Careful evaluation is needed to make certain that food restriction in some individuals will not result in psychological manifestations (Hafen, 1975).

The psychological problems of overweight persons are frequently asserted to be due to the rejecting social attitude which exists. Bruch (1975) stated that the overweight persons who are most hurt by this condemnation are individuals who

. . . suffer from severe self-doubt and have a poor body image and inadequate self-concept, which consequent extreme dependence on the opinion of others, in all areas of living--not only in regard to weight and appearance. Obese adolescents, and adults whose excess weight goes back to early life, are particularly vulnerable because they consider themselves ugly, and despise and loathe their body and its large size. Yet when they try to reduce they feel diminished and empty and become even more unhappy. People who grow heavy after they have reached adulthood usually do not express such self-derogation, nor do they expect that they would set everything right and change their whole unhappy life by losing weight (p. 86).

This negative self-concept is often attributed to the inflicting cultural attitude, but this is only a part of the problem. A study of overweight children during the 1930's followed their development into adulthood. It showed wide differences in their self-concept and overall adjustment. The adults who had been accepted and encouraged by their families developed a good self-concept and had a positive body image. These persons were not adversely affected by the negative cultural attitude but had made a healthy adjustment which included the ability to maintain control over their weight, even though often at a level somewhat above the average.

Adults who experienced early signs of emotional disturbance caused by family problems and conflicts did poorly in regard to both weight and adjustment. These individuals were hurt by the hostile attitude of society and took it as a personal rejection. "It seems that those who eventually become psychiatric patients and whose psychological problems are closely interwoven with the factors that make for obesity come from this second group, those with early signs of inner trouble" (Bruch, 1975, p. 87).

Berblinger (1969) noted that one may simplify the problem by saying that the psychology of obesity is essentially one of overeating. In this instance, overeating is considered as an attempt to maintain one's emotional equilibrium. It is hard to determine how overeating can be psychologically interpreted and understood. To do this we must evaluate the total person rather than just his/her fatty tissue. The researcher needs to know what the patient eats, then ascertain the reasons why and when the patient eats. The meaning the food has when the person eats it should be considered also. Many factors are considered as causes of

overweight but the end result remains the same. A physical and emotional strain upon the body ultimately constitutes an unhealthy condition.

Health Hazards of Overweight

Cardiovascular Disease

A wide variety of information has been collected about the development of cardiovascular disease and the changes in cardiovascular status from the Framingham Study which began in Framingham, Massachusetts, in 1949. The study examined 5,127 men and women aged 30 to 62 years at two-year intervals for the development of coronary heart disease (Kannel, n.d.). The purpose of the study was to evaluate the relationship of characteristics determined in well persons to the subsequent development of disease (Shurtleff, 1974). Obesity is among the suspect factors associated with increasing the chances of developing coronary heart disease (Kannel, n.d.).

Of all the sequela of obesity (degenerative arthritis, skin ailments, diabetes, digestive disturbances, psycho-social problems) the most dangerous are its cardiovascular consequences since these are responsible for over half the annual toll of mortality in affluent societies. This warrants a detailed look at the role of obesity in cardiovascular disease (Kannel and Gordon, 1975, p. 18).

The rate of development of disease in the subjects after 12 years of observations showed that the risk of angina pectoris rose progressively with increasing relative weight. Persons 20 percent or more overweight had almost three times the risk of those persons more than 10 percent underweight. There was also an increased risk of sudden death by more than three times in persons 20 percent or more overweight as in the general population (Kannel, n.d.). Follow-up after 18 years has

continued to support the effect obesity appears to have in coronary heart disease (Kannel and Gordon, 1975).

The incidence of stroke showed a relationship to overweight in the Framingham cohort. The effect seemed to derive largely from the atherogenic traits generated by obesity, especially hypertension. Strong evidence suggests that hypertension is the most powerful contributor to cardiovascular disease. Of the various factors investigated to identify trends associated with blood pressure, changes in relative weight were the strongest (Kannel and Gordon, 1975). "People 50 percent above ideal weight (particularly women) are not rare; on the average, they have a systolic pressure 14 mm Hg higher than those at ideal weight" (Gordon and Kannel, 1973, p. 84).

Kannel and Gordon (1975) stated that effective means for preventing and treating obesity are needed now. Control of obesity in individuals who are inclined toward cardiovascular disease and to persons in the general population would seem an important concern for those interested in controlling cardiovascular mortality. Weight control appears to be the first approach to the correction of hypertension, hyperlipidemia, and impaired glucose tolerance which tend to be risk factors for cardiovascular disease. The control of weight would also be necessary for those interested in improving the exercise tolerance of patients with coronary heart disease or congestive failure.

The importance of obesity as a factor in coronary heart disease is further stressed by the National Research Council (1975). In July, 1972, the following statement was released:

Coronary heart disease is the major public health problem in the United States and in many other countries. In 1970, for example, some 666,000 Americans, of whom about 171,000 were

under the age of 65, died of coronary heart disease (CHD) and many more were disabled by the same disorder. It is particularly disturbing that many relatively young Americans in their most productive years are killed or incapacitated by the disease.

Epidemiologic experimental and clinical investigations have identified a number of 'risk factors' associated with susceptibility to CHD that can be manipulated. These include an elevation in plasma lipids, especially plasma cholesterol; high blood pressure (hypertension); heavy cigarette smoking; obesity; and physical inactivity. The evidence is not sufficient to quantitate the benefits that may be expected to come from modifying these various risk factors, but the seriousness of the situation demands that all reasonable means be used to reduce the conditions that contribute to risk of CHD (p. 33).

Studies have shown that the detrimental effects of cardiovascular disease tend to increase in the overweight person. Obesity also appears to negatively influence other physical conditions.

Decreased Physical Capacity

The health hazards associated with obesity do not end with its influence on cardiovascular disease. There are a multitude of other harmful effects associated with obesity as Howorth (1973) noted. Obesity diminishes a person's physical capacity and effectiveness in work and mental improvement. It strains the arches and tends to produce flat feet, increasing the tendency to calluses, corns, and bunions, as well as sprains. Osteo-arthritis which commonly affects the feet, knees, and hips, is aggravated or even produced by obesity, while knock knees and bowlegs are made worse and cause more pain because of obesity. Heart disease, strokes, high blood pressure, gall bladder disease, and diabetes are more common in fat people and more serious. Complications with major surgical operations are also more prevalent with obese persons. There appears to be no definite benefit from the condition of obesity.

It is no wonder that obesity is placed near the top of the list of United States public health problems or that the life expectancy of the obese is lower than that of the non-obese. The decrease in life expectancy is found to be directly proportional to the degree of obesity. One interesting fact which sets obesity apart from so many other illnesses is that all or almost all of its effects can be reversed. Obese persons tend to lose their diabetes and their high blood pressure when they lose their excess fat. Life insurance studies show that obese persons who successfully lose, and retain their loss, increase their life expectancy to what it would have been had they never been obese. It is this significant and prompt response to a simple treatment--weight reduction--that contrasts obesity so dramatically with other serious medical problems (Stunkard, 1973).

Self-Concept

Attempts made by researchers to define self-concept have resulted in a multitude of definitions. Murphy (1975) felt that an individual's self-concept is the culmination of all that a person appears to himself to be, whether sensory, imaginal, emotional, or conceptual. Hogan (1976) defined self-concept in terms of one's social roles. He stated that the self is the capacity to see oneself in one's social roles, to view one's roles in perspective. Self-concept reflects the demands of particular social situations, and because the expectations of society vary, then one's role of performances will vary from situation to situation. Humans have the unique ability to reflect upon themselves--their thoughts, feelings, and actions (Woodman, 1973).

The development of self-concept occurs through interactions with others. It is a process of reflecting how we see ourselves in relation to others (Hogan, 1976). Stringer (1971) suggested that the development of positive feelings toward others are more probable when we feel reasonably good about ourselves.

Dai (1955) noted that there are many facets to the human personality and one of the most important aspects is an individual's conceptions of himself. It appears that it is around the person's self conception that the many other facets of a personality are organized. What a person thinks of himself, consciously or unconsciously, determines his behavior to an extent not commonly recognized.

An individual's self-concept usually has a social reference. It takes the form of some kind of relation between the self and others. In this regard, the conception of self may be thought of as a role one intends, or is expected, to play in a social situation. Dai (1955) also suggested that it is seldom possible for any experienced clinician to understand fully the meaning of any isolated attitude or trait except in terms of the role the individual is playing in a specific social situation, either actual or imaginary.

An individual is born with only biological needs. It is through the course of maturation and socialization that a person acquires a self-concept; but with the growth of self, the needs for security in self--other or interpersonal relations--become as important as, and very often more than, the needs for biologic satisfaction. This self system appears to exert a control over all the needs of the individual, biologic or otherwise, and any disturbance of this control may result in varying degrees of anxiety. The nature of the self system a person

acquires in the course of socialization depends largely on the kind of personalities he/she is associated with and the culture with which his/her activities are patterned, what the significant people in the environment think of him/her and the ways in which this socialization takes place. While the number of conceptions of the self or roles an individual requires increases with his social contacts, it appears that those acquired early in life are generally more important than those acquired later in the life process (Dai, 1955).

Dwyer, Feldman and Mayer (1975) stated that the self-concept of individuals may be a possible explanation for the greater rate of dieting among females than men. Weight-related aspects of appearance are more intertwined with the self-concept of females than in males. The sensitivity of the self-images of females to weight problems seems to encourage them to undertake corrective measures. Physical appearance becomes tightly bound up with the self-image in women because they sense the importance of their appearance in determining how the male half of the human race will regard them as well as influencing other females' opinions of them. Contrary to the male, the self-concepts of females are more intimately involved with the countless aspects of body appearance other than those suggesting physical prowess. Their body images are adversely affected by much smaller deviations. Deviations in pounds of excess weight above normal that might be merely annoying to a male are devastating to a female's concept of herself.

A study conducted by Glucksman and Hirsch (1973) suggested that obese individuals often develop a disturbed body image. Their perception of their own body size is often distorted. The study consisted of six severely obese adult patients seeking weight reduction and a

contrast group consisting of four non-obese adults. A body-sizing apparatus was utilized for the measurement of body size perception in obese patients before, during, and after weight loss. The basic unit of data obtained was a "size estimation score." The score was collected over four periods of weight reduction. The results showed that the "self" body size estimations of the obese subjects differed significantly between periods. This difference consisted of an increasing overestimation of their own body size from the first period to the last period of weight reduction. The obese subjects increasingly overestimated their own body size during and following weight loss. Prior to the loss of weight, the obese persons slightly underestimated their actual body size. During weight loss they overestimated their actual body size. There was not a significant difference in the estimations of "self" of obese and non-obese subjects, although the non-obese subjects tended to underestimate their own body size in comparison to the obese subjects.

Measuring Self-Concept

As varied as the descriptions are for defining self-concept, so are the means for measuring self-concept in individuals. White (1972) suggested that the best method is an "intensive personality study." This technique would require that the subject participate in a large number of interviews, tests, and experimental situations conducted by more than one examiner. This method allows the subject's conception of himself/herself to be disclosed gradually in a variety of specific situations and through numerous incidents recollected from the past. Persons who are interested in understanding themselves better, and develop confidence in the goodwill and respect of the examiners, will often communicate the

information that is needed to form a comprehensive idea of their self-concepts, self-awareness and self-esteem. The process is long and slow, but the method is basic.

A second type of self-concept measurement consists simply of an interview on abilities. The interviewer names a specific ability and the subject is asked how good he/she thinks he/she is in respect to that ability. The subject is then asked for specific instances illustrating good performance and others illustrating poor performance. This procedure is directed partly at assessing actual abilities but the subjects' responses almost necessarily include information about their self-concept and sense of competence (White, 1972).

The adjective checklist provides an advantage over the two previously mentioned methods of studying self-concept in that it provides for a more rapid and economical collection of data. The information is easily scored and is more or less comparable over large numbers of respondents. For many purposes the saving of time outweighs the loss of information, provided that what is lost is not the real heart of the matter. The adjective checklist allows the respondents to check the qualities they believe to be characteristic of themselves (Gough, 1961).

Another form of measurement is the semantic differential technique. Some inference of degree is possible with this scale. It consists of a set of 10 to 20 paired opposites (good/bad, light/dark, etc.) rated along scales representing some qualifications such as "slightly," "quite," and "extremely" (Reeder, Donahue and Biblarz, 1960).

The Q-sort technique is another self-concept measurement. The respondent is given a large number of adjectival phrases and is asked

to sort them into piles according to the degree to which he/she feels each is accurately descriptive of him/her (Stephenson, 1953).

Gordon (1968) noted that because there are no noun-like forms in the checklist, semantic differential, or Q-sort techniques, there can be no assessment of the respondent's self-conceptions in terms of roles, memberships, activities, or loyalties. He pointed out that:

The adjectival approach can only describe an individual as he is differentiated from others along segmental properties. It cannot discover what 'type' of person he considers himself to be, nor the social and idea systems in which he feels implicated (p. 119).

A Likert-type scale is a summated rating scale. A summated rating scale is an attitude scale, the purpose of which is to place an individual somewhere on an agreement continuum of the attitude in question. It consists of a set of attitude items, all of which are considered of approximately equal "attitude value," and to each of which subjects respond with degrees of agreement or disagreement (intensity) (Kerlinger, 1964). The instrument selected for this research study, the Tennessee Self Concept Scale, developed by Fitts (1965), is a Likert-type rating scale and will be described in the next section.

The Tennessee (Department of Mental Health) Self Concept Scale

William H. Fitts (1965) began the developmental work on the Tennessee (Department of Mental Health) Self Concept Scale in 1955. The original purpose of his research was to develop an instrument that might contribute to the difficult criterion problem in mental health research, but it has since proved useful for many other purposes. The Tennessee (Department of Mental Health) Self Concept Scale: Manual provides the

following information about the instrument (Fitts, 1965). The Tennessee Self Concept Scale is a self-administering instrument made up of 100 self-descriptive statements. It can be used with either individuals or groups of age 12 or higher and having at least a sixth grade reading level.

The Tennessee Self Concept Scale is available in two forms, the Counseling Form and the Clinical and Research Form. Both forms utilize the exact same questions; however, the scoring and profiling procedures differ. The Counseling Form was selected for this research because it allows the examiner to have a less sophisticated background in psychological testing. It deals with fewer variables and scores and, thus, is quicker and easier to score. The Counseling Form is appropriate for self-interpretation and feedback to the subject. The Clinical and Research Form is more complex in scoring, analysis and interpretation. It is not appropriate for self-interpretation or feedback to the subject. Scoring for both forms can be accomplished either by hand or by machine (Fitts, 1965).

The Tennessee Self Concept Scale uses 90 descriptive statements, equally divided as to positive and negative items. The statements are arranged into a two-dimensional, three by five scheme which aligns three dimensions vertically. The horizontal scores represent an internal frame of reference within which the individual is describing himself. Its statements refer to: (1) identity or what he is, (2) self-satisfaction or how he accepts himself, and (3) behavior or how he acts. The vertical dimension provides an external frame of reference. The five components of the vertical dimension are: (1) physical self, (2) moral-ethic self, (3) personal self, (4) family self, and (5) social self (Fitts, 1965).

The remaining 10 items comprise the Self Criticism Score. These items were taken from the L-Scale of the Minnesota Multiphasic Personality Inventory. They are statements which are mildly derogative and most people would admit as being true for them. A high Self Criticism Score usually indicates that the individual has a normal, healthy openness and capacity for self-criticism. Low scores indicate a tendency toward defensiveness, and suggest that the high positive scores may be artificially elevated by this defensiveness (Fitts, 1965).

The total scores for each of the three horizontal dimensions, the five vertical dimensions and the Self Criticism Score result in the Total Positive Score. This score is the most important single score on the Counseling Form. It reflects the person's level of self-esteem. A high Total Positive Score indicates that the individual likes himself, feels that he is a person of worth, and has confidence in himself. Low scores reflect doubt about the individual's worth and desirability, feelings of anxiety and unhappiness, and a lack of self-confidence (Fitts, 1965).

A test-retest method was used to determine reliability. Sixty college students participated in the test-retest procedure over a two-week period. The reliability coefficients for all major scores are included in the manual. A .92 reliability coefficient is indicated for the Total Positive Score (Fitts, 1965).

Content validity has been determined for the Tennessee Self Concept Scale. The 90 items used were determined by the unanimous consent of seven clinical psychologists. Statistically significant differences were demonstrated between psychiatric patients and non-patients, delinquents and non-delinquents, and the average person and a psychologically integrated person. These findings support the theories of personality

and research which suggest that there will be a difference in self-concept and there is a difference in psychological dimensions. Scores on the Tennessee Self Concept Scale were also correlated with other measures to assess validity. A correlation with the Minnesota Multiphasic Personality Inventory provided the expected outcome (Fitts, 1965).

Norms for the Tennessee Self Concept Scale were established from a sample of 626 people from various parts of the country, whose ages ranged from 12 to 68. The subjects were approximately equal numbers of both sexes, both Negro and Caucasian, and representatives of all social, economic and intellectual levels, including sixth grade through Ph.D. degree (Fitts, 1965).

Treatment of Overweight

Behavior Modification

Many methods of treating obesity have been suggested and tried throughout time. The one common feature of all treatments and techniques that have been proposed has been the failure of any one to effect weight loss in all obese persons although each new technique has had some major success with some individuals. Levitz (1973, p. 22) reported: "In the past five years, attempts to apply behavior modifications to the treatment of obesity have resulted in some of the most successful programs reported in the literature." Behavior modification is directed at both the control of ingestive behavior (which includes the when, why, where, and how much), and the control of activity and energy expenditures of the individual. The changes in eating behavior and activity and the

concept that these changes ultimately become permanent have enhanced the possibility for long-term effects. Behavioral techniques of treatment are techniques which attempt to apply the data and methods of experimental psychology to disorders of human behavior. The reasoning for this has been based on the principles of learning, with the assumption that if a behavior has been learned, it can be retrained, or if unlearned, it can be shaped. Levitz (1973), of the University of Pennsylvania, stated:

A primary responsibility of the therapist is to individualize the set of techniques so that they are applicable to a client's particular eating habits: they should form a systematic program and be presented in a logical progression (p. 22).

There are four distinct characteristics of behavior therapy as determined by Levitz (1973). The first focus of attention should be the determination of observable eating and activity patterns. The therapist should be most interested in the discrete behaviors that define the problem and the specific behaviors that should be decreased, increased, eliminated, or instituted to alleviate or solve it. Target behaviors, in the area of obesity, are those behaviors that contribute to excessive calorie intake and decreased energy expenditure. Obesity has been seen as the consequence of these habits rather than as a symptom of some underlying psychological disorder.

The second characteristic considered should be the precise measurement of the target behavior and an assessment of the degree of change that occurred. Baseline measurements of food intake and habits are taken before behavior techniques are introduced in order to make such an assessment. The ultimate goal of behavior therapy has been to develop a

permanent set of appropriate eating habits, the result of which is weight loss and maintenance (Levitz, 1973).

A series of clinical techniques abstracted from general psychological principles, primarily from research in human learning and social psychology, constitute the third and most distinctive characteristic of behavior therapy. No matter what particular technique is used to effect a change in behavior, a process of shaping is implied throughout the therapeutic program. The term "shaping" refers to the process of providing for small incremental changes in a behavior, with each step more closely approximating the final goal behavior (Levitz, 1973).

The fourth characteristic, an educational approach to the development of self-management, denotes the complexity of the treatment of obesity. Treatment relies on principles of self-management. The therapeutic contacts should provide the client with the techniques for achieving the appropriate behavioral changes. The educational approach in the treatment of obesity designates the principal role of the therapists as teaching the client how to devise suitable techniques for changing them. The therapist should serve as a source of social influence to the client (Levitz, 1973).

Mahoney and Mahoney (1976) found that permanent weight control is the result of a change in behavior. It is the individual's daily eating and exercise habits, the input and output of energy, that must be changed.

Levitz (1973) discussed behavior therapy as a relatively new approach to weight reduction and reported that in recent literature it has been shown to promote gradual weight loss. He stressed that the

specific techniques introduced by behavior therapy must be adapted to the individual's particular habit patterns.

Grinker (1973) compared the behavioral responses of persons with juvenile- and adult-onset obesity in relation to weight reduction and concluded that different mechanisms operate in the two obese populations and, thus, treatments should be designed according to the age at onset of obesity. Nutritional counseling is suggested for persons with adult-onset obesity who may have gained weight by maintaining food intake patterns which are no longer appropriate for their activity requirements, while juvenile-onset obesity patients may be helped by use of psychotherapy. It was further concluded that the technique of behavior modification would prove helpful for all patients. The success of behavior modification is determined by its ability to help each individual patient gain control over the external determinants of food intake.

Success of Weight Reduction

Blake (1976, p. 645) stated that "successful weight reduction must be defined as weight loss and maintenance of that loss over time." The failure of an individual to maintain a weight loss seems to be the main problem with most weight reduction programs. The inability of most weight reduction programs to bring about permanent weight loss for overweight or obese individuals prompted investigators to search for a more successful approach to the overweight problem. Behavior modification has been termed as an approach which represents a significant advance in the treatment of obesity (Weisenberg and Fray, 1974). Its success cannot

be determined on a long-term basis because it is relatively new as a form of treatment for obesity.

Jordan and Levitz (1973) recorded successful results with a study that combined the techniques of behavior modification and self-help groups. The sample consisted of 13 members. Weekly meetings were held at which attendance was mandatory. The primary technique used was social pressure along with the behavior modification approach. The results of behavior modification in this pilot study were encouraging and indicated the need for further exploration into the refinement of these techniques.

Stunkard (1972, p. 391) noted that "both greater loss during treatment and superior maintenance of weight loss after treatment indicated that behavior modification is more effective than previous methods of treatment for obesity." Jordan and Levitz (1975) cautioned that the large number of studies which can be referred to in this area of research should not be interpreted as a sign that behavior modification has found a complete answer to the problem of obesity. Long-term follow-up data is needed in this area to substantiate any success.

Previous research has attempted to explain the causes of overweight and offer solutions to the present problems in our society, but combating the problem of overweight is not an easy task. The causes and effects of overweight should not be discussed as unimportant but rather should be considered carefully on an individual basis. Behavior therapy approaches this overweight problem in just such a way by analyzing the individual complications and behaviors and then designing the treatment which best suits the person studied. This study should lend

a better understanding of the overweight individual's self-concept of himself/herself and, thus, help therapists better relate to him/her on an individual basis.

CHAPTER III

PROCEDURES

This chapter describes the procedure and method followed to accomplish the objectives which were outlined in Chapter I. The procedures used in the study were as follows: (1) review of pertinent literature, (2) selection of the sample, (3) development of the instrument, (4) pretesting the instrument, (5) collection of the data, (6) analysis of the data, and (7) recommendations for professionals who work with overweight individuals.

Review of Pertinent Literature

The study was concerned with the self-concept of desired weight, overweight, and obese individuals enrolled in a weight reduction program and those not enrolled in a weight reduction program. The self-concept score was considered in two parts. The Total Positive Score looked at the overall self-esteem of the individual and the Physical Self Score interpreted the self-concept of the subject in relation to her physical self. Differences in self-concept were considered in relation to selected variables such as: age, onset of excess weight, income, educational level, marital status, number and age of children, and location and type of residence. The writer examined research literature related to the areas of overweight and self-concept for the purpose of examining

these two areas and identifying the probable causes, effects, and treatment of obesity.

Selection of the Sample

The sample for this study was composed of 164 adult women living in the state of Oklahoma. The women were enrolled in either an Oklahoma State Home Economics Cooperative Extension Homemaker Group or Weigh-Off Program. The objectives of the study were presented to the Associate Dean of Home Economics Cooperative Extension, Division of Home Economics, Oklahoma State University. After her approval of the research procedure, she contacted the five District Home Economists in Oklahoma to inquire if they had county Weigh-Off Programs and Homemaker Groups which would be interested in participating in the study. The District Home Economist provided the researcher with a list of possible Weigh-Off Programs and Homemaker Groups in her district. The researcher then contacted each County Home Economist from the list by telephone and scheduled a meeting time with the groups which agreed to take part in the study. Eleven counties were able to participate in the study, constituting five Weigh-Off Programs and nine Homemaker Groups. The total sample consisted of 67 members of Weigh-Off Programs and 97 women who were members of Homemaker Groups. The sample size in each county, and the district in which they reside, is found in Appendix E.

Development of the Instrument

The Tennessee (Department of Mental Health) Self Concept Scale was selected as the instrument for assessing self-concepts of each subject. Permission to use the scale was granted by Dr. Julius Seeman, Counselor,

Recordings and Tests, Nashville, Tennessee. The Tennessee (Department of Mental Health) Self Concept Scale, hereafter called the Tennessee Self Concept Scale or the Scale, is available in two forms--a Counseling Form and a Clinical and Research Form. Both forms utilize the same 100 self descriptive statements to assess self-concept (Appendix F). To obtain data for this study the Counseling Form was chosen by the researcher. The Self Concept Scale was modified by the researcher by enlarging the type so that the instrument could be more easily read. In addition, a questionnaire (Appendix G) was developed by the researcher to assess background information of each respondent. A cover letter (Appendix H) was attached to each questionnaire to introduce and explain the study and express appreciation for participation in the research project.

Pretesting the Instrument

The sample (10) for the pretest was an Oklahoma State Home Economics Cooperative Extension Homemaker Group in Alfalfa County. The instrument for assessing background information was delivered by the researcher to the Homemaker Group, and 10 questionnaires were completed and returned. The questionnaire was also given to students enrolled in the Evaluation in Home Economics class (HEED 5663) at Oklahoma State University, and five questionnaires were returned to the investigator. The pretest participants suggested that the form of some of the questions should be changed. Suggestions from both groups were reviewed by the researcher and incorporated into the instrument for clarity and reliability.

Collection of the Data

The researcher delivered and administered the instrument during the months of May, June, and July of 1977, to each group participating in the study. The questionnaires were coded by color so the investigator could distinguish between members of the Homemaker Group and the Weigh-Off Program so that participants would remain anonymous. Each Weigh-Off group was visited during the sixth lesson, which was midway through the Weigh-Off Program. Of the 164 participants in the study, 67 were enrolled in a Weigh-Off Program and 97 were members of a Homemaker Group. Six of the 164 respondents were underweight and were thus eliminated from the sample. At the beginning of each session the investigator instructed the participants on the procedure for filling out the questionnaire and the Tennessee Self Concept Scale. A clinical scale for determining the height and weight of each person was available at the site of the Weigh-Off Program. The researcher provided a weight scale and tape measure for measuring weight and height at the Homemaker Groups and communicated their location to each group of women. The respondents recorded their own height and weight on the questionnaire.

Analysis of the Data

The data were coded for the purpose of keypunching. The investigator keypunched the data onto cards and the Computer Center at Oklahoma State University was utilized for the analysis of the data. An Analysis of Variance procedure for a Factorial Arrangement within a completely randomized design was used to determine if there was a significant difference in self-concept between desired weight, overweight, and obese

individuals enrolled in a weight reduction program and those not enrolled in a weight reduction program. Two factors were compared: (1) condition of weight (desired weight, overweight, and obese) and (2) program participation (weight program and no weight program). Three conditions of weight were compared using two conditions of program participation so the experiment was a 3 X 2 factorial experiment with three levels of the weight factor and two levels of the program factor. Observations were identified by the Total Positive Score and the Physical Self score obtained from the Tennessee Self Concept Scale.

An Analysis of Variance procedure for a Factorial Arrangement within a completely randomized design was also used to determine if there was a significant difference in mean self-concept due to an interaction between desired weight, overweight, and obese individuals enrolled in a weight reduction program and selected variables such as age, onset of excess weight, income, educational level, marital status, number and age of children, and location and type of residence. The Total Positive Score and Physical Self Score obtained from the Tennessee Self Concept Scale were compared to each background variable.

On the basis of the findings of this study, suggestions were made for further research in this area and recommendations for the development of educational materials and instructional techniques of professionals who work with overweight individuals.

CHAPTER IV

ANALYSIS OF THE DATA

The purpose of this study was to determine the difference between the self-concept of desired weight, overweight, and obese individuals and according to the demographic variables which were examined, 78 (49.37 percent) persons participating in the sample were 51 years or older. Forty persons (25.32 percent) were between the ages of 41 and 50 years old. The remaining 40 participants (25.32 percent) were divided equally between the age groups of 18 to 30 years and 31 to 40 years. The division of the respondents into the five income categories was approximately equal. Twenty-one (13.82 percent) had incomes under \$4,999; 30 persons (19.74 percent) had incomes between \$5,000 to \$9,999; 36 participants (23.68 percent) had incomes between \$10,000 to \$14,999; 29 persons (19.08 percent) had incomes from \$15,000 to \$19,999; while the remaining 36 persons (23.68 percent) responded that their incomes were above \$20,000. The majority of the sample were married, 129 participants (81.65 percent). Twenty-one (13.29 percent) were widows, while four (2.53 percent) were single, and four (2.53 percent) were divorced. The educational level of the respondents, according to the highest level of achievement, was distributed as follows: seven persons (4.43 percent) attained a grade school education; 11 persons (6.96 percent), junior high school; 67 participants (42.41 percent), high school; 38 (24.05 percent) had less than four years of college; 20 persons (12.66 percent),

B.S. or B.A. degree; nine respondents (5.70 percent), Master's degree; and six (3.80 percent), other degrees. There were no respondents who had achieved a doctoral degree.

The Likert-type scale of the Tennessee Self Concept Scale provided five responses for the respondent to choose from: a score of one identified a completely false answer; a score of two, mostly false; a score of three, partly false and partly true; a score of four, mostly true; and a score of five, completely true. Points were determined according to the sum of the numbered responses of the 100 statements. A score within the range of 100 to 500 was possible. The higher the score the higher the self-concept of the individual. The mean self-concept scores from each individual were computed in the analysis of variance test for the selected variables. For purposes of this study, the researcher chose to look at two specific scores from the Tennessee Self Concept Scale. The Total Positive Score was comprised of an internal frame of reference within which the individual described herself: (1) what I am, (2) how I feel about myself, and (3) how I act. An external frame of reference contributed five components: (1) physical self, (2) moral-ethical self, (3) personal self, (4) family self, and (5) social self. The Self Criticism Score completed the Total Positive Score framework. The Total Positive Score is considered to be the most important score on the Counseling Form. It expresses the overall level of self-esteem of the individual. The Likert-type scale provides for a range of possible scores from 100 to 500. Norms previously established for the Scale on a sample of 626 people revealed a mean Total Positive Score of 345.57 with a standard deviation of 30.70. The scores obtained for this

study ranged from 255 to 414 with a mean of 343.88. The standard deviation was 31.12.

The Physical Self Score in this study reflected the subject's perception of body, state of health, physical appearance, skills and sexuality. Eighteen statements from the original 100 statements are used for determining the Physical Self Score. The range of scores possible from the Physical Self Score is 18 to 90 with the mean score obtained from the norms that were previously established from a sample of 626 people being 71.78. A standard deviation of 7.67 was reported for this score. The data obtained for this study revealed a range from 33 to 81 with a mean score of 61.45 and a standard deviation of 8.12.

In this chapter, the researcher discusses the results of the data obtained from the respondents, according to the objectives of the study outlined in Chapter I. The analysis of the data which identifies the self-concept of desired weight, overweight, and obese individuals in this study has been organized in the following sequence: (1) Weight Program Participation, (2) Age of the Individual, (3) Onset of Excess Weight, (4) Income of the Individual, (5) Educational Level of the Individual, (6) Marital Status of the Individual, (7) Number and Age of Children in the Family, and (8) Location and Type of Residence of the Individual.

Weight Program Participation

The condition of the respondent's weight and participation or non-participation in a Weigh-Off Program were compared (Table I). Of the 164 respondents, 51 (31.1 percent) were considered to be desired weight individuals. Seventeen (10.4 percent) of these women were participating

in a Weigh-Off Program and 34 (20.7 percent) were not participating in a weight reduction program. Forty-eight participants (29.2 percent) were determined to be overweight. Fourteen (8.5 percent) of the overweight women were participating in a Weigh-Off Program, while 34 (20.7 percent) were not members of the weight reduction program. Obese individuals contributed 59 (35.9 percent) to the total sample population. Thirty-five (21.3 percent) of these women participated in a weight reduction program and 24 (14.6 percent) did not participate in a weight program. Six individuals were reported to be underweight by the predetermined definition and were not included in the analysis of the data.

TABLE I

WEIGHT PROGRAM PARTICIPATION AND CONDITION
OF WEIGHT BY FREQUENCY AND PERCENTAGE

Condition of Weight	Weight Program		No Weight Program	
	Number	Percent	Number	Percent
Underweight*	1	0.6	5	3.1
Desired Weight	17	10.4	34	20.7
Overweight	14	8.5	34	20.7
Obese	<u>35</u>	<u>21.3</u>	<u>24</u>	<u>14.6</u>
TOTAL	67	40.8	97	59.1

N = 164.

*Underweight individuals were not included in the analysis of the data.

Analysis of variance procedure of 158 subjects was used to determine if any significant difference in self-concept scores could be observed due to condition of weight and weight program participation (Table II).

TABLE II
ANALYSIS OF VARIANCE FOR TOTAL POSITIVE SCORE
VERSUS CONDITION OF WEIGHT AND WEIGHT
PROGRAM PARTICIPATION

Source	d.f.	Mean Square*	F
Condition of Weight	2	812.88	0.84**
Weight Program Participation	1	2412.54	2.50**
Condition of Weight x Weight Program Participation	2	3074.77	3.19***
Error	152	963.34	

N = 158.

*Based on adjusted sum of squares due to unequal number of observations in each cell.

**p > .05.

***p < .05.

Condition of weight of the subject (desired weight, overweight, or obese) did not appear to affect the Total Positive Score. The F value obtained (0.84) was not significant at the .05 level. Therefore, the composite Total Positive Score did not vary from one condition of weight to another condition of weight. No significance was observed in

self-concept scores when compared to weight program participation:

$F = 2.50$ and $p > .05$. Thus, the participation or non-participation in a weight reduction program did not influence the performance on the Total Positive Score of the Tennessee Self Concept Scale of the subjects.

The interaction among condition of weight and weight program participation appeared to have significant influence upon the Total Positive Scores of subjects, $F = 3.19$, $p < .05$. This means that the participation in a weight program was affected by whether the individual was desired weight, overweight, or obese. This significant interaction indicated that the factors--weight program participation and condition of weight--are not independent of one another. The table of means (Table III) for this interaction reveals a mean Total Positive Score for participants on a weight program to be 348.56 in contrast to a 340.22 for all subjects not on a weight program. The researcher feels that the higher Total Positive Score for persons on a weight reduction program was an expected result because the individuals were actively seeking ways to improve their personal appearance and, thus, their self-concept was higher. The average Total Positive Score for desired weight individuals was 349.24, while the mean score for overweight individuals was 341.89. Obese individuals had a mean Total Positive Score of 342.04, very close to that of the overweight subjects. Both the overweight and obese subjects had mean scores below the norms established for the Tennessee Self Concept Scale and the mean score obtained from this research project.

A second analysis of variance procedure was processed to determine if a change in the level of significance would occur when the interaction between the factors of weight program participation and condition of

weight were not considered in the analysis. Table XXVII (Appendix I) supports the previous results which revealed there was no significant difference observed in the self-concept scores when considering the condition of the individual's weight ($F = 0.30, p > .05$). The same conclusions were found for weight program participation. The F value was 2.89 which was not significant at the .05 level of significance.

TABLE III
MEAN TOTAL POSITIVE SCORES BY CONDITION OF WEIGHT
AND WEIGHT PROGRAM PARTICIPATION

	Weight Program (N = 66)	No Weight Program (N = 92)	Average
Desired Weight	362.00	336.47	349.24
Overweight	337.64	346.15	341.89
Obese	346.03	338.04	342.04
Mean	348.56	340.22	

A highly significant difference in Physical Self Scores was observed with the condition of weight of the individual. The F value (8.88) was significant at the .001 level (Table IV). There appeared to be a definite difference in the Physical Self Score as changes are observed from one condition of weight category to the next category. Weight program participation did not reveal a significant effect on Physical Self Scores ($F = 0.16, p > .05$). The variance due to the interaction of the

two independent variables--weight program participation and condition of weight--was not sufficiently large enough to be statistically significant. The F value obtained was 2.13, $p > .05$.

TABLE IV
ANALYSIS OF VARIANCE FOR PHYSICAL SELF SCORE VERSUS
CONDITION OF WEIGHT AND WEIGHT PROGRAM
PARTICIPATION

Source	d.f.	Mean Square*	F
Condition of Weight	2	519.36	8.88**
Weight Program Participation	1	9.45	0.16***
Condition of Weight x Weight Program Participation	2	124.39	2.13***
Error	152	58.52	

N = 158.

*Based on adjusted sum of squares due to unequal number of observations in each cell.

** $p < .001$.

*** $p > .05$.

Comparison of the means (Table V) for the Physical Self Score showed a mean score of 61.93 for persons on a weight program and 61.40 for persons not participating in a Weigh-Off Program, a .53 difference between the two factors. The average Physical Self Score for desired weight persons was 65.03. Overweight persons had a mean score of 61.35 and

obese individuals had a mean score of 58.62. The data suggest a direct relationship between the Physical Self Score and condition of weight. The Physical Self Score decreases as the condition of the respondent's weight increases. In other words, the larger the person's weight or physical size, the more dissatisfied she is with her physical appearance.

TABLE V
MEAN PHYSICAL SELF SCORE BY CONDITION OF WEIGHT
AND WEIGHT PROGRAM PARTICIPATION

	Weight Program (N = 66)	No Weight Program (N = 92)	Average
Desired Weight	67.18	62.88	65.03
Overweight	60.29	62.41	61.35
Obese	58.31	58.92	58.62
Mean	61.93	61.40	

The absence of the interaction effect in the analysis produced similar results which analyzed the interaction of the condition of weight and weight program participation (Table XXVIII, Appendix J). The Physical Self Scores of the subjects showed a significant relationship to the weight condition of the person ($F = 7.66, p < .001$). Thus, it can be determined that the Physical Self Score varied according to whether the person was desired weight, overweight, or obese. Weight program participation did not affect the Physical Self Score of the

participants. The F value obtained, 0.17, was not significant at the .05 level. On this basis, the null hypothesis can be accepted by the researcher.

Age of the Individual

The second objective of this study was to determine if there was a significant difference in the self-concept of desired weight, overweight, and obese individuals enrolled in a weight reduction program and those not enrolled in a weight reduction program and the age of the respondent. The analysis does not reveal a significant difference in the Total Positive Score due to the age of the individual (Table VI). The respondents were asked to classify their age in one of the following categories: (1) 18 to 30 years, (2) 31 to 40 years, (3) 41 to 50 years, and (4) 51 years or over. No significant difference was observed in the Total Positive Scores of subjects of the four age categories ($F = 0.06$, $p > .05$). Weight program participation of the 158 subjects also yielded no significant difference in mean self-concept scores. The F value was 1.33, $p > .05$. The interaction of the factors--age of the individual and weight program participation--were identified to be non-significant. Thus, it can be concluded that these two factors acted independently of each other. The F value for this interaction was 1.07, $p > .05$.

The statistical analysis was then conducted without the inclusion of the interaction of the age of the respondent and whether or not she participated in a weight reduction program (Table XXVII, Appendix I). The F value for age of the individual remained relatively the same (0.05, $p > .05$) while the F value for weight program participation increased slightly (1.89, $p > .05$). These results further supported the previous

findings that the Total Positive Score was not significantly affected by the age of the individual.

TABLE VI
ANALYSIS OF VARIANCE FOR TOTAL POSITIVE SCORE VERSUS
AGE OF THE INDIVIDUAL AND WEIGHT
PROGRAM PARTICIPATION

Source	d.f.	Mean Square*	F
Age of the Individual	3	63.04	0.06**
Weight Program Participation	1	1328.02	1.33**
Age of the Individual x Weight Program Participation	3	1066.64	1.07**
Error	150	998.90	

N = 158.

*Based on adjusted sum of squares due to unequal number of observations in each cell.

**p > .05.

There appeared to be no significant difference between the Physical Self Scores and the age of the individual. There was no significant difference in the Physical Self Scores due to the age of the individual ($F = 0.24$, $p > .05$) and weight program participation ($F = 0.02$, $p > .05$) (Table VII). The interaction of the two factors also revealed no significant difference ($F = 0.41$, $p > .05$). Thus, we can accept the null hypothesis that there is no difference in mean self-concept scores due

to the enrollment or non-enrollment in a weight reduction program and age of the individual.

TABLE VII

ANALYSIS OF VARIANCE OF PHYSICAL SELF SCORES VERSUS AGE OF THE INDIVIDUAL AND WEIGHT PROGRAM PARTICIPATION

Source	d.f.	Mean Square*	F
Age of the Individual	3	16.09	0.24**
Weight Program Participation	1	1.52	0.02**
Age of the Individual x Weight Program Participation	3	27.11	0.41**
Error	150	66.07	

N = 158.

*Based on adjusted sum of squares due to unequal number of observations in each cell.

**p > .05.

The analysis of variance (Table XVIII, Appendix J) without the interaction of the two variables being considered, showed no significant association as a result of age of the respondent (F = 0.31, p > .05) and weight program participation (F = 0.14, p > .05). The F value increased in each instance, but not enough to create a statistically significant result.

Onset of Excess Weight

Of the 158 respondents, 137 reported that they considered themselves to be overweight. They were then asked to indicate how long they felt they had been in an overweight condition: (1) since early childhood, (2) since teenage years, (3) since the last five years, (4) since within the last year, or (5) other. The analysis of variance (Table VIII) was employed to determine the separate and combined effects of the independent variables and no significant difference was determined for onset of excess weight ($F = 1.19, p > .05$), weight program participation ($F = 1.23, p > .05$), and the interaction of these two factors ($F = 1.42, p > .05$). The null hypothesis was accepted according to the results of the analysis.

A decrease in the F value is seen with the absence of the interaction of the two factors in the analysis of variance, but not to a statistically significant degree. The F value for onset of excess weight was 1.29 ($p > .05$) and the F value for weight program participation was 1.40 ($p > .05$) (Table XXVII, Appendix I).

An examination of the Physical Self Scores (Table IX) and the onset of excess weight provides no significant difference in mean Physical Self Scores ($F = 0.78, p > .05$). This provides evidence that there is no significant variation in the Physical Self Score from one period of onset of excess weight to another period of onset of excess weight. Weight program participation had no significant effect on mean Physical Self Scores of subjects ($F = 0.20, p > .05$). Variation resulting from the interaction of onset of excess weight and weight program participation exhibited a non-significant reaction at the .05 level ($F = 1.18$).

TABLE VIII

ANALYSIS OF VARIANCE FOR TOTAL POSITIVE SCORE VERSUS ONSET OF
EXCESS WEIGHT AND WEIGHT PROGRAM PARTICIPATION

Source	d.f.	Mean Square*	F
Onset of Excess Weight	4	1132.92	1.19**
Weight Program Participation	1	1170.79	1.23**
Onset of Excess Weight x Weight Program Participation	4	1350.34	1.42**
Error	127	953.14	

N = 137.

*Based on adjusted sum of squares due to unequal number of observations in each cell.

**p > .05.

TABLE IX

ANALYSIS OF VARIANCE FOR PHYSICAL SELF SCORE VERSUS ONSET
OF EXCESS WEIGHT AND WEIGHT PROGRAM PARTICIPATION

Source	d.f.	Mean Square*	F
Onset of Excess Weight	4	50.02	0.78**
Weight Program Participation	1	12.87	0.20**
Onset of Excess Weight x Weight Program Participation	4	76.13	1.18**
Error	127	64.27	

N = 137.

*Based on adjusted sum of squares due to unequal number of observations in each cell.

**p > .05.

Analysis of variance without the variation due to the interaction of the two factors displays a non-significant decision. Onset of excess weight showed no difference in Physical Self Scores ($F = 0.67, p > .05$) and weight program participation ($F = 0.07, p > .05$) (Table XXVIII, Appendix J).

Income of the Individual

The income level of the individual and Total Positive Scores were considered in the Analysis of Variance presented in Table X. Of the 158 respondents, only 152 persons answered this question. The levels of income and the number of respondents in each category were: (1) under \$4,999, 21 persons; (2) \$5,000 to \$9,999, 30 persons; (3) \$10,000 to \$14,999, 36 persons, (4) \$15,000 to \$19,999, 29 persons; and (5) \$20,000 or over, 36 persons. As the level of income changed, no variation in Total Positive Score resulted. The F value (0.82) was not significant at the .05 level. An F value of 1.40 was not significant at the .05 level for weight program participation. The data analyzed according to the interaction of the income of the individual and participation or non-participation in a weight program was not significant ($F = 1.46, p > .05$). Hence, from this data income level and weight program participation function independently of one another. There was no variation in self-concept scores due to the different levels of income.

After removing the interaction effect from the analysis of variance it would be expected that the F value for income level and weight program participation would increase, as they did, but not to any significant level (Table XXVII, Appendix I). The F value for income level reached

1.27, not significant at .05, while weight program participation was not significant with an F value of 1.83, $p > .05$.

TABLE X
ANALYSIS OF VARIANCE FOR TOTAL POSITIVE SCORE VERSUS INCOME
OF INDIVIDUAL AND WEIGHT PROGRAM PARTICIPATION

Source	d.f.	Mean Square*	F
Income of Individual	4	810.45	0.82**
Weight Program Participation	1	1380.93	1.40**
Income x Weight Program Participation	4	1446.14	1.46**
Error	142	987.33	

N = 152.

*Based on adjusted sum of squares due to unequal number of observations in each cell.

** $p > .05$.

Table XI identifies the analysis of variance for Physical Self Scores and income level of the respondent. The analysis shows that Physical Self Scores did not differ significantly according to income level of the individuals ($F = 0.29$, $p > .05$), or weight program participation ($F = 0.23$, $p > .05$). The interaction resulted in a nonsignificant effect ($F = 1.86$, $p > .05$). Self-concept scores did not vary significantly as the income of the individuals increased or decreased.

TABLE XI
ANALYSIS OF VARIANCE FOR PHYSICAL SELF SCORE VERSUS INCOME
OF INDIVIDUAL AND WEIGHT PROGRAM PARTICIPATION

Source	d.f.	Mean Square*	F
Income of Individual	4	19.34	0.29**
Weight Program Participation	1	14.80	0.23**
Income x Weight Program Participation	4	122.49	1.86**
Error	142	65.68	

N = 152.

*Based on adjusted sum of squares due to unequal number of observations in each cell.

**p > .05.

The absence of the interaction procedure in the analysis did not result in a significant difference. Income level generated an F value of 0.67 ($p > .05$) and weight program participation yielded an F value of 0.31 ($p > .05$) (Table XXVIII, Appendix J).

Educational Level of the Individual

Of the 158 persons who responded to the questionnaire, none of them had attained a doctorate degree. The following categories and their respective respondents were included in the analysis of variance procedure: (1) grade school, seven persons; (2) junior high school, 11 persons; (3) high school, 67 persons; (4) less than four years of college, 38 persons; (5) B.S. or B.A. degree, 20 persons; (6) master's

degree, nine persons; (7) other, six persons. The other category included special course work beyond high school such as business courses, vocational or computer training and night classes of special interest. From the analysis of variance presented in Table XII, it can be concluded that there was no significant difference in Total Positive Scores in reference to educational level of the individual ($F = 1.55$, $p > .05$) and weight program participation ($F = 0.70$, $p > .05$). The interaction between educational level and weight program participation had no significant effect on the subject's Total Positive Score. The F value (0.17) was not significant at the .05 level.

TABLE XII
ANALYSIS OF VARIANCE FOR TOTAL POSITIVE SCORE VERSUS
EDUCATIONAL LEVEL OF INDIVIDUAL AND WEIGHT
PROGRAM PARTICIPATION

Source	d.f.	Mean Square*	F
Educational Level	6	1528.32	1.55**
Weight Program Participation	1	685.95	0.70**
Educational Level x Weight Program Participation	5	163.89	0.17**
Error	145	983.74	

N = 158.

*Based on adjusted sum of squares due to unequal number of observations in each cell.

** $p > .05$.

Educational level of the individual was not found to have a significant effect on Total Positive Scores when the interaction of the two factors was not considered in the analysis. Educational level produced an F value of 1.69, $p > .05$, and weight program participation resulted in an F value of 1.42, $p > .05$ (Table XXVII, Appendix I).

Physical Self Scores showed no significant response to the varying levels of education of the respondents. Table XIII shows that the F value for the educational level was 1.15, $p > .05$, and weight program participation revealed a non-significant response with an F value of 0.41, $p > .05$. Interaction of educational level and weight program participation with regard to Physical Self Scores was also not significant ($F = 0.65$, $p > .05$).

TABLE XIII

ANALYSIS OF VARIANCE OF PHYSICAL SELF SCORE VERSUS
EDUCATIONAL LEVEL OF INDIVIDUAL AND WEIGHT
PROGRAM PARTICIPATION

Source	d.f.	Mean Square*	F
Educational Level	6	73.48	1.15**
Weight Program Participation	1	26.23	0.41**
Educational Level x Weight Program Participation	5	41.44	0.65**
Error	145	64.17	

N = 158.

*Based on adjusted sum of squares due to unequal number of observations in each cell.

** $p > .05$.

With the exclusion of the interaction of educational level and weight program participation in the analysis of variance, there was still no significant response. The F value increased slightly, for educational level it was 1.42, $p > .05$, and for weight program participation it was 0.43, $p > .05$ (Table XXVIII, Appendix J). Therefore, the data still support an acceptance of the null hypothesis.

Marital Status of the Individual

Four categories of marital status were included in the analysis: (1) single, (2) married, (3) divorced, and (4) widowed. One hundred and twenty-nine of the participants were married, while 21 persons were widows, four were single and four divorced. It was determined from the analysis of variance (Table XIV) that the Total Positive Scores of the individuals did not vary significantly because of differences in marital status. The F value obtained (1.29) was not significant at the .05 level. Weight program participation did not cause a significant difference in Total Positive Scores for the respondents ($F = 1.52$, $p > .05$). Marital status and weight program interaction resulted in an F value of 0.88, not significant at the .05 level.

There was no significant difference in the Total Positive Scores of the individuals when looked at without the interaction of the variables (marital status and weight program participation) included in the analysis (Table XXVII, Appendix I). Marital status yielded an F value of 1.05, $p > .05$, and weight program participation had an F value of 2.91, $p > .05$. Hence, the null hypothesis can be accepted because there was no significant difference in self-concept scores resulting from marital status or participation in a Weigh-Off Program.

TABLE XIV

ANALYSIS OF VARIANCE OF TOTAL POSITIVE SCORE
VERSUS MARITAL STATUS OF THE INDIVIDUAL
AND WEIGHT PROGRAM PARTICIPATION

Source	d.f.	Mean Square*	F
Marital Status	3	1263.73	1.29**
Weight Program Participation	1	1497.95	1.52**
Marital Status x Weight Program Participation	2	861.04	0.88**
Error	151	982.57	

N = 158.

*Based on adjusted sum of squares due to unequal number of observations in each cell.

**p > .05.

No significant difference was observed in the Physical Self Scores of subjects according to the four categories of marital status ($F = 0.43$, $p > .05$) and weight program participation ($F = 0.03$, $p > .05$). The interaction of these two independent variables also revealed a non-significant result ($F = 0.45$, $p > .05$) as shown in Table XV.

Non-significant results were seen in the analysis of marital status and weight program participation without considering the interaction of the two variables. The F values obtained were 0.25 and 0.38, respectively, both not significant at the .05 level (Table XXVIII, Appendix J).

TABLE XV
ANALYSIS OF VARIANCE OF PHYSICAL SELF SCORE VERSUS
MARITAL STATUS OF THE INDIVIDUAL AND
WEIGHT PROGRAM PARTICIPATION

Source	d.f.	Mean Square*	F
Marital Status	3	28.40	0.43**
Weight Program Participation	1	1.96	0.03**
Marital Status x Weight Program Participation	2	29.72	0.45**
Error	151	65.86	

N = 158.

*Based on adjusted sum of squares due to unequal number of observations in each cell.

**p > .05.

Number and Age of Children in the Family

The number of children living in the home was considered in the analysis to see if it would have an effect on the self-concept scores of the subjects in the study. Children living at home were defined as being 18 years or younger. Only 76 observations were available for analysis in this data set. No significant difference occurred in the Total Positive Score as a result of changes in the number of children living in the home ($F = 0.32$, $p > .05$). There was also no significant difference noted in Total Positive Scores because of weight program participation. Variation resulting from the interaction of the number

of children in the home and weight program participation did not display a significant level ($F = 1.23$, $p > .05$) as shown in Table XVI.

TABLE XVI
ANALYSIS OF VARIANCE OF TOTAL POSITIVE SCORE VERSUS
NUMBER OF CHILDREN IN THE FAMILY AND
WEIGHT PROGRAM PARTICIPATION

Source	d.f.	Mean Square*	F
Number of Children	5	339.16	0.54**
Weight Program Participation	1	0.21	0.00**
Number of Children x Weight Program Participation	3	1308.27	1.23**
Error	66	1063.53	

N = 76.

*Based on adjusted sum of squares due to unequal number of observations in each cell.

** $p > .05$.

No significant changes were seen in the analysis excluding the interaction of the two factors (Table XXVII, Appendix I). Number of children present in the home did not cause any significant variation in Total Positive Score ($F = 0.54$, $p > .05$), nor did weight program participation ($F = 0.24$, $p > .05$).

The Physical Self Scores showed no significant response to the effect of number of children in the home. The F value obtained was 0.05, not significant at the .05 level (Table XVII). The F value for

weight program participation was 0.47, not significant at the .05 level. As the number of children increased in the home, the Physical Self Score did not reflect any difference due to this change. This is seen by the F value (0.26) which was considered not significant at the .05 level.

TABLE XVII
ANALYSIS OF VARIANCE OF PHYSICAL SELF SCORE VERSUS
NUMBER OF CHILDREN IN THE FAMILY AND
WEIGHT PROGRAM PARTICIPATION

Source	d.f.	Mean Square*	F
Number of Children	5	4.11	0.05**
Weight Program Participation	1	35.95	0.47**
Number of Children x Weight Program Participation	3	20.13	0.26
Error	66	76.06	

N = 76.

*Based on adjusted sum of squares due to unequal number of observations in each cell.

**p > .05.

The removal of the interaction from the analysis of variance continued to provide a non-significant level for both factors—number of children in the home and weight program participation, 0.42 and 0.35 respectively, $p > .05$ (Table XXVIII, Appendix J).

The ages of the children living at home were divided into four

categories: (1) five years or less, (2) 6 to 11 years, (3) 12 to 14 years, and (4) 15 to 18 years (Table XVIII). The largest number of children, 881 (90.266 percent), were found in the five years or less category. The remaining 9.733 percent of the children were six years or older.

TABLE XVIII
AGE OF CHILDREN IN THE FAMILY BY
FREQUENCY AND PERCENTAGE

Age	Frequency	Percent
5 Years or Less	881	90.266
6 to 11 Years	44	4.508
12 to 14 Years	20	2.049
15 to 18 Years	31	3.176
Total	976	100.000

Location and Type of Residence
of the Individual

The final objective was to determine if there was a significant difference in the self-concept scores of desired weight, overweight, and obese individuals enrolled in a weight reduction program and those not enrolled in a weight reduction program and the location and type of residence of the individual. The location of residence was divided

into four types: (1) on a farm or in the country, (2) small town under 2,500 population, (3) city of 2,500 to 50,000 population, and (4) city of over 50,000 population. There were 156 observations available for this analysis. An analysis of variance procedure was used to determine if any significant differences in self-concept scores existed (Table XIX). The results showed that the Total Positive Score did not vary as a person went from one residence category to another residence category. The F value was 2.18, $p > .05$. There was, however, a significant difference apparent in Total Positive Scores for weight program participation ($F = 3.41$, $p < .05$). The interaction of location of residence and weight program participation did not provide any significant variation in Total Positive Scores ($F = 0.33$), not significant at the .05 level. Hence, the overall self-esteem of the subjects living in different residential locations was affected by whether the individual was enrolled or not enrolled in a weight reduction program.

The absence of the interaction of the factors--location of residence and weight program participation--in the analysis of variance produced an F value of 2.09 for location of residence, not significant at the .05 level (Table XXVII, Appendix I). The F value of 4.01 was significant for the variable weight program participation at the .05 level.

The Physical Self Score showed no significant changes with respect to location of residence ($F = 0.87$, $p > .05$). Weight program participation was not significant with a 0.01 F value and the interaction of the two independent variables provided no significant effect in Physical Self Scores ($F = 0.48$, $p > .05$) as shown in Table XX.

Table XXVIII in Appendix J shows an F value of 0.80 resulted for location of residence when the interaction effect was removed from the

TABLE XIX
 ANALYSIS OF VARIANCE OF TOTAL POSITIVE SCORE VERSUS
 LOCATION OF RESIDENCE AND WEIGHT
 PROGRAM PARTICIPATION

Source	d.f.	Mean Square*	F
Location of Residence	3	2149.28	2.18**
Weight Program Participation	1	4249.20	4.31***
Location of Residence x Weight Program Participation	3	326.71	0.33**

N = 158.

*Based on adjusted sum of squares due to unequal number of observations in each cell.

**p > .05.

***p < .05.

analysis of variance. This result was not significant at the .05 level. Weight program participation was not significant at the .05 level.

TABLE XX
ANALYSIS OF VARIANCE OF PHYSICAL SELF SCORE VERSUS
LOCATION OF RESIDENCE AND WEIGHT
PROGRAM PARTICIPATION

Source	d.f.	Mean Square*	F
Location of Residence	3	56.99	0.87**
Weight Program Participation	1	0.52	0.01**
Location of Residence x Weight Program Participation	3	31.27	0.48**
Error	148	65.18	

N = 158.

*Based on adjusted sum of squares due to unequal number of observations in each cell.

**p > .05.

The type of residence an individual lived in was also considered in the analysis. The type of residence did not affect the Total Positive Scores. The F value (0.38) was not significant (Table XXI). Weight program participation was not significant with a 0.13 F value. The type of residence by weight program participation interaction did not result in a significant effect on Total Positive Scores (F = 0.55, p > .05).

Table XXVII in Appendix I identifies a non-significant effect in

Total Positive Scores for type of residence when the interaction effect is not included in the analysis. The F value was 0.21, $p > .05$. Weight program participation was not significant with an F value of 1.99, $p > .05$.

TABLE XXI

ANALYSIS OF VARIANCE OF TOTAL POSITIVE SCORE VERSUS TYPE
OF RESIDENCE AND WEIGHT PROGRAM PARTICIPATION

Source	d.f.	Mean Square*	F
Type of Residence	3	379.66	0.38**
Weight Program Participation	1	131.33	0.13**
Type of Residence x Weight Program Participation	2	555.55	0.55**
Error	151	1002.94	

N = 158.

*Based on adjusted sum of squares due to unequal number of observations in each cell.

** $p > .05$.

Physical Self Scores showed no variation due to type of residence ($F = 0.26$), weight program participation ($F = 3.69$), and the interaction of these two independent variables ($F = 1.89$) as shown in Table XXII.

A decrease in the F value for both type of residence and weight program participation was seen in the analysis of variance which did not include the interaction effect. Type of residence yielded a 0.12 F

value, $p > .05$, and weight program participation resulted in a 0.19, $p > .05$ (Table XXVIII, Appendix J). How the participant perceived her physical self did not change from one type of housing to another as is evidenced by the data analysis. Thus, the null hypothesis examined by the researcher was accepted.

TABLE XXII
ANALYSIS OF VARIANCE OF PHYSICAL SELF SCORE VERSUS TYPE
OF RESIDENCE AND WEIGHT PROGRAM PARTICIPATION

Source	d.f.	Mean Square*	F
Type of Residence	3	16.53	0.26**
Weight Program Participation	1	239.13	3.69**
Type of Residence x Weight Program Participation	2	122.58	1.89**
Error	151	64.80	

N = 158.

*Based on adjusted sum of squares due to unequal number of observations in each cell.

** $p > .05$.

CHAPTER V

SUMMARY, SUGGESTIONS, RECOMMENDATIONS AND IMPLICATIONS

An overweight condition has been identified as a leading health problem in today's world and, thus, to many people it is a personal problem they must contend with in their own lives. How the overweight persons feel about themselves and perceive that others feel about them influence how they react to this situation in their lives. A person's self-concept, whether negative or positive, influences the behavior that an individual displays toward others. The intention of this study was to determine if a significant difference existed in the self-concept of desired weight, overweight, and obese individuals enrolled in a weight reduction program and those not enrolled in a weight-reduction program. Selected variables such as age, onset of excess weight, income, educational level, marital status, number and age of children, and location and type of residence were analyzed to see if these variables significantly affected the self-concept of the individuals.

Sample Summary

A total of 164 female adults living in the state of Oklahoma participated in the study. The women were enrolled in either an Oklahoma State Home Economics Cooperative Extension Homemaker Group of Weigh-Off Program. Six persons were considered to be underweight and were not

included in the analysis of the data. The majority of the women were married (81.65 percent) and of the 76 that responded that they had children living at home, 90.26 percent of the children were five years old or less. Eighteen of the 158 participants had attained less than a high school education. Seventy-eight persons were 51 years or older, 40 persons were between the ages of 41 and 50 years old, 20 respondents were in the 18 to 30 age group.

The instrument was delivered by the researcher to each group participating in the study during the months of May, June and July of 1977. The completed questionnaires were analyzed to determine the results of the study using an Analysis of Variance procedure for a Factorial Arrangement within a completely randomized design. Two Analysis of Variance procedures were computed for each variable. One procedure included the variation which resulted from the interaction of the two independent variables and the second Analysis of Variance did not take into account this interaction. Two scores which were obtained from the Tennessee Self Concept Scale--the Total Positive Score and Physical Self Score--were examined in relation to each of the independent variables.

Summary of Findings

A major emphasis of this study was concerned with the identification of the self-concept of desired weight, overweight, and obese individuals participating in a weight reduction program and those not participating in a weight reduction program. The results of the analysis revealed that of the 164 respondents, 67 (40.86 percent) participated in a Weigh-Off Program, while 97 (59.14 percent) were not enrolled in a

weight reduction program. The interaction of the condition of weight and weight program participation resulted in a significant influence upon the Total Positive Scores of respondents. The F value was 3.19, $p < .05$. This difference in self-concept scores indicated that weight program participation was affected by whether the individual was desired weight, overweight, or obese. The average Total Positive Score for all overweight and obese individuals was below the norm established for the Tennessee Self Concept Scale and the mean score obtained from this research data. The self-concept scores of the individuals' appeared to decrease as their weight increased.

The difference in Physical Self Scores and condition of weight was found to be significant ($F = 8.88$, $p < .001$). Comparison of the means of the Physical Self Score suggests that as the respondents' weight increased, the Physical Self Score decreased. Weight program and weight program by condition of weight interaction did not provide a significant F value in the Physical Self Scores.

In regard to the age of the individual, there seemed to be no significant difference in Total Positive and Physical Self Scores of desired weight, overweight, or obese individuals enrolled in a weight reduction program and those not enrolled in a weight reduction program. The same non-significant results were found for the following variables: onset of excess weight, income level of the individual, educational level of the individual, marital status, and number of children living in the home. The exclusion of the interaction in the Analysis of Variance for each of these variables did not contribute to significant results.

A significant difference was found to exist in the Total Positive Score for weight program participation in regard to location of

residence. The F value obtained was 4.31, $p > .05$. No significant difference was present due to the interaction of the two independent variables. The type of residence did not cause a significant difference in Total Positive or Physical Self Scores.

Suggestions and Recommendations

To be cognizant of the fact that people perceive themselves differently--have different self-concepts--is the first step in recognizing that procedures for treating overweight and obese persons should be individually designed. A person's self-concept is that person. It determines how that individual will relate to events and persons in his/her life. From this study it was shown that the overweight and obese individuals had an overall self-concept lower than the desired weight individuals. The data also revealed that the mean self-concept score for the obese and overweight respondents was lower than the norms established for the Tennessee Self Concept Scale. It is important that the overweight person develop a positive attitude toward themselves for weight loss to result. A positive self-concept is needed for a person to be in control of his/her eating habits. Weight programs need to provide for the enhancement of the overweight person's self-concept to effect a change in eating patterns and, thus, permanent weight loss. Furthermore, implications derived from the results of this study indicate that the direction for weight control programs should proceed toward individual self-help programs.

Even though no significant difference in self-concept was apparent due to the onset of excess weight, the data suggest a difference with regard to early onset and late onset of weight. The person who had been

overweight since childhood appeared to have a lower self-concept than the adult-onset participant. These results suggest that good eating patterns need to be established early in life to prevent overweight.

The science of nutrition has become increasingly complex. With the progressive knowledge in the area of nutrition it has invaded the boundaries of medical science--biochemistry, anatomy, physiology, microbiology, psychology, family life education--as well as the economic and technical fields of study. Because of this the dietitian must be aware of the newest tools that are available to the field of nutrition. As members of the health team, dietitians must have the ability and knowledge to work with many professionals; and to provide insight into the nutritional aspects of the overweight condition and, thus, be an active and significant participant of the medical health team of professionals.

Implications

Although the dietitian should provide assistance for the weight reduction of overweight and obese individuals, the primary concern should be for the individual's health. To be successful, the treatment must take into consideration the whole individual with his/her physical, emotional, economic, and social needs. Margaret A. Ohlson (1973) stated that the objective of diet counseling is to achieve modification of behavior, thus, an "active interchange" needs to occur between the counselor and the person being counseled. It is important that dietetic counselors acquire tangible and usable skills. Danish (1975) stated that:

Possessing knowledge about the skills is not enough. Effective learning involves: acquiring a conceptual understanding of the components of the skill (knowledge); viewing others

demonstrate the various aspects of the skill (modeling); and an opportunity to use the skill (practice) (p. 109).

The dietitian must also be able to communicate sound dietetic principles to the general public. Articles by qualified nutritionists in layman magazines which speak to the topic of weight control are desperately needed. The utilization of this and other available media can provide for nutrition education directed toward good eating habits and the prevention of obesity for future generations.

Recommendations for Further Study

On the basis of the findings of this study, the following recommendations for further study are proposed:

1. The same methods and procedures be utilized with a larger sample to determine if the relationship between the self-concept scores and selected variables remains constant with the findings of this study;
2. comparison of self-concept scores at the beginning and end of weight reduction programs;
3. further studies of age of onset of excess weight which might help identify times when people tend to gain excessive amounts of weight;
4. focus studies on the development and use of quantitative methods for determination of the condition of weight of individuals; and
5. the same methods and procedures be utilized with a sample of men to determine if a difference between the self-concept scores and selected variables remain consistent with the findings of this study.

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APPENDIXES

APPENDIX A

DESIRABLE WEIGHTS FOR WOMEN 25 YEARS
OF AGE AND OVER

TABLE XXIII

DESIRABLE WEIGHTS FOR WOMEN 25 YEARS OF AGE AND OLDER¹

<u>Height with Shoes On</u> ²		<u>Height Without Shoes</u> ³		<u>Small Frame</u>		<u>Medium Frame</u>		<u>Large Frame</u>	
Feet	Inches	Feet	Inches	Range	Mean	Range	Mean	Range	Mean
4	10	4	8	92-98	95	96-107	101.5	104-119	111.5
4	11	4	9	94-101	97.5	98-110	104	106-122	114
5	0	4	10	96-104	100	101-113	107	109-125	117
5	1	4	11	99-107	103	104-116	110	112-128	120
5	2	5	0	102-110	106	107-119	113	115-131	123
5	3	5	1	105-113	109	110-122	116	118-134	126
5	4	5	2	108-116	112	113-126	119.5	121-138	129.5
5	5	5	3	111-119	115	116-130	123	125-142	133.5
5	6	5	4	114-123	118.5	120-135	127.5	129-146	137.5
5	7	5	5	118-127	122.5	124-139	131.5	133-150	141.5
5	8	5	6	122-131	126.5	138-143	135.5	137-154	145.5
5	9	5	7	126-135	130.5	132-147	139.5	141-148	149.5
5	10	5	8	130-140	135	136-151	143.5	145-163	154
5	11	5	9	134-144	139	140-155	147.5	149-168	158.5
6	0	5	10	138-148	143	144-159	151.5	153-173	163

¹Weight in pounds, according to frame (in indoor clothing).

²Shoes with two-inch heels.

³Adjusted for two-inch heels.

Source: Metropolitan Life Insurance Company, Four Steps to Weight Control, 1969. Based on 1959 build and body pressure study.

APPENDIX B

RANGE OF WEIGHTS FOR DESIRED WEIGHT INDIVIDUALS

ACCORDING TO PREDETERMINED DEFINITION

TABLE XXIV
 RANGE OF WEIGHTS FOR DESIRED WEIGHT INDIVIDUALS
 ACCORDING TO PREDETERMINED DEFINITION

Height		Small Frame	Medium Frame	Large Frame
Feet	Inches	Range	Range	Range
4	8	85.50-104.50	91.35-111.65	100.35-122.65
4	9	87.75-107.25	93.60-114.40	102.60-125.40
4	10	90.00-110.00	96.30-117.70	105.30-128.70
4	11	92.70-113.30	99.00-121.00	108.00-132.00
5	0	95.40-116.60	101.70-124.30	110.70-135.30
5	1	98.10-119.90	104.40-127.60	113.40-138.60
5	2	100.80-123.20	107.55-131.45	116.55-142.45
5	3	103.50-126.50	110.70-135.30	120.15-146.85
5	4	106.65-130.35	114.75-140.25	123.75-151.25
5	5	110.25-134.75	118.35-144.65	127.35-155.65
5	6	113.85-139.15	121.95-149.05	130.95-160.05
5	7	117.45-143.55	125.55-153.45	135.55-164.45
5	8	121.50-148.50	129.15-157.85	138.60-169.40
5	9	125.10-152.90	132.75-162.25	142.65-174.35
5	10	128.70-157.30	136.35-166.65	146.70-179.30

APPENDIX C

WEIGHTS FOR OBESE INDIVIDUALS ACCORDING
TO PREDETERMINED DEFINITION

TABLE XXV
 WEIGHTS FOR OBESE INDIVIDUALS ACCORDING
 TO PREDETERMINED DEFINITION

Height (Without Shoes)		Small Frame	Medium Frame	Large Frame
Feet	Inches			
4	8	114.0+	121.8+	133.8+
4	9	117.0+	124.8+	136.8+
4	10	120.0+	128.4+	140.4+
4	11	123.6+	132.0+	144.0+
5	0	127.2+	135.6+	147.6+
5	1	130.8+	140.4+	151.2+
5	2	134.4+	143.4+	155.4+
5	3	138.0+	147.6+	160.2+
5	4	142.2+	153.0+	165.0+
5	5	147.0+	157.8+	169.8+
5	6	151.8+	162.6+	174.6+
5	7	156.6+	167.4+	179.4+
5	8	162.0+	172.2+	184.8+
5	9	166.8+	177.0+	190.2+
5	10	171.6+	181.8+	195.6+

APPENDIX D

RANGE OF WEIGHTS FOR OVERWEIGHT INDIVIDUALS
ACCORDING TO PREDETERMINED DEFINITION

TABLE XXVI
 RANGE OF WEIGHTS FOR OVERWEIGHT INDIVIDUALS
 ACCORDING TO PREDETERMINED DEFINITION

Height (Without Shoes)		Small Frame	Medium Frame	Large Frame
Feet	Inches	Range	Range	Range
4	8	104.50-114.00	111.65-121.80	122.65-133.80
4	9	107.25-117.00	114.40-124.80	125.40-136.80
4	10	110.00-120.00	117.70-128.40	128.70-140.40
4	11	113.30-123.60	121.00-132.00	132.00-144.00
5	0	116.60-127.20	124.30-135.60	135.30-147.60
5	1	119.90-130.80	127.60-140.40	138.60-151.20
5	2	123.20-134.40	131.45-143.40	142.45-155.40
5	3	126.50-138.00	135.30-147.60	146.85-160.20
5	4	130.35-142.20	140.25-153.00	151.25-165.00
5	5	134.75-147.00	144.65-157.80	155.65-169.80
5	6	139.15-151.80	149.05-162.60	160.05-174.60
5	7	143.55-156.60	153.45-167.40	164.45-179.40
5	8	148.50-162.00	157.85-172.20	169.40-184.80
5	9	152.90-166.80	162.25-177.00	174.35-190.20
5	10	157.30-171.60	166.65-181.80	179.30-195.60

APPENDIX E

DISTRIBUTION OF SAMPLE BY COUNTY

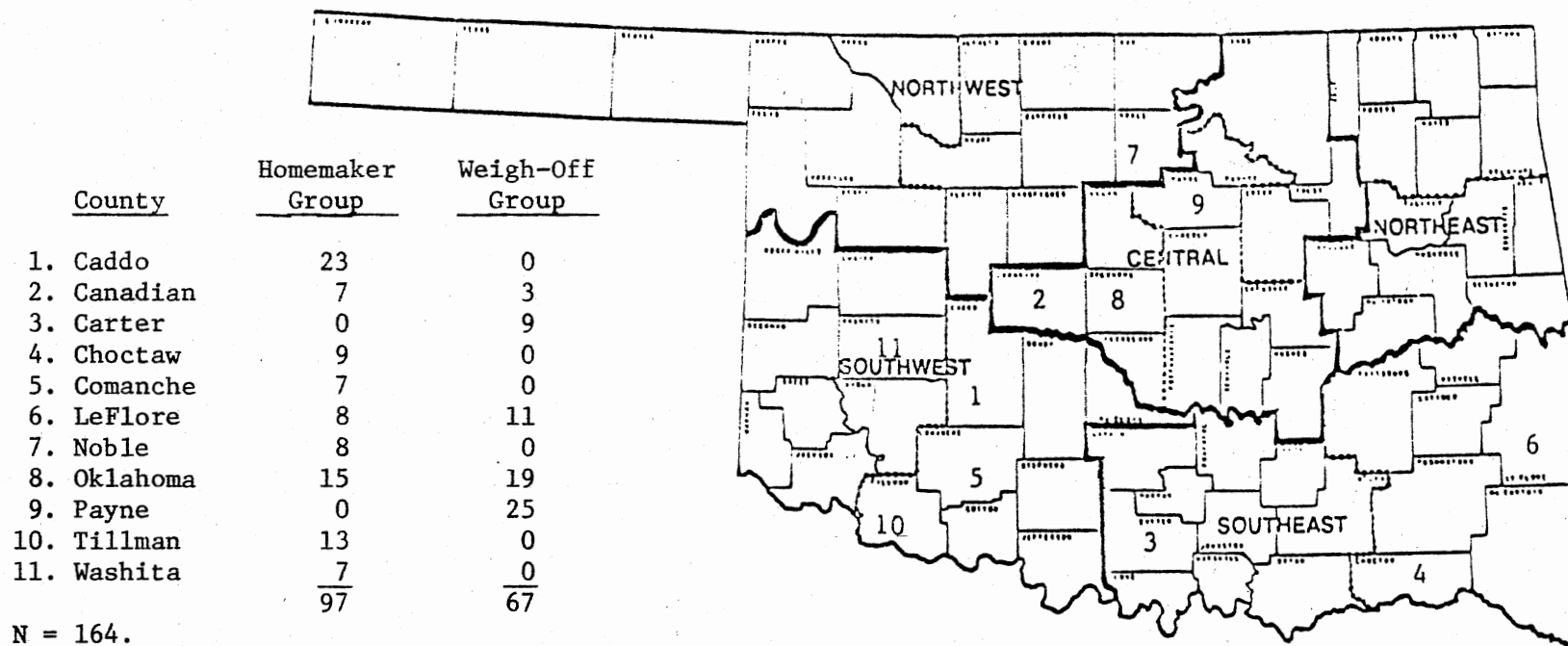


Figure 1. Distribution of Sample by County

APPENDIX F

TENNESSEE SELF CONCEPT SCALE

Tennessee Self Concept Scale

Directions: Circle the number that identifies your response to each of the following statements.

- 1--Completely False
 2--Mostly False
 3--Partly False and Partly True
 4--Mostly True
 5--Completely True

- | | | | | | |
|---|---|---|---|---|---|
| 1. I have a healthy body. | 1 | 2 | 3 | 4 | 5 |
| 2. I am an attractive person. | 1 | 2 | 3 | 4 | 5 |
| 3. I consider myself a sloppy person. | 1 | 2 | 3 | 4 | 5 |
| 4. I am a decent sort of person. | 1 | 2 | 3 | 4 | 5 |
| 5. I am an honest person. | 1 | 2 | 3 | 4 | 5 |
| 6. I am a bad person. | 1 | 2 | 3 | 4 | 5 |
| 7. I am a cheerful person. | 1 | 2 | 3 | 4 | 5 |
| 8. I am a calm and easy going person. | 1 | 2 | 3 | 4 | 5 |
| 9. I am a nobody. | 1 | 2 | 3 | 4 | 5 |
| 10. I have a family that would always help me in any kind of trouble. | 1 | 2 | 3 | 4 | 5 |
| 11. I am a member of a happy family. | 1 | 2 | 3 | 4 | 5 |
| 12. My friends have no confidence in me. | 1 | 2 | 3 | 4 | 5 |
| 13. I am a friendly person. | 1 | 2 | 3 | 4 | 5 |
| 14. I am popular with men. | 1 | 2 | 3 | 4 | 5 |
| 15. I am not interested in what other people do. | 1 | 2 | 3 | 4 | 5 |
| 16. I do not always tell the truth. | 1 | 2 | 3 | 4 | 5 |
| 17. I get angry sometimes. | 1 | 2 | 3 | 4 | 5 |
| 18. I like to look nice and neat all the time. | 1 | 2 | 3 | 4 | 5 |
| 19. I am full of aches and pains. | 1 | 2 | 3 | 4 | 5 |
| 20. I am a sick person. | 1 | 2 | 3 | 4 | 5 |
| 21. I am a religious person. | 1 | 2 | 3 | 4 | 5 |

22. I am a moral failure.	1	2	3	4	5
23. I am a morally weak person.	1	2	3	4	5
24. I have a lot of self-control.	1	2	3	4	5
25. I am a hateful person.	1	2	3	4	5
26. I am losing my mind.	1	2	3	4	5
27. I am an important person to my friends and family.	1	2	3	4	5
28. I am not loved by my family.	1	2	3	4	5
29. I feel that my family doesn't trust me.	1	2	3	4	5
30. I am popular with women.	1	2	3	4	5
31. I am mad at the whole world.	1	2	3	4	5
32. I am hard to be friendly with.	1	2	3	4	5
33. Once in a while I think of things too bad to talk about.	1	2	3	4	5
34. Sometimes when I am not feeling well, I am cross.	1	2	3	4	5
35. I am neither too fat nor too thin.	1	2	3	4	5
36. I like my looks just the way they are.	1	2	3	4	5
37. I would like to change some parts of my body.	1	2	3	4	5
38. I am satisfied with my moral behavior.	1	2	3	4	5
39. I am satisfied with my relationship to God.	1	2	3	4	5
40. I ought to go to church more.	1	2	3	4	5
41. I am satisfied to be just what I am.	1	2	3	4	5
42. I am just as nice as I should be.	1	2	3	4	5
43. I despise myself.	1	2	3	4	5
44. I am satisfied with my family relationships.	1	2	3	4	5
45. I understand my family as well as I should.	1	2	3	4	5
46. I should trust my family more.	1	2	3	4	5

- | | | | | | |
|--|---|---|---|---|---|
| 47. I am as sociable as I want to be. | 1 | 2 | 3 | 4 | 5 |
| 48. I try to please others, but I don't overdo it. | 1 | 2 | 3 | 4 | 5 |
| 49. I am no good at all from a social standpoint. | 1 | 2 | 3 | 4 | 5 |
| 50. I do not like everyone I know. | 1 | 2 | 3 | 4 | 5 |
| 51. Once in a while, I laugh at a dirty joke. | 1 | 2 | 3 | 4 | 5 |
| 52. I am neither too tall nor too short. | 1 | 2 | 3 | 4 | 5 |
| 53. I don't feel as well as I should. | 1 | 2 | 3 | 4 | 5 |
| 54. I should have more sex appeal. | 1 | 2 | 3 | 4 | 5 |
| 55. I am as religious as I want to be. | 1 | 2 | 3 | 4 | 5 |
| 56. I wish I could be more trustworthy. | 1 | 2 | 3 | 4 | 5 |
| 57. I shouldn't tell so many lies. | 1 | 2 | 3 | 4 | 5 |
| 58. I am as smart as I want to be. | 1 | 2 | 3 | 4 | 5 |
| 59. I am not the person I would like to be. | 1 | 2 | 3 | 4 | 5 |
| 60. I wish I didn't give up as easily as I do. | 1 | 2 | 3 | 4 | 5 |
| 61. I treat my parents as well as I should (Use past tense if parents are not living). | 1 | 2 | 3 | 4 | 5 |
| 62. I am too sensitive to things my family say. | 1 | 2 | 3 | 4 | 5 |
| 63. I should love my family more. | 1 | 2 | 3 | 4 | 5 |
| 64. I am satisfied with the way I treat other people. | 1 | 2 | 3 | 4 | 5 |
| 65. I should be more polite to others. | 1 | 2 | 3 | 4 | 5 |
| 66. I ought to get along better with other people. | 1 | 2 | 3 | 4 | 5 |
| 67. I gossip a little at times. | 1 | 2 | 3 | 4 | 5 |
| 68. At times I feel like swearing. | 1 | 2 | 3 | 4 | 5 |
| 69. I take good care of myself physically. | 1 | 2 | 3 | 4 | 5 |
| √70. I try to be careful about my appearance. | 1 | 2 | 3 | 4 | 5 |
| 71. I often act like I am "all thumbs". | 1 | 2 | 3 | 4 | 5 |

72. I am true to my religion in my everyday life.	1	2	3	4	5
73. I try to change when I know I'm doing things that are wrong.	1	2	3	4	5
74. I sometimes do very bad things.	1	2	3	4	5
75. I can always take care of myself in any situation.	1	2	3	4	5
76. I take the blame for things without getting mad.	1	2	3	4	5
77. I do things without thinking about them first.	1	2	3	4	5
78. I try to play fair with my friends and family.	1	2	3	4	5
79. I take a real interest in my family.	1	2	3	4	5
80. I give in to my parents (Use past tense if parents are not living).	1	2	3	4	5
81. I try to understand the other fellow's point of view.	1	2	3	4	5
82. I get along well with other people.	1	2	3	4	5
83. I do not forgive others easily.	1	2	3	4	5
84. I would rather win than lose in a game.	1	2	3	4	5
85. I feel good most of the time.	1	2	3	4	5
86. I do poorly in sports and games.	1	2	3	4	5
87. I am a poor sleeper.	1	2	3	4	5
88. I do what is right most of the time.	1	2	3	4	5
89. I sometimes use unfair means to get ahead.	1	2	3	4	5
90. I have trouble doing the things that are right.	1	2	3	4	5
91. I solve my problems quite easily.	1	2	3	4	5
92. I change my mind a lot.	1	2	3	4	5
93. I try to run away from my problems.	1	2	3	4	5
94. I do my share of work at home.	1	2	3	4	5
95. I quarrel with my family.	1	2	3	4	5

- | | | | | | |
|--|---|---|---|---|---|
| 96. I do not act like my family thinks I should. | 1 | 2 | 3 | 4 | 5 |
| 97. I see good points in all the people I meet. | 1 | 2 | 3 | 4 | 5 |
| 98. I do not feel at ease with other people. | 1 | 2 | 3 | 4 | 5 |
| 99. I find it hard to talk with strangers. | 1 | 2 | 3 | 4 | 5 |
| 100. Once in a while I put off until tomorrow
what I ought to do today. | 1 | 2 | 3 | 4 | 5 |

APPENDIX G

QUESTIONNAIRE FOR BACKGROUND INFORMATION

Information Sheet

Directions: Please answer all of the following questions as accurately as you can. Check (✓) or fill in answers as appropriate to each question. Put a check (✓) in the blank to the left of the best choice or write the best answer in the blank provided.

1. What is your highest educational attainment?
 - a. Grade school
 - b. Junior high school
 - c. High school
 - d. Less than four years of college
 - e. B.S. or B.A. degree
 - f. Master's
 - g. Doctorate
 - h. Other (specify) _____

2. How many years have you lived in the following places? (Indicate in the blank to the left the approximate number of years.)
 - a. On a farm or in the country
 - b. Small town under 2,500 population
 - c. City of 2,500 to 50,000 population
 - d. City of over 50,000 population

3. What type of housing do you live in?
 - a. House (self-owned)
 - b. House (rented)
 - c. Apartment
 - d. Mobile home
 - e. Other (specify) _____

4. At present, are you employed outside your home?
 - a. Yes
 - b. No

5. If yes, are you employed part-time or full-time?
 - a. Part-time
 - b. Full-time

6. If employed, what is your occupation? _____

7. What is your approximate family income before taxes?
 - a. Under \$4,999
 - b. \$5,000 to \$9,999
 - c. \$10,000 to \$14,999
 - d. \$15,000 to \$19,000
 - e. \$20,000 or over

8. What is your age range?
 a. 18-30
 b. 31-40
 c. 41-50
 d. 50 or over
9. What is your marital status?
 a. Single
 b. Married
 c. Divorced
 d. Separated
 e. Widow
10. If you have children, what are their ages? _____

11. How many children live at home? _____
12. How tall are you without shoes? _____
(feet and inches)
13. What is your present weight? _____ (pounds)
14. Do you consider yourself to be overweight?
 a. Yes
 b. No
15. If you answered "yes" to number 14, how many years have you believed yourself to be overweight?
 a. Since early childhood
 b. Since teenage years
 c. Since the last five years
 d. Since within the last year
 e. Other (specify) _____
16. What type of body build do you think you have?
 a. Small frame
 b. Medium frame
 c. Large frame
17. Are you satisfied with your present weight?
 a. Yes
 b. No
18. Would you say you are heavier or lighter than most of the women your height and age?
 a. Heavier
 b. About the same
 c. Lighter

APPENDIX H

COVER LETTER

Dear Homemaker:

In today's society much emphasis is placed upon an individual's personal appearance, yet approximately one in five Americans has been found to be overweight. This study is designed to determine if women who are overweight and those who are not overweight see themselves differently. It is expected that the information gained from this study will benefit teachers, nutritionists, dietitians, and doctors who assist overweight individuals with weight reduction.

Your Extension Home Economist has agreed to assist in obtaining the information needed for this study. Your assistance with this study would be greatly appreciated. It is through the participation of individuals such as you that we can gain greater knowledge and understanding of the overweight problem. I am asking you to participate by completing the attached questionnaire.

Your answers will be confidential since your name is not required on the questionnaire. If you would like a brief summary of the findings of this research when it is completed, the researcher will mail them to you if you will leave your name and address with the Home Economist.

Thank you for your cooperation and time in this study.

Sincerely,

Peggy Jo Ludeman
Graduate Student

Bernice Kopel, Ed.D.
Assistant Professor
Food, Nutrition and Institution
Administration

APPENDIX I

ANALYSIS OF VARIANCE FOR TOTAL POSITIVE SCORE
VERSUS SELECTED VARIABLES AND WEIGHT
PROGRAM PARTICIPATION

TABLE XXVII

ANALYSIS OF VARIANCE FOR TOTAL POSITIVE SCORE VERSUS SELECTED
VARIABLES AND WEIGHT PROGRAM PARTICIPATION

Source	d.f.	Mean Square*	F	Weight Program Participation			N
				d.f.	Mean Square*	F	
Condition of Weight	2	296.34	0.30**	1	2862.36	2.89**	
Error	154	990.76					158
Age of the Individual	3	45.18	0.05**	1	1892.32	1.89**	
Error	153	1000.23					158
Onset of Excess Weight	4	1246.47	1.29**	1	1346.99	1.40**	
Error	131	965.26					137
Income of Individual	4	1266.17	1.27**	1	1831.67	1.83**	
Error	146	999.90					152
Educational Level	6	1618.09	1.69**	1	1360.78	1.42**	
Error	150	956.41					158
Marital Status	3	1026.48	1.05**	1	2854.77	2.91**	
Error	153	980.98					158
Number of Children	5	582.18	0.54**	1	254.07	0.24**	
Error	69	1074.17					76
Location of Residence	3	2082.43	2.09**	1	3898.75	4.01***	
Error	151	972.40					158
Type of Residence	3	204.83	0.21**	1	1982.42	1.99**	
Error	153	997.09					158

*Based on adjusted sum of squares due to unequal number of observations in each cell.

**p > .05.

***p < .05.

APPENDIX J

ANALYSIS OF VARIANCE FOR PHYSICAL SELF SCORE
VERSUS SELECTED VARIABLES AND WEIGHT
PROGRAM PARTICIPATION

TABLE XXVIII

ANALYSIS OF VARIANCE FOR PHYSICAL SELF SCORE VERSUS SELECTED
VARIABLES AND WEIGHT PROGRAM PARTICIPATION

Source	d.f.	Mean Square*	F	Weight Program Participation			N
				d.f.	Mean Square*	F	
Condition of Weight	2	454.97	7.66***	1	10.18	0.17**	158
Error	154	59.37					
Age of Individual	3	20.51	0.31**	1	9.44	0.14**	158
Error	153	65.30					
Onset of Excess Weight	4	43.13	0.67**	1	4.62	0.07**	137
Error	131	64.63					
Income of Individual	4	44.87	0.67**	1	20.80	0.31**	152
Error	146	67.24					
Educational Level	6	90.12	1.42**	1	27.36	0.43**	158
Error	150	63.42					
Marital Status	3	16.21	0.25**	1	25.05	0.38**	158
Error	153	65.39					
Number of Children	5	31.20	0.42**	1	26.04	0.35**	76
Error	69	73.63					
Location of Residence	3	51.72	0.80**	1	0.21	0.00**	158
Error	151	64.50					
Type of Residence	3	7.63	0.12**	1	12.28	0.19**	158
Error	153	65.56					

*Based on adjusted sum of squares due to unequal number of observations in each cell.

**p > .05.

***p < .001.

VITA ²

Peggy Jo Ludeman

Candidate for the Degree of

Master of Science

Thesis: DIFFERENCE IN SELF-CONCEPT OF INDIVIDUALS ENROLLED AND NOT ENROLLED IN A WEIGHT REDUCTION PROGRAM

Major Field: Food, Nutrition and Institution Administration

Biographical:

Personal Data: Born in Hardtner, Kansas, January 7, 1953, the daughter of Mr. and Mrs. Joe W. Cutright.

Education: Graduated from Burlington High School, Burlington, Oklahoma, in May, 1971; attended Oklahoma Christian College, 1971-1972; and Northwestern Oklahoma State University, 1972-1973; received the Bachelor of Science degree in Home Economics with a major in Food, Nutrition and Institution Administration from Oklahoma State University in 1975; completed requirements for the Master of Science degree at Oklahoma State University in July, 1979.

Professional Experience: Dietitian's Assistant, Stillwater Municipal Hospital, 1975-1976; Graduate Research Assistant, Oklahoma State University, School of Home Economics, 1977-1979.

Professional Organizations: American Home Economics Association, Oklahoma Home Economics Association, Oklahoma Institute of Food Technologists, Society for Nutrition Education, Omicron Nu, Phi Upsilon Omicron.