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Obesity, Race, Body-Cathexis and Self-Confrontation on Closed- Circuit Television.

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OBESITY, RACE, BODY-CATHEXIS AND SELF-CONFRONTATION ON CLOSED-CIRCUIT TELEVISION

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ABSTRACT

In an effort to understand the complex and intricate relationships between obesity, body-image, age, and sexual status in conjunction with closed-circuit television and video self-confrontation, a series of exploratory studies were conducted upon matched groups of young Negro and white obese and non-obese females and older groups of white obese and non-obese females. Previous research in these areas were largely theoretical and revealed how conceptually confusing the fields of obesity and body-image are. A series of studies were undertaken here to exemplify the problem.

Preliminary experimentation between normative groups of Negro and white Ss, established that there were at least two body-images, a total B-I and a weight B-I, consisting of B-C scale sub-items directly manifesting or reflecting weight. Negro Ss had a more favorable TBI than the white group. No relationship was found between per cent overweight and having a negative B-I for either group. Subjects in this study included one hundred forty-five white Ss and fifty-two Negro Ss.

The first study, consisted of thirty-one white obese and thirty-two white non-obese college undergraduates and

nursing school students, revealed that obese Ss had more negative TBI and WBI attitudes and significantly underestimated their actual weight. These results were related to subjects being overweight and their being deviant from a cultural ideal of physical size and attractiveness. Substantiation for the subject responses in this study were also reported by investigators of obesity utilizing similar subjects in previous studies.

The second study, consisted of twenty-one Negro obese and seventeen Negro non-obese female college undergraduates, revealed that the Negro obese had more negative TBI and WBI attitudes and significantly underestimated their actual weights, in contrast to their non-obese peers.

The third study, compared matched groups of Negro and white obese and non-obese females for TBI and WBI attitudes before and after self-confrontation. Negro obese Ss had significantly different and more positive WBI attitudes than white obese Ss, whereas, the TBI attitudes were non-differential between the groups. This finding substantiated the result of the normative study and revealed that Negro obese Ss recognized their overweight condition. Despite this recognition, they still liked themselves. A racial or sub-cultural norm which vitiated the negative social influence directed at the obese person, was postulated. After confrontation, the WBI of all obese groups became negative,

whereas, the TBI remained unchanged. In effect, the WBI attitudes of the Negro obese female became negative, as a result of self-confrontation. On the other hand, Negro non-obese females became slightly more positive after self-confrontation. It was hypothesized that the self-confrontation procedure could enhance, intensify, or change subject's self-perception and their B-I attitudes. The universal distortion and underestimation of actual weight by all obese groups suggested that several levels of response or layers of denial exist within the obese person. This denial response seemed to depend upon the individual's motivation, the skillfulness of the experimenter, and the method of eliciting the response. Denial by obese respondents had previously been reported in the literature.

The fourth study, consisted of fifteen older white obese and non-obese nurses who were compared on the usual measures, as well as two additional behavioral measures. The only significant results were an initial negative WBI attitude score by the obese group, and the fact that they too, significantly underestimated their actual weight. No significant results appeared after the confrontation procedure, or, on the two behavioral measures between the two groups. It was hypothesized that the age factor was uncontrolled and seemed to have contaminated the results. This factor necessitated the final study.

The last study, consisted of four groups of fifteen younger and older white obese and non-obese nursing school students and nurses in the field, revealed an important interactive effect between age and weight. With the age factor controlled, the TBI and WBI attitudes were significant in the initial stages. The WBI for the older obese group was also significant after confrontation. Other results of this study were in agreement with those of the obese Ss in the first three studies. It was suggested that age, along with the racial factor and the self-confrontative experience, served as variables which should be taken into account in future studies of obesity and body-image. It is believed that there are several body-images.

Such factors, as the motivation of the subject, the skill of the experimenter and the methodological sophistication of the method utilized, may elicit intrapsychic levels within an obese person.

The use of behavioral variables, operant procedures, closed-circuit television, and the confrontation procedure were only tentatively explored in these studies. Further experimentation will be needed to discover additional parameters, which can be applied to varied populations. The results of these studies, indicated that these bewildering fields of endeavor can be experimentally controlled. They present a clear invitation to other researchers.

CHAPTER I

INTRODUCTION

Brosin's (1953) poignant statement, "Inside every fat man, a thin man is wildly signaling to be let out" vividly expresses the supposed ambivalence that an obese person feels concerning his eating, his overweight condition, his body attitude and perhaps his self-concept in general.

The author wishes to express his admiration and respect for Hilde Bruch, Jean Mayer and Albert Stunkard, three pioneer investigators of obesity who have contributed scores of insightful and stimulating articles to a field long known for its confusion and obscurity. Their articles, pertaining to the psychological and physiological aspects of obesity, are continually cited throughout this dissertation which might not have been undertaken had they not paved the way with their research. Encouragement was also gleaned from their personal communications.

This introductory chapter will indicate the present incidence of obesity in the United States. It is also concerned with the close association of obesity with disease liability and high mortality rates. Despite manifold and largely unsuccessful efforts to treat obesity, confusion

reigns when one attempts to define and measure exactly what obesity is. The relationship between obesity and body-image is relatively undefined; both areas are conceptually confusing to the professional investigator and layman alike. Contradictory evidence is found in all fields, whether it be the constitutional, physiological or psychological factors that are etiologically involved.

The field of body-image or body-percept will be reviewed from historical and contemporary viewpoints. The relevant psychological studies and theoretical conceptualizations which relate body-image phenomena to the obese, are of primary consideration. One part of this study attempts to discover how obese and non-obese people, specifically women, perceive their bodies. The bodily attitudes associated with these feelings are of paramount interest.

Little is known about obesity in Negroes. The research relating to problems attendant on being an obese Negro in a specific socio-cultural milieu (Deep South) will be reviewed. The effects of Southern culture on body-image attitudes are then briefly examined and attempts are made to compare the differences between the body-image attitudes of Negro and white obese and non-obese females.

Age has never been specifically controlled in previous studies of obesity. Consequently, an attempt will be made to analyze the relationship between weight and age as

manifested by differential body-image attitudes.

The literature suggests that self-confrontation has been a powerful technique in effecting changes in one's self-concept (Cornelison and Arsenian, 1960; Neilsen, 1964). Interest in a new methodological tool--closed-circuit television--led to an examination of the body-attitude and the changes in that attitude in normal and overweight females, as a result of self-perception (self-confrontation). (Boyd & Sisney, 1967.) Conjugate reinforcement of stimuli under the operant control of the subject has recently been coupled with closed-circuit television for the presentation of stimuli (Nathan, 1964). Behavioral measurement in this type of experimental situation has been shown to be feasible (Stigall, 1966). These new techniques have been applied to this study.

In effect, a series of experimental studies were conducted in this dissertation which attempts to relate obesity, to the variables of race and age in conjunction with the utilization of a new technique (self-confrontation); and a new methodological tool (closed-circuit television).

Problem

Many investigators have maintained that obesity is an all-pervasive problem transcending and permeating religious, ethnic, racial and socio-economic affiliations

(Conrad, 1964; Moore, Stunkard & Srole, 1961). Throughout the years, estimations of obesity have varied. Dorfman (1946) estimated that thirty million people in the United States are to some extent obese. Though a recent Gallup Poll substantiates this figure, Marks & Dublin (1957) quote a statistic of fifty-eight per cent or seventy-nine million people who are ten per cent or more overweight. The "Body Build and Blood Pressure Study" (Society of Actuaries, 1959, Metropolitan Statistical Bulletin, 1960), indicated a sharp increase in the prevalence of obesity in the United States, citing high correlations between obesity and advancing age, high disease incidence, and earlier placement on mortality charts. These high correlations prompted Mayer (1953) to call obesity "The Number One Nutrition Problem" and perhaps the "Number One Health Problem" in Western countries at the present time (p. 472).

One heretofore neglected and important aspect of being obese is how the obese person views himself. This perception is called the body-image or body-attitude. If one could establish a norm and compare this norm to a non-obese group when age, race, and sex are controlled, perhaps the problem of obesity could be further elucidated.

Definition and Measurement of Obesity

There is a frustrating lack of consensus of opinion among investigators when they attempt to define obesity.

On various occasions obesity has been called a "Symptom," a "Syndrome," and a "Final Common Pathway" for a host of disparate factors. These factors interrelate and combine at several different levels to produce the outward manifestations of obesity (Bruch, 1957, 1958; Cowgill, 1958; Mayer, 1958). Bruch (1958), Mayer (1957), and Young (1955) claim that one should accurately label the problem of overweight as "obesities," in an effort to reconcile the various metabolic, constitutional, physiological and psycho-dynamic factors purported to be related to obesity.

Many prominent investigators have defined obesity as a fifteen or twenty per cent deviation above desirable weight, as measured by currently revised actuarial scales for a person's sex, height and weight (Marks, 1960; Stunkard, 1961). Marks (1960) states that the weight standards were statistically computed by actuaries from a sample of five million persons granted insurance by twenty-six life insurance companies. He believes that the sample is quite representative of the population-at-large, since it was categorized for both sexes in all age groups. Moreover, it does away with the nebulous concept of "body-build" estimates, which originally brought former actuarial scales of this type into disrepute. His viewpoint is also expressed by Brobeck (1953); Keys & Brozek (1953); and Seltzer & Mayer (1964). Another justification for the use of this scale in

defining obesity is a "consensual" one. Many recent studies of obesity have utilized actuarial scales to define their obese populations (Abraham & Nordsieck, 1960; Burch & Love, 1962; Cowgill, 1958). Because of the aforementioned difficulties in defining obesity, the definition used in this study is: "Obesity is defined as increased food intake with a concomitant decline in energy expenditure leading to the accumulation of fatty tissue" (Bruch, 1939, 1940, 1941; Mayer, 1952, 1958). Phrased another way, obesity is the result of over-eating with a simultaneously lowered physical activity rate (Bruch, 1957; Chirico and Stunkard, 1960).

Some methods used to measure obesity or the amount of fatty tissue present are: X-ray and densitometry (Keys and Brozek, 1953), Body Composition (Cowgill, 1958), somatotype ratings (Sheldon, 1954), skin calipers (Monello and Mayer, 1963), and the Wetzel Grid (Bruch, 1942). Other methods of measuring obesity entail utilizing a developmental history, charting weight fluctuations (Bruch, 1957), and estimating size of body-build frames while comparing them to an actuarial chart controlled for age, height and weight (Metropolitan Life Insurance Company, 1958). Keys and Brozek (1953) maintain that many of these techniques have not been standardized and, therefore, are invalid. Two other criticisms of the above mentioned techniques are, that they require extended time periods and extensive medical facilities.

It is extremely difficult to separate the definition of obesity from the methodologic consideration of measuring body weight or body fat (Brobeck, 1948; Caldwell, 1965; Eppright, Swanson and Iverson, 1955). The main contention among one group of investigators is that obesity and overweight are not necessarily the same (Keys and Brozek, 1953; Mayer, 1955, 1963; Mayer and Stare, 1953). They base their conclusion upon the observation that many athletes would be rated obese if compared to the ideal or average weight tables.

Theory and experimental studies of the etiological factors in obesity are mainly unconfirmed and often confusing. What, for example, causes overweight? Why, overeating, of course! But, Mayer (1958) has stated, "To say that obesity is due to overeating, which is true, is as illuminating as to say that alcoholism is due to overdrinking" (p. 55). The next logical question is, what causes food intake to become excessive?

Heredity, physical inactivity, social status, and sometimes brain injuries are clearly implicated (Gill, 1946; Gordon, 1957; Gurney, 1936). Poor food habits, perhaps induced by a deprived childhood, may be another cause. Alexander (1934); Gordon (1963); and Mayer (1963a, 1963b) believed that twenty-five per cent of all obesity is due to faulty metabolism. Other equally eminent authorities refuse to believe any obesity is metabolic (Bychowski, 1950;

Conrad, 1952; Schick, 1947). Instead, they espouse a psychogenic hypothesis. Mayer (1958) countered this approach by inquiring, "What is psychogenic? If we mean that not having enough strength to resist food is psychogenic, then all obesity is psychogenic" (p. 55). Mayer and his associates have isolated thirteen separate causes of obesity in the rat and claim that no real cure exists for any of them. Mayer (1964, 1957), in attacking comparative studies, concludes that there is no evident relationship between obesity in mice and obesity in man.

To summarize, one can observe that the definition of obesity is mainly an empirical one, namely, deviation from the average. Assuming one can define the condition, there is still the difficulty of measuring it accurately. Success in treating obesity has been negligible. Still remaining almost completely unanswered, are the etiological questions involved.

Treatment of Obesity

Considering the negative valence toward being obese from both medical and social viewpoints, one would suppose that obese people would be highly motivated to lose weight. However, this has not been the case. Young (1963) states that reported attempts to treat obesity, by whatever means, have been most disheartening. Stunkard and McClaren-Hume (1959) reviewed all treatment studies of obesity of the past

thirty years and rejected all but eight of them because of methodologic considerations. Even in those eight studies, the results were remarkably similar and consistently poor when the authors controlled for time. In their studies, Stunkard and McClaren-Hume (1959) set two years as the criterion for successful weight loss. They found that only two patients out of one hundred were able to maintain their weight loss at the end of the two year period. The high relapse rate of dieters has been substantiated by other investigators (Abraham and Nordsieck, 1961; Caldwell, 1965; Graff, 1965). That this high relapse rate is important, is substantiated by Marks' (1960) finding, that if weight loss is maintained for any prolonged period of time, longevity is substantially increased for the obese person. Marks goes on to state that a middle-aged obese woman has a fifty per cent greater chance of dying at a given age than her non-obese peer.

Some methods of treating obesity are: total fast (Mayer, 1964); the use of drugs, especially amphetamines, (Hamburger, 1958); hospitalization for prolonged periods of time (Young, 1955); the use of dietary instructional methods (Young, 1959); interviewing (Young, 1960); the application of Skinnerian learning principles (Ferster, Nurnburger, and Levett, 1962); hypnosis (Hershman, 1955); and individual and group psychotherapy (Becker, 1960; Blazer, 1951; Bychowski, 1950; Holt and Winick, 1961).

Researchers who have attempted to treat the obese have commented upon their subjects' consistently poor co-operation in dietary regimens and their diffident participation in psychotherapy (Illingsworth, 1958: Young, 1955, 1963). Bruch (1957) says that most of her successfully analyzed obese patients achieved wonderful psychoanalytic insights into their dynamics, but lost little weight.

The failure to successfully treat the obese person has been attributed to something more than poor cooperation on the part of the patient (Ferster, et al., 1961; McCann and Trulson, 1955). Holt and Winick (1961) state that they experienced great difficulty in getting their obese patients to accurately report their nutritional intake. This reaction on the part of their obese population was so pervasive, that they consider this a major problem to be dealt with in any treatment program. The organization called "Weight Watchers" insists that their members be publicly weighed every week to counteract any tendency they may have to falsify their actual weight. In this way, they also counteract denial because the "Iron Monster" (scale) does not lie. Hamburger (1951, 1958) and Stunkard (1956, 1959a, 1961) report that obese patients tend to deny feelings of hunger despite concomitant epigastric activity, as ascertained by experimental methods.

A review of the major methods of treating the obese patient, reports universally poor success. Some prominent factors involved in diet failure are poor cooperation and a tendency to inaccurately report actual weight loss or gain.

Non-Psychological Conceptualizations of Obesity

Heredity. Obesity tends to be prevalent across generations, within families. Mayer (1957) reports that studies in the United States have shown that less than ten per cent of the children of normal-weight patients are obese, as compared to fifty per cent when one parent is obese and eighty per cent when both parents are. Conversely, Mossberg (1955) states, "The fatter the child is, the greater the likelihood that there would be a family history of obesity" (p. 322). Rony (1940) reports a high correlation for body weight in identical twins, even if they are reared separately. Obese children are reported to have larger skeletal structures and tend to mature earlier than the non-obese (Bruch, 1957).

Despite these apparent positive findings, genetic interpretations have not received sympathetic attention in our "environmentalist" country (Rynearson and Gastineau, 1949). Kaplan and Kaplan (1957) best sum up the hereditary problem in obesity with the conclusion that:

> "The high family history of obesity may be attributed, at least in part, to the influence of a common environment, identification with fat parents and/or the utilization of learned oral methods for coping with their anxiety, rather than it being due solely to the genetic factor" (p. 190).

Constitutionality

A popular means of categorizing man's personality and behavior was to take anthropometric measurements of his bodily parts, group them and ascertain what common characteristics they have both within and between groups (Sheldon, 1954; Kretschmer, 1925). The men with the largest bodily dimensions were usually obese and called endomorphs, pyknics, etc. However, when one attempts to apply these somatotypic ratings to contemporary man, one encounters a great deal of difficulty. One criticism of the somatotypic approach is that there is no "Atlas of Women" as there is for men, and therefore, the scale is incomplete. Bullen, and Mayer (1953) experienced great difficulty in their attempts to apply Sheldon's somatotypic ratings to a group of obese adolescent girls. The authors had to modify their somatotype ratings to encompass extremely obese subjects, with most unsatisfactory results. They had to expand the upper end of the endomorphic scale to include their obese girls.

Endocrinology

Another prominent theoretical focus in the 1930's

was the expectation that obesity was caused by a glandular deficiency or hormonal dysfunctioning of one sort or another (Bruch, 1939). In those days, another name for obesity was "Froehlich Syndrome" or the like (Levy, 1936). The ostensible cause of obesity was dysfunctioning of the pituitary or the thyroid glands. These endocrinological theories were strongly refuted by Bruch (1929, 1940), as the main cause of obesity. Bruch's (1957) contention is that approximately three per cent of the causes of obesity have any basic organic component. Recent resurgence of metabolic etiological factors in treating obesity, are accompanied by a paucity of theoretical explanations (Gordon, Goldberg & Chosey, 1963; Levitt & Fellner, 1964).

Physiology

Another important approach to obesity has been to focus upon the "intermediate processes" involved. Gordon, Goldberg and Chosey (1963) studied the varied components in the blood, while Mayer (1957) reviewed various studies of cortical extirpation which have produced diverse kinds of obesity in rats, e.g., goldthioglucose, hyperglycemic, hereditary, etc. With the discovery that destruction of various parts of the hypothalamus could lead to obesity, many theorists rushed forth with speculations as to how these various hunger and satiety centers functioned in the regulation of food intake. Brobeck (1953), Kennedy (1953)

and Mayer (1952) advanced theories that have been criticized by themselves and others (Burch, et al., 1962). Mayer (1953) summarizes the area by stating, "No single existing hormonal or physiological theory of hunger can completely account for the state of theory concerning obesity at the present time" (p. 22). For comprehensive reviews of the field, the reader is referred to the works of Brobeck (1955); Mayer (1953, 1955, 1957); and Teitlebaum (1961).

Psychological Conceptualizations of Obesity

Social Factors. It is quite obvious that social factors and cultural attitudes have a profound effect on the obese person. This effect may also create body-image disturbances (Bruch, 1961, 1962, 1965; Stunkard, 1961). Generally, the obese person feels rejected by society because of his overweight appearance. Monello and Mayer (1963) liken the obese to a minority group. They note that a negative environmental rejection of the obese is similar to the rejection faced by minority group members. Both groups tend to withdraw, and, at the same time, identify and incorporate this hate which emanates from the environment. This self-hate is directed against the very thing that elicited the initial rejection, their body fat.

Some of the social factors in our society that may contribute toward obesity are the affluent living standards and our enriched present way of life (Conrad, 1952).

Conrad (1959) cites such factors as deprecation of physical labor, spectatorship in sports, and shorter working hours as factors allowing us more leisure time in which to sit and eat. Moore, Stunkard and Srole (1961) emphasize socio-economic status as an important factor in determining obesity. Utilizing demographic data from subjects seen in the Midtown Manhattan Study, they revealed that obesity in the lowest socio-economic bracket was seven times higher than in the highest economic bracket. Other investigators emphasize the cultural and social rejection that the obese experience, particularly in the United States.

Psychoanalysis

Bruch (1940, 1941, 1943 and 1957) was one of the first theorists to systematically apply psychoanalytic conceptualizations and techniques to the problem of obesity in her effort to counteract the non-productive approach of the organic school. She based her speculations upon such eminent analytic theorists as Freud (1938) and Abraham (1927) who proposed that fixation at and/or regression to, the oral developmental stage, was a key to unlock the door of the obese person's dynamics. Symbolism was another important factor, according to Conrad (1964). The symbolic meaning of oral intake and of large body size was prominent and significant for such analytic theorists as Bergler (1957), Bychowski (1950) and Hamburger (1951). Excellent reviews

of the psychoanalytic approach to obesity, are contained in Kaplan and Kaplan (1957) and Burdon and Paul (1951). Recently, Bruch (1958, 1962, 1966) has shifted to a perceptual-learning theory approach to obesity, bringing her closer to Ferster, et al., (1961), than to the Freudians.

Psychology

As a mass of negative somatic studies began to systematically rule out the main metabolic postulates proposed to explain obesity, a multitude of psychogenically-oriented investigators began to focus upon the psychodynamic factors involved in excessive food intake (Brobeck, 1948, 1955; Hamburger, 1951; Stunkard, 1959). It was quite apparent that this area had to be initially clarified in order to understand the total problem of obesity (Bruch, 1957). Precipitously, a host of theoretical postulates ensued, each purporting to have found the "specific" entity or area involved. Some of these factors or areas were culture, immediate environment, and family milieu (Bruch, 1940); "Greater Psychological Strength" within the personality structure (Suczek, 1957); "Unconscious Symbolic Processes" (Hecht, 1955); and "Greater Emotional Disturbance of the Obese" (Kaplan and Kaplan, 1957). Practically all these theorists agree that the obese person is emotionally disturbed to varying degrees. However, disagreement ensues as to the intensity or type of emotional disturbance involved.

Kaplan and Kaplan (1957) list the following dynamics or defenses that have been attributed to the obese person: anxiety, depression, denial, hostility, insecurity, and dependency, to name a representative few. The uncritical application of dynamic concepts prompted the Kaplans to state, "No uniform personality pattern has, as yet, been discovered for the obese person" (p. 199). Levett and Fellner (1964) and Weinberg, Mendelson and Stunkard (1961) concur with the conclusion reached by the Kaplans. They feel that the fallacy of previous theorizing about obesity has been the assumption that obesity is a homogeneous entity, a fact that has not definitely been established at an empirical level.

From the preceding paragraphs, it becomes quite apparent that the psychodynamics of oral intake, when malfunctioning, produce increased body size. Another vitally important factor involved in producing obesity is the body-image attitudes held by the obese. Hilde Bruch and several other theorists have been most prominent in theoretically speculating, investigating and experimenting with the relationship between obesity and body-image.

Obesity and Body-Image

Bruch's (1961, 1963) current theory is that the obese child learns to misread internal signs and signals from his sensorium, because of mal-adaptive communication

within the family setting, particularly between the child and the mother. The mother of the potentially obese child responds to the child, not according to what the child wants, but according to what she "thinks" the child wants. As a result, the child becomes conceptually and perceptually confused when he attempts to discriminate among his sensations, particularly the nutritive sensations. In commenting upon the relationship of overeating to the body-image of the obese person, Bruch (1961) states:

> "It became apparent that obese patients suffered from an inability to identify their bodily sensations correctly. In particular, the obese cannot identify the nutritional needs of hunger and satiation. They suffer from a severe deficit in their sense of identify and self-effectiveness. This defect in body-concept and self-awareness, seems to be of crucial importance for the development of severe eating disorders." (P. 73.)

When speaking of the symbolic meaning of "large size" Bruch (1957, 1958, 1966) argued that this aspect of the obese was a protective mechanism, a buffer, against a perceived hostile world. Bruch warned against physicians prescribing indiscriminate diets without their taking cognizance of the obese person's psychodynamics, lest one precipitate further personality disintegration. In another context, Bruch (1964) explained that environmental rejection only exasperates existing self-derogatory feelings within the obese person. These feelings result in low self-esteem and in a deeply disturbed body-image.

Stunkard (1961) confirms that some obese persons experience body-image disturbances. He states:

> "Disturbances of the body-image in some obese people are closely correlated with depressed affect. In these cases, there is an overwhelming preoccupation with one's obesity, often to the exclusion of all else. The world is seen in terms of body weight, with people divided into the thick and the thin . . . The obese person views his own body as grotesque and even loathsome" (p. 328).

In summary, Bruch (1961, 1962) states that obese people are alienated from their sensorium, specifically, that they cannot differentiate between their nutritional needs. She goes on to say that the obese experience body-image disturbances. Finally, she feels that "large body size" is of crucial importance, at least on a symbolic level, and functions as a protective device against a hostile world.

The apparent discrepancy between the obese keeping their symptom, of large body size, and trying to ward off environmental demands that (he lose or give up this sympton); seems to place the obese person upon the horns of a dilemma. The obese person "cannot win for losing," for if he maintains his symptom, he is the recipient of constant environmental rejection.

These disparate results indicate that some normative data concerning the body-image attitudes of the obese is desperately needed. Our studies will hopefully help clarify this issue. One additional fact derived from the literature is that previous investigators may have been sampling

from different levels of an obese subject's personality, or sampling from groups with different types of "obesities." In these studies our aim is not only to gather data from an assumed normal population (not diagnosed as emotionally disturbed); but also to sample an obese person's body-concept at the attitudinal or conceptual level, which in turn, is based upon his self-perception. This study makes no claim to delve into the unconscious of the obese, except that a person's body-image attitudes are derived from his entire personality (Schilder, 1950).

Another interesting question, never raised by Bruch or any other investigator, is the relationship between obesity and race. Most of Bruch's patients were clinic or analytic patients drawn from urban populations. One wonders if her conclusions concerning her obese patients dynamics and body-image are applicable to other populations. For example, how would her theory fare if one studied white and Negro groups of obese subjects in a rural setting? An answer is suggested by the finding that Bruch's conclusions were not substantiated by Burchinal & Eppright's (1959) study of rural Iowa female adolescents and by Tolstrup's (1953) and Iverson (1953) subjects in Denmark.

Obesity and Race

Body-Concept of the Negro. Despite a plethora of psychological studies of the Negro American in recent decades,

many of the most important questions concerning them have not even received tentative answers (Dreger and Miller, 1960). One such question is the Negro attitude toward his body. Existing studies in this area have confined themselves to the questioning of Negro children as to their skin shade preferences and then attempting to relate the findings to an estimate of self-concept (Clark and Clark, 1950; Yarrow, Campbell and Yarrow, 1958). The Yarrows conclude that negative feelings toward skin color routinely disappear by age eight, or, if they remain, do not extend to other aspects of the body (1958).

One methodological problem that must be considered by any investigator when studying Negroes is the racial status of the interviewer or experimenter (Pettigrew, 1964). Whittaker, Gilchrist and Fischer (1952) and Trent (1954) disclose that Negroes respond differentially to interviewers, depending upon their racial status. Other investigators contend, that the use of Negro subjects in experiments not specifically dealing with the racial issue, do not reflect this differential phenomena (Dorfman and Kleimer, 1962; Price and Searles, 1961). Pursuing another course, Hare (1960) believes that economic classification of both subject and experimenter, is a more important factor than race.

Other methodological problems concern the specific assessment technique that one plans to utilize with a Negro

population, that may or may not be applicable to them. The major difficulty has been IQ assessment. If this issue is avoided, so is most of the problem. Racial studies also require rigid control over such gross sociological variables as education and socio-economic status, if they are to tease out the subleties of personality. Dreger and Miller (1960) make the salient point that, "caste differences" exist among Negroes, even when other variables are controlled. One means of avoiding this problem is to select a homogeneous population within a race.

With one notable exception, previous studies have never controlled the racial factor when exploring the personality of the obese. The exception is Huenemann's et al., (1966) study of white, Oriental and Negro adolescents. Exploring the relationship of body-image between obese and non-obese subjects, she concluded that: 1) many Negro girls liked their bodies; did not consider themselves too fat (despite their admission of being obese) and, in many cases, wanted some of their body-part dimensions to be larger. 2) most white girls disliked their bodies; felt that they were too fat; and wanted their bodily dimensions to be smaller. All white subjects seemed to adhere to an ideal body-concept and to have unrealistic body-images, not in keeping with their actual body measurements. The results of Huenemann's study seem to indicate that Negro females have somewhat different body-concepts than their white.

counterparts. In an independent study utilizing white female undergraduates, Secord and Jourard (1953) substantiate the finding that an ideal body-concept seems to exist and is used as a criterion by their subjects, in the subjects' evaluation of their own bodies. This comparison is usually an invidious one, where the object (the body or self) is usually second-best to the ideal.

The Negro Obese and Culture

Before one can discuss the Southern Negro, especially the obese female, one might first epitomize some generalizations about the Southern setting in which she resides. Reissman (1966) best summarizes the retarded social development of the Southerner and the locale in which he lives, despite rapid social changes, as follows:

> "For many decades the American South could be fairly described by the same characteristics used to describe underdeveloped areas anywhere: depressed living standards, a predominantly agricultural economy, widely discrepant social inequalities, traditional mindedness, and a social isolation from outside influence . . . Clearly, the region was not sharing in the affluence or the social gains attained by the rest of the country. Illiteracy rates have been among the highest, median incomes among the lowest, standardized mortality rates among the highest and levels of economic prosperity among the lowest" (p. 101).

One indisputable fact concerning most Negroes in the Deep South is that they are poor. Being poor necessitates eating inexpensive food, and most inexpensive foods are primarily carbohydrates. Hundley (1955) and Stunkard (1955)

indicate that Negro females show a far higher incidence of obesity and mortality due to diabetes than Negro males or whites. As mentioned earlier, Stunkard (1961), has confirmed the relationship between obesity and lower socio-economic class. He postulated that diets, consisting largely of carbohydrates, may be a necessary, but not a sufficient condition for the development of obesity. Claude Brown (1966), in differentiating Negroes from whites, states: "It is not a matter of race. It is a matter of the upper and lower class, those who have and those who haven't got" (p. 14).

Disparate sources reveal that the Negro family is not an integrated unity, but rather a matriarchal unit consisting of a host of legitimate and illegitimate children and grandchildren, taken care of or nursed by, their mothers and grandmothers (Dunmeyer, 1966; Erikson, 1950, 1956). The schism between the younger and older generations; the deleterious influence of a hostile Southern Culture, and the inheritance of a slave identity, have all been advanced to explain the familial disruption of the Southern Negro (Ellison, 1966; Erikson, 1957). Nevertheless, one might postulate that the matriarchal family life of the Negro, provides the Negro female with a more basic and perhaps more positive identity pattern than her male counterpart. In effect, the Negro female is able to establish a more clearly

defined feminine role and identification, which heavily contributes to forming her self- and body-image attitudes. In effect, within this subculture, this cultural milieu could be conceived as being generally favorable to the Negro female. This is still valid, despite the recent rise of Negro male "Black Power" advocates (Life, 1968).

This feminine identification, combined with the poor economic conditions conducive to obesity, could logically produce an obese woman who basically likes herself. Direct substantiation for this hypothesis emerges from the Huenemann, et al., (1966) study just described. Indirect confirmation, stems from the fact that many obese Negro women sent to nutrition clinics, confide to their physicians, that they do not want to lose weight for fear of losing their attractiveness to men.

Based upon these cultural and socio-economic considerations, this author believes that Negro obese women will recognize their bodily dimensional differences than their non-obese Negro peers, yet have a more positive body-image than their white obese counterparts, who share both a negative and unrealistic attitude regarding their bodies (Huenemann, et al., 1966).

Obesity, Age and Culture

Despite a host of studies that utilized obese patients, many of whom were middle-aged, no study of obesity

ever took the age factor into consideration. There is the possibility that being obese and Negro, and obese and middle-aged, can lead to particular, though different, cultural stresses. If this possibility is valid, the relationship of weight and age within a particular subculture, could combine to produce differential responsiveness between females of differing weights and ages.

The condition of aging or "growing older" is not the most lucid of concepts. The meaning of it often shifts from context to context, and is particularly vulnerable to being shaped by implicit value judgments as well as factual considerations. Research and action in this area may be hampered by the lack of an adequate conceptual framework for the aging process (Kastenbaum, 1965). Goldfarb's (1965) arbitrary definition of middle-age is, "From the late thirties to the early sixties." Kastenbaum (1965), who reviewed the few "normal" studies of the middle-aged female, explained that in the middle years, ". . . the female is the forgotten woman in the life cycle. The seeming indifference of the world causes her to turn in on herself in search of an identity." (P. 7.) Rosenfelt (1965) claims that some people who are now aged, seem to have accepted a rather negative self-image. He attributes its cause to the rapid and major technological and social changes during and after World War II. The orientation toward the future, the

interest in the younger generation, the cult and myths of youth which are now stronger, are all factors which may contribute to the isolation and low prestige of the middle-aged. In addition, the advent of chic fashions, more leisure time, and the growing business of beauty and health salons have created youthful "old" people.

In response to the contention that middle-age can be a time of emotional stagnation or a period where emotional growth can occur, one investigator believes that middle age is a time of crises very much like the crises in adolescence (Lowenthal, 1968). However, the components of this crisis are very different. It seems to be triggered by the realization that there is not much time left. With the clock running out, one has to decide whether to keep moving outward or turn inward--a sort of death in life. The cultural message emanating from the external milieu is also confusing. On the one hand, it urges people to stay young and think youthful thoughts and to keep moving. However, an opposing message is that the middle-ager is out of it, part of an older generation that has to keep to the sidelines and watch the world go by.

In response to moving outward, because of the middle-agers concern with stagnation, growing old and obese, a stigma develops. As a consequence, many obese women flock to self-help groups, such as "Weight Watchers," where the

promise is made that they will become non-obese and younger and healthier looking. Another promise of help by a soft drink firm, is to imbibe their product and "think young." Rosow (1962) theorizes that there is an "obese mystique" of the middle-aged female, much like that of Friedan's (1964) "Feminine Mystique." In the "Feminine Mystique," the acceptance of so limited and limiting a view, ends by not only limiting its holders to the full range of possibilities available to them, but also by so deforming them, in conformity to its warped image, that they become restricted as the mystique would have them.

The cultural confusion, added to the burdens of the negative and bewildering self-image of the obese middle-ager, creates a unique set of problems. Therefore, a normative study to assess the body-image attitudes of an older obese group, in comparison with their non-obese peers should prove informative. Another comparison of interest would be between the older and younger obese and non-obese females.

Body-Image or Body-Percept

Traub (1964) notes that both neurology and psychoanalysis have contributed to the impetus for studying body-image, which is one of the most important perceptions an individual has. The relationship between obesity and body-image would not be complete without a brief historical review of the major investigations into the body-percept or body-concept.

Head (1926) was the first to describe and develop the basic concept of the body-schema or body-image, as well as the first to interpret its significance for the perception of bodily functioning. He related perception to motility, localization to tactile stimuli, and phantom phenomena. Head proposed the concept of "Postural Model" to explain the body-schema unity, which is derived from past experiences and current sensations organized in the sensory cortex.

Schilder (1950) extended Head's concept of "Postural Model" by including, not only an individual's psychological investment in his body and its parts, but also a sociological meaning for both the individual and society. He defined the body-image in its most literal sense: "Body-image is the picture of our own body which we form in our minds, that is to say, the way in which the body appears to ourselves" (p. 106). Schilder maintains that the body-image is a tri-dimensional unity involving interpersonal, environmental, and temporal factors, as well as past experience.

Schilder's definition of body-image implies a multiply determined, condensed representation of the individual's current and past experiences of his own body. It has both conscious and unconscious aspects to it. Such a definition is too vague to be tested experimentally. If one questions whether body-image is fairly stable or transient, Schilder's definition, which is largely used by present-day

investigators, can handle either result equally well. In what might be termed initial body-image research, Perrin (1921) conducted a study of physical attractiveness and repulsiveness on a group of college students.

Traub and Orbach (1964) contend that the definition of body-image should be more rigorous. They state:

> "At this state of conceptual development, a deliberate attempt should be made to be rigorous at the expense of breadth of conception. . . . Our definition of body-image is, namely, the picture that the person has of his physical body" (p. 57).

This investigator heartily concurs with Traub and Orbach's definition. To paraphrase them, one might define physically appearing images as non-conceptual, but this definition of body-image is somewhat vitiated if the concept, the percept, and affect attached to the percept, are eliminated.

Schonfeld (1963, 1964) emphasized that body-image has psychological, sociological and cultural ramifications which are clearly seen in the varied experimental approaches to the problem. One such approach has been to utilize perceptual tasks, thereby hoping to isolate personality variables. Thus, Werner and Wapner (1962) stress the developmental approach. Witkin (1962, 1965) defines two separate body-images among his field-dependent and field-independent personality types.

Fisher and Cleveland (1958) and their associates have been instrumental in turning our attention to the role of

body-image in psychosomatic symptom formation (Fisher, 1963; Fisher and Fisher, 1964). These authors have utilized a group administration of the Rorschach and have devised a unique scoring system. Applying this technique to various psychosomatic groups, they found differences in the way that these groups perceive their bodies (Fisher and Abercrombie, 1958). "This body perception is intrinsically related to personality traits, selected according to our formal classification system, which separate, according to response, into two disparate groupings" (Fisher and Cleveland, 1956). The two different scoring systems are the "Boundary" and "Penetration" groups. Each group has a separate body-image score. The Boundary group visualizes their body boundaries as thick, impermeable, defensive barriers, whereas the Penetration group visualizes their boundaries as thin and permeable. These two body-image indices were shown to be scorable, reliable, and valid, in terms of a series of criteria. An example of a barrier response is "Wrapped-up Mummy," a penetration response is, "Bullet penetrating flesh." The authors have shown that certain psychosomatic groups, such as ulcer patients and dermatological patients are high-barrier and low-barrier type personalities, respectively.

As Fisher and Cleveland have not reported utilizing their technique with an obese group, it might be interesting to speculate whether the obese would fall into the low or

high barrier group. For example, if one assigns obesity to the realm of an oral problem, the obese could then be predicted to fall into a low-barrier group. On the other hand, if one concentrated on the outward manifestation of obesity, the body wall, high-barrier responses would be preponderant. Maher (1966), a colleague of the writer, is now in the process of validating the criteria of Fisher and Cleveland on our obese subjects, and his results should cast light on this phenomenon.

Techniques utilized by various investigators to study the body-image have been: cortical injury (Head, 1926); the use of LSD and other hallucinogenic drugs (Savage, 1955); objective questionnaires (Schilder, 1950; Secord and Jourard, 1953); the use of photographs (Cornelison and Arsenian, 1960); and closed-circuit television (Neilsen, 1964). Subject populations have been college and nursing students (Johnson, 1956); various psychosomatic groupings (Fisher and Cleveland, 1958); normal children and adolescent groups with assorted neurotic problems (Schonfeld, 1964); brain damaged children (Bender and Silver, 1966; Orbach, et al., 1966); adolescent groups (Schonfeld, 1964); schizophrenics (Reitman and Cleveland, 1964); and neurotic patients (Traub et al., 1964).

Body-Image and Body-Cathexis

Another measure of body-image is the body-cathexis

scale (Jourard and Secord, 1955, 1955b). Secord and Jourard (1953) and their associates initially asked the question, "Can feelings about the body be quantified?" These same authors devised a Body-Cathexis (B-C) scale to measure the attitudes a person has toward his body. By Body-Cathexis, Jourard and Secord (1953) meant, "The degree of bodily satisfaction or dissatisfaction a person has toward his various bodily parts and/or bodily processes (p. 231). The authors quickly clarify that their term "Cathexis" is quite different from the usual psychoanalytical one, which would refer to the amount of instinctual energy invested in one's body as an object (Jourard and Secord, 1954).

While acknowledging the limitations inherent in all inventories and questionnaires, the above authors feel that their scale has the merits of relative simplicity and is of proven value in their previous research. They have also demonstrated the B-C scale's internal consistency (Johnson, 1956, Jourard and Remy, 1955). Validational attempts on the Body-Cathexis Scale have been quite good, with high correlations between the B-C and security, B-C and self-esteem, and B-C and bodily anxiety (Jourard, 1957).

Since our study is solely concerned with females, the following results are derived from Secord and Jourard's work with female subjects. Jourard and Secord (1955) report that females have a "consensual ideal as to what their bodily

dimensions should be" (p. 132). This ideal is used by females to make judgments about their actual body size, with detrimental results. Specifically, most of the females they studied want their bodily sizes to be smaller with the exception of breast size, which they want to be larger (Calden, et al., 1959; Jourard and Secord, 1955). The authors also report a positive correlation between size of body parts and body-cathexis for those parts. In general, deviancy in bodily size is correlated with negative body-cathexis (Jourard, 1957; Jourard and Secord, 1955). Wylie (1961) substantiates this statement when she states, "A person's body characteristics which are lowly valued by subjects might be expected to undermine his self-esteem, and conversely, highly-valued body characteristics enhance it" (p. 113).

Secord and Jourard have never applied their Body-Cathexis scale to females isolated by weight and race. However, the responses their white subjects made, closely conform to the responses of the white subjects in Huenemann's et al., (1966) study of adolescent whites and Negroes. One might predict that the responses of the Negro subjects in this study would conform to the responses of the adolescent Negroes in Huenemann's study. They differ considerably from the white subjects' responses in her study. As regards the white obese group in this study, we would suspect that

they would have highly negative body-images due to their deviancy in bodily size.

Experimentation in Body-Image

Discounting the work of such investigators as Fisher and Cleveland and Jourard and Secord, Orbach, et al., (1966) make the trenchant statement, "Hardly any normative data exists which clarifies the incidence of body-image disturbances in patient as well as in normal groups" (p. 56). However, there are a number of recent or ongoing research projects which are attempting to remedy this situation (Ekman, 1965; Goertzel, May and Salkin, 1965; Neilsen, 1964; and Orbach, et al., 1965). These reported studies attempted to help various groups of people differentiate between their bodily sensations or to differentiate between their bodily sensations and the environment. The studies also attempted to establish group norms and to explore possible differences between several groups. Our study is among the latter in that we are seeking normative data for our subjects, while studying the relationship of several important variables such as age, race, weight, and the effect of self-confrontation. The above variables might produce changes in body-image attitudes.

Self-Confrontation and Body-Image

Carrere (1958); Cornelison, et al., (1961); Dickinson and Ray (1965) and Ward and Bendak (1964) discovered that snapping the pictures of chronically hospitalized psychotic women patients and later showing their pictures to them, produced both startling and beneficial changes in the appearance and in the behavior of these patients. In studies of alcoholics (Carrere, 1958), and with the above-mentioned psychiatric patients, the effects were quite sobering. Following the pioneer study, a host of varied experimental and exploratory studies were conducted, to study the effect of self-confrontation upon body-image phenomena. The primary focus of these studies were to devise new techniques for measuring the body-image, and to gather normative data for various groupings of subjects.

Schonfeld (1964) had children and adolescents describe themselves in front of a mirror in various stages of undress in order to gather statements about their body-images. He also had nude children draw a life-sized portrait of themselves on a large sheet of wrapping paper tacked to a wall (Schonfeld, 1965). In this manner, Schonfeld was able to gather body-image data, and concomitantly use a post-examination discussion period with his subjects, as a device to initiate therapy.

Another interesting device utilized at the University

of Chicago Medical School is the "Distorted Mirror" technique (Traub, et al., 1964 and Orbach, et al., 1966). The authors asked normal and psychotic patients to adjust various knobs arranged along the sides of a specially constructed mirror, so that the projected image of the mirror was similar to their perceived body-image. Each subjective adjustment could then be quantified, and as a consequence, normative data was gathered for each individual and for each group. However, in a later study, Orbach, et al., (1966) discovered that their subjects had more than one body-image; which lead the authors to conclude that considerably more empirical work in methodology and in technique was necessary, in order to ascertain something definitive concerning the body-image.

Ekman (1964) utilized motion pictures, camera stills, and tape-recordings in an effort to relate various bodily postures with voice and emotional facial expressions, as judged by independent raters. Finally, Goertzel and his associates (1965) attempted to aid chronic schizophrenics relearn various bodily postures and sensations by a process of imitation (emulating the experimenter), as judges rated the amount of learning from behind a one-way screen.

In reviewing recent body-image literature, one can not help but be impressed with the experimental ingenuity displayed by these above-mentioned investigators in their

exploration of such a difficult and recalcitrant area. One possible criticism of several of these studies was, that all subjects were required to "pose" in front of mirrors, cameras, etc. This artificiality of posing could result in one's showing only limited aspects of oneself; hence, the resultant data may be somewhat artificial. One way of avoiding this difficulty is to take pictures of subjects at times when they are not aware of being photographed. In this manner, some of the naturalness of their movements as they walk, talk and move can be maintained. Video-tape and closed-circuit television appear to be an ideal method to attain such ends.

Closed-Circuit Television and Self-Confrontation

The use of closed-circuit television has certain unique advantages over other techniques previously utilized or mentioned. First, the process gives a person a unique opportunity to see himself as others might see him, or as he might see others. Second, video-tape makes it possible to almost immediately confront a person with his own appearance and behavior, and does not have to rely upon the more fallible method of personal recollection, which is subject to distortion.

In the Department of Psychiatry at the University of Mississippi Medical School in Jackson, Mississippi, the use of self-confrontation via closed-circuit television has

consistently been utilized as a didactic tool for professional personnel to learn about patients and about psychotherapy. It has also been used as a means of affecting behavioral change of patients in psychotherapy (Moore, Chernell and West, 1964). Baugh and Pascal (1964) have utilized it with student nurses to ascertain certain developmental data in conjunction with interview techniques. Miller (1962) has utilized the technique with psychiatric patients.

Walz and Johnston (1963) used audio-visual feedback to improve counselor abilities on video-tape. Carrere (1958) is reported to have successfully utilized the self-confrontation method via closed-circuit television to treat alcoholics (Neilsen, 1963). Carrere taped alcoholics during the acute phase of delirium tremens and indicated that the patients' "resistance to reality" tended to more readily break down under this method, as compared to more orthodox methods of treating alcoholics. Alger and Hogan (1966, 1967) have aptly demonstrated the use of closed-circuit television confrontation in group and conjoint marital therapy.

Neilsen (1964) used the self-confrontation technique to study the reactions of college students at Harvard. He had a selected group of students appear on camera where they conversed with another person (an experimental stooge),

whose task it was to elicit emotional reactions from the students by making them defend their philosophy of life. The subjects were then shown their pictures with sound, after one week and after eighteen months. They were also asked to retrospectively associate to their behavior and the emotionality they experienced when they had originally been filmed. The results of this procedure were then correlated with other measures of the subject's personality. In Neilsen"s (1964) words:

> "The present study in self-confrontation makes use of the camera phenomena: the involved, intense, sometimes painful self-awareness when a person's picture is presented to him later on. . . . It turned out that self-confrontation was a highly valuable technique for obtaining information about a person's thoughts and feelings. . . . Moreover, the self-confrontation created a unique responsivity in the subject, in regard to their self-image, a willingness to associate with it" (p. 1).

One might wonder how an obese person would react to viewing himself on closed-circuit television. Since the obese are deviant in size, perception of this deviancy, might produce a so-called "realistic shock," thus precipitating a change in body-image attitude. In our experimental procedure, the subject's voice was omitted in order to accentuate the effect, and possibly the affect of being confronted with his physical appearance. The video-tape was almost immediately played back to him, in an attempt to minimize the problems of retrospective distortion and time lag, which can and does occur, when one is tested after such an experience.

Behavioral Measurement and Self-Confrontation

Utilizing operant learning techniques developed by Skinner (1938, 1939), many investigators (Lindsley, 1962; Nathan, 1965, 1966) have turned their attention to the application of free operant conditioning in the analysis of the behavior of human organisms in social interaction. Efforts to explore the reinforcement preferences of humans have met with limited success because of the problems involved in bringing human operant responses under stimulus control (Lindsley, 1956; Nathan, Schneller, Lindsley, 1964). These problems have been eased by choosing appropriate reinforcers (Lindsley, 1956); by systematically varying response cost (Weiner, 1962, 1963); and by using a new, more powerful schedule of reinforcement, conjugate reinforcement, which bring the quantity of reinforcement into a direct functional relationship with the operant response rate (Lindsley, 1956, 1961).

In free operant conditioning, the frequency of a chosen performance is altered by arranging a suitable consequence (reinforcement). Free operant conditioning has the advantage of dealing with emitted or "volitional" behaviors which appears to have no causally-related antecedents and, incidently, are of wide social concern (Lindsley, 1962). The refinement of conjugate reinforcement lies in the fact that the subject's rate of responding directly and immediately controls the intensity of a continually available

stimulus. This technique is highly sensitive to continual fluctuations in the reinforcement value of a wide variety of stimuli. It is particularly useful with "narrative" stimuli which cannot be broken into segments for episodic presentations without a significant loss of reinforcement value (Lindsley, 1956; Nathan, 1966).

Stigall (1966) and Nathan (1966) have employed conjugatively programmed closed-circuit television to examine the communication process. Conjugately programmed closed-circuit television has been used with varying success in supervision of nurses (Nathan, 1964), and in a long-term therapy case (Stigall, 1966).

Specifically this technique has never been applied to an obese population. If a differential responsiveness on the part of our obese subjects exists, it should manifest itself on the Body-Cathexis Scale and in other behavior that can be measured in a direct and rigorous manner. A person responding to a stimulus, the presentation of which is dependent upon the rate of response, also indicates the level of interest or motivation that he has in viewing the stimulus (which in this case is the person's own picture on the television screen). Utilizing this technique upon differentiated weight, age and racial groupings, should provide valuable normative data.

Summary and Hypotheses

Little is presently known about the etiology or treatment of obesity, a major problem in Western culture. Psychological studies of obesity have been vigorously criticized as being either too general or too specific. It is quite probable that obesity is a manifestation of multi-etiological factors. Bruch (1961) and Stunkard (1961) have suggested that the obese person experiences body-image disturbances, but they have been vague as to whether "increased body size" is symbolically positive or negative. Previous psychological studies of obesity have never experimentally controlled age or racial factors, when investigating the problem.

Jourard (1955) contends that females generally share ideal body-images, and that deviation from the ideal is highly correlated with a negative body-image. The more obese a person is, the more deviant he is from the ideal. This deviation should be reflected on Jourard's scale. There is some question as to whether the Negro female will respond in the same manner as her white counterpart. The factor of age may also play an important part in determining the body-image attitude.

A unique opportunity to use self-confrontation in conjunction with closed-circuit television permitted subjects in this experiment to see themselves as others see

them. This self-confrontation technique should create change in one's body-image attitude and could be applied to any pre-determined population. The following hypotheses concerns the relationship between the self-confrontation procedure, closed-circuit television and obesity, when the variables of age and race are controlled.

Hypotheses

1. White obese women will perceive their bodily parts and bodily processes in a more negative fashion than the non-obese white woman.
2. Negro obese women will perceive their bodily parts and bodily processes more negatively than non-obese Negro women.
3. White obese women will perceive their bodily parts and bodily processes more negatively than Negro obese women.
4. Despite initial differences, obese women, regardless of race, will have a more negative body-image attitude than their non-obese counterparts, as a result of self-confrontation via closed-circuit television.
5. Older obese white women will perceive their bodily parts and bodily processes more negatively than their non-obese peers, initially, and after self-confrontation on closed-circuit television.

CHAPTER II

METHODOLOGY

Introduction

Initial interest in the body-image attitudes of the obese individual occurred when an obese woman was referred for evaluation and possible therapy to the psychology clinic at the University of Mississippi Medical School in Jackson. She primarily complained of depression and general unhappiness over her failure to consistently adhere to a long series of diets throughout the years. The patient tended to speak of her overweight, her overeating and the meaning of her overweight appearance to herself and others, in vague, generalized terms. She readily agreed to comply with our clinic requirement that all therapeutic interviews be videotaped on closed-circuit television.

The therapist decided that the initial ten minutes of each session be devoted to reviewing the televised portion of the preceding interview, which was deemed pertinent to some aspects of the patient's verbalization, emotionality and/or general motoric functioning. It was also decided to concentrate upon the patient's physical characteristics, as she tended to be quite vague or unrealistic in her statements concerning the size of various aspects of her body or

bodily appearance. The rationale of the therapist was two-fold: 1) Since the patient was presently on a "diet," viewing herself on television could facilitate her perception of the reduction of certain bodily size dimensions and could successively serve as a reinforcing procedure, as she lost weight. 2) The patient would also have the opportunity to view her body in a more realistic manner. It was felt that in this way her affect about herself would be more readily tempered by reality.

After seeing herself on tape for the first time, the patient, with a somewhat dazed and incredulous facial expression, turned to the therapist and stated, "I knew I was heavy, no, fat! but I never realized or believed that I looked like that!" The patient then began to specifically and concretely describe experiences in her life, where her overweight appearance played a prominent role in her being humiliated and rejected. Two such experiences were when she tried to buy large size dresses, or when she was spurned by a blind date. The patient failed to report for her next appointment and a telephone call revealed that she was no longer interested in therapy, because, "Seeing myself on television has been much too upsetting for me."

During the next few weeks, efforts were made to ascertain whether this particular patient's responses were idiosyncratic. Definitely, her response proved to be, not

a unique one. Four obese volunteers, working in the hospital, responded with similar though less intense feelings, upon being confronted with their appearances on video-tape. The perceptual literature reveals that self-confrontation is a powerful tool in effecting perceptual, attitudinal and behavioral changes. A review of studies of obesity had confirmed what was already suspected, namely, that some obese subjects had negative body-attitudes (Bruch, 1959, Stunkard, 1961). Consequently, an area of research almost intruded itself.

Following these experiences, the writer enlisted the aid of a large group of volunteer student nurses who were to aid in and smoothe out problems of methodology and design. This was necessitated by working with a fairly new and unexplored procedure on a hypothetically and, to an extent, comparatively "sensitive" group of subjects. Most of our volunteers, who were of normal weight enjoyed the experience of appearing on television. Their comments concerning their physical appearance were mainly confined to movements and gesticulations.

Prior to the actual study of obese people, two important difficulties had to be contended with. We encountered evasiveness and outright rejection, when we approached obese people about participating in our research, in the hopes that we both might find something out about the

problem. A health studio refused us access to their clients, stating, "Our customers are too sensitive about being overweight." One dean of students at a local college felt it would be "too traumatic" for her to ask the college obese undergraduates to participate in a study of obesity. A study of the obese literature disclosed that other investigators of obesity have also encountered this problem of the extreme sensitivity of the obese. Consequently, these investigators restricted their investigations to locales such as nutritional clinics on hospitals, where a ready supply of obese subjects are available. It has also been reported that the obese are noted for their extreme reluctance to accurately state their nutritional intake (Nurnburger et al., 1961). Poor cooperation in psychotherapy has also been frequently mentioned (Bruch, 1957). As a consequence of the two above-mentioned factors, it was decided to conceal the fact that we were studying obesity, per se. Instead, at various times we informed subjects that the aim of our study was to explore new uses for closed-circuit television; that we were conducting a survey of attitudes toward the body, and that we were equating vocational choice with other demographic variables.

Our second difficulty was more easily overcome. We were concerned that Negro subjects might be sensitive to the experimental procedure of having sole contact with white experimenters, since the Negroes' college was racially

segregated. In addition, one might conclude that being Negro and being obese would result in additional sensitivity. However, this was not the case. When the dean of the Negro school explained to the students that they had been selected to participate in a research project at random, they appeared to be satisfied and in most cases, were both delighted and excited at the prospect of visiting the University of Mississippi Medical School.

Little experimental work pertaining to the body-image attitudes has been accomplished with obese peoples. Though many studies of the obese are extant, few have considered racial and age factors. For this reason, it was decided to conduct a series of exploratory and normative studies to gather data concerning the body-image attitudes of subjects that were matched for weight, race, and in one case, age. Another manifest purpose was to explore the possibility of attitudinal change in one's body-image, as a function of self-perception (self-confrontation), after seeing oneself on closed-circuit television. There were five studies in all.

Our initial study was conducted upon a normative sample, identical to our later experimental subjects. In this study, the major question was whether our primary measuring instrument, Secord and Jourard's Body-Cathexis Scale was reliable. If reliability could be established,

our next task was to discover if our white and Negro subjects were homogeneous. Did they come from the same population and, could they be used indiscriminately without regard to race? However, if our racial groups are not homogeneous, they would have had to be considered separately. A third interest in this study, was to ascertain if any B-C scale sub-items were significantly related to the total body-image attitude, as represented by total body-cathexis score.

The second study compared groups, matched for race, weight, and age, to discover if they differed in their total body-image attitudes (consisting of total Body-Cathexis Scale items relating to body-parts and bodily-processes). An additional measure for these groups was the weight body-image which consisted of specific sub-items within the body-cathexis scale, that correlated significantly with weight for each racial grouping. These two measures were utilized as comparative criteria in all subsequent studies.

The third study concerned itself with correlating the degree of total and weight body-image attitudes, and change in these attitudes, as a result of self-confrontation on closed-circuit television. The subjects for this experiment were identical with those of the second study. In addition, the difference between what a person estimated that he weighed in comparison to what he actually weighed was compared for all groups of subjects.

The fourth study compared a group of older white women, matched for weight, on B-C scores which had been obtained before and after self-confrontation. Additional behavioral measures were taken during the self-confrontation procedures and, group comparisons were made on those measures. Group differences between stated and actual weights were then compared. Finally, interview material with these subjects were qualitatively presented.

The final study, which controlled age and weight variables on the older white obese and non-obese subjects from study 4, were compared with the younger white obese and non-obese subjects from study 3, before and after self-confrontation.

The rationale for solely using female subjects, many of whom were college students, is based upon the following reasons: 1) The results of many previous B-C studies indicated a differential responsiveness to the scale by women, than by men, e.g., females cathect their bodies more highly than males (Secord and Jourard, 1955); 2) Many previous studies of obesity have utilized a preponderance of females as subjects, patients, etc. It is suspected that availability during daytime hours, played a significant role in subject selection for these studies.

Procedure

For purposes of clarity each of the five experiments,

which make up the body of this study, will be described separately. The same method of presentation will be followed in the Results section, to allow direct comparison of the criteria between the groups of subjects for the controlled variables.

Experiment I

The Body-Cathexis (B-C) Scale was administered to a group of white and Negro subjects selected at random, and drawn from the same pool from which our experimental subjects had been drawn, in an effort to discover if the B-C scale was a reliable instrument. Total B-C scores were compared for each racial grouping to test for population homogeneity. In addition to the total B-C scale score, subject responses for each B-C scale sub-item were intercorrelated with the total B-C scale score and per cent of overweight for each racial grouping.

Subjects

Subjects consisted of 145 white female college and school of nursing undergraduates, and 52 Negro female college undergraduates from local, state and privately supported educational institutions in or near Jackson, Mississippi. The average mean age of the volunteer white and Negro subjects were 20.1 and 20.7 years respectively. The ages of the subjects ranged from 17-25 years. The

heights and weights of all subjects were randomly distributed.

Many investigators have argued whether Negro and white subjects are comparable. Due to the practical impossibility of matching the subjects by race, the subjects in this experiment were matched according to educational level, age, height, and sex. No attempt was made to equate subjects for socio-economic status. Dreger (1960) notes that comparable incomes between racial groupings, does not avoid the subtle caste differences that exist. On this basis, the groups were as comparable as the circumstances would allow.

Criteria of Obesity

The stated weights of the normative subjects were compared to an actuarial chart of average weights, when age, height, and sex were equated (Metropolitan Life, 1951). With the experimental group of subjects, the comparison was between their measured weight and the chart weight. A subject was considered obese if she was 20 or more pounds above the chart standard, for her age, sex and height. A subject was considered non-obese, if she did not deviate more than 10 pounds above or below the chart standard.

Body-Cathexis Scale

A total score, derived from summing a subject's

rating of all of the items on the B-C scale, is a measure of the degree of bodily satisfaction/dissatisfaction that she has toward her bodily parts and/or bodily processes. In effect, it is a measure of her body-image (Secord and Jourard, 1953). In the authors' words:

> "The B-C scale contains 40 items believed to represent a sampling of the various conceptual aspects of the body. In general, each item is rated according to the following five-point scale: 1) have strong positive feelings, 2) have moderate positive feelings, 3) have no feelings one way or the other, 4) have moderate negative feelings and 5) have strong negative feelings. Thus, if a person were highly dissatisfied with his height, he would encircle a 5. The higher the score, the more negative the body-image (p. 311)."
>
> The B-C scale instructions were given orally by E as S read them.
>
> "On the following page is listed a number of things characteristic of yourself or related to you. Consider each item listed and encircle the number after each item which best represents your feeling, according to the following scale. Please read the scale directions. So that you will be able to judge each item carefully in terms of the five statements, the scale is included in abbreviated form, on top of the page which contains the items. Please feel free to refer back to the page that contains the scoring as often as is necessary, in order to accurately judge how you feel about the item (Secord and Jourard, p. 311)."
>
> The only modification made to the scale was inclusion of a face sheet which asked for some demographic data, such as height, weight, etc.

Procedure

E went to the various educational institutions involved and conferred with the individual deans within each college. If and when permission was granted to use their

students, an appointment was arranged with the various class instructors. The instructors introduced E to their students, explaining the research nature of the study and generally encouraging the students to participate. No student refused to participate. Only the instructors knew that the B-C scale was to be administered twice, within a time period of one week, in order to control for the practice effect. Those subjects, who were absent for either of the two administrations of the B-C scale were deleted from the study. E explained that he was checking the reliability of the B-C scale as the reason for the subjects retaking the test a second time. The rationale presented was as follows:

> "I want to thank you for your wonderful cooperation last week. This week I have another task for you. I would like you to retake the same scale again. Not only do we want to know what attitudes people have toward their bodies, but we need to know if the scale itself is an accurate instrument to measure the way that people feel. In order to find out if this scale is reliable, you need to retake the scale." (At this point, the standard instructions were read.)

Experiment II

This study was primarily undertaken to ascertain if white and Negro obese and non-obese subjects displayed differential body-image attitudes.

Subject Selection

Student health records were alphabetically perused within each educational institution to obtain the necessary

information to estimate obesity. These data included sex, age, height, and weight. Those subjects who met the criterion of obesity were listed and matched as closely as possible to an alphabetically drawn group of non-obese subjects. The list of subjects was submitted to the individual college deans, who arranged for those subjects currently enrolled, to appear at a certain time, so that the experimenter could meet and talk with them about the possible participation in the research project. Of the 106 subjects who agreed to participate, only five failed to complete the experiment. Four of these subjects had to leave the school in mid-semester on a course assignment, and it was assumed that they would have participated had they been able to. The loss of these five subjects resulted in the groups being uneven in number and, in a downward skew of the age range of the Negro non-obese group.

Subjects

Subjects were a selected group of white and Negro obese and non-obese undergraduate college and nursing school students attending institutions in and around Jackson, Mississippi. Total N for the white obese (WO) was 31, and the white non-obese (WNO) group, 32. The total N for the Negro obese (NO) and non-obese (NNO) groups, was 21 and 17 respectively. The mean ages for the WO and WNO subjects

were 19.4 and 19.1 years; the mean ages for the NO and the NNO were 19.8 and 18.5 years. A listing of the means and age ranges for the four experimental groups is found in Appendix A.

Procedure

All subjects in this study were administered the B-C scale in the usual manner. The criteria, namely the total B-C scale scores and weight B-C scale scores, were derived for each experimental group and comparisons were made between the groups.[1] Hereafter, these two measures would be applied to the experimental groups in the following studies. Table 3 lists all the significant sub-items, from which the weight B-C scale score was derived for each racial grouping.

Study 3

This study was concerned with change in body-image attitudes, as a result of self-confrontation via closed-circuit television, for the white and Negro obese and non-obese subjects. Comparisons were made for total and sub-total (weight) B-C scale scores for all groups, on a

---

[1]Eight sub-items within the B-C scale, believed to be related to, or manifested by weight, were compiled into a separate measure of body-image, hereafter called the sub-total score (Weight body-image). This WBI will be applied to all our experimental groups in all the subsequent studies, before and after the confrontation. With one exception, all the sub-items were rated negatively by the subjects in Study 1, who stated they were overweight.

test-retest basis. An additional comparison was made between stated and measured weight for all groups of subjects.

At the time the subjects were administered the B-C scale, this investigator also informed them that they would be required to come to the Psychology Research Division at the University of Mississippi Medical School in Jackson, for additional study. They were also informed that transportation would be provided; that they would have an opportunity to view the research facilities; and, since closed-circuit television was available, everyone would have an opportunity to see themselves on television.

Procedure

The experimental design required subjects to be concomitantly interviewed and videotaped for a five minute period. Subjects spent the next five minutes reviewing the film. They were then ushered into another room and re-administered the B-C scale. Finally, a few minutes were then spent by this investigator in debriefing subjects in the event that they might have become anxious due to the experimental procedure.

When a subject appeared for her appointment, the receptionist ushered her into a waiting room. Within a few minutes, a female E entered, introduced herself, and showed S into the television room (subjects did not know that this was a television room, as all cameras and microphones had

been carefully concealed). At the door, E asked S to enter and take a seat. As soon as S entered, the five-minute filming period began. The experimenter waited for a 30 second period, entered the television room and asked S to stand, so that her height and weight measurements could be taken (thus allowing the camera to focus on all angles or dimensions of S). The subject was then seated and the experimenter sat in one corner of the room, out of camera range. For the next few minutes, E asked S a few innocuous demographic questions. At the end of the filming sequence, E informed S:

> "Do you remember last week that Mr. Katz informed you that you would have the opportunity to see yourself on television? . . . pause . . . Well, for the past few minutes you have been on television. We did not inform you of it because we were attempting to capture you on film, in as natural a way as possible. You are now going to have the opportunity to see yourself on the television screen in front of you. There will be no sound, as we want you to concentrate upon how you look instead of focusing upon the verbal content of the interview. When the film ends, please come out into the hallway. You will be met by Mr. Katz, who will chat with you for a few minutes. I'll be leaving you now."

After the subject saw herself on television and came out into the hallway, she was met by the investigator and shown into another room where she was given the B-C scale with the usual instructions. When the subject had finished the B-C scale, the investigator talked with her for a minute or two about her "television experience." During the debriefing session, E said:

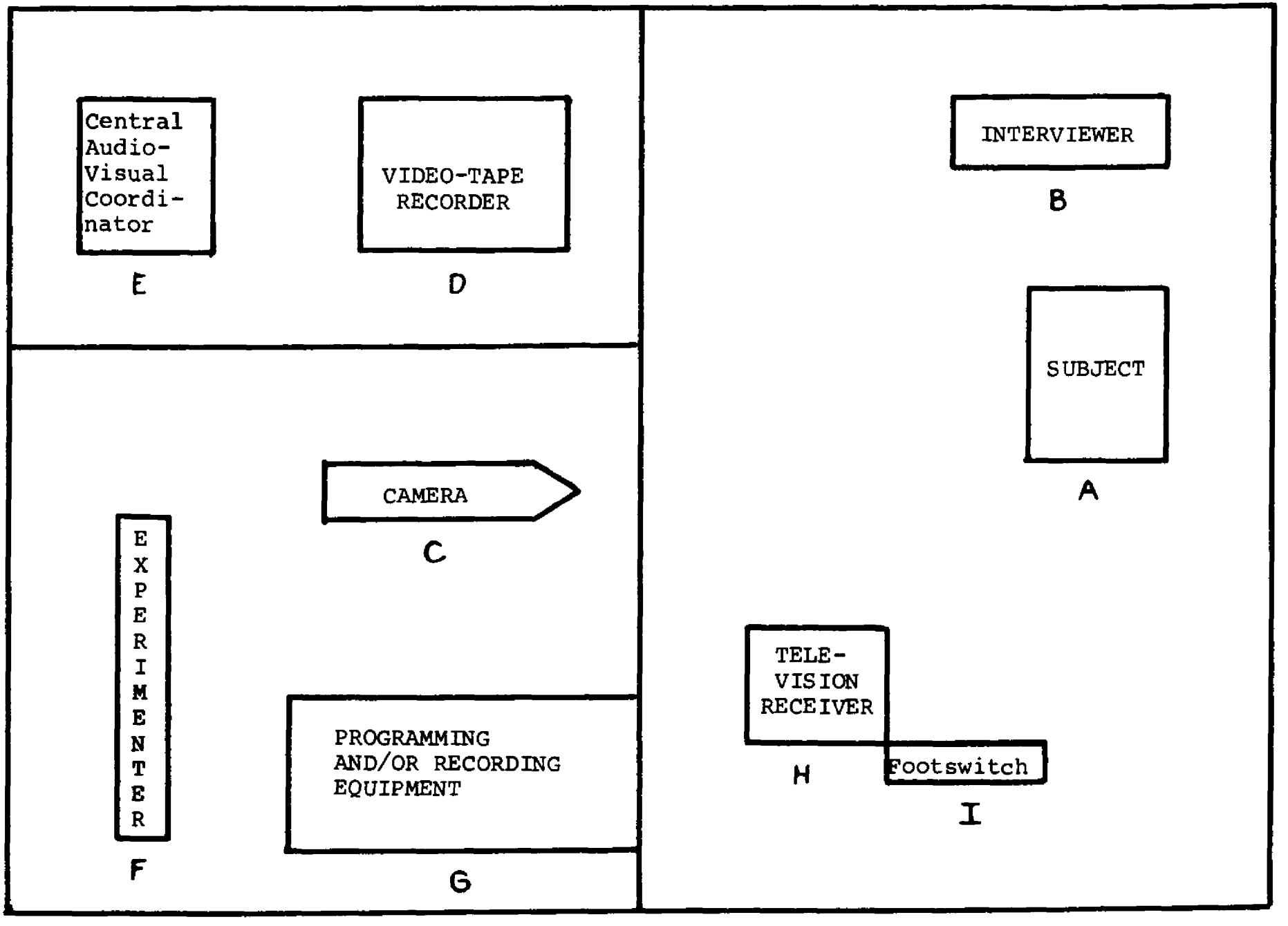
> "We are also interested in ascertaining peoples' reactions to television. The experiment is over. Tell me, Miss (Mrs.) ____, how did you feel about being on television? . . . pause . . . (S responds) . . . were there any other feelings you had? . . . pause . . . (S responds). Well, as you were watching the tape, it was automatically being erased; therefore, no other person saw you on tape. Of course, you know all our information about people is highly confidential. I would appreciate your cooperation if you would not mention that you were on television, for at least a week, so as not to deprive others of the opportunity to see themselves in as natural a way as possible. Thank you for coming . . ."

Apparatus

Figure 1 presents a schematic diagram of the apparatus. The equipment included a waiting room, a testing room, and a television room, in addition to two small rooms adjoining the television room. These small rooms each contained a television camera and a cameraman. These cameramen were in constant communication with each other and with a technician in the main control room. The monitor in the main control room enabled the technician to decide which camera shots were best. When the tape was completed, he rewound it so that it could be seen by S almost immediately. The closed-circuit television room contained comfortable furniture and was well decorated, so that the two camera portholes and microphones were carefully concealed. The room also contained a weighing scale, a tape measure tacked to a wall, and a television receiver mounted on a wall, facing the area where all the subjects sat.

Fig. 1. Simplified Block Diagram of the Interview Paradigm of the Experimental Video-Confrontation Situation.

The Subject (A) at lower right is interviewed by the interviewer (B), while being televised by camera (C). Videotape recorder (D) records the image of the subject. The central audio-visual coordinator (E) at the upper left, monitors the session and makes any necessary adjustments of the television cameras. The experimenter (F), lower right, makes any necessary adjustments of the programming or recording equipment (G). After the taping period, the subject reviews the visual portion of the previous session on the television screen (H). In the study of the older white obese and non-obese subjects, they operated a footswitch (I) in order to see their physical appearance upon the television screen.


Central Audio-Visual Coordi-nator
E
VIDEO-TAPE RECORDER
D
INTERVIEWER
B
SUBJECT
A
CAMERA
C
EXPERIMENTER
F
PROGRAMMING AND/OR RECORDING EQUIPMENT
G
TELE-VISION RECEIVER
H
Footswitch
I

Study 4

This study focused upon the relationship between obesity and body-image in an older female group. An initial analysis compared the body-image and weight-image attitudes held by each group, and the possible change in this attitude after self-confrontation on closed-circuit television. In addition, two behavioral measures, indicating subject interest in seeing herself, were taken and compared during the self-confrontation sequence. The last question asked in this study was, "How accurate were each of these groups in estimating their weight?"

Selection of Subjects

The selection of subjects was identical to the procedure utilized in study two, with the exception that the locale was a hospital instead of a college.

Subjects

Subjects were 30 obese and non-obese volunteer nurses working at the University Hospital in Jackson, Mississippi. The subjects were informed that the research procedure included the use of closed-circuit television. They were also informed that they would have an opportunity to see themselves on television. The mean age for the obese and non-obese subject groups was 43 years. The age range for these groups was from 35-55. Appendix A lists the

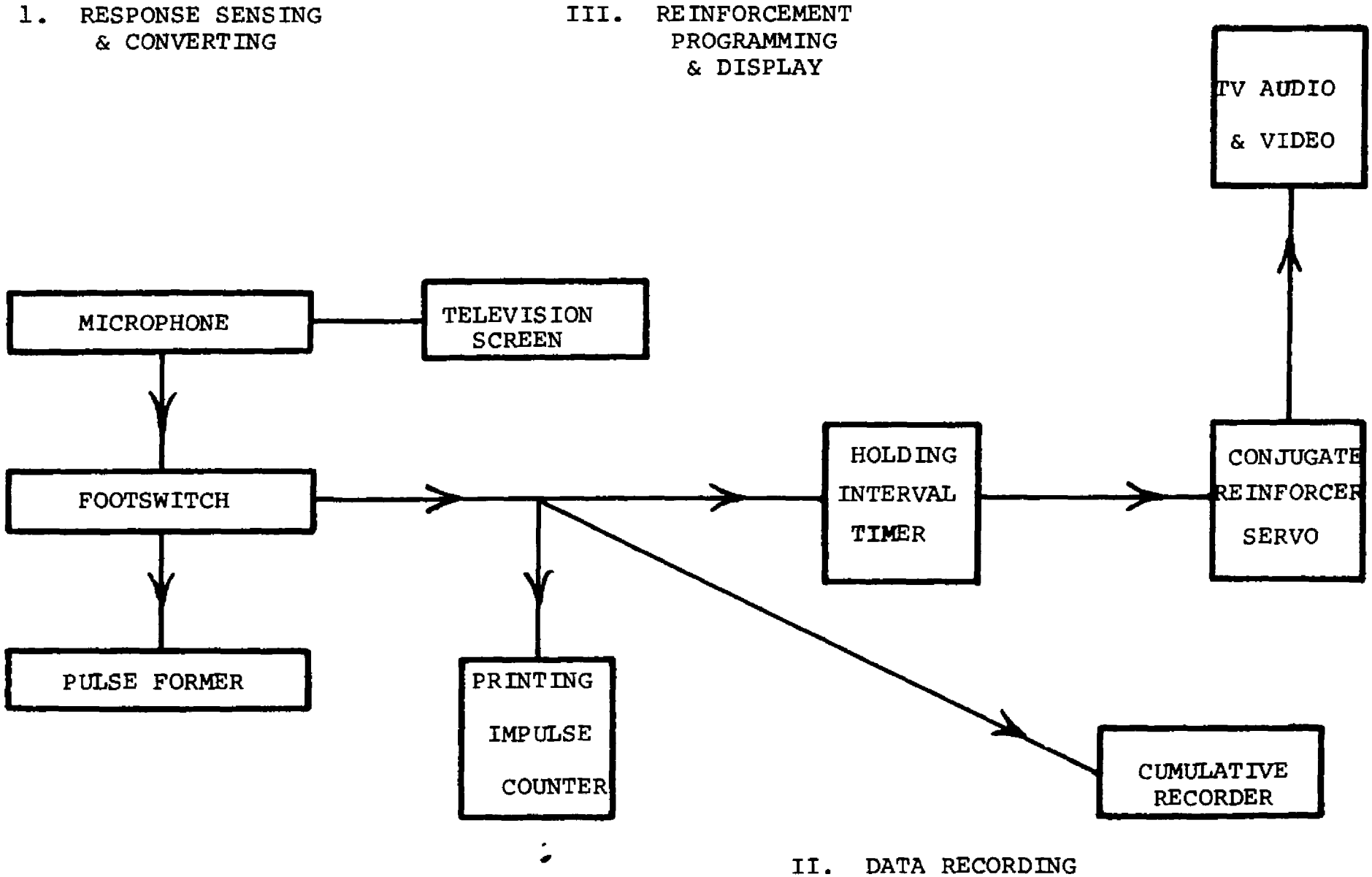
weights and heights of all subjects within each group.

Apparatus

The television facilities were identical with the facilities utilized and outlined in study 3, with two additions; a foot-pedal, which was situated on the floor in front of where the subject sat, and a cumulative recorder, which was situated in an adjoining room. While the subject was seated, she was able to press the foot-pedal without apparent difficulty. A three-minute trial period enabled each S to comfortably operate the footswitch in order to see the screen. Visual communication was made possible by means of a one-way, closed-circuit television system. In order for the subject to continue to see herself on the television screen, she had to operate a footswitch, minimally programmed at some predetermined time by E (80 responses per minute). In the pre-trial period, all Ss were able to maintain the rate. Failure to maintain this operant rate resulted in a progressive, almost instantaneous deterioration of picture quality at the S's television receiver. If S stopped responding altogether, her visual reception faded to black. In order for her to recover visual reception, she once again had to operate the footswitch at the programmed rate. Figure 2 presents a schematic diagram of the apparatus.

By this arrangement, their image on the television

Fig. 2. Simplified block diagram of the conjugate reinforcement circuitry for estimating the motivation of subjects' interest in perceiving their image on the video screen, as measured by their predetermined rate of pedal pressing. Circuit logic is essentially the same as for the preceding interview situation in Figure 1, except for the addition of a footswitch. Video and audio tape recorders are omitted in this diagram, as are certain other supporting components.


1. RESPONSE SENSING & CONVERTING
III. REINFORCEMENT PROGRAMMING & DISPLAY
TV AUDIO & VIDEO
MICROPHONE
TELEVISION SCREEN
FOOTSWITCH
HOLDING INTERVAL TIMER
CONJUGATE REINFORCER SERVO
PULSE FORMER
PRINTING IMPULSE COUNTER
CUMULATIVE RECORDER
II. DATA RECORDING

screen was made a function of S's operant rate. Automatic, continuous, and direct measurement of S's operant behavior was accomplished by means of digital counters and a cumulative recorder, which graphically described S's pattern of responding and numerically tallied and printed out the actual number of responses per minute on the digital counter. Each instance of total loss of reception by S was indicated by a diagonal mark on the cumulative recorder.

Procedure

The subjects utilized in this study initially underwent the same procedure as the subjects in study 3. The modification of the procedure occurred after the taped interview, when E informed them that he wanted to measure their reaction times to pedal pressing for a minute or two. In order that they might not become bored, we had hooked up their footswitch pressing to the television receiver. By pressing the footswitch, they could watch commercial television. However, if they stopped pressing, the picture would fade, but would quickly be returned by continued pressing. The experimenter showed the subject how to operate the footswitch and watched, while the subject practiced until she was capable of operating it. All subjects were given three minutes in which to practice. Upon completion of this time interval, E informed the subjects that they had been taped and enumerated the procedure whereby they

could see themselves on the television screen if they pressed the footswitch. Upon completion of the B-C scale, E asked subjects one additional question, "Were there any particular aspects of yourself that you noticed while watching yourself on television?" The subjects' responses are qualitatively discussed in the results section.

Study 5

The last study sought to explore the relationship between age and obesity. The total body and the weight-image attitudes of younger and older white obese and non-obese subjects were compared before and after self-confrontation.

Subjects

The subjects of this study were the 30 white obese and non-obese women that were utilized in study 3 and the 30 older white obese and non-obese women utilized in study 4. In order to have evenly matched groups of subjects within each category, two white obese and two white non-obese subjects were randomly deleted from the younger group.

CHAPTER III

RESULTS

Two measures of reliability used for testing the B-C scale for the normative group were the split-half and the test-retest correlations. The time period involved for the administration of the two tests was one week. Table 1 indicates that the coefficients of reliability for internal consistency and stability were significant for the normative group. Split-half reliabilities for each administration of the B-C scale were r = .82 and r = .84, respectively. An r = .85 was achieved for the test-retest reliability coefficient. These significant correlations substantiate the results of previous reliability studies (Centers, 1957, Secord & Jourard, 1953).

The B-C scale has also been highly correlated with such factors as security (Jourard, 1953); bodily anxiety (Secord & Jourard, 1953); and feelings toward the self (Jourard & Remy, 1955 and Remy, 1957).

In this study the B-C scale was cross-validated upon groups of subjects categorized by race, weight and age. In addition to the usually selected college populations, the B-C scale had also been validated on nurses and older normal sample groups (Centers, 1957; Johnson, 1958, and Secord & Jourard, 1955).

TABLE 1

SUMMARY OF SPLIT-HALF AND TEST-RETEST CORRELATION COEFFICIENTS OF TOTAL BODY-CATHEXIS SCALE SCORES ADMINISTERED TO A COMBINED NEGRO AND WHITE NORMATIVE GROUP

Body-Cathexis Test	Total		Odd		Even	
	1	2	1	2	1	2
1 Total	.85	.85	.96	.82	.96	.84
2 Total			.82	.96	.82	.97
1 Odd				.82	.83	.76
2 Odd					.75	.88
1 Even						.84
2 Even						

Study 1

The normative sample was racially split into two groups. In order to test for homogeneity between the groups, a t-test of mean differences on the total B-C scale scores was computed for the Negro and white Ss. The t-test indicated that a significant relationship of $t=2.73$ ($p < .01$) existed. This result indicates that Negro and white Ss have different body-image attitudes. Table 2 presents the group means and indicates that Negroes, as a group, have a more positive body-image attitude than the white Ss.

In a separate analysis, every sub-item of the B-C scale within each racial grouping was intercorrelated with the total B-C scale score and per cent overweight. Primary interest in this result was to discover if responses to specific items could be differentiated racially. There was a random distribution of weight within each racial grouping. The first finding indicated that no significant relationship existed between being overweight and producing a negative overall B-C scale score for either racial grouping.

An additional question raised was whether overweight people responded differentially to B-C scale sub-items than did normal weight people. Specifically, attention was turned to eight sub-items selected on an apriori basis. These eight items were theoretically assumed to manifest

TABLE 2

TEST OF SIGNIFICANCE ON DIFFERENCES BETWEEN GROUP MEANS DERIVED FROM TOTAL BODY-CATHEXIS SCALE SCORES, INITIALLY ADMINISTERED TO WHITE AND NEGRO NORMATIVE SUBJECTS

Race	Test	Means	S.D.	D.F.	t
White	B-C 1	101.21	16.20	144	
					2.73**
Negro	B-C 1	79.88	20.84	51	

**Significant at the .01 level.

or be directly related to overweight. The eight items were: rear view, breasts, hips, weight, waist, body build, legs and appetite. Table 3 presents a listing of the correlation coefficients for the eight items for each racial grouping.

The responses of the white normative group indicated all eight sub-items were significant. Seven of the items were negatively rated by the white obese members (the exception being a positive correlation with breasts). In other words, the overweight members were satisfied with their breasts. The responses of the white group generally conformed to the responses of the white subjects in previous studies (Jourard & Secord, 1955; Jourard & Remy, 1957). On the other hand, the Negro group members only rated four weight related sub-items in a significant fashion. The Negro group's only point of agreement with the white group was that they disliked their weight, but were satisfied with their breast size. However, the responses to these two items are the only points of agreement between the Negro and white groups. A surprising result was that obese Negro respondents were also satisfied with their rear view and hips, a response opposite to their white obese counterparts. This result substantiated Huenemann's (1964) study, which related weight and body-image among different racial groupings.

TABLE 3

CORRELATIONAL COEFFICIENTS COMPARING PER CENT OVERWEIGHT AND TOTAL BODY-CATHEXIS SCALE SCORES WITH WEIGHT-RELATED BODY-CATHEXIS SCALE SUB-ITEMS SEPARATELY COMPUTED FOR WHITE AND NEGRO NORMATIVE GROUPS

Reported in r Values			
White Race		Negro Race	
Sub-items	Per cent Overweight	Sub-Item	Per cent Overweight
Rear View	.26**	Rear View	-.21*
Breasts	-.23*	Breasts	-.26*
Hips	.43**	Hips	-.28*
Weight	.50**	Weight	.32**
Appetite	.22*	Appetite	N.S.
Waist	.48**	Waist	N.S.
Body Build	.21*	Body Build	N.S.
Legs	.22*	Legs	N.S.
Total Body-Cathexis Scale Score	.13	Total Body-Cathexis Scale Score	.01 N.S.

Note: A negative sign denotes admission of overweight and liking a particular body part.

*Significant at the .05 level.

**Significant at the .01 level.

N.S. - Non-Significant.

The general finding for this study indicates that Negro and white Ss have different body-cathexis attitudes. The Negroes, as a group, have a more positive body-image attitude. A sub-item analysis reveals no significant inter-correlation with per cent overweight for either racial grouping. However, when these groups were confined to eight pre-selected weight-related items, the white group rated seven of these items negatively, whereas the Negro group only rated one sub-item in a negative fashion.

Study 2

This study sought to explore the body-image attitudes of matched groups of white and Negro obese and non-obese subjects. In this manner, normative data could be obtained and comparisons made when race and weight were controlled. An analysis of variance procedure (ANOV) was used which required equal groups. Therefore, excess Ss were randomly deleted. The two measures of body-image attitude utilized were the total B-C scale score and a weight B-C scale score (composed of the eight weight-related sub-items utilized in study 1).

Table 4 presents a summary of the results of the ANOV for all experimental groups utilizing the two body-image measures. The first significant finding was that obese people, regardless of racial affiliation, tended to

TABLE 4

SUMMARY TABLE OF ANALYSIS OF VARIANCE BETWEEN WHITE AND NEGRO OBESE AND NON-OBESE SUBJECTS FOR TOTAL AND SUB-TOTAL BODY-CATHEXIS SCALE SCORES DURING THE INITIAL ADMINISTRATION OF THE TEST

		TOTAL BODY-CATHEXIS		SUB-TOTAL BODY-CATHEXIS	
Source	d.f.	Mean Square	F	Mean Square	F
Total	67				
Weights (W)	1	7288.00	19.02**	1237.00	35.38**
Races (R)	1	152.00		280.00	8.00**
R x W	1	18.00		2.00	
Error	64	383.09		34.96	

**Significant at the .01 level.

have similar body-image attitudes as seen by their total B-C scale scores ($F = 19.02$, $p < .01$). In effect, obese Ss have a more negative body-image than their non-obese counterparts.

What is valid for the total B-I attitude is also upheld when we compare the obese groups on the weight body-image. Table 4 also indicates that obese groups were overwhelmingly negative toward, or dissatisfied with, those particular weight-related sub-items ($F = 35.38$, p .01). However, when an attempt was made to isolate the weight factor, it was found that significant differences existed between both the Negro obese and Negro non-obese groups, and between the Negro obese and white obese groups ($F = 8.00$, $p < .01$). Table 5 presents the group means for both races on the WBI. The mean differences between the white and Negro obese groups contributed to the significant result. This finding essentially agrees with the finding in study 1 which indicated that the Negro and white obese, despite their divergence in responding with their respective non-obese peers, differ from each other in their conception of the weight body-image.

The results of this study indicated that when weight is controlled, obese people, regardless of race, tend to produce higher scores on the total B-C scale and hence, have a more negative body image. However, another result

TABLE 5

TABLES OF MEANS LISTED FOR WHITE AND NEGRO OBESE AND NON-OBESE SUBJECTS GROUPED ACCORDING TO TOTAL AND SUB-TOTAL BODY-CATHEXIS SCALE SCORES ON THE INITIAL ADMINISTRATION BETWEEN GROUPS

Body-Cathexis Scale		Total		Sub-Total	
Weight Classification		Obese	Non-Obese	Obese	Non-Obese
Race	white	110.4	88.6	29.1	20.2
	Negro	106.4	86.6	24.6	16.5

indicates that there are significant differences between Negro and white obese subjects regarding their WBI, with the obese Negroes viewing those weight-related items in a much more positive fashion. This finding essentially substantiates the findings in study 1 and suggests that these college undergraduates responded similarly to Huenemann's (1964) Negro and white high school adolescents.

Study 3

This study was concerned with change in body-image attitudes as a result of self-confrontation via closed-circuit television for white and Negro obese and non-obese subjects. Comparisons were made for total and sub-total B-C scale scores for each group and between all groups on a test-retest basis. Table 6 presents a summary of the analysis of covariance between all groups for total B-C scale scores. Total N for each cell was 17 with excess Ss omitted on a randomized basis. The rationale for this type of analysis was to detect possible differential changes in the body-image attitudes between the experimental group after confrontation, which had not been accounted for in the initial administration of the B-C test. The results of this analysis indicated no significant difference in the degree of body-image attitude change, as measured by total B-C scale score, as a result of confrontation via closed-circuit television.

TABLE 6

SUMMARY TABLE OF ANALYSIS OF COVARIANCE BETWEEN GROUPS OF OBESE AND NON-OBESE SUBJECTS FOR TOTAL TEST-RETEST BODY-CATHEXIS SCALE SCORES BEFORE AND AFTER THE SELF-CONFRONTATION PERIOD

Source	d.f.	Mean Squares	F
Total	66		
Between Races (R)	1	152.98	1.73
Between Weights (W)	1	169.42	1.91
R x W	1	28.79	
Error	63		

Table 7 lists the various total means of this analysis between all the experimental groups. Worth noting, is the group response pattern, which, while suggestive, is not significant between the groups. The usual response pattern of the groups was that the WO were the most negative, followed by the NO, WNO and the NNO groups, respectively. The only exception to this trend, was the fact that the NNO group mean shifted to a slightly positive direction after they viewed themselves on closed-circuit television.

However, when differential group responsiveness to weight-related sub-items, as a consequence of self-confrontation is examined, the results are quite different. Table 8 presents a summary of another analysis of covariance of weight related sub-items between all groups. The results indicate that obese people, regardless of race, tend to significantly differ in their rating of weight-related sub-items after they have viewed themselves on closed-circuit television. In effect, the obese groups become much more negative toward their weight body-image, as measured by these sub-items, after confrontation. The level of significance between the racially combined weight differentiated groups was statistically significant ($F = 6.79$, $p < .05$). Table 9, which indicates the group means for these sub-item scores, again portrays the same sort of non-significant trend. The most negative group is

TABLE 7

SUMMARY TABLE OF GROUP MEANS DERIVED FROM ANALYSIS OF COVARIANCE TEST COMPARING TOTAL TEST-RETEST BODY-CATHEXIS SCALE SCORES ON WHITE AND NEGRO OBESE AND NON-OBESE BEFORE AND AFTER SELF-CONFRONTATION

Test-Retest Body-Cathexis Scale Score		Mean 1	Mean 2
Weight	Race		
Obese	White	106.4	112.8
	Negro	110.4	107.8
Non-Obese	White	86.6	90.1
	Negro	88.6	83.3

TABLE 8

SUMMARY TABLE OF ANALYSIS OF COVARIANCE BETWEEN GROUPS OF OBESE AND NON-OBESE SUBJECTS FOR SUB-TOTAL TEST-RETEST BODY-CATHEXIS SCALE SCORES BEFORE AND AFTER THE SELF-CONFRONTATION PERIOD

Source	d.f.	Mean Squares	F
Total	66		
Between Races (R)	1	29.00	2.14
Between Weights (W)	1	92.00	6.79*
R x W	1	7.00	
Error	63	13.54	

*Significant at the .05 level.

TABLE 9

SUMMARY OF GROUP MEANS DERIVED THE ANALYSIS OF COVARIANCE TEST COMPARING SUB-TOTAL TEST-RETEST BODY-CATHEXIS SCALE SCORES ON WHITE AND NEGRO OBESE AND NON-OBESE BEFORE AND AFTER SELF-CONFRONTATION

Test-Retest B-C Scale Score		Mean 1	Mean 2
Weight	Race		
Obese	Negro	24.6	26.1
	White	29.1	30.1
Non-Obese	Negro	16.5	15.8
	White	20.2	21.0

the WO followed by the NO and WNO respectively. The NNO group shifts in a slightly positive direction on their weight body-image.

Another entirely different statistical analysis of interest is the ability of obese people, regardless of race, to estimate their actual weight. The literature reports that obese Ss tend to deny aspects of reality related to their overweight or enlarged bodily size (Stunkard, 1956, 1961; Bruch, 1961, 1962). Therefore, an additional comparison was made between the stated and actual measured weights for all groups of Ss, to discover whether obesity was a significant factor in S's ability to accurately estimate their weight. Table 10 is a summary table for the analysis of covariance for group mean differences on test-retest Body-Cathexis scale scores. It was found that there was a significant difference ($F = 12.45$, $p < .01$) between all obese Ss, regardless of race, in their estimation of their actual weight. There was a consistent underestimation of actual weight by obese people within the groups, some by as much as 80 pounds. Table 11 lists the means derived from the above analysis.

The major findings in this study suggest that a significant shift in body-image is made for estimation of weight-related items by all obese subjects, regardless of race, when confronted with their appearance via closed-circuit television. They also tend to underestimate their

TABLE 10

SUMMARY TABLE OF ANALYSIS OF VARIANCE FOR GROUP MEAN DIFFERENCES OF WHITE AND NEGRO OBESE AND NON-OBESE GROUPS BETWEEN THEIR STATED AND MEASURED WEIGHT

Source	d.f.	Mean Square	F
Total	67		
Race (R)	1	4.00	-
Weight (W)	1	498.00	12.45**
R x W	1	-	-
Error	64	39.98	

**Significant at the .01 level.

TABLE 11

SUMMARY TABLE OF GROUP MEAN DIFFERENCES DERIVED FROM THE ANALYSIS OF VARIANCE IN THE COMPARISON BETWEEN STATED AND MEASURED WEIGHT FOR WHITE AND NEGRO OBESE AND NON-OBESE SUBJECTS

Weight	Race	
	Negro	White
Obese	9.2	9.6
Non-Obese	3.7	4.3

actual weight to a significant degree. No major changes in overall body-image attitude as measured on the B-C scale occurred after confrontation.

Study 4

This study was conducted on a group of older white obese (OWO) and non-obese (OWNO) subjects, in order to develop some normative data concerning them. In addition, an effort was made to explore any differential responses in their total or weight-body images, as measured by their responses on the B-C scale. Hence, any conclusion derived from these analyses could be attributed to weight, since age and sex were controlled. These same groups were subjected to the self-confrontative video tape procedure and were asked to accurately estimate their weight. Up to this point, all analytic procedures were similar to those accomplished in previous studies. However, two additional experimental measures of motivation or interest in viewing one's self were applied to this group. These two measures were rate of pedal pressing (Lindzey, 1965) and times picture lost on the television screen (Allyon, 1964).

Table 12, a summary table of ANOV of initial administration of total and sub-total B-C scale scores for OWO and OWNO groups, indicated that no significant differences existed between the groups on the total or overall

TABLE 12

SUMMARY TABLE OF ANALYSIS OF VARIANCE BETWEEN OLDER WHITE OBESE AND NON-OBESE SUBJECTS FOR TOTAL AND SUB-TOTAL BODY-CATHEXIS SCALE SCORES DURING THE INITIAL ADMINISTRATION OF THE TEST

		Body-Cathexis Scale			
		Total		Sub-Total	
Source	d.f.	Mean Square	F	Mean Square	F
Total	29				
Obesity	1	1242.00		800.00	32.37**
Error	28	1340.39		24.71	

**Significant at the .01 level.

body-image. However, a significant difference existed between these groups for the weight body-image ($F = 32.27$, $p < .01$). That is to say, the OWO perceived their appearance in a decidedly more negative fashion than did the OWNO. Table 13, test 1, is a summary table of means derived from the ANOV indicated that the obese as a group, perceived themselves more negatively, as evidenced by their higher mean scores. Table 14, a summary of the analysis of variance between OWO and OWNO groups for total and sub-total B-C scale scores, before and after video self-confrontation, indicated no significant differences, either on the total or the weight body-images. The surprising factor was that the weight body-image between the OWO and OWNO groups that was initially observed, was not carried through after the television confrontation. A perusal of test 2, Table 13, which presents the means derived from the ANOV, suggests that the OWO group mean only climbs slightly, and as a result, does not change its weight-body-image to a significant degree.

However, when the OWO and the OWNO groups were compared in the correct estimation of stated versus measured weight, the conclusion is, that there is a significant difference. Table 15, a test of significance between group mean differences for the groups indicated a $t = 5.93$, $p < .01$. This finding confirmed that the OWO group response

TABLE 13

TABLES OF MEANS LISTED DERIVED FROM THE ANALYSIS OF VARIANCE, BETWEEN OLDER WHITE OBESE AND NON-OBESE SUBJECTS, GROUPED ACCORDING TO TOTAL AND SUB-TOTAL BODY-CATHEXIS SCALE SCORES ON THE INITIAL ADMINISTRATION OF THE TEST

Body-Cathexis Scale		Total		Sub-Total	
Test		1	2	1	2
Weight					
Race	Obese	111.7	116.5	30.7	32.1
White	Non-Obese	98.9	104.6	20.3	26.7

TABLE 14

SUMMARY TABLE OF ANALYSIS OF VARIANCE OF TEST-RETEST TOTAL AND SUB-TOTAL BODY-CATHEXIS SCALE SCORES BETWEEN OLDER WHITE OBESE AND NON-OBESE SUBJECTS BEFORE AND AFTER THE SELF-CONFRONTATION

Body-Cathexis Scale Score		Total	
Source	d.f.	Mean Squares	F
Total	28		
Obesity	1	14.55	--
Error	27	113.39	

Body-Cathexis Scale Score		Sub-Total	
Source			
Total	28		
Obesity	1	25.57	--
Error	27	11.24	

TABLE 15

TABLE PRESENTS TEST OF SIGNIFICANCE BETWEEN GROUP MEAN DIFFERENCES BETWEEN OLDER WHITE OBESE AND NON-OBESE SUBJECTS FOR THEIR STATED AND MEASURED WEIGHT

Weight	d.f.	Means	S.D.	t
Obese	14	13.06	8.15	5.93**
Non-Obese	14	2.66	2.57	

**Significant at the .01 level.

conformed to the responses of the other obese groups in the previous studies. The two additional behavioral measures of interest indicating motivation in the OWO and OWNO groups viewing themselves on closed-circuit television, revealed no significant differences between the groups. Table 16 is a table of tests of significance of group mean differences for rate of pedal pressing and the number of times that the picture was lost during the self-confrontation period.

The only clear and significant differences that emerged in this study, between the OWO and OWNO groups were the facts that the OWO had a significantly more negative weight body-image and underestimated their weight, than their OWNO counterparts. The differential responsiveness between the OWO and OWNO groups did not occur after the self-confrontative television period, as measured by the B-C scale scores or, by the two measures of interest (pedal pressing and number of times picture was lost on the screen).

However, certain observations regarding the behavior of all Ss during the self-confrontation period and their spontaneous responses during the debriefing period, led this investigator to believe that perhaps an uncontrolled variable was present which clouded the issue, had weight been the sole differentiating factor.

TABLE 16

TEST OF SIGNIFICANCE FOR GROUP MEAN DIFFERENCES FOR RATE OF PEDAL PRESSING AND NUMBER OF TIMES PICTURE WAS LOST BETWEEN OLDER WHITE OBESE AND NON-OBESE SUBJECTS DURING THE SELF-CONFRONTATION PERIOD

Task		Pedal Pressing		
Weight	d.f.	Means	S.D.	t
Obese	14	122.8	29.6	--
Non-Obese	14	142.4	43.0	

Task			Number of Times Picture Lose	
Weight	d.f.	Means	S.D.	t
Obese	14	52.4	31.2	--
Non-Obese	14	36.2	21.8	

The surprising fact that the OWO group did not maintain their continued negative weight body-image, plus certain pertinent observations of S's behavior during the confrontation period, combined with statements of practically all Ss during the debriefing period, led to the inescapable conclusion that weight alone was not the sole pertinent variable to be manipulated. Apparently, the important variable of age had been left uncontrolled in dealing with the overall and weight body-images. For example, fully half of each group departed prior to the end of the confrontation period. In all previous experiments, no S had departed prior to the end of the confrontation period. In addition, a like number of the Ss in each group could not maintain the easy rate of pedal pressing, despite their being able to maintain this rate during the pre-experimental trial period. Because of this factor, they were unable to keep their images upon the screen. During the debriefing period, the usual exclamatory responses concerning weight were given by most of the OWO Ss. However, most of the Ss in both groups also mentioned aging just as frequently, e.g., "I left early, because I had seen enough of myself; my hair was gray, and the wrinkles" or, "Being heavy is bad enough, but being old and fat, well, that is just too much."

This led to the hypothesis that age might have

played an important part in affecting the non-significant results for the total and weight body-images for the OWO and OWNO groups. It was then decided to compare the older and younger groups of obese and non-obese white Ss in an effort to systematically control the age factor. This inescapable conclusion resulted in study 5.

Study 5

This last study sought to clarify and explore the relationship between age and weight. Therefore, the body-image attitudes of younger and older white obese and non-obese Ss, as measured by their B-C scale score responses, were compared between these groups before and after confrontation via closed-circuit television.[1]

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[1]A note of caution must be inserted here for two primary reasons. Analyzing data utilized in another context (younger white obese vs. younger Negro obese), may result in statistically inflated results, e.g., a level of significance at the .05 level might be closer to the .10 level. However, since these studies are normative and exploratory in scope, this investigator had no hesitation in performing the necessary comparisons. The second primary factor is the fact that the experimental procedure for the groups utilized in this comparison, was not identical, i.e., older Ss pressed a footswitch to see themselves. It must be added that pressing a footswitch to view oneself, may have precipitated the results of study 4. However, careful questioning of older Ss satisfied us, that there was no inherent difficulty in their being able to physically press the footswitch, as noted in pre-experimental practice sessions.

Table 17 is the summary table for the analysis of variance for group mean differences between the younger and older white obese and non-obese Ss on the initial administration of the B-C scale for the total and weight body-images. The major findings in these analyses for total and weight body-images indicate that when age is statistically controlled, obese subjects are quite similar in their body-image responses. In effect, obese Ss are significantly more negative in their total body-image ($F = 15.40$, $p < .01$), and in their weight body-image ($F = 48.70$, $p < .01$).

However, the analyses of the data of these groups after confrontation is a little more difficult to interpret. Table 18 is a presentation of the summary data of mean differences for the analysis of covariance for all groups on total and sub-total, test-retest, B-C scale scores. Comparisons between the groups after confrontation on total B-C scale scores indicate that the interaction between age combined with weight was significant ($F = 10.11$, $p < .01$). In addition, the main effect of age approaches, but does not reach significance ($F = 3.55$, $p < .10$).

This finding suggests that age plays an important, but non-significant role in changing the overall body-image, as a result of confrontation. However, age does not seem to affect the weight body-image in the least. The

TABLE 17

SUMMARY TABLE OF ANALYSIS OF VARIANCE BETWEEN YOUNGER AND OLDER WHITE OBESE AND NON-OBESE FOR MEAN DIFFERENCES ON TOTAL AND SUB-TOTAL BODY CATHEXIS SCALE SCORES DURING THE INITIAL ADMINISTRATION OF THE TEST

Body-Cathexis Scale Score		Total		Sub-Total	
Source	d.f.	Mean Squares	F	Mean Squares	F
Total	65				
Age (A)	1	633.00		25.00	
Weight (W)	1	4842.00	15.40**	1410.10	48.70**
A x W	1	228.00		15.00	
Error	65	314.34		28.25	

**Significant at the .01 level.

main significant factor in determining the weight body-image for these groups after confrontation, noted in Table 18, is weight ($F = 178.04$, $p < .01$). The finding that age plays an important but non-significant part in changing the overall body-image might perhaps explain why the behavioral measures in study 4 were not able to differentiate between the older obese and non-obese groups.

Tables 19 and 20 present the mean differences derived from the analysis of covariance between younger and older white obese and non-obese Ss, for total and weight body-images, as derived from the B-C scale scores. There is a clear indication that obese Ss, regardless of age, tend to respond in a similar but more negative manner in their total weight body-images before and after confrontation. The trend is also for the older Ss to have a slightly higher mean difference score. In effect, groups tend to achieve a higher mean difference score after self-confrontation.

In summary, it was found that weight played a significant and decisive role, on initial comparisons between older and younger white obese and non-obese Ss, for both the total and weight body-images. The finding, that weight continued to be the important determinant in maintaining a negative weight body-image for the obese Ss, regardless of age, was still valid. Moreover, the important and

TABLE 18

SUMMARY TABLE FOR ANALYSIS OF COVARIANCE OF MEAN DIFFERENCES FOR INITIAL TOTAL AND SUB-TOTAL BODY-CATHEXIS SCALE SCORES BETWEEN YOUNGER AND OLDER WHITE OBESE AND NON-OBESE SUBJECTS BEFORE AND AFTER SELF-CONFRONTATION

Body-Cathexis Scale Score		Total		Sub-Total	
Source	d.f.	Mean Squares	F	Mean Squares	F
Total	68				
Age (A)	1	44.20	3.35	-	-
Weight (W)	1	3.98	-	2070.62	178.04**
A x W	1	133.16	10.11**	1.59	
Error	65	13.77		11.63	

**Significant at the .01 level.

TABLE 19

SUMMARY OF GROUP MEANS DERIVED FROM THE ANALYSIS OF COVARIANCE BETWEEN YOUNGER AND OLDER OBESE AND NON-OBESE SUBJECTS ON TOTAL AND SUB-TOTAL BODY-CATHEXIS SCALE SCORES BEFORE AND AFTER THE SELF-CONFRONTATION PERIOD

Test-Retest Body Cathexis Scale Score		Mean 1	Mean 2
Weight	Age		
Obese	Older	112.9	115.3
	Younger	110.3	113.5
Non-Obese	Older	98.9	104.6
	Younger	88.5	91.4

TABLE 20

SUMMARY OF GROUP MEANS DERIVED FROM THE ANALYSIS OF COVARIANCE BETWEEN YOUNGER AND OLDER OBESE AND NON-OBESE SUBJECTS ON SUB-TOTAL BODY-CATHEXIS SCALE SCORES BEFORE AND AFTER THE SELF-CONFRONTATION PERIOD

Test-Retest Body Cathexis Scale Scores		Mean 1	Mean 2
Weight	Age		
Obese	Older	31.0	31.7
	Younger	28.7	30.2
Non-Obese	Older	20.3	21.3
	Younger	20.0	21.5

confounding determinant indicated that age combined with weight produced an important interactive effect. This interactive influence created a lack of significance in the weight factor for the total body-image after video confrontation.

CHAPTER IV

DISCUSSION

A series of exploratory-type studies were undertaken to gather normative data concerning the relationship between obesity in conjunction with the important variables of race, age, and body-image or body-attitude phenomena. Specifically, the main experimental focus was on the body-image attitudes of obese women and the changes in these attitudes, when these women were confronted with their images upon closed-circuit television screens. Because of the negative cultural attitudes attached to the factors of aging or being a Negro, the theoretic presumption was that these additional factors would be intrinsic in modifying the obese female's body-image attitudes.

Having established in preliminary experimentation, that randomly selected normative groups of white and Negro females have vastly different "total" body-image attitudes (TBI), it was decided to utilize an additional measure which was named the weight B-I. It was comprised of selected body-cathexis scale sub-items, directly reflecting or manifesting the effect of weight. Henceforth, in all subsequent studies, both the TBI and WBI were used, one consisting of a subject's overall view of herself, the other, more directly related to the effects of weight upon specific

bodily parts.

The first hypothesis confirmed that white obese females have significantly more negative TBI and WBI attitudes than their non-obese counterparts. Previous experimental studies have strongly suggested that females shared and adhered to a similar mental picture of what the ideal weight or physical appearance should be, and that such ideals are dictated by the current cultural fashion (Huenemann, et al., 1966; Jourard & Remy, 1955). Deviation from this ideal is highly correlated with having a negative body-image (Calden, et al., 1959). Heretofore, speculation as to the negative body-image of the obese female, was mainly theoretical (Bruch, 1943, 1958), and based upon an inadequate sampling procedure, according to Stunkard (1961). For the first time, it has been indicated through experimentation, that obese white females have consistently more negative body-image attitudes.

The relationship between being overweight and having a negative B-1 attitude is also valid for Negro females of contrasting weights; hence, the second hypothesis which predicted such an outcome, was validated. Negro obese females had a more negative TBI and WBI than their non-obese peers. Apparently, when the effect of weight was isolated from the racial factor, the Negro female's response was similar to the obese white female's response, in comparison

to her own non-obese counterpart. The Negro obese group significantly underestimated their weight, in contrast to their non-obese peers, who guessed their weight more accurately.

Despite evidence to indicate that obese people, regardless of racial affiliation, shared a similar negativistic perception of their overweight bodies, there are strong indications that Negro obese women liked their bodies better than their white obese peers. In effect, while each obese group agreed that they disliked their bodies, as indicated by their overall negative TBI, the Negro obese group had a different and more positive WBI than the white obese group. Therefore, the third hypothesis which stated that the white obese group would perceive their bodies more negatively than the Negro obese group, was fully substantiated. However, in a more general sense, the hypothesis was only partially substantiated because of its vague wording. More important, was the untoward discovery in preliminary experimentation, that more than one body-image existed.

The different responses between Negro and white obese subjects was initially discovered in the normative group while attempting to establish the reliability of the Secord-Jourard Body-Cathexis Scale. As indicated by their positive response to the B-C sub-scale items, Negro females viewed their bodily parts and bodily processes in a much

more favorable light, than did a comparable group of white subjects. The positive body-image of Negro females was exemplified by their responses to the WBI sub-items. The white obese group responded negatively to their B-C body-part items while their Negro counterparts responded positively to the same scale. The only sub-item commonly responded to by both groups, suggested that the Negro females were not satisfied with the size of their breasts and would want to have them larger. This latter result was substantiated in previous studies (Calden, 1959; Jourard and Remy, 1955).

If we can discount the agreement between the white and Negro subjects to the sub-item breasts, seven other weight-related sub-items, negatively responded to by the whites, were responded to positively by some and indifferently by others of the Negro female group. This racially divergent response had been substantiated in only one other previous study (Huenemann, et al., 1966). Her notable B-I study of white and Negro female adolescents indicated that Negroes liked their bodies and/or wanted certain bodily parts to be larger, which was in contrast to their white peers, who wanted their bodily dimensions smaller. Her results seem to be in agreement with Jourard's (1955) concept of a white cultural bodily ideal. This surprising fact indicated that Negro females veered sharply from the

white cultural norm, when weight or physical appearance was involved. The selective incorporation of the cultural ideal was indicated by the fact that the sub-item hair, was almost totally and negatively responded to by the Negro female in the sample group, whereas, the white female was indifferent to that sub-item. This latter finding suggested that Negroes do not completely share the consensual ideal of female bodily dimensions that white subjects do. The racial and cultural background of the Negro female should determine her choice and intensity of response, to certain B-C scale sub-items.

When Negro females of different weights were compared, the obese group always had a more negative body-image attitude. This negative B-I attitude was similar to that of the white obese group, although the Negro obese group never reached the quantitative intensity of their white obese counterparts. In addition, the WBI of the obese Negro was decidedly different and more positive, than the white obese female. On the one hand, cultural differences influenced the obese Negro's perception of her body. On the other hand, being a member of two different overlapping cultures (the Negro subculture as a part of the white culture), could lead to confusion for the obese Negro female. This cultural overlapping could cause a diminution in the intensity of the Negro female's negative response to

the WBI. It could also contribute to a less intense TBI. These responses by the Negro obese female seemed to suggest that, she recognized her overweight condition, wished that she were not, yet still liked herself.

The fourth hypothesis predicted that all obese subjects, regardless of racial affiliation, perceived themselves more negatively after confrontation upon closed-circuit television. As mentioned previously, the advent of more than one body-image attitude, contributed to the partial validation of this hypothesis. Obese Ss confronted by their physical appearances, did not change their TBI which had been initially negative. However, this confrontation drastically affected and intensified their WBI. The WBI of the white obese group became more negative after they perceived the effect of their overweight condition on the television screen. The responses of the Negro obese group went from positive to negative after they perceived their overweight condition on television. The alteration and intensification of responses by the obese groups after confrontation, suggested that self-confrontation was an important technique in changing feelings, perceptions, or cognitions about themselves.

It is suggested that the self-confrontative procedure itself, can enhance, intensify, or change the perceptual and conceptual modes of the Ss who participate in it.

For example, the white obese and non-obese Ss became somewhat more negativistic on their B-I scores after confrontation; the Negro obese group shifted from a positive WBI to a negative one; and the Negro non-obese group experienced a more positive B-I attitude after confrontation. It is quite possible that adherence to the universal ideal of female perfection contributed to the negativity of the white groups responses; the Negro sub-culture contributed to the positive responses of the Negro non-obese group; and, the interactive effect of both considerations lead to the drastic change in the Negro obese group. In this study, intensification or change in the B-I attitude or frame of reference, occurred and was affected by, social and cultural influences. It also partially determined how a person perceived herself. Concomitantly, the effect of self-confrontation itself, also created a change. Therefore, the inescapable conclusion was that interactive effects existed, between one's frame of reference, cultural and social considerations, and the effect of the self-confrontation procedure itself.

A generally consistent trend which was noted for all of the four groups of Ss categorized by weight and race, before and after confrontation, going from negative (high score) to positive (low score) was as follows: (1) white obese Ss had the most negative TBI and WBI prior to confrontation period; a more negative WBI after the

confrontation period; whereas, the TBI remained unchanged. (2) Negro obese Ss, the second most negative group, had a negative TBI, but had a positive WBI prior to the confrontation period. After the confrontation period, the WBI drastically changed from positive to negative, while the TBI remained the same. The important differences between the white and Negro obese groups, never approached statistical significance. (3) The responses of the white non-obese group, the third in line, remained essentially the same. The TBI shifted to a slightly more negative direction, but never approached statistical significance. (4) The Negro non-obese group had the most positive TBI before and after the confrontation period. In fact, their TBI shifted to a more positive direction after the confrontation, though not to a statistically significant degree.

All obese Ss underestimated their actual weights to a significant degree. Subjects were unaware, that they were to be weighed or confronted by their appearance on the video-screen. Therefore, considerable excitement was generated when this result appeared. In effect, some obese Ss underestimated their weight by as much as seventy pounds. It is quite possible that some element of denial, distortion, or concealment was operating within these subjects.

A review of the obese literature revealed that obese people tend to deny or distort most things pertaining

to their overweight condition (Ferster, et al., 1961; Stunkard, 1961). Subjects have been known to deny feelings of hunger, despite physiological verification; or have failed to report their daily nutritional intake accurately. Stunkard (1956) hypothesizes that social disapproval forces the obese person to recognize hunger sensations. Bruch (1957) and others suggest that a mechanism or dynamic of "denial" is present in obese people (Young, 1959, 1960).

Bruch (1962) maintains that the obese suffer from proprioceptive confusion, which necessitates that they need signals from the outside environment as to when they should stop eating, because their own inner awareness has not been correctly programmed. She states that the obese have to re-learn to recognize and identify their bodily needs correctly; to satisfy these needs in ways that are biologically appropriate; and proper within their social and cultural setting. It is important to note that Bruch's patients and this investigator's subjects were not drawn from the same population or similar geographic locations. Bruch's patients, came to obesity clinics or for psychoanalysis, were trying and were eager to lose weight. However, our subjects who attended schools in a rural area, had no such purpose in mind.

The investigator's obese subjects in this study almost totally underestimated their actual weight,

suggesting the possibility that some sort of cognitive mechanism was operating, which was distorting their realistic perception of their weight. For it must be remembered, that these same subjects had already admitted to having a negative body-image, albeit, in a generalized non-specific manner. It might possibly be that the mechanism of "cognitive dissonance" was operating. Festinger (1955) originally coined the term "cognitive dissonance," which maintains that one can hide contradictory feelings, ideas, perceptions, etc., as long as one is not confronted with a contradiction. The obese person's confrontation of her gross bodily appearance leads to greater admissions of her deviancy in gross bodily size via television, and with the realization of her overweight.

Another hypothesis postulated by Bruch, is that the obese tend to distort or perceptually confuse sensations arising within their bodies. Katz (1965) substantiated one aspect of this hypothesis, when he found significant differences in the ability of a matched group of obese and non-obese subjects to taste different foods. In effect, the obese group could not differentiate the tastes of different foods.

Stunkard (1961) maintains that the body-image distortion of the obese, regarding their obesity, is so intense, that it approaches the delusional in some of them.

However, he stresses that this distorted perception is restricted solely to weight, and does not seem to effect the other perceptual modalities. Nevertheless, within the weight modality, the obese become so overwhelmed by their overweight condition, that the entire world is seen in terms of weight. Stunkard's experimental procedure was also extremely confrontative. This is observed by the placing of his subjects in front of mirrors, by taking many physiological measurements, i.e., placing balloons inside the patient, and by directly asking many poignant questions regarding their eating habits.

What is being suggested here, is that there are layers of denial. It is quite possible that the B-C scale, a questionnaire, elicits one kind of response, and that closed-circuit television elicits another kind of response and defensiveness. It is also possible that as one approaches the obese person with questions regarding his obesity, different levels of embarrassment or psychological layers of responses are bared. They could produce different responses within the obese person. For example, self-descriptions of nude obese people in front of a mirror would elicit greater defensiveness than merely asking someone if he were overweight. Other previously mentioned factors were the various motivating forces within the person who was being examined, and the reason for her

participating in the experiment in the first place. It can be recalled that participation by health club members was negligible, when they learned we were studying obesity.

The results of these studies seem to be quite confusing when we attempt to explain the apparently contradictory results in the disparate responsiveness by the obese to two different aspects of their obesity. In one sense, the obese subjects certainly denied their actual weights and some of their negative feelings about their B-I attitudes, as indicated by the increased negativity in the WBI after the confrontation period. However, the fact that these same obese subjects admitted their overweight initially, as seen by their negative TBI and WBI attitudes, militates against the theoretic assumption, that the obese outrightly deny or distort their overweight condition.

This investigator's impression regarding the distortion of the obese is a rather parsimonious one. Obese people are quite aware of the prevailing negative social attitudes toward being fat and would rather avoid facing this condition or fact, to forestall embarrassment, shame, censure, etc. However, when confronted by their obesity, they readily, if somewhat ruefully, admitted it in varying degrees. The above mentioned facts seem to suggest that the level of the obese person's response will be in accordance with the measuring instrument's intensity and the

skillfulness of the experimenter's method of approach.

The fifth hypothesis stated that older white obese females have a more negative body-image attitude than their non-obese, but same-aged peers. In addition, the body-image attitudes of the older white obese female would become even more negative after she was confronted with her appearance upon the video screen. It was also predicted, that the addition of two behavioral measures would further differences between the two groups of subjects. The hypothesis of significant B-I differentiation between the two groups, before and after confrontation, was essentially not validated. Initially, there was only a significant WBI difference between the two groups. The older white obese group also underestimated their weight to a statistically significant degree. The TBI between the groups was not significantly different. After confrontation, a diminution between the two groups nullified the previously significant WBI attitudes. In addition, the two added behavioral measures did not distinguish between the two groups. It had been thought that the reaction time of the older obese group would become longer as their perception of their image upon the screen became painful. Surprisingly, the lack of meaningful results led this investigator to question the inability to find significant differences between the two older groups. In addition, observation of certain behaviors

in the confrontation period, and S's verbal statements during the debriefing period, led this investigator to believe that perhaps an uncontrolled variable was operating. The post-experimental examination revealed that the age factor was crucial, especially in its interactive effect with weight, and, that its absence in the statistical analysis had contaminated the results. Therefore, a statistical analysis of the responses of the younger and older white obese and non-obese Ss, before and after confrontation, was undertaken to explore the relationship between age and weight.

When age was statistically controlled, the older white obese group had significant TBI and WBI attitudes prior to the confrontation. After the confrontation, the WBI still continued to remain negative, whereas, the TBI was non-significant. Up to this point, the responses of the older white obese and non-obese groups were identical with the responses of the other groups. However, an additional significant factor noted, was that the interactive effect of age upon weight combined to produce a negative TBI effect. When isolated, the factor of weight was negligible, whereas the factor of age, while suggestive, was statistically non-significant. However, when the age and weight factors were combined, the results were significant. This result clearly indicated that age was an important

contributing factor for the older group. This latter finding suggested that age, as a cultural variable, operated in much the same fashion as the Negro sub-cultural effect operated on the Negro non-obese subjects. This was clearly evident by the Negro non-obese responses in the previous study. In effect, the two sub-cultural effects of age and racial categories must be considered, in any future studies of obesity, when older or Negro subjects are utilized.

The deleterious effect of age on the older white non-obese group contributed to the lack of results in the last study. For the older white obese group, the age effect, counteracted the negative influence of their being obese. It is suggested that age interacted with weight and the self-confrontation procedure all of which affected the body-images of subjects in this study, as much as the racial factor had in the previous study.

It is interesting to note that a study of the literature of obesity revealed, that there was no study which isolated or categorized subjects by age. This study clearly indicated, that age was an extremely important variable, and will have to be considered in future studies of obesity. Bruch (1957) stated that consideration of the cultural milieu was vitally important when one considers personality, or when one does therapy. This investigator's initial error was to separate older subjects by weight

alone, an error which had contaminated the results in study 4.

Apparently, the concept of a single term of body-image is too simplified. It is now known that there is more than one body-image attitude, and that these body-image attitudes were affected by overlapping racial, cultural and experimental factors. The concept of multiple body-images had already been suggested by Orbach's et al., (1965) and Traub's et al., (1966) studies, in which they discovered that people had several body-images. The concept of several body-images is in accord with the concept of the "obesities" (Bruch, 1957; Young, 1959). Much more extensive experimentation will have to be undertaken, in the fields of body-image and obesity, in order to be more definitive.

It is quite probable that the behavioral measures utilized with the older obese female group did not have fair or adequate tests. Rather, these behavioral measures were utilized in an exploratory fashion to ascertain how they could be used in an experimental paradigm, such as this. There is no reason why, with some modification, they cannot be applied to obese groups to get additional behavioral information. For example, further parameters regarding these measures would have to be applied to other age, weight, sexual and racial populations, in order to ascertain

their operational utility.

The question of body-image in relation to obesity has not been assessed in any definitive manner in this dissertation. This investigator has been content to assume a more global definition of the concept, than might have been warranted, because these studies were exploratory, and were geared primarily to gather normative data on subject matters, which were long known for their intractability. This same criticism is also valid for the use of closed-circuit television, and for the brief excursion into the use of the operant conditioning methodology. These techniques were not studied for their inherent reliability and validity as measuring instruments, but also as a means for differentiating subjects. Parameters of design and methodology will have to be gathered in future studies. In recent years, investigators such as Lindsley (1962) and Alger and Hogan (1966, 1967), have achieved great success with closed-circuit television in very unique ways.

Where does one go from here in terms of future experimentation? There are many fertile areas ready and eager for exploration in the fields of obesity and body-image. To name one, the body-image investigations of Traub, et al., (1964) and Orbach, et al., (1966) could be extended to include closed-circuit television in the experimental procedure. For example, subjects could estimate the sizes of

various body-part dimensions as they are flashed before them on the television screen, in ascending and descending order, until they choose the pictures that closely resemble their own bodily dimensions. The use of closed-circuit television as a self-confrontative procedure can be more systematically explored, in order to eliminate the retrospective distortions that contaminated Neilsen's (1964) study at Harvard. The use of self-confrontation via closed-circuit television could be utilized with other measuring instruments in order to reveal several levels of responses within a person.

For example, having a person observe his appearance and/or the effect of her behavior upon others or upon herself, while physiological measurements are being taken simultaneously, could be of inestimable value in the establishment and correction of various personality problems. Self-perception on closed-circuit television could give a person an opportunity to correct distorted or deviant self-perceptions, and could result in a more realistic appraisal of oneself. In effect, any condition or state of mind that was observable either in appearance or behavior, could be recorded for immediate or subsequent use, and perhaps could be experimentally manipulated in other ways. Finally, it is quite probable that changes in behavior could be measured and/or utilized in an operant fashion upon such

disparate groups such as young and old; white and Negro; obese and normal-weight; men and women.

An interesting fact noted, was that white obese subjects tended to respond in a disparate fashion regarding their obesity. The differential responses seemed to be dependent upon the type of questioning, or were due to the different measuring tools used. Further exploration in this area appears to be important. Another point of interest would be to explore why the obese Negro didn't respond as negatively as the white obese female, especially since the prevailing notion is that Negroes have a poor self-image. We cannot continue to state that the Negro has no identity of her own, but reflects and incorporates an image, which is purportedly imparted from the surrounding white culture, in which she resides. This is also true for the older obese female, in contrast to her younger counterpart. In this study, we have dealt primarily with females. One wonders how Negro males would react to being obese. For example, how would the rise of Black Power and Negro chauvinism affect the Negroes' self and body-images? The results of these studies present a clear invitation for others to continue the search within these areas.

CHAPTER V

SUMMARY AND CONCLUSIONS

In an effort to understand the intricate relationship between obesity, body-image, age and sexual status, in conjunction with closed-circuit television and video self-confrontation, a series of exploratory studies were conducted upon matched groups of young Negro and white obese and non-obese females, and older white obese and non-obese females. Preliminary experimentation between normative groups of Negro and white subjects established that there were at least two body-images, the total B-I, and a weight B-I, consisting of B-C scale sub-items relating to or reflecting weight. Negro Ss had a more favorable TBI. No relationship was found between the per cent overweight and the negative B-I for either of the two groups.

The first study established that white obese subjects had more negative TBI and WBI attitudes than non-obese white subjects. Obese white subjects also significantly underestimated their actual weights. It was hypothesized that deviation from a cultural physical ideal, contributed to the dissatisfaction of all white Ss. Since the obese female is deviant, her dissatisfaction should be greater.

Obese Negro females had more negative TBI and WBI attitudes than non-obese Negro females. They also significantly underestimated their actual weight. A comparison

between Negro and white obese groups revealed, that the white obese group was significantly more negative in their WBI attitude scores than their white obese counterparts. In effect, the obese Negro recognized and admitted that she was fat, but nevertheless stated that she liked her body. In the normative study, a sub-item comparison between Negro and white Ss, revealed that body-part items that were rated negatively by white Ss were ignored, greeted indifferently, and/or were positively reacted to, by the Negro subjects. This result was also found in Huenemann's, et al., (1966) study of white and Negro adolescent females. Apparently, Negro females sharply veered from the cultural norm when weight or physical appearance was concerned. The racial or subcultural factor seemed to have influenced what the B-I would be.

After confrontation, the TBI, which had been previously negative, remained unchanged. Whereas, the WBI of all the obese groups became even more negative. This result indicated that the effect of perceiving one's obese appearance, was detrimental to one's body-image. It was hypothesized that the self-confrontation procedure could enhance, intensify, or change perception, and hence change the B-I attitudes. The consistent response trend for the four obese and non-obese Negro and white groups, from positive to negative, indicated that the white obese was

the most negative, followed by the Negro obese. The third most negative group was the white non-obese which was followed by the most positive group, the Negro non-obese.

Obese Ss in this study universally distorted their actual weight. It was suggested that the admission of obesity by the obese, on the B-C scale, reflected changes in the WBI attitude after confrontation. This responsiveness can be attributed to layers of denial and/or defensiveness, depending upon the subjects motivation, the method of extracting information, and the skillfulness of the experimenter. The act of denial, by the obese, is notorious and is extensively reported in the literature (Bruch, 1957; Nurnburger, et al., 1961; Stunkard, 1961).

Initially, older white obese Ss only differed from their non-obese peers, in estimating their actual weight, and in their pre-confrontative WBI responses. However, the WBI difference disappeared after confrontation. Two additional behavioral measures were also nonsignificant. However, a closer examination of S's verbal and behavioral responsiveness led to the belief that the age factor had been uncontrolled. An additional statistical analysis, which took age into account, revealed an important interactive effect between age and weight. The WBI was also significant after confrontation. The results of this study were compared to the results of other obese subjects in

previous studies. It was suggested, that age joins the racial factor, the motivation of the patient, and the self-confrontative procedure, as a variable which has to be taken into account, when one studies the several body-images, among the varying obesities.

The use of behavioral variables, operant procedures, closed-circuit television, and the confrontation procedure, were only tentatively explored in these studies. Further experimentation will be needed to discover additional parameters, to be applied to varying populations. The results of these studies indicate that these bewildering fields of endeavor can be experimentally controlled, and present a clear invitation to other researchers.

REFERENCES

Abraham, K. The influence of oral erotism on character formation. London: Hogarth Press, 1927.

Abraham, A. S., & Nordsieck, M. Relationship of excess weight in children and adults. Pub. Health Rep., 1960, 75, 266-269.

Abraham, A. S., & Nordsieck, M. Obesity in childhood and adulthood. Nutrit. Rev., 1961, 19, 211-219.

Alexander, F. The influence of psychological factors upon gastro-intestinal disturbances. Psychoanal., 1934, 3, 518-530.

Alger, I., & Hogan, P. The impact of videotape recording on involvement in group therapy. J. Psychoanal. Groups., 1966-1967, 2, 50-56.

Alger, I., & Hogan, P. The use of videotape recordings in conjoint marital therapy. Amer. J. Psychiat., 1967, 123, 1425-1430.

Baugh, J. R., Pascal, G. R., & Cottrell, T. The relationship between past experience with father and the present reaction to being interviewed by a male authority figure. Paper presented at Southeastern Psychological Association, New Orleans, April, 1966.

Beaudoin, R., & Mayer, J. A comparative study of the caloric intake composition of the diet and meal pattern of obese and non-obese women. J. Am. Dietet. Ass., 1953, 29, 29-38.

Becker, F. The obese patient in group psychoanalysis. Amer. J. Psychother., 1960, 14, 322-338.

Bender, L., & Silver, A. Body-image problems of the brain damaged child. J. Soc. Issues., 1958, 4, 84-89.

Bergler, E. Psychoanalytic aspects of the personality of obesity. Dis. Nerv. Sys., 1957, 18, 196-198.

Blazer, A. The obese character: Psychodynamics and Psychotherapy as an adjunct to medical management. Int. Rec. Med., 1951, 164, 24-30.

Boyd, H. S., & Sisney, V. V. Immediate self-image confrontation and changes in self-concept. J. consult. Psychol., 1967, 31, 291-294.

Brobeck, J. R. The physiology of appetite: overeating, overweight, and obesity. Proceedings of Nutrition Symposium, Harvard School of Public Health. National Vitamin Foundation, New York. 1953.

Brobeck, J. R. Neural regulation of food intake. Ann, N.Y. Acad. Sc., 1955, 6, 63-87.

Brosin, H. W. The psychology of overeating. New England J. Med., 248, 974-975.

Brown, C. Harlem's America. The New Leader., September, 1966, 1-35.

Bruch, H. The froelich syndrome. Am. J. Dis. Child., 1939 (a), 58, 1282-1289.

Bruch, H. Obesity in childhood: I. Physical growth and development of obese children. Am. J. Dis. Child., 1939 (b), 58, 457-475.

Bruch, H. Obesity in childhood: III. Physiologic and psychologic aspects of the food intake of obese children. Amer. J. Ment. Dis., 1940, 59, 739-781.

Bruch, H. Obesity in childhood and endocrine treatment. J. Ped., 1941 (a), 18, 365-373.

Bruch, H. Obesity in childhood and personality development. Am. J. Orthopsychiat., 1941 (b), 11, 467-475.

Bruch, H. The grid for evaluating physical fitness (Wetzel). J.A.M.A., 1942, 118, 1278-1281.

Bruch, H. Psychiatric aspects of cbesity in childhood. Am. J. Psychiat., 1943, 99, 752-761.

Bruch, H. Emotional significance of preferred weight. Am. J. Clin. Nutrit., 1957, 5, 192-196, (a).

Bruch, H. The importance of overweight. New York: W. W. Norton & Co., 1957 (b).

Bruch, H. Psychological aspects of obesity. Borden's Rev. Nutrit. Res., 1958 (a), 19, 57-73.

Bruch, H. Developmental obesity and schizophrenia. Psychiat., 1958 (b), 21, 65-70.

Bruch, H. Perceptual and conceptual disturbances in anorexia nervosa. Psychosom. Med., 1962, 24, 187-194.

Bruch, H. Disturbed communication in eating disorders. Amer. J. Orthopsychiat., 1963, 33, 99-104.

Bruch, H. Psychological aspects of overeating and obesity. Psychosomatics., 1964, 5, 269-274.

Bruch, H. Anorexia nervosa and its differential diagnosis. J. Nerv. Ment. Dis., 1965, 141, 555-556.

Bruch, H. Neuro-psychological disturbances in obesity. Psychiat. Dig., 1966, 27, 37-41.

Bruch, H., Juel-Nielsen, N. Quaade, F., Ostergaard, L., Iverson, T., & Tolstrup, K. Adipositas. Acta Psychiat. et. Neurol., 1958, 33, 151-183.

Bruch, H., & Touraine, G. Obesity in childhood: The family frame of reference. Psychosom. Med., 1940, 2, 141-206.

Burch, G. E., & Love, W. D. Etiological aspects of obesity. Amer. J. Med. Sc., 1962, 23, 153-165.

Burchinal, L. G., & Eppright, E. S. Test of a psychogenic theory of obesity for a sample of rural girls. Amer. J. Clin. Nutrit., 1959, 7, 288-294.

Burdon, A. P., & Paul, L. Obesity: A review of the literature stressing the psychosomatic approach. Psychiat. Quart., 1951, 25, 568-591.

Bychowski, G. On neurotic obesity, Psa. Rev., 1950, 37, 301-319.

Calden, G., Lundy, R. M., & Schlafer, R. J. Six differences in body concepts. J. consult. Psychol., 1959, 23, 378.

Caldwell, J. Lifelong obesity: A contribution to the understanding of recalcitrant obesity. Psychosom., 1965, 6, 417-426.

Carrere, J. A split-screen search into troubled minds. Life, May, 15, 1968, 68-70.

Chirico, A. M., & Stunkard, A. J. Physical activity and human obesity. New England J. Med., 1960, 263, 935-944.

Clark, K. B., & Clark, M. P. Racial identification and preference in Negro children. J. Negro Educ., 1950, 19, 341-350.

Conrad, S. W. The psychological causes and treatment of overeating and obesity. Amer. Pract. Dig. Treatmt., 1952, 3, 438-451.

Conrad, S. W. Psychological implications of overeating. Psychiat. Quart., 1954, 28, 211-224.

Conrad, S. W. Phallic aspects of obesity. Presented at the Midwinter Meeting of the American Psa. Ass., New York, December, 1964.

Cornelison, F. S., & Arsenian, J. A study of the responses of psychotic patients to photographic self-image experiences. Psychiat. Quart., 1960, 34, 108-113.

Cowgill, G. R. Evaluating body composition. Borden's Rev. Nutrit., 1958, 19, 108-139.

Dickinson, W. H., & Ray, T. S. Immediate affects of body-image confrontation with chronic schizophrenic women. Paper read at Oklahoma State Psychol. Ass., Oklahoma City, October, 1965.

Dorfman, W. Challenge of Obesity. New York J. Med., 1946, 56, 1642-1651.

Dorfman, E., & Kleiner, R. J. Race of examiner and patient in psychiatric diagnosis and recommendation. J. consult. Psychol., 1962, 26, 393-398.

Dreger, R. M., & Miller, K. S. Comparative psychological studies of Negroes and whites in the United States. Psychol. Bull., 1960, 57, 361-402.

Dunmeyer, A. Harlem's America. The New Leader. September, 1966, 1-35.

Ekman, P. Body position, facial expression, and verbal behavior during interviews. J. abnorm. soc. Psychol., 1964, 68, 295-301.

Ellison, R. Harlem's America. The New Leader. September, 1966.

Eppright, S., Swanson, P., & Iverson, C. (eds.). Weight Control. Ames, Iowa, Iowa State College Press, 1955.

Erikson, E. Childhood and Society. New York: W. W. Norton & Co., 1950.

Erikson, E. The problem of ego identity. J. Amer. Psa. Ass., 1956, 1, 56-121.

Ferster, C. B., Nurnberger, J. I., & Levitt, E. B. The control of eating. J. Methetics., 1962, 1, 87-109.

Fisher, S. A further appraisal of body boundary concept. J. consult. Psychol., 1963, 27, 62-74.

Fisher, S., & Abercrombie, J. The relationship of body-image distortions to body-image gradients. J. Pers., 1958, 26, 320-329.

Fisher, S. & Cleveland, S. E. Body-image boundaries and style of life. J. abnorm. soc. Psychol., 1956, 52, 373-379.

Fisher, S. & Cleveland, S. E. Body image and personality. New York: D. Van Nostrand Company, 1958.

Fisher, S., & Fisher, R. Body-image boundaries and patterns of body perception. J. abnorm. soc. Psychol., 1964, 68, 255-262.

Friedan, B. The feminine Mystique. New York: Dell, 1964.

Freud, S. Three contributions to the theory of sex. In S. Freud, The basic writing of Freud. (Trans. by A. A. Brill.) New York: The Modern Library, 1938.

Gill, D. J. The role of personality and environmental factors in obesity. J. Am. Dietet. Ass., 1946, 22, 398-410.

Goertzel, V., May, P. R. A., Salkin, J., & School, T. Body-ego technique: An approach to the schizophrenic patient. J. Nerv. Ment. Dis., 1965, 141, 53-60.

Goldfarb, A. I. Report on psychiatric services for the aged to the commissioner of mental hygiene. Mimeographed, 1965.

Gordon, H. H. A summary of some clinical aspects of obesity. Pediatrics, 1957, 20, 556-569.

Gordon, E. S., Goldberg, M., & Chosy, G. J. A new concept in the treatment of obesity. J.A.M.A., 1963, 186, 50-60.

Graff, H. Overweight and emotions in the obesity clinic. Psychosomatics, 1965, 6, 89-94.

Gurney, R. The hereditary factor in obesity. Arch. Int. Med., 1936, 57, 557-560.

Hamburger, W. W. Emotional aspects of obesity. Med. Clin. North America, 1951, 35, 483-499.

Hamburger, W. W. The psychology of weight reduction. J. Amer. Dietet. Ass., 1958, 34, 17-39.

Hare, P. Interview responses: Personality or conformity? Publ. Opin. Quart., 1960, 24, 629-685.

Head, H. Aphasia and kindred disorders of speech. London: Cambridge University Press, 1926.

Hershman, S. Hypnosis in the treatment of obesity. Int. J. Clin. Exp. Hypnosis, 1955, 3, 136-139.

Holt, H., & Winick, C. Group psychotherapy with obese women. A.M.A. Arch. Gen. Psychiat., 1961, 5, 156-168.

Huenemann, R. L., Shapiro, L. R., Hampton, M. C., & Mitchell, B. W. A longitudinal study of gross body composition and body conformation and their association with food and activity in a teen-age population. Amer. J. Clin. Nutrit., 1966, 18, 325-338.

Hundley, J. M. Need for weight control programs. In S. Eppright, P. Swanson, & G. Iverson (eds.). Weight Control, Ames, Iowa, Iowa State College Press, 1955, 1-17.

Illingsworth, R. Obesity. J. Ped., 1958, 53, 117-130.

Iverson, T. On psychogenic obesity in children. Acta. Pediatr. Stoch., 1953, 42, 8-19.

Johnson, L. C. Body-cathexis as a factor in somatic complaints. J. consult. Psychol., 1956, 20, 201-207.

Jourard, S. Body-cathexis and the ideal female figure. J. abnorm. soc. Psychol., 1955, 50, 243-246.

Jourard, S. Identification, parent cathexis and self-esteem. J. consult. Psychol., 1957, 21, 375-380.

Jourard, S., & Remy, R. M. Perceived parental attitudes, the self and security. J. consult. Psychol., 1955, 19, 364-366.

Jourard, S., & Secord, P. F. Body size and body cathexis. J. consult. Psychol., 1954, 18, 184-189.

Jourard, S., & Secord, P. F. Body cathexis and personality. Brit. J. Psychol., 1955, 46, 130-138.

Kaplan, H. I., & Kaplan, H. S. The psychosomatic concept of obesity. J. Nerv. Ment. Dis., 1957, 125, 163-197.

Kastenbaum, R. Old age as a social issue (Introduction). J. Soc. Issues, 1965, 21, 1-3.

Katz, M. The discriminatory ability and obesity in relationship to the gustatory sensation. Paper read at the Southeastern Psychol. Ass., April, 1965.

Kennedy, G. C. The role of depot fat in the hypothalamic control of food intake in the rat. Proc. Roy. Soc. London: 1953, 140, 578-601.

Keys, A., & Brozek, J. Body fat in adult man. Physiol. Rev., 1953, 33, 325-410.

Kretschmer, E. Physique and character. W. J. H. Sprott (trans.), London: Kegan, Paul, 1925.

Levitt, H., & Fellner, C. MMPI profiles of three (3) obesity subgroups. J.A.M.A., 1964, 132, 1065-1069.

Levy, D. M. Aggressive-submissive behavior and the froehlich syndrome. Arch. Neurol. Psychiat., 1936, 36, 991-999.

Lindsley, O. R. Operant conditioning methods applied to research in chronic schizophrenia. Psychiat. Res. Rep., 1956, 5, 118-139.

Lindsley, O. R. Operant behavior during sleep: A measure of depth in sleep. Science, 1957, 126, 1290-1291.

Lindsley, O. R. Conjugate reinforcement. Paper read at the Amer. Psychol. Ass., New York, September, 1961.

Lindsley, O. R. A behavioral measure of television viewing. J. Advert. Res., 1962, 2, 2-12.

Lindsley, O. R. Hobika, J. H., & Etsten, B. E. Operant behavior during anesthesia recovery: A continuous and objective method. Anesthesiology, 1961, 22, 937-946.

Lowenthal, M. Best years of our lives. Newsweek. February, 1968, 88-91.

Maher, J. Dissertation Abstracts. 1967.

Marks, H. H. Influence of obesity on morbidity and mortality. Bull. N.Y. Acad. Med., 1960, 36, 296-312.

Marks, H. H., & Dublin, L. I. Mortality among insured overweights in recent years. Paper read at the sixtieth meeting of the Ass. of Life Insurance Directors of America. October, 1951.

Mayer, G. The glucostatic theory of the regulation of food intake and the problem of obesity. Bull. New England Med. Cntr., 1952, 14, 43-57.

Mayer, G. Genetic, traumatic and environmental factors in the etiology of obesity. Physiol. Rev., 1953, 33, 472-508.

Mayer, G. An experimentalist's Approach to the problem of obesity. J. Amer. Dietet. Ass., 1955, 31, 230-235.

Mayer, G. Correlation between metabolism and feeding behavior and the multiple etiology of obesity. Bull. N.Y. Acad. Med., 1957, 24, 1092-1098.

Mayer, G. Physiological and nutritional aspects of obesity. In Borden's Rev. Nutr. Res., N.Y.,N.Y., 1958, 19, 55-81.

Mayer, G. Obesity in children. Postgrad. Med., 1963, 34, 83-88. (a).

Mayer, G. Obesity. Ann. Rev. Med., 1963, 14, 111-134. (b).

Mayer, G. Reducing by total fasting. Postgrad. Med., 1964, 35, 279-282.

Mayer, G., & Stare, F. J. Exercise and weight control: frequent misconceptions. J. Amer. Dietet. Ass., 1953, 29, 340-343.

McCann, M., & Trulson, M. F. Long-term effect of weight reducing program. J. Amer. Dietet. Ass., 1955, 31, 1108-1110.

Mendelson, M., Weinberg, N., & Stunkard, A. J. Obesity in men: A clinical study of twenty-five cases. Ann. Int. Med., 1961, 54, 660-665.

Metropolitan Life Insurance Company: How to control your weight. N.Y., N.Y., 1958, 4.

Miller, M. F. Responses of psychiatric patients to their photographed images. Dis. Nerv. Syst., 1962, 23, 296-298.

Moore, M. E., Stunkard, A. J., & Srole, L. Obesity, social class and mental illness. Midtown Manhattan Study. J.A.M.A., 1962, 181, 962-966.

Moore, F. J., Chernell, E., & West, M. J. Television as a therapeutic too. Arch. Gen. Psychiat., 1965, 12, 217-220.

Mossberg, H. Obesity in childhood. Quart. J. Med., 1955, 24, 109-115.

Nathan, P. E. Influence of stimulus preference and feedback delay on extinction of operant communication behavior. Behav. Res. & Ther., 1966, 4, 53-58.

Nathan, P. E., Schneller, P., & Lindsley, O. R. Direct measurement of communication during psychiatric admission interviews. Beh. Res. & Ther., 1964, 2, 49-58.

Nathan, P. E., & Wallace, W. H. An operant behavioral measure of television commercial effectiveness. J. Advert. Res., 1965, 5, 13-20.

Neilson, G. Studies in self-confrontation. Cleveland: Howard Allen, Publishers, 1964.

Orbach, J., Traub, A. C., & Olson, R. Psychophysical studies of body-image. Arch. Gen. Psychiat., 1966, 14, 41-47.

Perrin, F. A. C. Physical attractiveness and repulsiveness. J. exp. Psychol., 1921, 4, 203-218.

Pittigrew, T. F. Negro American personality: Why isn't more known? J. soc. Issues, 1964, 20, 4-23.

Price, D. O., & Searles, R. Some effects of interviewer-respondent interaction on responses in a survey situation. Paper read at Amer. Statist. Ass., New York, December, 1961.

Reissman, L. Social development and the American South. J. soc. Issues, 1966, 22, 101-116.

Reitman, E. E., & Cleveland, S. E. Changes in body-image following sensory deprivation in schizophrenic and control groups. J. abnorm. soc. Psychol., 1964, 68, 168-176.

Richardson, H. Psychotherapy of the obese patient. N.Y. J. Med., 1947, 47, 2574-2578.

Rony, H. R. Obesity and leanness. Phila. Lea & Febiger, 1940.

Rosenfelt, R. H. The elderly mystique. J. soc. Issues, 1965, 21, 37-43.

Rosow, I. Adjustment of the normal aged. In R. H. Williams, C. Tibbitts, & W. Donahue (eds.), Social and Psychological Aspects of Aging. New York: Columbia University Press, 1962. 195-223, & 327-340.

Savage, C. Variations in ego feeling induced by D-Lysergic acid diethylamide (LSD-25). Psa. Rev., 1955, 42, 1-16.

Schick, A. Psychosomatic aspects of obesity. Psa. Rev., 1947, 34, 173-183.

Schilder, P. The image and appearance of the human body. New York: John Wiley & Sons, Inc., 1950.

Schonfeld, W. A. Body-image in adolescents: A psychiatric concept for the pediatrician. Pediatrics, 1963, 31, 845-855.

Schonfeld, W. A. Body-image disturbances in adolescents with inappropriate sexual development. Amer. J. Orthopsychiat., 1964, 34, 493-502.

Seltzer, C. C., & Mayer, J. Body build and obesity: Who are the obese? J.A.M.A., 1964, 189, 677-684.

Secord, P. F., & Jourard, S. M. The appraisal of body-cathexis and the self. J. consult. Psychol., 1953, 17, 343-347.

Sheldon, W. H. Atlas of men: A guide for somatotyping the adult male at all ages. New York: Harper, 1954.

Skinner, B. F. The Behavior of Organisms. New York: Appleton-Century-Crofts, 1938.

Skinner, B. F. Cumulative record. New York: Appleton-Century-Crofts, 1959.

Stigall, T. Investigations in psychotherapy and verbal conditioning with conjugately programmed social reinforcement. Dissertation, L.S.U., 1966.

Stunkard, A. J. Obesity. In Symposium on Nutrition and Behavior, Minneapolis, 1956. Amer. J. Clin. Nutrit., 1957, 5, 203-217.

Stunkard, A. J. Physical activity, emotions and human obesity. Psychosom. Med., 1958, 20, 366-372.

Stunkard, A. J. Eating patterns and obesity. Psychiat. Quart., 1959, 33, 284-295. (a).

Stunkard, A. J. Obesity and the denial of hunger. Psychosom. Med., 1959, 21, 281-290. (b).

Stunkard, A. J. Hunger and satiety. Amer. J. Psychiat., 1961, 118, 212-218.

Stunkard, A. J., Grace, W. J., & Wolff, H. G. Night-eating syndrome: A pattern of food intake among certain obese patients. Am. J. Med., 1955, 19, 78-86.

Stunkard, A. J., & Wolff, H. G. Denial in compulsive eating and in obesity. Psychosom. Med., 1956, 18, 515-529.

Stunkard, A. J., & McLaren-Hume, M. Results of treatment of obesity. Arch. Int. Med., (Chicago), 1959, 103, 79-85.

Stunkard, A. J., & Mendelson, M. Disturbances in the body-image of some obese persons. J. Amer. Dietet. Ass., 1961, 38, 328-336.

Suczek, R. F. The personality of obese women. Amer. J. Clin. Nutrit., 1957, 5, 197-202.

Teitelbaum, P. Disturbances in feeding and drinking behavior after hypothalamic lesions. In M. Jones (ed.) Nebraska symposium on motivation, University of Nebraska Press, 1961, 36-69.

Tolstrup, K. On psychogenic obesity in children. Acta. Pediatr. Stockholm., 1953, 42, 289-304.

Traub, A. C., & Orbach, J. Psychophysical studies of body-image. Arch. Gen. Psychiat., 1964, 11, 53-66.

Trent, R. D. The color of the investigator as a variable in experimental research with Negro subjects. J. soc. Psychol., 1954, 40, 281-287.

Walz, G. R., & Johnston, J. A. Counselors look at themselves on video-tape. J. Coun. Psychol., 1963, 10, 232-240.

Ward, W. D., & Bendak, S. The response of psychiatric patients to photographic self-image experience. Newsletter for research in psychology, Veterans Administration, 1964, 6, 29-30.

Weiner, H. Some effects of response cost upon human operant behavior. J. Exp. Anal. Beh., 1962, 5, 201-208.

Weiner, H. Response cost and the aversive control of human operant behavior. J. Exp. Anal. Beh., 1963, 6, 415-421.

Werner, H., & Wapner, S. Psychological Differentiation. In H. A. Witkin, R. B. Dyk., H. F. Faterson., D. R. Goodenough, & S. A. Karp (eds.), New York: Wiley, 1962.

Whittaker, E. M., Gilchrist, J. C., & Fisher, J. W. Perceptual defense or response suppression? J. abnorm. soc. Psychol., 1952, 47, 732-733.

Witkin, H. A. Psychological differentiation and forms of pathology. J. abnorm. Psychol., 1965, 70, 317-336.

Wyden, Peter. The Overweight Society. William Morrow & Co., New York, 1965, 338.

Wylie, R. The self concept. Lincoln: University of Nebraska Press, 1961.

Yarrow, M. R., Campbell, J. D., & Yarrow, L. J. Acquisition of new norms: A study of racial desegregation. J. soc. Issues, 1958, 14, 8-28.

Young, C. M. The problem of the obese patient. J. Amer. Dietet. Ass., 1955, 31, 1111-1115.

Young, C. M. Teaching the patient means reaching the patient. J. Amer. Dietet. Ass., 1957, 33, 52-58.

Young, C. M. The interview itself. J. Amer. Dietet. Ass., 1959, 35, 677-683. (a).

Young, C. M. Patient selection for weight reduction. N.Y., State J. Med., 1959, 59, 2215-2219. (b).

Young, C. M. Interviewing the patient. Amer. J. Clin. Nutrit., 1960, 8, 523-535.

Young, C. M. Some comments on the obesities. J. Amer. Dietet. Ass., Annual meeting of the Amer. Dietet. Ass., Philadelphia: 1963.

APPENDICES

APPENDIX A

Ages, Heights and Weights of the Younger White and Negro Non-Obese and Obese Subjects

I. Younger White Non-Obese

Identification Number	Age	Height	WEIGHTS		
			Stated	Measured	Ideal
36	19	5'6"	130	130	134
37	23	5'4"	127	122	125
39	21	5'3"	123	131	125
40	18	5'4"	118	131	124
41	18	5'6"	127	134	134
42	19	5'2"	123	125	116
43	18	5'2"	121	115	116
44	19	5'5"	126	130	127
45	19	5'5"	135	137	127
46	19	5'1"	113	121	113
47	19	5'5"	130	130	127
48	18	5'4"	117	126	124
49	18	5'5"	126	129	130
50	19	5'3"	130	129	120
51	26	5'1"	110	109	119
52	21	5'2"	108	110	118
53	18	5'0"	100	104	105
54	19	5'1"	115	117	113
55	17	5'2"	115	121	116
56	19	5'4"	123	127	124
57	18	5'2"	122	125	116
58	19	5'5"	118	123	127
59	19	5'1"	117	118	113
60	18	5'0"	116	115	109
61	18	5'5"	123	124	130
62	19	5'6"	125	128	134
63	19	5'4"	120	126	124
64	18	5'5"	123	120	130
65	18	5'5"	128	140	130
66	19	5'4"	110	114	124
67	19	5'5"	132	137	127
68	20	5'5"	115	119	129
$\bar{X}$ =	19.0	5'3"	120	123	122

II. Younger White Obese Subjects			WEIGHTS		
Identification No.	Age	Height	Stated	Measured	Ideal
1	20	5'5"	257	258	132
3	19	5'0"	140	147	109
4	18	5'7"	156	166	138
5	19	5'6"	160	166	134
6	18	5'2"	160	176	116
7	18	5'4"	170	183	124
8	21	5'4"	210	235	125
9	26	5'5"	190	212	133
10	19	5'5"	135	156	130
11	18	5'1"	133	135	113
12	19	5'2"	133	136	116
13	18	5'2"	156	164	116
14	21	5'4"	147	150	125
15	19	5'2"	148	160	116
16	19	4'9"	123	131	102
17	20	5'4"	185	190	125
18	22	5'3"	140	141	121
19	18	5'4"	195	197	124
20	18	5'5"	145	156	127
21	18	5'7"	147	158	138
22	19	5'5"	190	198	127
23	19	5'3"	140	145	120
24	18	5'4"	160	164	124
25	20	5'5"	167	170	129
26	21	5'4"	145	149	125
28	19	5'8"	195	208	142
29	24	5'2"	150	150	118
32	19	5'5"	160	171	130
33	19	5'4"	140	154	124
34	17	5'5"	145	148	127
35	19	5'3"	135	153	120
X	19.4	5.4"	159	168	124
Younger Negro Non-Obese Subjects					
103	20	5'6"	120	123	132
105	19	5'2"	123	126	116
106	18	5'3"	110	112	120
107	19	5'4"	133	134	124
108	18	5'2"	117	116	116
109	18	5'4"	132	125	124
110	18	5'5"	132	137	130
111	20	5'5"	117	116	125
113	19	5'5"	132	134	127
114	19	5'5"	132	126	127
115	17	5'4"	116	123	124

Identification No.	Age	Height	WEIGHTS Stated	Measured	Ideal
116	18	5'0"	110	106	109
117	18	5'5"	137	134	127
118	20	5'3"	115	114	121
119	19	5'5"	129	140	130
120	18	5'7"	150	148	138
121	18	5'8"	135	139	146
X	18.5	5'4"	125	126	125
Younger Negro Obese Subjects					
82	19	5'5"	155	176	130
83	19	5'0"	145	156	109
84	18	5'4"	147	148	124
85	17	5'5"	232	235	127
86	19	5'5"	178	174	130
87	19	5'5"	165	167	127
88	26	5'5"	175	187	136
89	19	5'1"	185	211	113
90	18	5'8"	210	211	142
91	18	5'3"	158	160	120
92	18	5'6"	160	165	134
93	19	5'5"	157	163	130
94	17	5'5"	158	165	127
95	18	5'3"	165	167	124
96	18	5'4"	173	197	124
97	17	5'9"	175	180	147
98	18	5'1"	210	235	113
99	18	5'7"	187	239	134
100	26	5'3"	144	146	125
101	17	5'2"	180	197	116
102	17	5'4"	151	145	124
X	18.8	5'4"	171	182	126

APPENDIX B

Ages, Heights and Weights of the Older White Obese and Non-Obese Subjects

I. Non-Obese

Identification No.	Age	Height	WEIGHTS Stated	Measured	Ideal
360	50	5'3"	143	139	144
361	50	5'3"	136	139	144
362	50	5'5"	160	161	156
363	35	5'5"	128	132	139
364	52	5'5"	140	145	152
365	39	5'6"	137	139	146
366	35	5'7"	135	140	150
367	50	5'1"	134	138	136
368	45	5'4"	150	150	143
369	55	5'3"	136	137	144
370	38	5'3"	128	130	132
371	35	5'6"	143	143	146
372	35	5'5"	136	139	142
373	35	5'3"	116	122	132
374	48	5'5"	140	146	147
X	43.46	5'4"	137.4	140.0	143.5

Obese

345	50	5'4"	186	209	148
346	51	5'3"	175	194	144
347	42	5'7"	196	217	159
348	51	5'5"	174	187	156
349	36	5'5"	150	159	139
350	44	5'2"	170	201	136
351	39	5'2"	150	154	129
352	53	5'4"	228	233	148
353	36	5'8"	160	174	154
354	50	5'5"	168	180	156
355	35	5'1"	180	194	126
356	54	5'5"	160	176	156
357	36	5'4"	160	161	135
358	35	5'5"	215	225	139
359	35	5'3"	165	169	161
X	43.1	5'4"	175	188	145

APPENDIX C

Commercially Available Electronic Components Used in the Programming and Recording Circuitry

Item	Catalog Number	Source
Conjugate reinforcer serve	Cr-2S	Behavior Research Co. Belmont, Mass.
DC power supply	E1100DA	Grason-Stadler Co. West Concord, Mass.
Interval timer	E1100H	Grason-Stadler Co. West Concord, Mass.
Digital counters	E3700A	Grason-Stadler Co. West Concord, Mass.
Pulse former	E783F	Grason-Stadler Co. West Concord, Mass.
Recorder transfer control	E3850A	Grason-Stadler Co. West Concord, Mass.
Printing Impulse counter (Sodeco)	Itpb3	Landis & Gyr, Inc. New York City
Cumulative recorder	C-3	Ralph Gerbrands Co. Arlington, Mass.
Stereophonic audio tape recorder	PR-10-2	Ampex Corporation Redwood City, Calif.
Video tape recorder	VR-1100	Ampex Corporation Redwood City, Calif.
Portable video tape recorder	VR-1500	Ampex Corporation Redwood City, Calif.

Note--Additional supporting components were constructed to specification, as needed, or otherwise obtained locally.

APPENDIX D

Revised Tables of Average Heights and Weights

In October 1959, the Society of Actuaries published the results of the largest statistical investigation ever attempted in the field of public health, entitled "1959 Build and Blood Pressure Study." The data cover the 20-year experience of 26 large life insurance companies. Five million policyholders are represented in the revised tables of average heights (with shoes) and weights given below.

AVERAGE WEIGHTS OF WOMEN
Graduated Weights (in indoor clothing) in pounds

Height	AGE GROUPS 15-16	17-19	20-24	25-29	30-39	40-49	50-59	60-69
4'10"	97	99	102	107	115	122	125	127
11"	100	102	105	110	117	124	127	129
5' 0"	103	105	108	113	120	127	130	131
1"	107	109	112	116	123	130	133	135
2"	111	113	115	119	126	133	136	137
3"	114	116	118	122	129	136	140	141
4"	117	120	121	125	132	140	144	145
5"	121	124	125	129	135	143	148	149
6"	125	127	129	133	139	147	152	153
7"	128	130	132	136	142	151	156	157
8"	132	134	136	140	146	155	160	161
9"	136	138	140	144	150	159	164	165
10"	*	142	144	148	154	164	169	*
11"	*	147	149	153	159	169	174	*
6' 0"	*	152	154	158	164	174	180	*

*Average weights omitted in classes having too few cases.

VITA

Melvyn Katz was born April 21, 1933 in Brooklyn, New York. After discharge from the Air Force in 1956, he entered Brooklyn College where he graduated with a B.A. degree in 1959. Thereupon he entered the College of the City of New York (Department of Education) and graduated with an M.S. degree in 1961. Following this, Mr. Katz resumed graduate study at Louisiana State University. His internship training in clinical psychology was both with the Veterans Administration in Gulfport, Mississippi and New Orleans, Louisiana and at the Department of Psychiatry, University of Mississippi School of Medicine in Jackson, Mississippi. He is now employed at the New Hope Guild Guidance Center, a private psychiatric outpatient clinic in Brooklyn, New York. In January, 1969 he completed requirements for the Doctor of Philosophy degree in clinical psychology at Louisiana State University.

EXAMINATION AND THESIS REPORT

Candidate: Melvyn Katz

Major Field: Psychology

Title of Thesis: Obesity, Race, Body-Cathexis and Self-Confrontation on Closed-Circuit Television

Approved:

Major Professor and Chairman

Dean of the Graduate School

EXAMINING COMMITTEE:

Date of Examination:

24 October 19