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THE RESPONSE OF OBESE AND NON-OBESE WOMEN TO MEDITATION

by

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INTRODUCTION

Recent years have witnessed a surge of interest in forms of meditation, both among laymen and scientists. The purported psychological benefits of meditational procedures are becoming well established, and it is gradually taking its place in our society as a therapeutic instrument. From the quasi-religious usages to the orthodox-medical ones, from Transcendental Meditation to biofeedback, meditation is rapidly becoming an accepted cultural institution in Western society.

It was reported, for example, in a recent article (New York Sunday News, November 2, 1975) that Transcendental Meditation has over 1 million followers worldwide and that 600,000 of them are from the U.S. Their membership is said to include people of all ages and from all levels of our society, including many executives from such business firms as IBM, Eastman Kodak, Xerox, General Motors, etc. In addition, the New York Post reported (February 13, 1976) that the State Department was introducing a program of Transcendental Meditation for relaxation as part of its effort to encourage employees to improve their physical and mental fitness. Even a discipline such as Buddhism which is more rigorous and requires greater discipline has been reported (New York Times, February 4, 1976, p. 35) as continuing

to win adherents in the U.S. despite its rigors and "has grown into a serious, permanent feature of America's religious landscape." Signs of this growth can be seen in the presence of large study and meditation centers made up almost entirely of native-born adherents, who in some cases have already devoted several years to the discipline. Moreover, where the new movements are concentrated on the East and West Coasts, there have been established a number of lavish retreat centers costing millions of dollars and providing a base for further expansion. One such group, Zen Studies Center, for example, is now spending $2.5 million to build a retreat monastery on a 1,400 acre tract in Livingston Manor in the Catskills. In addition, there has been a vigorous effort at translating Chinese, Japanese, and Tibetan Buddhist texts into English and finally, the cultivation of a corps of native American Buddhist masters.

Scientific interest can be seen in the growing number of physiological (Wallace and Benson, 1972; Orme-Johnson, 1973) and psychological (Seeman, Nidich, and Banta, 1972; Shaffi, 1973a, 1973b, 1975) studies in the area of meditation. If one examines the number of articles and books written about meditation in the past ten years, the growth has been phenomenal.

My own interest in meditation antedated my interest in psychology as a profession and science. More than ten years ago I read a book by Allen Watts (1961) called Psychotherapy East and West. It was the only book I had ever read about Zen Buddhism or any other

Eastern religion or philosophy, but it had such an impact on me that I decided I would, if necessary, go to Japan to learn about Zen. Fortunately, I did not have to go that far as I found a place in New York where I could learn to meditate. For after all, what was Zen but meditation, and for that I soon realized I did not need to travel any place because no matter where I went I took myself--and Zen meant sitting down and coming face to face with one's self. So I sat and have continued to sit for the past eleven years.

Thus it is no surprise that my research interest should focus on meditation, and that I have undertaken a study of Zen meditation which examines individual differences in people's ability to master its requirements.

Another interest of mine has been obesity--which also derives from personal experience. Therefore, I decided to combine my interest in Zen meditation with my interest in the psychological bases of obesity, and to conduct a study into the relationship between obesity and the ability to achieve meditation. My understanding of the psychological correlates of obesity--derived partly from my personal experience and partly from my study of the research literature on the subject--led me to predict that obese people would have special difficulty mastering the requirements of Zen meditation.

What are the psychological traits that distinguish the person who is capable of achieving meditation and enjoying its benefits? What are the principal individual-differences variables that underlie the process of meditation? Maupin (1962a) has

examined a number of fundamental ego psychological variables, derived from recent developments in psychoanalytic theory and cognitive style research, and in his pioneering research has provided some evidence that Zen meditation is facilitated by the capacity for adaptive regression and for tolerance of unrealistic experience. His work was exploratory; it both needs and deserves replication--and my study provides such replication.

Finally, there has been a growing interest in teaching people to meditate, both for psychological as well as medical reasons. It can be of significant utility to such efforts if we knew more about the personality variables that influence a person's ability to be taught how to meditate. My study was designed to provide some potential insights into the kinds of personality traits that are related to success at achieving proficiency at Zen meditation.

CHAPTER I

ON MEDITATION

Meditation and Zen Buddhism

"Zen"--the Japanese word for meditation--is the meditative sect of Buddhism which developed in Japan in the thirteenth century after the introduction of Buddhism from China. Because it is not a system of worship but a practice and technique designed to restructure the personality, and because it uses meditation as the means whereby this transformation can take place, Zen Buddhists consider themselves closer to Buddhism as it existed over two thousand years ago. Its aim is to achieve the same state of awareness that Buddha achieved called "enlightenment" ("Satori" in Japanese), a state of consciousness in which the distinction between subject and object is obliterated. According to Zen Buddhists the experience of self is radically altered by meditation so that all sense of multiplicity disappears. Although the world of discrete objects remains unchanged, "these objects, oneself included, are felt to be manifestations of a greater unity which lies behind them" (Maupin, 1962a, p. 2). Since such a state of awareness, as a potential, exists within everyone and only needs to be realized, it is possible for every individual to experience it. In order to achieve the experience, however, a person must "give up" his habitual ways of thinking and perceiving--ways which habitually

filter and distort their experience--and must strive for a direct apprehension of reality.

Various Buddhist techniques have been devised to bring about this transformation, all of which utilize concentration. Zen meditation usually requires the person to concentrate on one thing to the exclusion of all else. The object of his concentration can be a "koan"--which is a question that cannot be answered with intellect and reasoning; it can be a part of the body, such as one's lower abdomen, or just being aware of one's breathing. Recognizing the impossibility of maintaining this concentration for any length of time, the beginning student is advised to observe his thoughts and feelings, which are regarded as distractions, in a neutral and detached fashion without attempting to control them. The student attempts to observe his internal distractions non-judgementally and then return to the object of concentration. The results of this process are manifold. First, the student is developing the skill of being able to observe his internal processes objectively while being aware of the outside world at the same time because his eyes are not closed while meditating. In addition, as he becomes more experienced and is able to concentrate on one thing to the exclusion of all else, extraneous thoughts and feelings do not get an opportunity to arise. This attitude of observing non-judgementally one's internal processes has been summed up under the term "mindfulness." Zen mindfulness does not involve tension any more than it implies limp relaxation; rather what is meant is

a kind of alert stillness which is taut without being strained. This attitude is meant to be cultivated at all times, whether the person is formally meditating or going about his daily activities. In this state the person experiences an intensified awareness of "self" in the present moment which also includes an awareness of internal processes. This is different from "self-consciousness" as it is ordinarily understood, which usually involves some kind of evaluation of oneself. Instead, this is a state of awareness which is free of comment, preference, or judgement as to what one is observing. Maupin (1962a, 1962b, 1969), who has written several articles on meditation, and was the first clinical psychologist to experimentally explore individual differences in response to a Zen meditation exercise, suggests this attitude is similar to what Schultz and Luthe (1959) call "passive concentration," an attitude of attention combined with indifference.

The position of the body is very important in sustaining this type of attention. Formal meditation is practiced in the "lotus" position, that is, seated on cushions with the legs crossed and interlocked in the Oriental manner. However, this position can be modified so that those not able to adopt this posture can fold their legs as they are able, or a chair may be used. In all cases the body should be erect and perfectly still, the eyes are half opened to avoid sleeping or trancelike states, and the hands joined at the abdomen. The exact position of the hands may vary in different sects or with different teachers.

The following passage provides an excellent description of the process of meditation as experienced by a beginning student. It was written by a young man who spent a week at a meditation center in London and it clearly illustrates how concentrating on breathing is used for bringing the mind to a state of quiet:

> Sustained looking inwards is rare and a rather radical reversal of the usual direction of attention. For me, the initial impression when I stopped, turned around and peered inside was one of silent uproar. I'd never before realized how much was going on. And when you become a bit more attuned to it, it is possible to distinguish three very different sources for this noise. In the first place, there are those physiological processes, like twitches and aches and itches and rumblings etc., and then dominating this is the continuous monologue of thought and imagery which is constantly stirred up by feelings and keeping them stirred up. And lastly, something I only came to see later on: a kind of ghostly background of half-formed mental activity, largely unconnected with any kind of emotional arousal--sort of motiveless mental free-wheeling.
>
> When you first make the experiment of looking inwards and facing this noise, there is a need for some kind of method of quieting it all down a bit, and also to find something to hold onto to prevent yourself getting lost in all this noise and fantasy. Both of these needs are answered by trying to focus upon the breathing process as the object of meditation. The idea is to watch without interference or strain the rise and fall of breathing, to let it happen of its own accord, but to be clearly aware of its happening. I'd not realized before that we have our own built-in tranquilizer in the breathing system if we care to use it.

Research and Interest in Zen Buddhism

The fact that Zen is not a system of worship but a practice that claimed to initiate radical changes in personality made it attractive to Western psychiatrists and psychologists as early as the 1950's. Erich Fromm, for example, in 1957 invited experts on

Zen to participate in a week-long seminar for psychologists and psychiatrists of various schools entitled "Zen Buddhism and its Applicability to Psychology and Psychotherapy." Wolf (1957) reviewed this meeting and reported that at its conclusion the consensus of opinion was that the benefits that could be gained from studying and practicing Zen were applicable for the therapist as well as the patient. In his book "Zen and Psychoanalysis," Fromm (1960) recommended the study of Zen Buddhism to all students of psychoanalysis. Nor was he the only well-known analyst who felt that Zen had much to offer Western psychology. Jung was very sympathetic to it and his psychology contains many concepts similar to Buddhist philosophy. Karen Horney, before she died, spent some time in a Zen monastery and was very interested in Morita Therapy, a Japanese treatment for neurosis which derives some of its principles from Zen. Her successor, Harold Kelman, published several articles on Zen (1958, 1959, 1960) as did other psychiatrists (Stunkard, 1951) comparing it to psychoanalysis and encouraging analysts to attain the Zen attitude of being in the present, impersonal yet at one with the patient. Other psychiatrists and psychologists (VanDusen, 1958; Weiss, 1960; Berger, 1962; Haimes, 1972) saw Western interest in Zen as a culmination in Western psychology from segmentation of the individual to an approach which took into account the person as a whole. They recognized its similarities to Existential or Dasein analysis because

of its emphasis on the "here and now" and its focus on concrete reality rather than abstract thinking about life.

To the individual not trained in Zen much of what is written about it can appear illogical and paradoxical. Recent investigations have focused on translating some of these processes into Western psychological concepts we are more familiar with. Also, in recent years there has been a growing interest in the technique of Zen meditation and its application for effecting cognitive and emotional changes in the personality (Lesh, 1969; Lawrence, 1971; Linden, 1972; Schuster, 1976). The first piece of scientific research in this area, upon which subsequent studies have been based, was undertaken by Maupin (1962a), who specified some of the variables which enter into this process and translated some of the metaphysical language into behavior referents. In addition, after an extensive review of the Zen meditation literature he devised a scale which identified three early stages of meditation. Maupin focused on exploring individual differences in response to Zen meditation, as well as the importance of certain personality factors or ego functions which enter into this process. He found a high correlation between response to meditation and Rorschach ratings of "capacity for adaptive regression" and "tolerance for unrealistic experience." These are the variables I chose to replicate in this study. The following is a discussion of some of the recent research findings by Maupin and others relating to Zen meditation, and a description of the three stages of meditation and their associated

variables. I decided to rely on Maupin's scale in this experiment to judge success at meditation, and I used the subjects' verbal reports obtained after each meditation session to aid in this judgement.

Three Early Stages of Zen Meditation

The first stage is when the person sits down and is faced with his inner experiences. Maupin found that for many people this experience proved too anxiety provoking. They could not concentrate on their breathing nor observe their internal distractions in a detached fashion. This stage is characterized by subjects reporting an inability to concentrate, feelings of dizziness, having sensations "like going under an anesthetic," or "like being hypnotized." These sensations are usually experienced as unpleasant and the subject retreats from the task of concentrating into increased thinking. In Maupin's view it is at this stage that an individual's "tolerance for unrealistic experience" is the crucial variable that determines whether he will be able to go on to the next stage.

The second stage is entered into when the subject is able to turn aside internal distractions and concentrate on the meditation exercise. This becomes possible when issues related to comfort in the face of unusual inner experiences are resolved. In this stage concentration seems effortless and attention is passive and consistently free floating. The subject reports feelings of vitality, tranquility, and sensations like "vibrations." He may feel his body

is suspended or light. Maupin reports that at this level the benefits of Zen meditation parallel those of relaxation therapies.

The third stage is entered into when the subject can observe all internal events in a detached non-anxious manner. It is a very lucid state of consciousness which is felt as deeply satisfying and is frequently accompanied by extensive loss of body feelings. In this stage the subject is in moment-to-moment contact with himself, the stage described previously as "mindfulness" or "being-in-the-present."

Meditation and Adaptive Regression

Maupin found that success at meditation correlated positively with the ego function called "capacity for adaptive regression" or, as it is sometimes referred to, "regression in the service of the ego." This result led him to conclude that the practice of meditation led to a sequence of more or less regressive states and that capacity for regression in the service of the ego was related to the process of meditation in a steplike fashion. The measurement of capacity for adaptive regression is based on Holt and Havel's (1960) method of scoring primary process related responses and their control from Rorschach protocols with an additional modification introduced by Goldberger (1958).

The term "regression" was introduced by Freud (1900, 1911) to denote a conscious reversion to primary process functioning. However, over the years the concept has been broadened so that it

has come to mean the ability to lower one's level of psychic functioning to a more primitive level without being overwhelmed by the contents. It has been suggested that this ability enters into many different kinds of phenomena such as sleep, empathy, comedy, artistic creativity, orgasm, etc. These changes in the use of the concept have been based largely on the work of Kris (1952) and Schafer (1958) who also suggested conditions which favor an individual being able to regress for adaptive purposes. These factors are: a sense of self that is secure enough to tolerate momentary blurring of boundaries, a well developed set of affect signals that guard against the uncovering of unassimilable contents, moderateness of superego pressure, adequate mastery of early traumata, and other elements of a healthy personality development.

Linden (1972) has suggested that one way in which this ability enters into meditation is that "the meditator by relinquishing his 'normal' deployment of attention and focusing it on new locations (within himself), permits the influx of an array of stimuli not usually available within the field of normal 'waking' consciousness, and that these stimuli may be considered preconscious in that they are accessible but are not usually attuned to the subject's field of consciousness unless their content is drive related to his state" (p. 5). In his earlier work on meditation, Deikman (1969a, 1969b) also utilized this term "regression in the service of the ego" to explain one of the universal claims in all mystic experience, that is

of "fresh vision"--seeing everyday things as if for the first time. He suggested that contemplative meditation produced a return to a more primitive cognitive organization, that cognition becomes inhibited in favor of perception, and that the active intellectual style is replaced by a receptive perceptual mode. He compared this process to learning to ride a bicycle. In the beginning we have to learn all the intermediate steps and remember them but when we have learned to ride and our behavior has become automatic, these disappear from consciousness. Deikman suggested that in mystic experience automatic systems which have been built up for pragmatic purposes break down or are set aside so that different ways of viewing the world become possible.

Linden regards the sequence of regressions in meditation to involve a process of deautomatizing the hierarchy of perceptual and cognitive structures and that this process of deautomatization operates through alteration of the attentional function. In addition, Maupin (1962a) suggested that the capacity to regress in a given situation might be conceptualized in terms of implicit strategies: what safeguards a person regards as adequate for a given type of regression. In his view the basic safeguards in meditation are: the immobility of the motor system so that it remains aloof from the expression of unacceptable drives, the assurance that the session will be brought to an end, and instructions which of ten include reference to the subject's ability to control the intensity and

duration of his experience. Furthermore, in his opinion, as the later stages of regression are built upon the learning that occurs in the earlier phases, this somewhat insures that the motivational structures are changed into non-striving orientation.

Lesh (1969), on the other hand, argued that although the literature seemed to imply that adaptive regression is a unidirectional process where the attention of the individual is either at the secondary process level or the primary process level, this may not be true in all cases. He suggested, based on the work of Schachtel (1959), Kubie (1967), and Neisser (1967), that it is more likely that adaptive regression is actually more of an opening up to inner experiences while still being entirely conscious of operating quite adequately at the secondary process level. Working under the assumption that Zen meditation was a way for an individual to learn to become aware of internal processes, Lesh trained a group of graduate counseling students in meditation for a period of four weeks. He found a very significantly enhanced empathetic ability as well as significant improvement in openness to experience and degree of self-actualization in the group trained in meditation.

In his more recent work on meditation, Deikman (1971) has suggested that in mystic experiences the process he described as "de-automatization" should not be regarded as a "regression to a more primitive state" but rather that the individual has shifted to a "different" mode of consciousness. In his view there are two different modes of awareness which every individual is capable of

experiencing and which always exists. The one involved in meditation is called "receptive" as it is oriented towards taking in of the environment, a kind of non-striving state in which one is accepting of the "now." The other is the "action" mode and it is oriented towards manipulation of the environment and is characterized by intentions regarding the future and focused attention. Deikman suggests that although the receptive develops along with the action mode, it becomes increasingly submerged or dominated by it so that it only occurs as an interlude between increasingly longer periods of action mode functioning. He states, "this has led us to regard the action mode as the proper one for adult normal life and the receptive mode is viewed as pathological or regressive" (p. 482).

Meditation and Tolerance for Unrealistic Experience

Maupin observed that the process of turning one's attention inward made a person aware of illogical and unrealistic thoughts. He hypothesized that although meditation might increase an individual's tolerance for such thought, he must possess a certain degree of tolerance for such experiences if he is to enter into meditation's early stages. To test this hypothesis he used a measure devised by Klein and Schlesinger (1951) and modified by Klein, Gardner and Schlesinger (1962), which classifies subjects as tolerant or intolerant of unrealistic experience based on a clinical rating of their Rorschach performance. The rating of tolerance or intolerance takes account of the number of responses, their originality or

banality, the variety of content range of determinants and/or the subject's attitudes toward the task, i.e., feelings of comfort or discomfort. This dimension refers to acceptance of experiences which do not agree with what is known to be "true." Subjects who are rated as "tolerant" are more likely to accept experiences which appear illogical and unreal whereas intolerant subjects would be resistant to such percepts or cognitive experiences, and would strive to maintain realistic thoughts and percepts.

Maupin found that this dimension, which seemed to overlap with capacity for adaptive regression, was a factor in being able to predict those subjects who would be successful at meditation.

Meditation and Field Dependency

Linden (1972) demonstrated a relationship between field independence and Zen meditation in young children. He hypothesized that learning Zen meditation would increase levels of field independence in a group of 9 year old children from a Brooklyn "inner" city elementary school. He found a significant rise in field independence as well as a lowering of test anxiety in the group of children who practiced meditation as opposed to a group who had only counseling and another group who had received no assistance of any kind.

The meditation exercise requires the subject to concentrate on one thing to the exclusion of all else, but at the same time he must be able to recognize when distractions and his attention has

wandered so that he can return to the original target of concentration. Linden suggested that this refocusing of attention requires the overcoming of an embedding context and the disregarding of distractions and that these are the requirements for effectively performing on tests of field independence. Linden refers to Deikman's (1969a) theory regarding deautomatization which allegedly occurs in meditation to account for this relationship between the practicing of meditation and changing levels of field independence in young children. He stated that from a remedial or deficit training viewpoint, the deautomatized experience may provide another chance to begin or to hasten the articulation of later developing structures. That is, "if certain experiences were missed or were too diluted to be potent, the meditation experience may provide a means for recovering some of that loss" (Linden, 1972, p. 30). Linden also suggested that by learning how to meditate subjects were also learning to become more aware of their inner world, of bodily sensations, feelings, thoughts and perceptions and that this type of information leads to a more accurate sense of which experiences are attributable to self.

Although Linden's work focused on changing levels of field independence in children by the process of meditation, this variable seems important in relation to this study with obese individuals since research has suggested that these people fall at the extreme of the field dependence dimension and have great difficulty in discriminating their internal states and feelings. It occurred to this writer, therefore, that such an existing lack of self differentiation as has

been ascribed to obese individuals would result in their having special difficulty in mastering the requirements of Zen meditation.

CHAPTER II

ON OBESITY

> There is only one kind of alimentary obesity, and there are only two adjectives which can suitably be used to describe it, namely 'contemptible' because it denotes self-indulgence, greed and gourmandizing, and 'disgusting' because it represents an unsightly distortion of the human form divine and a serious impairment of the intellectual faculties.

This quotation from a prominent physician at the turn of the century represents a view of obesity which is still widely held by many physicians and laypeople, namely that obesity is nothing but a moral problem with little dignity. This concept of obesity is understandable if one subscribes to the belief that the solution for an obese individual is simply to stop eating more food than he actually needs. A formula of cutting down on calories will work for most people, but many obese individuals try to lose weight but cannot, or else regain it soon after having lost it. The rate of return to weight reducing clubs and the numbers of books sold on dieting attest to the fact that it is not the losing of weight which is of prime importance, but rather the ability to maintain the weight loss. In addition, "obesity" can be considered a state of mind for a substantial number of individuals who are not overweight but whose lives are continuously focused on food and weight.

The following chapter is a discussion of the problems of the obese, and presents various theories which have been put forth as explanations of its occurrence.

Medical Model

In the past, obesity was customarily classified into two groups. One was called "endogenous" as it was meant to imply that a metabolic or endocrine malfunction existed. The second was called "exogenous" or "simple" as it was attributed simply to eating too much food for the amount of energy expended. The endogenous or medical model of obesity was first introduced by Frolich (1901) at the turn of the century when he observed a pituitary disturbance associated with obesity and claimed it was dependent on endocrine and glandular malfunction. The work of many scientists since Frolich, however, as Burdon and Paul (1951) state, has served to indicate the basic error of assuming such an entity as "endocrine obesity," since in their opinion there is nothing inherent in hypothyroidism, hyperthyroidism, Frolich's syndrome, Cushing's disease, etc., which produces obesity. It is now known that of the approximately 79 million overweight Americans only 2 to 5 percent are obese because of endocrine or metabolic factors originating and operating in the body exclusive of the amount of dietary calories.

Physiological Research

In an attempt to discover how food regulation and intake comes about, many researchers have focused their investigations on the brain. Heathering and Ranson (1940) began this work and were the first to prove that obesity followed bilateral injury to the ventromedial nuclei which lie in the walls of the third ventricle.

Hetherington (1943) later showed that the pituitary gland is not directly involved in the genesis of obesity, contrary to the impression at that time that fatness was a sign of dysfunction of the anterior lobe of the hypophysis (Frolich's syndrome). Further studies conducted by Brobeck (1946) have shown that the destruction of a small region in the lateral hypothalamic area of rats and cats serves completely to abolish feeding behavior. In order for these lesions to be effective they must be placed at the same level of the hypothalamus as the lesions inducing hyperphagia and obesity, but to bring about aphagia the injury must be lateral to it. The rats who had these lesions died of starvation even though food was always present in their cages. From these early experiments, it is now generally accepted that the hypothalamus is the level of the central nervous system which is most directly concerned with the regulation of food intake. It is also apparent that within the hypothalamus there exist two separate mechanisms. One, which is located in the lateral regions, is necessary for initiating eating and has been called a "feeding" or "start" center. The other, located in the medial hypothalamus, acts to inhibit either the lateral mechanism or lower mechanism which takes part in feeding and this has been termed the "satiety" center, since damage to it produces a condition in which satiation is at a higher threshold. Although Schachter (1971) has suggested that the behavior of many obese individuals is somewhat similar to that exhibited by rats who

have had these experimental lesions, the fact is that no one has been able to show that such lesions actually exist in humans who are obese except in very rare cases, and these people do not exhibit the dramatic gains and losses in weight characteristic of the majority of obese individuals.

Adipose Research

Recently researchers interested in the etiology of obesity have focused on the area of adipose tissue. Glucksman, Hirsch, McCully, Barron, and Knittle (1968) quantitatively evaluated six severely obese, non-psychotic patients before weight loss, during, and following weight loss. They used several measures such as behavioral rating interviews, the Rorschach and figure drawings. Their observations led them to conclude that the behavioral alterations exhibited by these obese subjects resembled those observed in studies investigating starving normals. More specifically there was sexual pathology, anxiety, depression, food oriented behavior and overestimation of body size which persisted during and following weight loss. They also discovered morphological and biochemical alterations of adipose tissue which became smaller in size rather than decreasing in total amount. They found this state was indistinguishable from that which would occur in people who were starving and not obese. These results have led them to conclude that weight reduction by the obese person might be similar to the abnormal state of starved normals. In popular reviews of this work, Hirsch and Knittle

1970) warned parents against stuffing their babies with too much food. They advised parents that this would lead to their children producing an abnormal amount of fat cells which would not disappear when dieting but only shrink to an abnormal state. The result of this overstuffing leads to an adult who can only keep his weight down by incessant self-denial. According to the authors, the additional fat cells trigger such metabolic changes so that a formerly obese man who has reduced to 180 lbs. must restrict himself to far fewer calories to maintain this level than does a man of the same weight, height, and body build who has never been fat.

Genetic Factors

The fact that 80 to 88 percent of obese patients show family histories of obesity has raised the question of whether some kind of heredity factor can be postulated. Of couse, as it has not been possible to separate out early environmental factors such as overfeeding and imitation of parents' eating habits, its existence cannot be proven. Rynearson (1944), commenting on "constitutional obesity," stated that its existence is doubtful, and Newburg (1942) argued that although a person may be pre-ordained by his genes to inherit a certain body build that did not mean he must become obese. In one follow-up study of obese children into adulthood, Bruch (1973) found that where the patients had learned to avoid the error of their parents of overemphasizing food, their children were not pre-ordained to becoming obese.

Obesity appears to have a simply unitary cause since its

major symptom is so obvious, i.e., excessive fatty tissue which appears very similar from one obese person to another. Upon closer examination, however, researchers have found that the distrubution of excess fat and its degree varies greatly among individuals. Suczek (1957) considers these variations may be due to symptoms of the same disease or may reflect etiologic differences. Stunkard (1959), in his report on the eating patterns of some obese persons, argues against viewing obesity as one disease but sees it rather as the end stage of a variety of different conditions with differing etiologies. Similarly Bruch (1973) argues that the problem must be viewed as an interactional one in which part of the causal network is internal and entails the biochemical and physiological processes by which the body keeps alive and active, and part is external insofar as it concerns the interaction between the person and other persons, as well as with its environment.

Psychological Factors

Over the years various attempts have been made to formualte a single theory of obesity which ascribed primary etiological importance to psychological factors such as a basic personality structure, an increase in the intensity of certain drives, and a basic psychodynamic conflict.

The psychoanalytic view of obesity, as expressed by Abraham (1927), states that oral character fixation develops in persons who engaged in highly pleasurable and undisturbed sucking periods in

infancy but whose need for love from their parents had not been gratified. To these personalities feeding was experienced as pleasant and the rest of life unpleasant as it was characterized by dependency, inactivity, and rejection by the parents. In the unconscious of these patients the inseparability of feeding and sexuality is maintained to the degree that food is equated with love. Therefore, to some obese persons eating brings direct oral gratification of a sexual nature and they have an increased appetite not for calories but for "love-food" which is intended to fill the void of their disappointed personalities. The traditional psychoanalytic approaches have aided in uncovering the manifold unconscious and symbolic meanings which food can have such as love, money, security, evil, self-indulgence, sexuality, suicide, etc. The results of these conflicts is that eating becomes a substitute activity for acting out these problems. In other instances the solution is found not in the eating behavior itself but rather in the need for being large.

Glucksman and Hirsh (1969) studied four obese persons who were undergoing a 600 calorie a day liquid diet for a period of 16-20 weeks. These investigators found the symbolic and adaptive function of body size to be very significant for these patients. For example, for one, his largeness represented distance and protection from others; for another it provided isolation; for the third, power and control over others; and for the fourth, it served his need for uniqueness, recognition, and special treatment. For

all these patients their decreasing body size meant the removal of an adaptive function. Consequently, they were left with a feeling of helplessness and vulnerability in the face of threats which previously their large body size had helped neutralize and make less overwhelming. In addition, there is the factor that many obese persons have grandiose ideas and fantasies revolving around the fact that if they lost weight all of their dreams for fame, love, etc., would come true. Where the underlying dynamic is a defense against recognizing one's limitations, loss of weight and the reality that nothing has changed is often a precipitating factor for a severe psychosis.

Reeve (1942) also found that the symbolic value of the symptom obesity was of paramount importance to some groups of obese persons he worked with. Also, in a related study Kurland (1967) has argued, based upon his findings, that extreme obesity, without etiological metabolic defects, should be regarded as a psychophysiologic disorder rather than a simple nutritional disease. This kind of classification would emphasize that hyperobesity may be due not only to the need for overeating, but also, and perhaps more importantly, the need to be overweight. Kurland found, for example, that when his obese patient had reduced his size to normal, new demands were placed on him. Some of these were that his wife expected him to be more active, both physically and sexually, and his employer expected him to perform certain physical tasks from which he had previously been excused. After one week of this treatment, the

subject could not stand the psychological and social disadvantages his normal weight placed on him and he subsequently overate massively and gained a pound a day over the next two months until he was back to his old size.

In her work with obese children, Bruch also found that many of them expressed the desire to lose weight but did not want to be thin. In her opinion the large size of the childrens' bodies served to belie the fact that they felt helpless and dependent. With projective techniques such as the Rorschach, Kotov and Murowski (1952) and Bruch (1957) have demonstrated that the preoccupation over size is a relatively stable characteristic of the obese personality. Erickson (1937) found that obese children, in play situations, reconstruct buildings resembling outlines of their bodies. Stunkard (1967), working with obese adults, found that they were preoccupied with obesity, often to the exclusion of any other personality characteristic. His results showed that it made no difference how talented, wealthy, or intelligent his subjects were, their overriding concern was their weight, so much so that they divided the world into those fatter than themselves, for whom they felt contempt, and those thinner, who were envied. Moreover, many of them also exhibited a disturbance in body-image which was characterized by a feeling that one's body is grotesque and loathsome and that others view it with hostility and contempt. Further research by Stunkard and Mendelson (1967) showed that there were three prerequisites for

the development of this distorted body image. One was that the person developed obesity in childhood or adolescence, the second was that the person suffered from an emotional disturbance and finally that the child's obesity had been the focus of derogatory parental concern.

The ability to use the body for conflict solution is seen by Bychowski (1950) as an expression and result of autoplastic processes dominated and regulated by unconscious motivation. This process is viewed as a primitive level of ego development and is contrasted with alloplastic materialization, a more advanced stage of development in which the person does not use his body to alter reality. Deutsch (1959) argued that in every conflict bodily functions may be used for the solution when reality is undesirable. The conflict is then acted out on another reality--the body--whose functions become the battlefield on which the conflicts are resolved. In his opinion, this applied not only to obesity but to all other expressions of psychosomatic disorders.

Bruch's Theory

Perhaps the most extensive work on obesity has been done by Hilde Bruch, who is an acknowledged authority on the emotional aspects of eating disorders. Dr. Bruch, presently Professor of Psychiatry at Baylor College of Medicine, is the author of four books and over 150 articles on the subject. Her interest in obesity has extended over 40 years and she has continued to be involved in

follow-up studies of some of the 140 children she first saw in 1937. A great percentage of the obese patients she had treated had undergone extensive clinical tests and none of them were found to be suffering from any known metabolic or endocrine disturbance which could explain their dramatic fluctuations of weight. When she began her work, Bruch took for granted the medical model of obesity posed by Frolich, i.e., that some endocrine dysfunction existed. At that time, personality traits peculiar to obese children such as immaturity, overdependence, and lack of aggressiveness, were explained as the direct influences of some distrubed physiologic function (Mittleman, 1938) or as determined by the endocrine factors basic to the syndrome (Levey, 1931), or, as Lurie (1938) reported, simply attributed to hormonal deficiencies. It was thought that these behaviors were the reactions of the total personality to the imbalance. However, after she had observed some 200 children who were 25%-150% overweight and who had been diagnosed as having obesity due to some hypothyroid or endocrine disorder, Bruch found that her results were inconsistent with this diagnosis. The basal metabolisms of these obese children were higher than those of the non-obese, they showed intensive growth, rapid development, and frequently advanced intellectual endowment as measured by the Stanford Binet. Further investigation revealed these children shared certain basic ways of malfunctioning which were psychological rather than physiological in nature. They all exhibited a general lack of independence, enuresis existed for 40% of the children over six, there had been

resistances to bottle feeding and unwillingness to chew up to five years. Also, some children who were 10 years or older did not have a bowel movement without being coaxed or accompanied to the bathroom. The parents, as well as the children, exhibited resistance to changes in menu, and the youngsters demonstrated a persistence of early infantile taste development.

In an early study Bruch and Touraine (1940) noticed a similar family complex which they described as the "typical family frame." This consisted of a small family and the youngest or only child was obese. The fathers usually played a subordinate role in the emotional life of the family and the mother was the dominant influence. She was found to be a woman who had usually been frustrated in her ambitions and had suffered deprivations in her early childhood. Somehow she had confused food and idleness with the kind of luxurious existence she herself had never had but was determined to give to her children. Although these original observations were made on a very select population of Jewish immigrants, Bruch found similar factors operating in her private practice with patients of varying socioeconomic backgrounds. Irrespective of the background of the obese child, the one outstanding pathogenic factor which she found remained constant was that the child was used by one, the other, or both parents, as a thing, an object whose function it was to fulfill their needs and compensate them for their failures and frustrations. The child, looked upon as a precious possession, is offered the best of care which takes on the form of excessive

feeding and overprotection. The result of this kind of treatment is that the child does not learn adequate social skills and muscular development is also inhibited. The child that is a possession is therefore not an individual. Food in these families has come to be endowed with exaggerated emotional value and is served as a substitute for love, security, and satisfation. Muscular activity, aggressiveness, and spontaneity, on the other hand, become associated with the dangers of separation. A high level of anxiety and discord also permeated these families and added to the child's difficulties in becoming independent as well as differentiating his needs from theirs. The overall picture of the obese individuals who have been subjected to this kind of early conditioning is that they are likely to have weak egos, suffer from problems of orality, confusion of sexual identity, and a readiness to give up in the face of difficulties.

After many years of working with obese patients, Bruch came to conclude that one of their major problems is that they cannot distinguish one sensation from another. Her view was a result of her observations that all of her patients shared the common experience of not owning their own bodies, acted as though their center of gravity was not within themselves, and felt under the influence and direction of external forces. In addition, all of her obese patients were unable to identify hunger correctly or to distinguish it from other bodily needs or emotional tensions. In her opinion

what had appeared as a lack of will power was actually related to their not being able to exercise control over a function or need that was unrecognized. The fact that these patients could use a bodily function, which is supposedly innate, in the service of non-nutritional needs brought her to conclude that hunger awareness and that of other biological needs is not innate biological knowledge but that learning is necessary for these to become organized into recognizable patterns. Hebb (1949) also argued that hunger is not innate. He stated that the non-nutritional aspects of our desire for food are so familiar that they are forgotten because they do not fit into the concept of hunger as an innate drive or of an alternate sensation to the physiological signs of food deprivation. Therefore, hunger, defined as the excitation of a neuromechanism that controls eating, is not a simple direct product of the need for food. This hypothesis makes the distinction between the physiological state or process of hunger and the psychological acts of perception and recognition of this state.

In this model of development, the infant starts life unable to differentiate himself from others and his biological needs are not more than unidentified and unidentifiable states of tension and discomfort. The infant is capable of indicating his needs are unfulfilled by giving off signals such as crying. The crucial factor for his becoming conscious of what these needs are, or the failure to do so, will be dependent on whether these signals are appropriately gratified or disregarded. For example, in order for a child to develop an engram of "hunger" as a sensation which

is distinct from other tensions he must have had someone respond to his cry for food with food. However, where food has been given to a wide and indiscriminate range of signals, confusion and feelings of helplessness in controlling one's biological urges and emotional impulses will result. Bruch (1973) observed that all the case histories of the obese individuals she treated revealed that the reactions of their mothers had been continuously inappropriate. Contrary to what one might expect there were no reported instances of gross neglect, lack of love or great traumatic situations, but rather their mother's behavior was oversolicitious, inhibiting, or indiscriminately permissive. Bruch suggested that the ability to experience bodily sensations appropriately is a necessary step in becoming differentiated and the degree to which the obese individual has been exposed to these early deficits will determine how hampered he is in his subsequent development. In her opinion, underlying the varied clinical picture of obese individuals is this basic deficit in self-differentiation.

Cognitive Theories

In the past it had always been assumed that "hunger" was an instinct. From the early experiments of Cannon and Washburn (1912) there arose a theory that sensations from the gastrointestinal tract (gastric motility) were a signal indicating hunger to the central nervous system. For more than 30 years students were taught that contractions of any empty stomach produces hunger and that distention of the digestive tract with food brings satiation. It had

been assumed that the stomach was virtually autonomous in its regulation of food intake. This hypothesis was based on the James-Lange (1898) theory that the bodily state or physiological arousal (internal cues) determines the emotion. However, in light of later experiments, such as those performed by Sherrington in the 1900's in which he reported that the removal of the stomach did not abolish feeding behavior, these theories had to be revised. Grossman et al. (1947) reported that a complete denervation of the upper gastro-intestinal tract did not greatly impair the ability of dogs to regulate their food. Gray (1953) summarized these findings and added that there was good evidence moreover that neural pathways concerned primarily with gastric secretions and motility are not essential since humans whose vagus nerves have been severed experience normal sensations of hunger and appetite.

More recently there has been evidence which supports the hypothesis that the perception and conceptual awareness of hunger, as well as other biological needs, are not innate but learned. Stunkard and Koch (1964) were interested in testing Bruch's hypothesis that obese individuals were, in fact, unable to distinguish hunger and satiation. They chose to examine gastric motility and reports of hunger in four groups of subjects: obese and non-obese men and women. Although their findings revealed no significant differences for any of the groups in the amount of gastric motility, there were significant differences in the subjects' reporting of them. Non-obese women showed a high correlation between gastric motility

and hunger, whereas obese women showed none. Non-obese men also exhibited a correlation as well as lessened sensitivity but obese men exhibited a bias in reporting--either they were always hungry or never hungry. Stunkard and Koch concluded that normal people adjust their current food intake to prior and changing energy expenditure levels and that this function is largely based on unconscious sensitivity to internal cues. Obese individuals, on the other hand, do not fully appreciate these internal cues so that eating has become a self-conscious matter based on cues which may be internal or external. Stunkard and Griggs (1964) conducted a follow-up study on one obese male subject who had a bias in reporting he was never hungry. Utilizing a method of feedback and reinforcement, they found there was no physiological explanation for his unawareness and he was able to overcome this bias. They also found, however, that his new learning had no effect on his weight and he continued to gain. When questioned a year later if he was still aware of gastric motility, the man replied he was, but that these sensations had absolutely nothing to do with his eating. Stunkard (1964) came to conclude that one of the problems in considering gastric motility and its resulting sensations as being synonomous with hunger was that no clear distinction had been drawn between hunger as a sensation and hunger as a drive, although it was tacitly assumed that the latter was mediated by the former. Brosin (1953) argued that appetite is a pleasant sensation largely determined by previous experiences with eating and the immediate stimulation. In most individuals it is

remarkably stable, but under stress, organic illness, or emotional pressure, it may be increased (bulimia, hyperphagia) or decreased (anorexia). As a result of these studies and observations it appears that past experience and learning play major roles in people's ability to recognize their nutritional needs and correctly regulate food intake.

Schachter's Research

Not only does experience and learning appear important in the recognition of nutritional needs, but studies which have been undertaken to find the physiological correlates of the emotions have also failed to yield any clearcut physiological discriminators other than a general pattern of excitation of the sympathetic nervous system. Cannon (1915) had offered the crucial criticism of the James-Lange theory when he demonstrated that the same visceral changes occur in very different emotional and non-emotional states. More recent research by Schachter (1954) suggests that cognitive factors may be major determinants of emotional states. That is to say, cognition arising from immediate situations, as interpreted by past experience, would provide the framework within which an individual understands and labels his own feelings.

Obese people were of particular interest to Schachter since Bruch (1961) had observed they tended to label all their emotional states as hunger, and Stunkard (1964) had demonstrated that they are not attuned to internal cues such as gastric motility so that external cues would probably play a determining role in whether or not

they ate. Schachter decided to test the hypothesis that obese people would be more sensitive to external cues such as "time to eat" rather than internal sensations such as feeling hungry. Schachter and Gross (1968) devised an experiment in which by the use of "doctored clocks," a fast and slow telling of true time, the external food-relevant cue "dinner-time" was manipulated. It was hypothesized that the passage of time would be a relevant external cue, so that 1) obese-fast subjects would eat more than obese-slow because it would appear to be after and before dinner time for them respectively, 2) the normals-fast would eat somewhat more than the normal slow. Their results confirmed the hypothesis in that the obese-fast ate almost twice as much as the obese-slow, but for the normals, a reverse relationship was found in that the normal-slow ate somewhat more than the normal-fast. The explanation given by these latter subjects was that they did not want to spoil their appetite for dinner. Schachter (1968) also examined the relative importance of time in determining real life eating habits of obese and non-obese subjects. By use of a questionnaire he found that there were no differences between normals' and obese persons' eating habits during the weekdays, but on weekends normals missed eleven percent of their lunches whereas obese subjects missed fifty-three percent. Furthermore, he found the obese were more irregular about dinner times on weekends, varying about one and one-half hours, whereas they varied only twelve and a half minutes during the week. The explanation given for this result was that during the week everyone's day is relatively

routine and external cues are readily available, but on weekends, as there is greater unpredictability, the obese subjects who relied on these clues were more affected by their absence than were normals. Schachter, Goldman, and Gordon (1968), interested in testing the hypothesis that obese persons have not learned to discriminate between their various physiological states and label a wide range of feelings as "hunger," tested obese and normal weight subjects in four conditions. These were: full and empty stomachs; fear and no fear, which was introduced by telling the subjects there would be a slight electric shock or by telling them there would be a painful shock. All subjects were given the opportunity to eat while in the various conditions. It was hypothesized that 1) fear would reduce the amount eaten by normal weight subjects but not the obese, and 2) preloading (empty or full stomachs) would reduce the amount eaten by normals but not for the obese. Although these two hypotheses were confirmed, it could not be concluded that the eating pattern of the obese was triggered by other psychic states such as fear, anxiety, or by food related cues such as the smell of food, or seeing other people eating, as the obese subjects in the high fear condition ate only slightly more than the obese in the low fear condition. Moreover, self-ratings, before and after eating, in both groups showed a slight decline but not a significant difference.

Although Bruch (1973) cites Schachter's research to support her theoretical model for the etiology of obesity, she argues that his studies failed to take into consideration the importance of the

multiple, individually different, internal, non-nutritional cues such as frustration, depression and anxiety, which play such a significant role in clinically obese patients who are often unresponsive to arousal of fear in them in irrelevant situations such as experimental settings. She also noted there was no attempt to report on how personality problems and differences in weight, which varied from 14% to 75%, were affected by the test.

Obesity and Field Dependence-Field Independence

Individual differences in sensitivity to external cues have also been investigated by Witken (1965). His research suggests that people can be classified and conceptualized as belonging along a cognitive dimension which is field independent (articulated) at one end and field dependent (global) at the other. The results of his experiments have led him to conclude that this mode of cognitive functioning is so basic to the individual that it influences his total personality. Using three measures, the body adjustment test, the rod-frame test, and the embedded figures test, he hypothesized that a person will structure his external and internal experiences according to where he finds himself along this cognitive dimension. He found that when given the task of orienting themselves to an upright position, field independent will not rely on external cues to tell them what they are experiencing, but will use their own bodies as a means of orientation. Individuals who fall into this category are thought of as having a definite sense of self as distinct from

"other" and their defenses are likely to be isolation and intellectualization. Even under pathological conditions they will struggle to maintain this sense of separateness. Obsessive-compulsives and paranoids, for example, are regarded as extremes of this field-independent style. In contrast, field dependent persons lack a sense of separateness and definite body limits. In the body adjustment test they will use external cues as their frame of reference and will bypass internal ones as a means of reorienting their bodies. Their means of defense are more primitive such as denial and repression. Witken classifies obese, hysterics, character disorders and those who hallucinate as being on the extreme of this global cognitive dimension. In his view obesity is due to an inadequate sense of separate identity so that under stress obese persons seek comfort in oral activities which had been important sources of satisfaction in a period of close unity with the mother. He regards eating itself as a non-differentiated defense which is applied indiscriminately to all stressful situations.

Karp and Pardes (1965) undertook to investigate Witken's hypothesis regarding the relationship of field dependence and obesity. They administered the three measures of field independence, field dependence mentioned previously to a group of obese and normal weight women. Their findings showed the obese women to be more field dependent than women of average weight, but the authors were careful to point out that this should not be interpreted to mean that field dependence causes obesity.

In a related study, McGough, Silverman, and Bogdonoff (1965) studied the interaction between the physiological process of fat mobilization and a difference in cognitive style. Their results showed a difference in physiological processes measured by fat mobilization, venous tone and perceptual differences of field independent and field dependent persons. Hughes and Reuder (1968) were also able to show that obese women subjects had difficulty in isolating time from the emotional content so that they estimated time filled with anxiety arousing conditions to be longer than that filled with neutral conditions.

The idea that individuals possess relatively stable cognitive tendencies that determine the form of the influence that a motive or need exerts on their cognition has also been suggested by Shapiro (1965). His description of the passive-impulsive style of functioning seems to fit best the subjective experiences attributed to obese individuals by Bruch, Witken and others. Shapiro describes the passive-impulsive style as being characterized by a deficiency in cognitive processes so that the person does not take distance; his attention does not search actively and analytically but is quite easily and completely captured by what strikes him. In addition, whatever strikes the impulsive person does not get thought out but is usually acted upon immediately. He argues that the impulsive person does not search beyond the immediately relevant present because he is only interested in his immediate gains and satisfactions. In his opinion this cognitive style is quite limiting as being aware only

of what is most immediately striking and personally relevant interferes with the development of long range interests or enduring values and aims.

Obese individuals do experience themselves as stimulus bound, as being controlled by outside forces, of not wanting to eat, knowing they should not eat, but not being able to control it. Some have reported that just thinking about some particular food, or knowing it is around the house is enough to make eating it inevitable.

In summary, the psychological profile of the obese individual based on the aforementioned literature reveals someone who is non-reflective, impulsive, unable to distinguish his internal states and label them correctly, and more dependent on the external environment for structure.

CHAPTER III

METHODS, PROCEDURES, AND RESULTS

Method

I chose to study Zen meditation, rather than other forms of meditation based, for instance, on principles of Yoga or Transcendentalism, for several different reasons. First of all, I am personally familiar with the theory and practice of Zen Buddhism. My training in it began ten years ago when I became a member of The First Zen Institute of America, and has continued to the present. Thus, my knowledge of Zen meditation is based on more than an intellectual familiarity with its literature and principles.

In my opinion, Zen meditation is distinctive, and differs from other methods insofar as it does not encourage trancelike states or states of relaxation. Instead, Zen is a method of increasing one's awareness to internal and external events, and does not rely on radical alterations in state of consciousness. There are several studies (for example, Anand, Chhina, and Baldev Singh, 1969; Kasamatsu and Hirai, 1969) which suggest that the different methods of meditation induce different states of awareness.

A third reason for my choice of Zen meditation lies in the fact that well established psychological variables are likely to be relevant to it. Recent developments in ego psychology and in cognitive styles are pertinent to the Zen form of meditation, and they

may shed important light on individual differences that are familiar to practitioners. Research has already indicated that a certain degree and nature of ego functioning is necessary before a person can achieve success at Zen meditation; specifically, he must possess a strong tolerance for unrealistic experiences as well as the capacity for adaptive regression. In addition, it seems very likely that these ego functions are significantly correlated with the field-independent style of cognition, since they entail the capacity to stand back and observe one's own experience as well as being able to recognize when one's attention has wandered away from the object of his concentration. It follows, therefore, that those who rely on the defenses of denial, repression, and disassociation would have difficulty achieving success at Zen meditation. The fact that these are measurable traits for which reliable and valid assessment techniques have been developed by psychologists makes them especially suitable for empirical research into the phenomenon. Thus, the principles underlying Zen meditation may be closely related to well established psychological theory and practice at the level of individual differences and clinical evaluation.

Maupin has already begun work in this area, and he has found that ability for Zen meditation is a function of both capacity for adaptive regression and tolerance for unrealistic experience. My study is a partial replication and an extension of his work.

I have chosen to extend Maupin's study by introducing obesity as a major individual difference variable. My main reason for choosing obesity as a subject matter is because I believe that obese people

typically show the kind of personality patterns--the type of ego functioning and cognitive style--that are characteristic of those who would show little success at Zen meditation. The research literature gives reason to expect that obese people would be field-dependent and would show weak ego development in a variety of ways. Thus my first hypothesis is this:

Hypothesis One: Obese subjects will have more difficulty learning Zen meditation than non-obese subjects; they will have less success achieving the stages of meditation, and more of them will quit before the training has run its course.

My second hypothesis is a direct replication of Maupin's findings:

Hypothesis Two: Success at achieving the three stages of Zen meditation will be positively correlated with measures of adaptive regression and tolerance for unrealistic experience.

A number of subsidiary hypotheses are based, firstly, on the relationship between ability to meditate and a variety of personality variables; secondly, on the relationship of obesity with these personality variables. However, rather than specify in advance any particular hypotheses, I chose to regard this aspect of my study as an exploratory one. Since Hypothesis Two required that each subject be given a complete Rorschach, it was feasible to use the Rorschach protocol in a variety of clinical and psychometirc ways that might uncover interesting relationships with ability to meditate, on the one hand,

and obesity on the other. To bolster this aspect of my study I decided to include a paper-and-pencil personality test--the Krout Personal Preference Scale (see Appendix A)--in order to provide further support to whatever relationships emerged.

The Experimental Sample

My research design called for a group of obese subjects and a group of non-obese subjects to serve as a comparison, or control group. Considerations of feasibility led to the decision that no more than six Ss could be included in each group. This sample is small, increasing the probability of a type II error. However, given the extensive work required with each S, it was not possible to enlarge the sample.

A further decision was to eliminate the variable of sex differences and compose the sample of women, since all the research on field dependence and obesity had been carried out with women. Twelve women were obtained to serve as experimental subjects, six obese and six non-obese. This may have created some problems in the assessment of adaptive regression as Pine and Holt (1960) found sexual differences on this variable in relation to various measures of creativity.

The obese Ss were chosen on the basis of their having been obese since childhood or adolescence. They were at least 20% overweight as defined by the Metropolitan Life Insurance Company's (1959) "Desirable Weights Tables." Ideal weight was considered the range,

by height from minimum weight for small frames to maximum for medium frames, and the latter constituted the base line from which obesity was measured. "Obesity" is therefore defined as a minimal of 20% positive deviation from this base line.

The women were gathered from several sources. Three Ss responded to the following notice which was place in Townsend Harris Hall, the Psychology building at City College. The notice read:

> "WEIGHT PROBLEM"
> INTERESTED IN LEARNING MEDITATION?
> Leave name and number in Psychology office
> where you can be reached.

The other three women were recommended by people who knew of the experiment. The ages of 6 Ss ranged from 20 to 46 years old and their education varied from high school graduates to college students and graduates. A more detailed breakdown by age, height, and weight can be found in Appendix B.

Although at no time was it stated that learning meditation would solve the weight problem of these women, it was obvious that because the notice was ambiguous this might be one of their assumptions. Therefore, upon contacting a prospective S I informed her that learning meditation might help her find out more about herself, but it would not lead to any loss of weight.

The six non-obese Ss were chosen on the basis of their being within 5% of their ideal weight and their not having experienced a weight gain greater than 10% for any one month period. They were obtained by posting the following notice in the same building mentioned previously:

"INTERESTED IN LEARNING MEDITATION?"
Leave name and number in Psychology office
where you can be reached.

These subjects ranged in age from 20 to 30 years old and they were all attending City College. Appendix B also lists the age, weight, and height of these non-obese women.

None of the subjects had practiced any form of meditation before, but all of them had had the idea at one time or another that they would like to learn, and they volunteered because the experiment gave them an opportunity they might not otherwise have. They anticipated being taught to meditate by an experienced person and to take part in a Zen sesshin which usually cost a substantial fee. The fact that their participation was free of charge was deemed sufficient reward, so that they were willing to forego being paid for taking part in the experiment. (A vegetarian lunch was provided to them during the sesshin.)

The Weight Questionnaire

I compiled a questionnaire that was designed to insure that all Ss fit the criteria of the study. This questionnaire was administered to the Ss at the outset of the experiment before the meditation procedures and before the administration of the Rorschach. It is composed of ten questions, some of which were taken from Rubin's Forever Thin (1970). The purpose of the first five questions was to insure that the subjects were obese since childhood and/or adolescence and that the non-obese women were truly normal weight and not Ss who

might fall into the range Bruch (1973) designated as "thin fat people." Questions six through ten were aimed at evoking some of the attitudes so readily ascribed to obese individuals, i.e., frequent loss of weight and its subsequent return, history of eating binges, preoccupation with food, inability to distinguish hunger from satiation, a feeling of not being in control of one's own destiny and a poor tolerance for delay.

Weight Questionnaire

1. Are you overweight now? If yes, how long have you been this way?
2. How often do you weigh yourself?
3. How much do you weigh?
4. Do you ever now in the past go on eating binges?
5. Have you ever gained weight, lost it, and gained it back again?
6. When you get upset do you tend to eat more?
7. Have you ever not been able to concentrate because you were thinking about food even though you had eaten recently enough to know you could not be hungry?
8. Do you have difficulty in knowing when you are hungry or satisfied?
9. Do you feel you must immediately satisfy all your appetites, needs, and desires?
10. Do you sometimes feel controlled by outside forces?

An examination of the Weight Questionnaire results revealed significant differences or strong trends in the expected directions between the two groups on all of the questions. Table 1 presents these findings. Fisher's Exact Test was used for obtaining the probability levels shown.

TABLE I

OBESE AND NON-OBESE SUBJECTS' RESPONSE TO WEIGHT QUESTIONNAIRE

Question	Obese Yes	Obese No	Non-Obese Yes	Non-Obese No	p
1. Are you overweight now? If yes, how long have you been this way?	6	0	0	6	<.005
2. How often do you weigh yourself in a week?[1]	-	-	-	-	
3. How much do you weigh?[2]	-	-	-	-	
4. Do you ever now or in the past go on eating binges?	6	0	0	6	<.005
5. Have you ever gained weight lost, and gained it back?	6	0	0	0	<.005
6. When you get upset do you tend to eat more?	6	0	2	4	<.05
7. Have you ever not been able to concentrate because you were thinking about food even though you had eaten recently enough to know you could not be hungry?	5	1	1	5	<.05
8. Do you have difficulty knowing when you are hungry or satisfied?	3	3	0	6	.11 ns
9. Do you feel you must immediately satisfy all your appetites, needs, and desires?	6	0	0	0	<.005
10. Do you sometimes feel controlled by outside forces?	5	1	0	6	<.05

[1] $\bar{X}$ Obese = 176
Non-Obese = 121

[2] $\bar{X}$ Obese = 4
Non-Obese = 1

All of the obese women fit the criteria and had been obese since childhood. Only one S had become obese in late adolescence. Moreover, whereas the non-obese women weighed themselves very rarely, the obese women weighed themselves several times a week if not every day. Sometimes the frequency was attributable to their being on a diet but for some women it was a way of making their problem more concrete so that they did not get carried away still further with their eating. All of the obese women went on eating binges, lost weight only to regain it, ate more when upset and felt they had to immediately satisfy all their appetites, needs, and desires. A significant number of them also felt controlled by outside forces and had experienced difficulty in concentrating because they were thinking about food. Some of the non-obese Ss reported using food as a means of eluding feelings in times of stress but not to the same degree as the other Ss. However, contrary to what I had expected based on the literature on obesity, question eight was not significant. That is to say, only three of the obese Ss reported having difficulty in being able to distinguish when they were hungry and satisfied, the other three women reported they knew that when they ate sometimes they were not hungry but anxious, bored, happy, etc., and that nutritional satisfaction was not an important variable in their behavior. The results of this particular question raised the possibility that the women who were able to distinguish hunger from satiation were more psychologically differentiated and therefore would have less difficulty in meditating.

Krout Personal Preference Scale

Prior to the experiment and after the administration of the Weight Ouestionnaire, Ss were asked to fill out a projective, paper-pencil test which was designed by Krout and Krout (1954) to reflect the basic drives that enter into human development as described in Freudian literature. The authors deal with each of these stages as though it were a gradiant rather than treat each stage as though it were a sharply delimited category. The test consists of 10 subtests or developmental areas represented by ten statements in each area for a total of 100 items. The subject is asked to rank each statement on a three point scale as follows:

	Value
Like	2 points
Feel Indifferent	1 point
Dislike	0 points

This scale can be found in Appendix A. The authors have extended orthodox Freudian theory by specifying ten stages of psychosexual development, and believe the questionnaire has advantages over the more traditional personality tests as the items are worded in such a way that questions refer to social objects, situations, and relationships which under ordinary circumstances do not evoke emotional reactions. In their opinion it is therefore not likely to be ego-threatening and cause the subject to become anxious or defensive.

Stagner, Lawsin, and Welden (1955) conducted a factor analytical study on the scale and found that there were 10 factors

necessary to account for most of the variance. However, although they felt these do not fit the theoretical expectations completely satisfactorily, "on the whole the evidence is interpreted as confirming the Freudian hypothesis."

The Rorschach

The Rorschach was administered by myself prior to the meditation experiment following the recommendations outlined by Rapaport, Gill, and Schafer (1968)--that is, with the inquiry coming after each card--and the protocols were used in several different ways. One was to score all protocols along conventional lines to use it as a means of determining diagnoses. The test was scored by a graduate student of the City University Clinical Psychology Program according to the scoring system of Schafer (1954) and Rapaport, Gill, and Schafer (1968). Since I did not have any particular hypothesis concerning the relationship between diagnosis and obesity or success at meditation, I did not feel my having administered the test would significantly influence the results.

A comprehensive report for each of the subjects was written up which included salient aspects of personality trends, controls or defenses, direction of imaginative and affective tendencies, specific self or parental attitudes, degree of pathology and available defenses. Second, particular attention was paid to the determinants of color, movement, popular, human and animal responses, and percentages were computed for each of these categories on all of the records and these were compared within the different

meditation groups and between obese and non-obese Ss.

Third, Maupin's study had shown a positive correlation between response to meditation and well controlled primary process as measured by Holt's system of scoring primary process from Rorschach protocols. As this is one of the variables this study will replicate, this method of Rorschach analysis has been included.

The scoring of these protocols was done by a graduate asssitant recommended by Holt who was experienced in working with this measure. The scoring of the protocols was carried out according to the method devised by Holt (Holt and Havel, 1960) with some modifications introduced by Goldberger (1958) and adapted by Maupin for his study. After subjects were rated according to Holt's system they were then placed into three categories which differentiate three different methods of handling primary process. The first of these modes is one in which the individual admits primary process derivatives into awareness in a modulated controlled fashion and does not experience them as disruptive. The ability to handle primary process in this manner has been termed "capacity for adaptive regression" or "regression in the service of the ego." The second method involves a more rigid style of functioning in which the person does not permit primary process derivates into consciousness through defensive operations. The third is a mode in which the person finds primary process derivates threatening but their defensive system is too fragile to prevent their emergence into awareness. In reviewing Goldberger's (1958) work, Maupin stated that in his study of reactions

to perceptual isolation Goldberger combined these three groups into a single dimension and found it correlated positively and significantly with pleasant affect, controlled primary process, sleep, self-stimulation and free secondary process during isolation. Maupin reports Goldberger's rationale for combining the Rorschach scores into a single scale appears justifiable on theoretical groups and was therefore used in Maupin's study as well as the present one. Subjects were ranked along a scale from a large or small amount of well controlled primary process manifestations, to a large or small amount of primary process manifestations poorly controlled.

In an attempt to replicate Maupin's finding that comfort in the face of unrealistic experience is positively correlated with subjects' ability to meditate, this fourth and final method of Rorschach scoring has been used in this study.

The scoring was done independently by two graduate students of the City University Clinical Psychology Program. Training for scoring these protocols consisted of reading Klein, Gardner, and Schlesinger's (1962) "Criteria for Judging Tolerance for Unrealistic Experience from Rorschach Protocols" and "Modifications of Tolerance for Unrealistic Experience Criteria" as introduced by Maupin (1962a) (see Appendic C). In Maupin's study judges agreed in their initial categorization of 19 of the 28 records and in only two instances was a record rated "tolerant" by one judge and "intolerant" by the other. His reliability which was computed by means of the rank correlation coefficient, Tau, gave a value of .63 ($p < .001$).

After studying these criteria observers placed each record in a "tolerant," "intolerant," or "undecided" category. In this study raters agreed on 10 of the protocols placing them in the "tolerant" or "intolerant" category. One of the raters had placed the two remaining protocols in the "undecided" category, while the other observer had rated them "intolerant." The disagreed-on two cases were resolved by another blind rating by a third person who rated them both "intolerant."

The Meditation Exercise

Subjects in this experiment had the opportunity of taking part in an intensive one day introductory Zen "sesshin." "Sesshins" are a regular occurrence for introducing new students into meditation. It is a special time set aside for Zen training. During such times all activities are strictly regulated, meals are prepared beforehand, and students are not permitted to speak from the time it begins until it is terminated. Every minute during this time is planned toward maintaining intense concentration and no one is permitted to wander off. Even going to the bathroom is permitted only at certain times. This method was chosen rather than Maupin's of having subjects come once a week for a two week period since it provided them with a greater opportunity of entering into Zen meditation, and it duplicates the experiences of a serious Zen student.

A separate sesshin was held for each group at The First Zen Institute of America. The selection of this site for the experiment was based upon the fact that the Institute is centrally located and

provided sufficient space and privacy for subjects to participate without any outside interruption or inconvenience. These conditions have proven satisfactory for similar meetings held in the past. (Such meetings were held for such diverse groups as MIT, Smith, Drew and many others who were interested in Zen meditation.)

Procedure

Subjects arrived at 8:30 A.M. and were handed mimeographed sheets of instructions outlining the specific procedures for decorum and meditation to be observed during the day. These instructions can be found in Appendix D.

After the Ss read the instructions there was a practice period in which the ritual and meditation exercise outlined in the instruction sheets were performed. The Sesshin was led by Mary Farkas, Secretary of the First Zen Institute, and myself. Ms. Farkas has been practicing Zen meditation for 35 years under four Zen masters and I have been practicing for ten years, five of which have been under a master.

Traditionally, Zen meditation is done in the full lotus or half lotus position. However, since its introduction into the West, a chair has also been recommended as an option as long as the person holds himself straight and does not lean back on the chair (Kapleau, 1966; Maupin, 1962; Kondo, 1958). In this experiment, however, subjects were seated on benches with pillows and no backs to assure that the correct posture was more likely to be maintained. The meditation period was twenty minutes, which is five or ten minutes less than

more experienced meditators might be required to sit during such intensive Sesshins. Such an abbreviation in time period is often employed with beginning students who would probably be overburdened with the demands and rigors of more protracted meditation periods. The schedule for the entire sesshin can be found in Appendix E. After each twenty minute meditation period there is a five minute period of walking called Kinhin in Japanese. Traditionally, kinhin is not considered a break from meditation but rather a continuation. It requires the person to follow the person in front of him and everyone should be moving forward on the same foot at the same time. This has often been referred to as "meditation in action", as it is necessary for the student to be aware and watching very closely as the leader can change the rhythm at any time. After the walking, each subject was handed a folder with his name on it which contained the following instructions:

Instructions for Writing up Your Experiences

You will be given five minutes to write up your experiences for the previous meditation period. Please answer the following questions as fully as you can. After answering these questions, feel free to make any other comments about your experiences.

1. What percentage of the time do you think that you were fully concentrating on your breathing?

2. Did you have any unusual sensations: If so, describe fully.

3. Did any feelings occur? If so, what were they--pleasant or unpleasant?

4. If any obstacle to concentration arose, how did you handle it?

These questions were asked with the purpose of eliciting the specific patterns of meditation Maupin designated which would help to determine what level of success subjects had attained for that particular meditation period. The meaning and criteria for "success" will be taken up in a subsection called "Procedure for Scaling Response to Meditation" in this chapter. Subjects answered these questions after each of the six meditation periods. This was then followed by another five minute period of walking before the beginning of the next meditation period. There were three meditation periods before lunch and three afterwards. Even the lunch is considered part of the Sesshin and is eaten in complete silence.

The meditation took place in a dimly lit, large, spacious room in which all furniture had been removed with the exception of the benches which were placed along, but not against, one wall. At the head of the room there was an altar with a Buddhist statue and religious scroll. This arrangement was ordinarily part of the room and it was left in place becuase it was felt that it would not affect the results in any way.

Subjects were seated sufficiently apart from one another so as to avoid physical contact. They could not see one another unless they turned their heads or glanced to the side which was discouraged by Ms. Farkas and myself who were sitting directly opposite the women on either side of the room observing. It is traditional that the person leading the Sesshin is responsible for maintaining discipline

which would entail observing the people while they are meditating and warning them there is "no moving." In addition, it is customary for a student or monk to patrol the meditation area with a special stick which has several purposes, one of which is to help the student maintain his intense concentration and discourage him from relaxing or falling asleep. This state of awareness which is cultivated has been compared to "a cat watching a mouse."

Ms. Farkas and I observed the women very closely while they were meditating and noted down each time they moved. The sheets we used (see Appendix F) contained the name of each subject and was broken down into the various parts of the body so that each time the person moved a certain part of his body it was checked on the sheet. We did this to obtain some objective behavioral measure as to their ability to concentrate and the amount of discomfort they were experiencing. The assumption underlying the observation of these subjects while meditating was that an individual who is fairly comfortable with the meditation experience would not make many movements or any shifts in body position. Zen literature contains many references to the fact that the person who is moving about is agitated and therefore not meditating. On the other hand, it is also assumed that poor posture can lead to loss of concentration. Kapleau (1966) noted, "It is well known that a bent back deprives the mind of its tension (italics mine) so that it is quickly invaded by random thoughts and images...." (p. 101). Therefore, the position of the body is important for sustaining this type of attention. For the purposes of this study, the degree of concentration on breathing estimated by

the subjects plus the number of times they were observed moving were considered two operational definitions of "depth of meditation," and their verbal reports were a third.

After the experiment, the number of times a subject was observed moving, no matter what part of her body, was totaled up and a separate figure was arrived at for each of the six meditation periods. Then the question of reliability between observers was undertaken by a correlational comparison of these six periods. The data showing high reliability between the two independent observers is provided in Table 2.

Moreover, if the assumption regarding body movement being indicative of poor concentration is correct, there should be a negative correlation between the amount of body movement observed and the percentage of time a subject estimated he had been concentrating. For example, a low percentage should reflect a high amount of movement.

TABLE 2

CORRELATIONS (PEARSONS PRODUCT MOMENT) BETWEEN TWO INDEPENDENT RATERS ON THE AMOUNT OF BODY MOVEMENT OBSERVED

	Meditation Periods					
	1	2	3	4	5	6
	.83	.97	.95	.94	.80	.87
Significant level	.001	.001	.001	.001	.02	.01
Degrees freedom	10	10	10	9	6	5

Table 3 shows that the correlations obtained were in the predicted direction but only the fifth meditation period was statistically significant beyond the .05 level.

TABLE 3

PEARSONS PRODUCT MOMENT CORRELATION BETWEEN AMOUNT OF BODY MOVEMENT OBSERVED AND SUBJECT'S ESTIMATE OF HOW WELL SHE MEDITATED (CONCENTRATED)

	Meditation Period					
	1	2	3	4	5	6
Observer #1	-.34	-.56	-.49	-.52	-.88*	-.58
Observer #2	-.26	-.40	-.39	-.51	-.78**	-.74
Degrees freedom	10	10	10	10	6	5

* Sig. $<.01$
** Sig. $<.02$

In general it held true that the more comfortable subjects moved around the least and only one woman that left the experiment early because she was so uncomfortable did not give any visible signs of her distress. Differences in the observers is in part attributed to the fact that Ms. Farkas had decided without consulting me that subjects changing the position of their hands so that they would be correctly positioned did not count as "movement" as this was something they were doing out of awareness and not just some obvious sign of their discomfort.

Procedure for Scaling Response to Meditation

Response to meditation was scored by asking two raters to examine subjects' comments for each session and judge which of the following three patterns had been experienced. These patterns were derived from Maupin's study:

Pattern A: This pattern is characterized by a very lucid state in which the subject can observe all thoughts and feelings which arise with a sense of detachment. Concentration should be effortless and subjects will report they experience their breathing very vividly. Extensive loss of body feeling may accompany this pattern as well as a sense of "oneness."

Pattern B: These are periods of meditation in which subjects report feeling quite calm and relaxed. These feelings may take the form of pleasant body sensations, which may be felt as erotic. Sensations are described such as "vibrations" or "waves." Subject may feel his body is "suspended" or "light."

Pattern C: To qualify for this pattern, subject will report difficulty in concentrating, dizziness, "befogged" consciousness, feelings of being hypnotized, or going under an anesthetic. These feelings are experienced as unpleasant and the person may retreat into increased thinking and is unable to get into concentrating on his breathing.

In addition to subjects' subjective reports on each of their six meditation periods, the raters were provided with the percentage

of time they estimated they had been meditating, as well as amount of body movement which had been observed for these sesshins. Utilizing the following criteria raters were asked to judge which group each subject qualified for:

Group I--Highly Successful: Subjects in this group experienced Pattern A more than once in six sessions. They reported no sessions in which they felt uncomfortable or feelings of unpleasantness. Their mean estimated time spend meditating can range from 75% and better and their observed body movement must be very low for the majority of the six sessions.

Group II--Moderately Successful: Subjects in this group experienced Pattern A only once if at all. The majority of their sessions is characterized by Pattern B, i.e., feelings of being relaxed, calm, some loss of body feelings and vivid breathing. They also, however, will report some sessions in which they had unpleasant sensations and some difficulty in concentrating. Their mean estimated time spend meditating can range from 50% to 75%. Subjects in this group will have been observed being moderately uncomfortable while meditating.

Group III--Poor Meditators that Stayed: Subjects in this group experienced neither the physical sensations nor the vivid breathing experienced by Group II. The meditation periods for this group is characterized by Pattern C, i.e., dizziness, unpleasantness, feelings of being "hypnotized," and a general sense of discomfort and distress. There should be an excess of body movements accompanying

these verbal reports, and their mean estimated percent of concentration should range from 0% to 50%.

Group IV--Poor Meditators that Left: Originally I thought that the above three groups would be sufficient, as it appeared to be in Maupin's work, but since four subjects left the experiment without completing all six sessions I felt that a fourth group comprised of these subjects was needed. Subjects in this group experienced similar feelings to those expressed by Group III, i.e., dizziness, unpleasantness (Pattern C), except they did not stay for the entire experiment.

Raters were given examples of each of these patterns and they had no difficulty in deciding which subjects fell into Groups III and IV. The women in these groups consistently reported states of fatigue, distress, the need to continually move, etc. They had no sessions in which they were comfortable for even the briefest amount of time. There was no difference between the group that stayed and those that left in that their verbal reports were quite similar and the percentage of time they estimated they meditated was equally quite low. Both groups were observed as being behaviorally uncomfortable according to the criteria.

In judging Group II there was some difficulty in that it was found that the criteria for subjects estimating their average concentration to be 50% to 75% was too high since one subject in this group had estimated two sessions in which she meditated 1% of the time (she fell asleep) and this lowered her overall average to 33%.

However, as there were meditation periods in which she had experienced Pattern B, her subjective reports took precedence over the estimated percentege of time spent meditating and she was placed in Group II--the "Moderately Successful."

The requirement that subjects experience Pattern A more than once before being placed in the Highly Successful Group is more rigorous than that used by Maupin. He required his subjects to have experienced this pattern at least once before being placed in this group. However, there were three women in this experiment who were clearly superior in their ability to meditate consistently well. They all had several sessions in which Pattern A had been experienced, they had estimated their percentage of time actually spent concentrating to be much higher than the other women, and they had been observed changing position so infrequently for all six meditation sessions that it was obvious that they were consistently more comfortable with the meditation experience.

Table 4 shows the breakdown of the number of women in each meditation group and the number of times each pattern had been experienced.

Each subject meditated for six twenty minute periods except those Ss that left the experiment prior to its conclusion. Three of the Ss left after four meditation periods and one left after three.

TABLE 4

RESPONSE PATTERNS REPORTED TO MEDITATION BY THE HIGHLY SUCCESSFUL, MODERATELY SUCCESSFUL, POOR MEDITATORS THAT STAYED, AND POOR MEDITATORS THAT LEFT

Group	Number of subjects	Patterns		
		A	B	C
Highly Successful	3	10	8	0
Moderately Successful	3	2	10	6
Poor That Stayed	2	0	0	12
Poor That Left	4	0	0	15

Results

My first hypothesis was that the obese Ss would have more difficulty meditating than the non-obese Ss. The findings do not bear out that hypothesis.

Table 5 shows the number of Ss from each group who fell into the four main categories that measured success at the meditation--Highly Successful, Moderately Successful, Poor Meditators Who Stayed, and Poor Meditators Who Left. These findings fail to provide any support for the hypothesis that obesity would be related to meditation success.

TABLE 5

NUMBER OF OBESE AND NON-OBESE SUBJECTS IN EACH OF THE FOUR MEDITATION GROUPS

	Highly Successful	Moderately Successful	Poor Meditators Who Stayed	Poor Meditators Who Left
Obese	2	1	2	1
Non-Obese	1	2	0	3

When we collapse the categories into a twofold classification, Successful and Unsuccessful, by combining the first two categories and the last two, we find a perfectly even distribution of Ss: 6 Ss were Successful and 6 were Unsuccessful, and exactly half of each group fell into each of these two categories. In other words, an equal number of obese and non-obese Ss were judged Successful and Unsuccessful.

In fact, the largest difference (though it falls well short of statistical significance since the numbers are so small) is in a direction that is opposite to the hypothesis: of those Ss who were Unsuccessful at meditation four quit the procedure, and three were from the non-obese group; only one obese S who was Unsuccessful quit.

Unlike the first hypothesis, the second hypothesis was supported from the findings. My results showed that Ss who were successful at meditation tended to exhibit "good" primary process

performance on the Rorschach, thus exhibiting good Adaptive Control.

Table 6 shows the number of subjects in the Successful and Unsuccessful groups who had "good" or "poor" control over their primary process related responses. Five of the women in the Successful group exhibited "good" control, whereas five of the Ss in the Unsuccessful group demonstrated "poor" control.

TABLE 6

NUMBER OF SUCCESSFUL AND UNSUCCESSFUL MEDITATION SUBJECTS AND THEIR GOOD OR POOR CONTROL OVER THEIR PRIMARY PROCESS RORSCHACH RESPONSES

	Subjects		
Primary Process	Successful	Unsuccessful	Fishers' Exact Test
Good Control	5	1	
Poor Control	1	5	$p < .05$

There were no differences between the obese and non-obese subjects along the "control" dimension of primary process functioning. Table 7 shows the number of obese and non-obese subjects whose primary process responses were well controlled or poorly controlled. There were an equal number of subjects in both of these categories.

TABLE 7

NUMBER OF OBESE AND NON-OBESE SUBJECTS AND THEIR GOOD OR POOR CONTROL OVER THEIR PRIMARY PROCESS RORSCHACH RESPONSES

	Subjects	
Primary Process	Obese	Non-Obese
Good Control	3	3
Poor Control	3	3

I had also hypothesized that response to meditation would be positively correlated with Rorschach ratings of tolerance of unrealistic experience and Table 8 shows the "tolerance" ratings for Successful and Unsuccessful subjects. It presents the data that while the hypothesis was not supported to a level of statistical significance, the results were suggestive and in the right direction. Probabilities vary a great deal with a small sample because of the idiosyncrasies of one person. For example, if all six Ss had been judged "intolerant" rather than five, the probability goes down from $p < .12$ to $p < .03$.

TABLE 8

NUMBER OF SUCCESSFUL AND UNSUCCESSFUL SUBJECTS RATED TOLERANT OR INTOLERANT OF UNREALISTIC EXPERIENCE

	Meditation Subjects		Fishers' Exact Test
	Successful	Unsuccessful	
Tolerant	4	1	
Intolerant	2	5	$p < .12$

There was no relationship between obesity and tolerance for unrealistic experience. Table 9 presents the number of obese and non-obese Ss who were rated "tolerant" or "intolerant" of unrealistic experience.

TABLE 9

NUMBER OF OBESE AND NON-OBESE SUBJECTS RATED TOLERANT OR INTOLERANT OF UNREALISTIC EXPERIENCE

	Subjects	
	Obese	Non-Obese
Tolerant	2	3
Intolerant	4	3

Krout Personal Preference Scale

Krout Personal Preference Scale (P.P.S.) which is a paper and pencil test which was designed to tap ten areas of psychosexual development proved ineffective in distinguishing any differences between or within these groups of Ss. Table 10 presents the mean scores and standard deviation for each of these ten areas for all four meditation groups. It can be seen just by inspection of the data that there were no major differences between these Ss. In this table, Group I refers to the Highly Successful Ss, Group II is the Moderately Successful, Group III are the Poor Meditators Who Stayed, and Group IV are the Poor Meidtators Who Left. A score of ten refers to a low score on the scale, 20 is the medium of "normal" and 30 is considered high. See Appendix G for a detailed explanation of each of these ten categories.

TABLE 10

MEDITATION SUBJECTS' MEAN SOCRES ON THE
KROUT PERSONAL PREFERENCE SCALE
(STANDARD DEVIATION IN PARENTHESIS)

Meditation Group	n	I	II	III	IV	V	VI	VII	VIII	IX	X
I	3	22 (1.8)	22 (2.7)	23 (3)	18.3 (3.2)	19.3 (1.1)	24 (3)	26 (2.9)	20.3 (1.5)	24 (3.5)	22.3 (3.2)
II		24 (3.8)	18.0 (1.0)	20.3 (4.1)	21 (1.8)	15 (1)	23 (.57)	20 (4)	21 (1.4)	22 (1.5)	18 (1.5)
III		23.0 (2.1)	21 (4.5)	19 (4.2)	15.5 (3.6)	19 (5.6)	20 (5.6)	21 (4)	21 (2.1)	21 (7.1)	15 (.71)
IV		21.2 (2.3)	20 (3)	20 (3.8)	20 (4.4)	18.3 (5.4)	26 (3)	19.5 (3)	21 (3.2)	21 (2.7)	20 (.53)

The data were also looked at to see whether there were any differences between the obese and non-obese women on this measure. Table 11 shows by inspection no differences between the obese and non-obese Ss on this variable.

TABLE 11

OBESE AND NON-OBESE SUBJECTS' MEAN SCORES ON
THE KROUT PERSONAL PREFERENCE SCALE
(N = 12 PER CELL)

Subjects	I	II	III	IV	V	VI	VII	VIII	IX	
Obese	21.2 (2.1)	20.2 (3.0)	21 (2.9)	19 (4)	18 (3.1)	22.5 (3.9)	21 (3.3)	21 (3.3)	21.2 (4.4)	1 (2.
Non-Obese	23.3 (2.3)	20 (3.5)	20.2 (4.1)	19 (3.3)	17.7 (4.7)	24.3 (2.6)	21.7 (4.6)	20.5 (2.4)	22.3 (2.2)	20 (5.3,

In addition, since there were differences between the obese and non-obese women's ages, the data were examined to see whether this variable accounted for success at meditation. However, it was clear just by inspection that age was not a significant factor in achieving meditation. Table 12 presents the ages of the women in each of the meditation groups.

TABLE 12

AGES OF SUBJECTS IN EACH MEDITATION GROUP

Meditation Group	Subject's Age
Highly Successful	46
	24
	20
Moderately Successful	36
	25
	23
Poor Meditators Who Stayed	30
	20
Poor Meditators Who Left	30
	30
	23
	20

The Rorschach

The diagnostic evaluations which were made on the basis of the Rorschach proved unsuccessful in discriminating subjects who were successful in meditation from those who were not. Appendix H presents the diagnostic summary for each subject found in the four

meditation groups. The same data is presented in Appendix I with the exception that it is broken down into the diagnostic evaluations for obese and non-obese Ss.

Although the overall diagnositc summaries on these subjects were not useful in finding differences between and within these groups, an analysis of variance which examined the individual Rorschach determinants of color, movement, popular, animal, and human responses revealed a significant difference between the obese and non-obese Ss on these variables. It did not, however, show any significant differences between Successful and Unsuccessful or Successful obese and Successful non-obese Ss based on their Rorschach. Table 13 presents a summary of these data.

TABLE 13

SUMMARY OF ANALYSIS OF VARIANCE

Source	df	MS	F
Between Subjects	11		
A (Success)	1	6.67	0.11
B (Obesity	1	3.37	0.06
AB	1	17.07	0.29
Sub w. groups	8		
Within Subjects	48		
C (Rorschach categories)	4	1036.56	18.26**
AC	4	77.71	1.37
BC	4	400.98	7.06**
ABC	4	1.19	0.02
C x sub w. groups	32	56.76	

**$p < .01$

The five Rorschach categories of movement, color, popular, animal, and human responses were individually analyzed for obese and non-obese Ss. As can be seen from Table 14, movement, color, popular, and animal responses were the four categories in which significant differences are found between obese and non-obese Ss. As had been expected from the literature, obese women gave significantly more color, animal, and popular responses and correspondingly less movement responses than did their non-obese counterparts.

TABLE 14

MEAN PERCENT AND STANDARD DEVIATION (IN PARENTHESIS) OF MOVEMENT, COLOR, POPULAR, ANIMAL, AND HUMAN RESPONSES GIVEN BY OBESE AND NON-OBESE SUBJECTS

Rorschach Category	Obese N = 6	Non-Obese N = 6	t ratio	p
Movement	11.3 (7.2)	24.8 (9.3)	2.84	<.05
Color	13.3 (8.5)	4.8 (3.13)	2.29	<.05
Popular	21.0 (7.7)	10.0 (3.9)	3.10	<.05
Animal	33.5 (6.6)	24.8 (4.9)	2.64	<.05
Human	24.0 (13.3)	32.6 (10.5)	1.26	ns

CHAPTER IV

DISCUSSION

Obesity and Zen Buddhism are two topics I have had a deep personal interest in for many years. In searching for a research project that I would find meaningful, I wondered whether there might not be some way in which these two areas could be combined. It was while reading about the cognitive and emotional requirements which seemed involved in the meditation process that it occurred to me that obese women should have great difficulty meditating. My belief was based especially on Maupin's (1962a, 1962b) work which suggested that proficiency was dependent on a level of mature ego development usually not ascribed to obese individuals. In addition, although Linden's (1972) research had to do with increasing field independence in children by the process of Zen meditation, he had suggested that this increase was possible because the cognitive process involved in being able to meditate resembled those required for success in tests of field independence. As I knew of studies that had shown obese women to be more field dependent I felt here was further evidence to support my hypothesis that obese women would have more difficulty meditating than other women.

However, contrary to my hypothesis, my results showed that obese women were not any worse or better at meditation than their non-obese controls. The obese women in my study did just as well as the non-obese, and were in fact found equally in the Successful and

Unsuccessful categories. Three obese and three non-obese women were unsuccessful. However, all of the Unsuccessful non-obese women left the experiment whereas two of the obese women who were equally uncomfortable stayed and endured the frustration and discomfort of the situation. Of course, the fact that these women stayed has no meaning statistically because the number of subjects is too small; however, I personally feel it is another example of a qualitative difference I experienced between these two groups. This difference in their attitude and behavior appeared to revolve around issues of dependency and need for approval. For example, from the time I called the obese women and asked them if they would be willing to participate as subjects, there was a difference between these women and the others in their needs and expectations of what I should provide. When I telephoned some of the women they said they were on a diet and therefore there was a great deal of discussion as to what would be served for lunch. The morning of the experiment, three of the obese women threatened to leave if they could not get coffee. It was only by telling them they should consider going without it as part of the discipline of meditation that they agreed to stay. There was also a lot of talk among themselves while instructions were given on how to put on the robes and several of the women asked that I help them dress. During the meditation periods, the obese women were noted as giving much more vocal expression to their annoyances and discomfort. They were also observed making many more attempts at non-verbally signalling their distress and asking for some kind of reassurance or relief. One very obese woman who had been moderately successful

at meditating claimed before the very last meditation period that her back hurt. I provided her with a special chair and a few minutes later she fell asleep. At the end of the experiment she confided in me that her back had not been hurting but she did not want to continue trying to meditate and she did not want to leave as she felt it would be disloyal to me and set a bad example for the other women.

After the experiment all the obese women commented on how nice the lunch was and some stated it had given them the encouragement to go on and finish the experiment. I had observed during lunch that even the most disruptive subject, who eventually left, became quiet. One woman called me a week later to ask the name of the crackers I had served. Furthermore, when the bell rang signalling the end of the experiment all of the obese women turned to Ms. Farkas and myself as though asking and expecting some kind of acknowledgement that they had accomplished something very special.

The behavior and attitude of the other women was quite different. These women never raised the issue of lunch or questioned me as to what would be served. Upon their arrival at the Institute, none of them asked for anything special and there was little discussion among themselves and no pleas for special attention in getting dressed. During the meditation itself it was not always easy to tell just by looking which women were having difficulty to the point that they would leave. One woman in particular barely moved but quit after lunch because she found the tension in trying to clear her mind exhausting. None of these women expressed concern as to what would

happen to the experiment if they left. Although all of the women who eventually left waited till after lunch, contrary to the obese women who were comforted by the food, these women reported it gave them no special enjoyment and some claimed it only served to make them feel more nauseated. When the experiment was over, the three non-obese women who had remained spoke about how much they felt they had benefited from the experience. In contrast to the obese women they did not appear to need or want any acknowledgement of their accomplishment from me of Ms. Farkas.

The impression that some of the obese women stayed because they were dependent on our relationship appears to be further supported by the observation that all of the remaining obese women stated they felt controlled by outside forces, whereas none of the other women reported experiencing themselves in such a passive-dependent manner. The profile of the obese group as being more dependent is also reinforced by the significant results found on the Rorschach in relation to the determinants of color, movement, popular, and animal responses. Their emphasis on color, popular, and animal and significantly less movement responses is indicative of an impulsive, non-reflective style usually ascribed to the obese personality. This combination of determinants closely resembles the defensive style of the hysteric and raises questions as to whether obesity may not serve the same defensive function as a glove paralysis. It also points to a more dependent, childlike orientation on the part of these women in relation to their environment and others.

These results lead me to conclude that a more impulsive, global style of cognition need not rule out success at meditation, and obesity as a variable does not necessarily preclude an individual being able to meditate. In fact, it is also possible that as Zen discourages analyzing, people who rely less heavily on intellectualization and other obsessive defenses might do quite well. In line with this reasoning, it is interesting to note that M, which is usually associated with introspection and capacity to delay impulse, had no relation to meditation.

The use of some form of meditation as an adjunct to psychotherapy with obese individuals might also prove beneficial, since some preliminary studies (Pelletier, 1973; Hines, 1973) have suggested that changes occur in the direction of greater field independence following several months of meditation. One study which might be interesting would be to investigate the effects of meditation on field independence and the problem of obesity itself , that is, to explore whether practicing meditation not only leads to greater self-object distinction but also loss of weight. Of course, given what appears to be their need for structure and dependence on others for control , it would probably be most beneficial if the meditation were done in groups and at specified times as it is doubtful whether these individuals would continue the discipline on their own over an extended period of time. This need for structure and dependence on others for control on the part of obese individuals may be one reason why so many of them lose weight when they belong to a weight reducing

club but gain weight back once they stop going. That is, the meetings provide an external framework and support. When this no longer exists they return to their old habits.

One problem inherent in the initial hypothesis was the assumption that an important criterion for success would be a pre-existing introspective cognitive style that was typical of field independent functioning, i.e., one that was analytical and enabled the person to make fine distinctions between internal states. I thought this would be important because the person had to know when she was meditating and when she was not so that on becoming aware that her attention had wandered she could return to the object of concentration. However, upon examining the Ss' responses to the question, "If any obstacle to concentration arose, how did you handle it?" it became clear that all the women were aware of when they were concentrating and when they were distracted. The problem was not that they did not recognize when they were not meditating but rather they were not able to disengage themselves from whatever was interfering with their concentration. One woman, for example, could not stop thinking except for very brief periods when she could concentrate but she would then start to think again and forget about meditating. The ability to observe the contents of consciousness non-judgmentally seemed to depend on how preoccupied the subjects became with the material that arose and how comfortable they were in a situation in which the distractions of everyday life had been withdrawn, rather than on their possessing a field independent style of cognition. All of the women who left

the experiment early and those who stayed but could not meditate knew they were not concentrating, but they felt helpless in that they were unable to push aside their discomfort or distractions in order to get into the meditation.

The explanation as to why the Unsuccessful women who left the experiment early could not get into meditation seems quite clear. These women had statistically significant larger percentages of poorly controlled primary process than did those women who stayed. (The mean percent was 71, standard deviation 22.3, for the women that left, vs. a mean of 48 percent and standard deviation of 11.8 for those who stayed. A t test on the data yielded a t ratio of 2.23 significant $< .05$ level.) In other words, all of the women who had difficulty suppressing large amounts of primary process responses, which they experienced as disruptive, from surfacing in the unstructuredness of the Rorschach setting also had difficulty meditating. It seems to me, therefore, based on these Rorschach results, that these women were unsuccessful because they experienced the discipline of not being able to move, speak, or look around as very frightening as it allowed the emergence of material they wished to avoid confronting. Although meditation appears to be a very structured experience, in actuality it allows the imagination as much freedom as the Rorschach, if not more. It is the outside form which is very rigid in that emphasis is placed on sitting in a certain posture, not moving and not speaking. However, these requirements are imposed as a means of confronting the student with what he is actually thinking and

feeling. You cannot know what is in your mind until you try to sit down and quiet it. This confrontation becomes possible simply because all of the devices usually used to avoid or prevent this awareness have been taken away. It is my feeling, based on these results, that these women would probably be uncomfortable in any unstructured setting in which external supports they usually rely on to maintain control have been withdrawn. These women never got to meditate because their rigidity caused them to become increasingly tense, bored, and fatigued as a result of their defensive struggle to keep unacceptable impulses or thoughts from surfacing into awareness. The brittleness in their defenses is further evidenced by the striking absence of benign color responses in their Rorschach records. Among the four women that left the experiment prior to its conclusion there were only four color responses. Of these three were "blood" and one was "a rocket firing," indicating that when an emotional response does come through it is uncontrolled and thematically aggressive. The women who stayed for the entire experiment had almost six times as many color responses (mean 12.5, standard deviation 7.3) than did those women who left (mean 2.7, standard deviation 1.9). A t test on the data yielded a t ratio of 2.80 significant at $<.02$ level.

Furthermore, it would seem that their need for conventionality in approach to life as a means of defending themselves against disorganized and unintegrated internal experiences is evidenced by their all having been judged "intolerant of unrealistic experiences." Based on these findings, it appears than an individual who had

numerous primary process responses poorly controlled coupled with a Rorschach rating of "intolerant of unrealistic experience" and little or no benign use of color on the Rorschach would have great difficulty entering into Zen meditation.

As I reviewed the literature once more, I was especially struck by the similarities in my results and those either hypothesized or actually found by Goldberger (1958) in his work on individual differences in response to perceptual isolation. In these experiments elaborate procedures had been taken to prevent subjects from drawing on their usual sensory feedback system to maintain contact with reality as we usually experience it. In his study, Goldberger had suggested that the manner in which a person reacts to a situation in which he has limited contact with the structure of the external world would be related to how his ego managed to deal with primary process. This hypothesis was based on Rapaport's (1958) paper in which he stated that all structures serving ego functions are only relatively autonomous from the id and are dependent on stimulation, i.e., external reality, for their stability. Although Goldberger had hypothesized that quitting the experiment prior to its conclusion would be related to a subject's having given numerous primary process responses with poor control on his Rorschach, his results were not statistically significant. In my experiment these variables also seemed to contribute to subjects quitting. Although I have no data to support my claims, I have the impression that for some people the amount of reality withdrawal necessary before their defenses break down and they

are flooded with disruptive impulses or thoughts is quite small. This comes from the fact that meditation does not utilize any elaborate procedures to withdraw normal reality cues and yet certain people felt uncomfortable enough that they chose to terminate the experiment prior to its conclusion.

Other similarities which I found interesting were that Goldberger and Holt (1961) found that subjects who experienced isolation as unthreatening moved around very little. Heretofore, as was suggested by the Zen literature, those Ss in the Highly Successful meditation group were also observed as moving around the least. In addition the authors found that after eight hours of isolation most of the characteristic effects took place after 50 minutes to three hours in that three of their fourteen subjects quit during that time. I also found that four of the twelve subjects quit after two hours and in most instances it was obvious by just observing within the first 40 minutes which subjects could meditate and those who could not.

Maupin (1962b) did not think the studies on perceptual isolation were relevant to Zen meditation and instead he focused on its early stages which he felt resembled results found in studies using relaxation techniques. He suggested that the differences between Zen meditation and the reserach on isolation were more important than the similarities. The one difference he mentions is that the Zen student sets out to deal with mental activity in a fairly specific way whereas the perceptual isolation subject is left much to his own devices. The results of my experiment, however, lead me to

believe that this distinction is more imagined than real. Although it is true that all of the women in my experiment were taught what to do if their minds wandered and how to meditate, the written reports of some women and my own observation of their behavior clearly indicates that they were incapable of following the instructions. Perhaps one explanation for the differences in our conclusions might be based on the differences in our experimental approach. Maupin's subjects came over a two week period for 20 minutes each time and they were not observed while meditating. In addition, they were given a lot of attention and time after each meditation period in which to elaborate on their experiences. The women in my study were, on the other hand, observed at every moment and permitted to go the bathroom at only specified times. After each meditation period they were given only five minutes in which to answer very specific questions and little time was left them to elaborate on what they felt. The situation best approximated the experiences of an actual Zen student taking part in an intensive meditation "sesshin" with the exception that he would not be required or asked to write up his or her experiences. It might also be that once a person can get into meditation, the relaxation studies become relevant in helping us understand something about the process of meditation in its beginning stages but that the studies in isolation are also useful in that they help us understand the experiences of those people who are unable to meditate.

Also, in my opinion, the variable "capacity for adaptive regression," which is measured by Holt's system of scoring primary

process and its attending control, tells us something about how an individual will react to the withdrawal of external reality which precedes meditation rather than its revealing anything about the process or goals of Zen meditation itself. In addition, this measure of good or poor control over primary process seems to me to be a statement about how comfortable a subject is with the way in which he sees the world and it says nothing about the quality of his perceptions. One woman, for example, was diagnosed as "schizophrenic" but she was also rated as having "good control" over numerous primary process responses. Although some of her Rorschach record was very strange, she did not find her responses frightening and was in fact quite comfortable with her perceptions. In terms of diagnosis she was obviously the most disturbed in the group but she was moderately successful at meditation and she did not have the need to run away.

Moreover, although many primary process responses with poor control and a rating of "intolerant of unrealistic experience," coupled with little or no use of benign color on the Rorschach were the combination of variables which were indicative of failure--their opposite did not assure success. The combination of variables that went into predicting success were much less obvious and there appeared to be more than one way in which a person could enter into meditation. For example, some women seemed able to enter into it right away whereas others had a more difficult time setting aside distractions.

It is interesting to note that in terms of amount of primary process responses, the women in the Highly Successful group had significantly lower percentages of primary process than those in the Moderately Successful group. (The mean for the Highly Successful group was 40%, standard deviation 11.4, whereas the Moderately Successful group's mean was 57%, standard deviation 7.0. A t test showed the data to be significant at t 2.833 $<$.05.)

Although there are too few subjects to say anything definitive about the results, it is interesting to speculate that perhaps the more primary process one has the more material one has to deal with in meditation. Being comfortable with one's thoughts is different from being able to stand back and observe them objectively. Meditation requires that the student not analyze the contents of consciousness but rather observe the process non-judgmentally. Contrary to Western notions regarding the importance of verbalization and thinking, in this system thoughts are regarded as hinderances as they obscure the realization of that state of consciousness in which "no thought" exists.

I also found that two of the women in the Highly Successful group who had been judged as having "good control" were also rated as "intolerant of unrealistic experiences." My clinical impression and the diagnostic evaluation of these women was that they were very pragmatic, down-to-earth people with important obsessive defenses. They were used to doing things effectively and seemed task oriented so that they went about the job of meditating in the same way they might cook a meal or wash the floor.

Although this variable was suggestive as entering into the process of meditation, especially in relation to those women who left, I feel that one problem with this scale--as Feirstein (1967) pointed out--is that ratings are either positive or negative and there is no such category as "moderate tolerance." But perhaps more important, in relation to meditation, it seems to me that the criteria for choosing Ss as "intolerant" penalize those individuals--such as these two women--who are more concerned with reality and critical of flights of fantasy. Although this characterisitc may not bode well for creative tasks, it appears that it need not preclude success at meditation and may also enhance it. All of the women in the Moderately Successful meditaiton group had numerous primary process responses on their Rorschach and had also been judged as "tolerant of unrealistic experience." It is possible that these women were not Highly Successful because they are given to daydreaming and place great worth on their cognitive processes. However, as meditation requires the student to focus his mind and not become distracted by extraneous thoughts or feelings, it may actually be that this is one reason why they had more difficulty concentrating.

One of the women in the Highly Successful group who had been judged as "intolerant" sat the quietest of all the subjects for the entire four hours and her verbal reports contained no incidents of "unrealistic or unusual experiences," yet she came to the important realization that "I did not have to think about my problems." This woman had estimated that she was able to concentrate

at least 90% of the time. Based on this woman's reports and those of other subjects who did quite well at meditating, it seems to me that meditation need not be an exposure to "unrealistic experiences." One should also keep in mind that when a subject is actually meditating, that is when he is just observing whatever arises in consciousness non-judgmentally, there are no unrealistic experiences. The moment the person starts to editorialize that he is having an "unrealistic experience" he is judging, thinking, or analyzing, but no longer meditating.

A rating of "intolerant" by itself, therefore, need not rule out success at meditation. Much will depend on what the other variables look like. For example, a person may appear rigid in that he is intolerant of flights of fancy or has no need to dramatize his experiences, but if he also has good defenses which are not very dependent on externals for support he may do quite well. This type of individual must be distinguished from the one whose conventionality in approach is a defense against disorganized and unintegrated experiences. In my opinion, the women that left the experiment prior to its conclusion are good examples of this type of rigidity. It was possible for a subject to be successful and still be judged "intolerant" if this was balanced with her having primary process responses with good control. Similarly, there was a woman in the Highly Successful group that had been rated as "tolerant" but she had few primary process responses on her Rorschach with poor control. Therefore, the combination of variables that

went into making someone successful at meditation seemed less clear than those that were indicative of failure.

Besides replicating Maupin's work and investigating the effects of meditation on obese individuals, I had hoped to add some information regarding the process of meditation and individual differences in response to it by the Krout Personal Preference Scale and personality diagnoses made on the basis of the Rorschach. However, the diagnostic statement and clinical impression of the subjects made on the basis of the Rorschach was insufficient in discriminating any differences between the obese and non-obese subjects or between successful and unsuccessful meditators.

The Krout Personal Preference Scale also proved ineffective in distinguishing those subjects who were successful at meditation from those who were not. Nor was it useful in distinguishing obese from non-obese subjects. The results showed that these women had no great scatter on any of the ten subtests and all the scores hovered around the "normal" range of the scale.

Before concluding, I would like to add some of my own thoughts regarding the process of meditation. Maupin (1962a) had suggested that since a strong relationship emerged between response to meditation and measures of "capacity for adaptive regression," it would therefore be fruitful to conceptualize meditation as bringing

about a sequence of discrete regressions each one built upon the other and often involving "unrealistic experiences." However, based on the results of this experiment and my own experiences, I do not think this is an adequate description of the process of Zen meditation. Moreover, this kind of thinking has led some writers (Carrington and Ephron, 1975) to caution against the kind of intensive meditation experience these women went through. However, in this one day "sesshin" many of these women were able to experience the most profound states of awareness as described in the Zen literature without having to wade through unrealistic or unusual sensations. In my opinion the conceptualization of meditation as a series of regressions, and the notion that people can be flooded with unassimilable primary process and unrealistic experiences, conjures up mythical ideas about the mind which seem to be based more on Jungian notions of the unconscious rather than the actual experiences of people who have meditated for many years and over extended periods. It would seem to me that the realization of the state of consciousness in which one is just in the present does not necessarily require that the person regress through various levels of primary process in order to reach it, and Deikman's (1971) suggestion that meditation be viewed as a "different" state of awareness rather than a more "primitive" one seems more appropriate. This is similar to Lesh's (1969) suggestion that meditation is not a regression but rather an opening up to inner experience, and to what Schachtel (1959) had called "allocentric perception." If the Buddhist theories are correct then everyone has this state of consciousness which is unclouded by

preconceived notions and the problem then becomes how to realize it. I have heard many people describe experiences similar to those in the Zen literature of "just being in the present" while they were skiing, dancing, playing music, during sexual intercourse, etc. It seems to me there are any number of ways in which one may find himself in this state of awareness. The difference, however, between these experiences and those of the Zen student is in their interpretation and cultivation. The ordinary person has these experiences but usually forgets them, but the Zen student seeks to extend the time he is in that state. In addition, and just as important, is the fact that he presents himself to a Zen Master, someone who has completed his training, where not only is his understanding tested but he is provided with an intellectual framework in which he can fit these experiences so that they become a more solid foundation from which he lives his life. This is how personality change takes place, but it takes many years--Zen in my opinion is no short cut to mental health. I do not mean to imply that meditation is not beneficial to many people, but I do think that those people who use it should be clear as to what they hope to achieve by it and those who prescribe it for others should have had some experiences with it themselves. It also appears to me that we do not really know whether all meditation exercises produce the same results yet when we talk about "meditation" we quote freely research results from one study or another as though all practices have the same effects. Personally I don't think that is true but my impression is based only on my own experience and one study by Anand, Chhina, and

Baldev Singh (1969) which showed that skilled Zen and Yoga meditators responded differently to a continuous stimulus. I think that these are just some of the interesting questions that can be answered in future research now that people are a little more willing to study man in ways which up until recently would have been considered unthinkable.

CHAPTER V

SUMMARY

This study grew out of two long-standing personal interests. One is in Zen meditation and the desire to explore the principal individual-differences variables that underlie the process and the psychological traits that distinguish the person who is capable of achieving meditation and enjoying its benefits. The other is in the psychological basis of obesity. This work, therefore, combined these two interests and I investigated the relationship between obesity and the ability to achieve success at Zen meditation. For this purpose, six obese and six non-obese women were instructed on how to meditate and each group participated in a separate one-day intensive meditation exercise. This exercise consisted of six 20-minute meditation periods broken up by 5 minutes of walking and 5 minutes allowed for writing up their experiences. During this entire day subjects were not permitted to speak or look around and they were observed while meditating. Their body movements were noted by two independent raters and their response to meditation was rated as Highly Successful, Moderately Successful, Poor Meditators Who Stayed, and Poor Meditators Who Left, based on the subjective reports as well as the objective rating of their body movements.

The first hypothesis was that obese subjects would have more

difficulty learning Zen meditation than non-obese subjects; they would have less success achieving the stages of meditation and more of them would quit before the experiment had run its course. The reasoning behind this prediction was based on the research literature on the subject which portrayed the obese individual as someone who is non-reflective, impulsive, unable to distinguish his internal states and lable them correctly, and more dependent on the external environment for structure. The second hypothesis was a direct replication of an earlier study which had shown that success at achieving the three stages of meditation would be positively correlated with measures of adaptive regression and tolerance of unrealistic experiences. Adaptive regression was measured by scoring primary process performance on the Rorschach with its attending control. Tolerance for unrealisitc experience was also obtained from Rorschach protocols. A number of subsidiary hypotheses were based firstly on the relationship between ability to meditate and a variety of personality variables and secondly on the relationship of obesity with these personality variables. This aspect of the study was exploratory. Since a complete Rorschach was given each subject it was feasible to use the Rorschach protocol in a variety of clinical and psychometric ways which might uncover interesting relationships with ability to meditate on the one hand and obesity on the other. In addition a paper and pencil test designed to tap ten areas of psychosexual development was administered but proved ineffective in eliciting any relationships.

Results showed obese subjects could meditate as well as non-obese subjects. Success at meditation was significantly correlated with good control over primary process responses (adaptive regression). The variable tolerance for unrealistic experience, while not significant, was numerically suggestive especially in relation to those women who quit the experiment. Diagnostic evaluations made on the basis of the Rorschach did not reveal any particular clinical pattern between or within these groups. It did, however, distinguish obese subjects from non-obese subjects based on the categories of color, popular, animal, and movement responses. Statistical analysis revealed that obese subjects gave significantly more color, popular, animal, and less movement responses. These results are in agreement with the literature which suggests obese individuals to be more impulsive and less reflective (i.e., hysterical).

Discussion centered on possible reasons for the obese women's success at meditation and the problems inherent in the initial hypothesis. It appeared, for example, that the obese women did not suffer from a global failure to discriminate their internal states. Moreover, a pre-existing field and independent style of functioning did not seem an important criteria for success. All subjects were aware when they were not meditating but some expressed an inability to set aside their distractions and focus on their breathing. In addition, the experimenter's clinical impression based on the behavior and attitudes of the two groups was that the obese women were more childlike and dependent. Evidence supporting this view was given.

The similarities between the results of this study and those on perceptual isolation were noted and seemed relevant in explaining why some subjects could not begin to meditate and quit the experiment prior to its conclusion. It appears that the women who gave numerous uncontrolled primary process responses on the Rorschach experienced the meditation situation as very threatening. They never got to meditate because they were involved in a defensive struggle to keep unacceptable impulses or thoughts from surfacing. This struggle left them feeling tense, fatigued, and bored. The fact that all of these women were also judged as intolerant of unrealistic experiences seemed to support this view.

Success at meditation, on the other hand, appeared related to comfort with one's internal world and situations in which the normal distractions of everyday life had been removed. Although good control over primary process was a significant factor in achieving success, the other variables seemed less clear. For example, some successful subjects were rated as intolerant of unrealistic experiences. Some problems with this scale and those of a small sample were discussed and the question was raised whether meditation necessarily involved exposure to unrealisitc experiences.

It was suggested that the process of meditation not be regarded as a series of discrete regressions, as was suggested by earlier studies, but rather as a different mode of experience, not a more primitive one. Future research possibilities were discussed in relation to obesity and the use of meditation and the process of meditation itself.

APPENDIX A

THE PERSONAL PREFERENCE SCALE

I

1.	Sleeping alone in a house	L	FI	D
2.	Working in a soundproof room	L	FI	D
3.	Sleeping curled up	L	FI	D
4.	Swimming under water	L	FI	D
5.	Sleeping in the nude	L	FI	D
6.	A seat near the wall	L	FI	D
7.	Sleeping under heavy blankets	L	FI	D
8.	Floating in the air	L	FI	D
9.	A place that's always warm	L	FI	D
10.	Sleeping long hours	L	FI	D

II

1.	Sucking candy	L	FI	D
2.	Studying languages	L	FI	D
3.	Drinking strong beverages	L	FI	D
4.	Eating soft-boiled eggs	L	FI	D
5.	Eating cooked cereals	L	FI	D
6.	Warm milk	L	FI	D
7.	Eating rich creamy foods	L	FI	D
8.	Getting breakfast in bed	L	FI	D
9.	Bland (lightly seasoned) foods	L	FI	D
10.	Sucking oranges	L	FI	D

III

1.	Making sarcastic remarks	L	FI	D
2.	Taste of rare meat	L	FI	D
3.	Break crusts	L	FI	D
4.	Using strong language	L	FI	D
5.	Cracking nuts with teeth	L	FI	D
6.	Eating caramels	L	FI	D
7.	Chewing on celery	L	FI	D
8.	Steaks well done	L	FI	D
9.	Crunchy foods	L	FI	D
10.	Chewing gum	L	FI	D

IV

1.	Leaving things where they are	L	FI	D
2.	Odor of kerosene	L	FI	D
3.	Mixing paints	L	FI	D
4.	Odor of manure on a field	L	FI	D
5.	Giving things away	L	FI	D
6.	Sound of bass violin	L	FI	D
7.	Making deposits	L	FI	D
8.	Letting others clean up after your work	L	FI	D
9.	Odor of tar	L	FI	D
10.	Sound of tuba	L	FI	D

V

1.	Proofreading	L	FI	D
2.	Firmness of decision (on your part)	L	FI	D
3.	Swatting flies	L	FI	D
4.	Checking and rechecking for errors	L	FI	D
5.	Prosecuting offenders	L	FI	D
6.	Taking extreme care to preserve clothes	L	FI	D
7.	Classifying postal stamps	L	FI	D
8.	Being obstinate	L	FI	D
9.	Chewing down price	L	FI	D
10.	Seeking perfection	L	FI	D

VI

1.	Burning matches for fun	L	FI	D
2.	Playing solo	L	FI	D
3.	Archery	L	FI	D
4.	Creative writing	L	FI	D
5.	Climbing a tree	L	FI	D
6.	Posing for a picture	L	FI	D
7.	Drawing	L	FI	D
8.	Appearing on the stage	L	FI	D
9.	Flying high	L	FI	D
10.	Watching a fire	L	FI	D

VII

1.	Reading to sick people	L	FI	D
2.	Ballet dancing	L	FI	D
3.	Reading fashion reports	L	FI	D
4.	Using perfume	L	FI	D
5.	Being a private secretary	L	FI	D
6.	Sleeping in a nightgown	L	FI	D
7.	Being a model	L	FI	D
8.	Wearing nail polish	L	FI	D
9.	Preparing meals	L	FI	D
10.	Strong athletic girls	L	FI	D

VIII

1.	Using profanity at times	L	FI	D
2.	Very modest men	L	FI	D
3.	Reading sports page	L	FI	D
4.	Dependent women	L	FI	D
5.	Using firearms	L	FI	D
6.	Wearing boots	L	FI	D
7.	Good discipline	L	FI	D
8.	Wood carving	L	FI	D
9.	Running track	L	FI	D
10.	Playing football	L	FI	D

IX

1.	Collecting antiques	L	FI	D
2.	Taking advice of older women	L	FI	D
3.	Ancient history	L	FI	D
4.	Teaching kindergarten	L	FI	D
5.	Taking care of sick	L	FI	D
6.	Assisting the mentally handicapped	L	FI	D
7.	Obstetrics (child delivery)	L	FI	D
8.	Taking advice of older men	L	FI	D
9.	Care of crippled children	L	FI	D
10.	Prolonging life of the aged	L	FI	D

X

1.	Submitting to fate gracefully	L	FI	D
2.	Being master of ceremonies	L	FI	D
3.	Helping people who don't like you	L	FI	D
4.	Responsibility for other people's actions	L	FI	D
5.	Raising money for charity	L	FI	D
6.	Making others toe the mark	L	FI	D
7.	Advancing yourself through your friends	L	FI	D
8.	Telling people their true value	L	FI	D
9.	Working on committees	L	FI	D
10.	Accepting others' faults	L	FI	D

APPENDIX B

	AGE	HEIGHT	WEIGHT
OBESE Ss	46	5'8"	195 lbs.
	36	5'	220 lbs.
	30	5'3"	178 lbs.
	30	5'2"	158 lbs.
	24	5'3"	160 lbs.
	20	5'2"	130 lbs.
NON-OBESE Ss	30	5'2"	107 lbs.
	25	5'8"	135 lbs.
	23	5'7"	135 lbs.
	23	5'2"	115 lbs.
	20	5'3"	107 lbs.
	20	5'5"	125 lbs.

APPENDIX C

CRITERIA AND MATERIALS FOR RATING TOLERANCE FOR UNREALISTIC EXPERIENCE

Klein, Gardner, and Schlesinger Criteria for Judging Tolerance for Unrealistic Experience from Rorschach Protocols

The T- (intolerant) and T+ (tolerant) extremes of the cognitive system principle of Tolerance for Unrealistic Experiences are characterized by differences in tolerance for ambiguous situations. As used here, ambiguity is defined as a condition of the perceptual field in which the immediate sense data a subject is provided with lead to an experience at variance with objective reality as he "knows" it to be. In the Rorschach test, the subject is asked to say what the blots might be, even though he knows that they are merely ink blots. We are interested in learning whether or not experienced clinicians can rate subjects as "tolerant" or "intolerant" on the basis of their Rorschach protocols.

It is our hypothesis that in the Rorschach situation the T- and T+ extremes should be more apparent in a subject's attitude toward his responses than in the responses themselves or in their formal "sign" characteristics. The primary difference between the two extremes may well be one of the amount of inner freedom to tamper with the "reality" of the card. Thus, the T+ person should somehow give expression to his natural and comfortable acceptance of the blots as an opportunity for projection. He should find the task a congenial one. He can alter his conceptions to fit the task, and he may even see the blots as something to be played with. He will not necessarily "enjoy" the task, but he will not find it uncomfortable.

The T- person, on the other hand, should give evidence of a relative lack of ideational freedom in this kind of task which shows itself not so much in the number of responses as in his maintenence of a critical attitude of reality testing toward his responses. There should be some reflections in his record of vague forebodings or feelings of reluctance toward tampering with reality in the way the task requires. Thus, the essential nature of the task should be somewhat unsettling for him. He should approach the task with more circumspection; he should be more critical of his responses and of the test; and he should be more concerned with the

formal qualities of the blot. He may, for example, give a popular response in the following way: "A bat, but not a very good one." In the case of some subjects, the T+ approach may be reflected primarily in the absence of critical comments, expressions of dissatisfaction, discomfort, etc.

It is our feeling that the T- extreme will find rather subtle expression in the Rorschach and may not be represented primarily by dissatisfaction with the response given but a kind of discomfort with the task, which is then projected to the response or the process of responding, so that the T- subject may "quibble" about responses, repeatedly ask question about how he is to respond, and the like. His discomfort may also take the form of expressions to the effect that the blots are "grotesque," that a particular response is "vague," the additional responses will not appear to add to the freedom of the record.

Sample Expressions of the Attitudes

Verbalizations. Records of the T- persons should contain examples of qualification, much as "it looks almost like," "it looks a little bit like," "an imaginary picture," etc. Some of the fabulizing should tend in the direction of qualification. That is, it should express discomfort in this type of situation and a critical reality-oriented attitude toward responses. The T- subject should be unable to "lose himself" in the task. There may also be in some records a particular emphasis on exactness or a tendency to elaborate responses in the direction of precision.

Form Level. It is important to note that these rather subtle attitudes may not be apparent in the overall precision of the response. They may be much more apparent, as suggested above, in the subject's attitude toward his response.

Use of Color. It is hypothesized that the T+ person will find himself at ease in the use of other-than-form determinants. That is, other determinants such as shading, color, etc., should "fuse" easily with the form qualities of the blots, with the result that at least some of the responses involving color should represent easy blending of form and color. It is hypothesized that the use of color is not comfortable or natural for the T- person. It may be that in this respect the T- extreme will be suggested in a record if color is avoided for the most part, but in a few responses finds a very direct unmodulated and "unblended" representation. Although this is considered a weaker criterion than the foregoing ones, it is suggested that the T- extreme may be characterized by a kind of "all or nothing" response to color.

R. We are not sure that variations in the attitude can be distinguished on the basis of R (total number of responses). A record in which additional responses add to the quality of freedom and expressiveness of the record would, for example, strongly suggest the T+ extreme. It is possible that a person characterized by T- qualities could give many responses, but without giving the impression of being either free or comfortable with the task.

Raters are asked to read each of the Rorschach protocols in its entirety and to classify it as relatively T- or T+ on the basis of the qualitative characteristics we have outlined.

Additional Data for Judges to Use in Rating Tolerance for Unrealsitic Experience

In the first study of "Tolerance for Unrealistic Experience" the following four statements seemed to be useful in describing the differences between the two groups. They are phrased so as to describe the T- individual. Contrasting tendencies describe the protocols of the T+ subjects.

1. Concern with the reality of the blots and reluctance to project more than the obvious meaning onto the blots.

2. Literalness of approach; a tendency to link responses closely to the physical attributes of the stimuli.

3. A tendency to report clearly delineated, easily seen forms.

4. Avoidance of associative elaborations.

Following are some sample comments about T+ and T- subjects. They come from the test reports on these subjects. They are intended to convey some of the qualitative aspects that are thought to differentiate the two groups.

Sample comments about T- subjects

1. "He is continually aware of the quality of his responses and continuously evaluates their closeness to reality; he emphasizes self-restraint and control; he attempts to justify responses by enumerating details and congruences."

2. "The responses preferred by him are exact resemblances from his own experience and such responses he justifies meticulously with evident satisfaction."

3. "He displays little conviction in his responses; spontaneously justifies his responses by finding details, offering to show the experimenter where the response is."

4. "He is anything but relaxed in giving his response."

5. "The subject gave a pressured record containing many responses but these were replete with references to symmetry and indications of discomfort with the cards."

6. "She lacks any basic conviction in what she sees. . . is uncomfortable with the cards."

Sample comments about T+ subjects

1. "Although a very free record there seems not to be much concern for reality limitations; fluid. . . confabulates without question."

2. "Frequently several responses are given to the same area."

3. "Initially insecure, but before long warms up to the task and gets associatively free enough to 'play' with the cards. . . never loses all concern with reality, but can joke about it."

4. "A predominant quality in the record of disdain for reality. . . given with an air of tolerant boredom."

Modifications of Tolerance for Unrealistic Experience Criteria

Tolerance or intolerance for unrealistic experience can be reflected in (a) the responses, their number, banality or originality, the variety of content, the range of determinants, and/or (b) the subject's attitudes, feelings, comfort or discomfort with the task as indicated by his verbalizations and comments (overly critical, overly literal, qualifications, attempts to further structure the task, and, of particular importance, overt expressions of discomfort).

Both sets of factors should be considered, but greater weight should be given to the subject's attitudes and feelings. Little difficulty is anticipated in cases where both factors point in the same direction. Difficulties arise where the two diverge. Most often this will be where a fairly extended record with good range of determinants includes incomfortable verbalizations. No strict rule can be given for this situation except to remember that: (1) the verbalizations reflecting discomfort should be given greater weight

(2) these signs and characteristics specifically mentioned in the criteria are of first importance when they are present. In general, the longer and "richer" the record, the more numerous and strong must be the comments and verbalizations to counterbalance it.

In assessing the "richness" or banality of a record we must rely on our subjective expectations for this particular sample. Subjects in the experiment were students, including some graduate students, as well as non-students.

Place more weight on spontaneously offered material. However, we are very concerned with what the subject does when he first elaborates his response--and some subjects first offer spontaneous elaborations in the inquiry. Thus the response to the initial inquiry question is very important.

Intolerance indicators in the beginning of a record can be weighted less if they tend to disappear and there is evidence that the subject gets more comfortable and productive as the test proceeds.

On the basis of the criteria mentioned earlier, read each protocol and decide whether the subject seems generally tolerant, generally intolerant, or belongs better in a mixed (neither clearly tolerant or intolerant) category.

There are no frequency requirements for these points on the scale, although it is our expectation that the distribution will be reasonably balanced. The use of a "mixed" category is based on the assumption that the majority of those records of which you feel uncertain in rating will be given by subjects who in fact belong near the center of the tolerance-intolerance dimension. Please be careful, though, lest the mixed category become a kind of catchall for protocols which are merely difficult to rate.

APPENDIX D

INSTRUCTIONS FOR MEDITATION SESSIONS

CLOTHING Please remove shoes and street clothes and place them neatly outside the meeting room. Robes will be provided and you will be shown how to wear them correctly.

SEATING You have been assigned seats. Your name is on the place where you will sit for the entire session. Please do not change seats.

TALKING There will be no speaking at any time once the session begins. A time has been set aside at the end of the sessions for discussion.

BATHROOM You will be permitted to go to the bathroom if you so desire after writing up your experiences for the second meditation period and after the fourth meditation period. Both these times will be announced.

SMOKING No smoking is permitted at any time during session.

MEDITATION INSTRUCTIONS

Meditation means maintaining a correct posture and concentrating your mind on your breathing. This is done by maintaining an erect posture, your back straight and away from the chair. Your head is also held erect and your eyes are half opened and looking about three feet in front of you. The position of your hands is very important

and will help you maintain your concentration on your breathing. Place the right hand 3" below your navel with your thumb up. Next place your left hand on top of the right so that your thumbs are touching lightly. Your breathing comes from your abdomen. Concentrate your mind on that one point where your hands are placed. Place your feet in such a way that you do not have to keep shifting them.

MOVING — Changing position is not permitted. However, if you feel you must move, do so quietly, without disturbing your neighbors.

SIGNALS — As there is no speaking during sessions, meditation, walking, writing and eating are signaled with bells and two wooden clappers. Four bells indicate the beginning of meditation. One bell and one clapper indicate the meditation period has ended and you should stand in front of your seat. A second clapper means you begin the walking. During the walking you will hear another clapper. This is a signal for you to return to your seats and wait there until a bell is rung for you to sit down. Meditation then begins again with four bells.

WALKING — At the end of each meditation and writing period there will be five minutes of walking. This walking is a continuation of your meditation. It is not done in any old way. When the bell is rung and then one clapper stand up by your seats immediately. Take your left hand and put it

against your chest and clasp your right hand over it. The leader of the meditation sets the pace for walking. Whatever foot that person leads with you are to follow. The group follows behind the leader keeping in step at all times. Watch the person's feet in front of you. The leader will clap the clappers once to signal the end of the walking. You will then return to your places. When the bell is rung you sit down.

WRITING At the end of the first walking period you will be handed a folder with your name. It contains sheets of paper with the number of the meditation period. You are to write up your experiences for that meditation period answering the questions which are stated on the top of your folders. A bell will ring to signal the end of the writing (5 minutes will be given), the clapper then signals for you to rise in front of your seats, and a second clapper indicates the beginning of another walking period. The same instructions are to be followed for the second walking period.

SCHEDULE There are three meditation periods, three writings of your experiences, and six walking periods before and after lunch.

LUNCH Meals are eaten in complete silence and you are to maintain your concentration. The end of lunch is signaled by the clapping of clappers. You will then get up and go back downstairs. Always in line and following the leader. You stand at your seats and wait for the bell to ring when

you will then sit down. Meditation then begins again with the ringing of four bells. After lunch there will be three more periods of meditation, walking and writing up of sessions.

DISCUSSION The session ends at the end of the walking at the last period. We will then go up to the library for tea and discussion of our experiences.

APPENDIX E

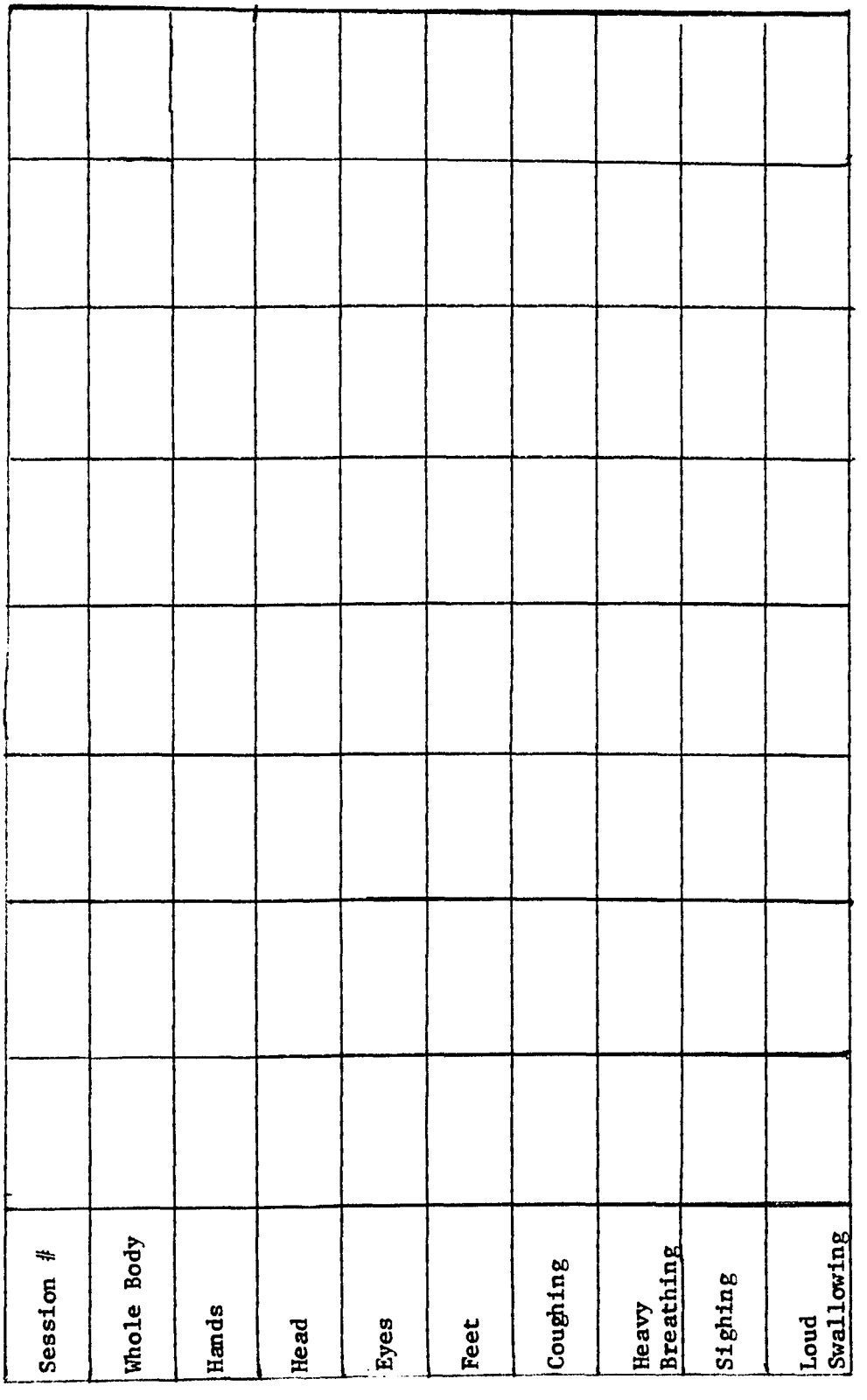
MEDITATION SCHEDULE FOR SESSHIN

8:30 a.m. - 10:00 a.m.	Introduction
10:00 - 10:20	meditation
10:20 - 10:25	walking
10:25 - 10:30	write
10:30 - 10:35	walking
10:35 - 10:55	meditation
10:55 - 11:00	walking
11:00 - 11:05	write
11:05 - 11:10	walking
11:10 - 11:30	meditation
11:30 - 11:35	walking
11:35 - 11:40	write
11:40 - 11:45	walking
11:45 a.m. - 12:15 p.m.	lunch
12:15 - 12:35	meditation
12:35 - 12:40	walking
12:40 - 12:45	write
12:45 - 12:50	walking
12:50 - 1:10	meditation
1:10 - 1:15	walking

(continued)

1:15 - 1:20	write
1:20 - 1:25	walking
1:25 - 1:45	meditation
1:45 - 1:50	walking
1:50 - 1:55	write
1:55 - 2:10	walking
2:10 -	Finish

APPENDIX F


Session #
Whole Body
Hands
Head
Eyes
Feet
Coughing
Heavy Breathing
Sighing
Loud Swallowing

APPENDIX G

PERSONAL PREFERENCE SCALE EVALUATION TABLE

(The tentative nature of these categories is emphasized by the authors)

Subtest	High Score	Low Score
I	INACTIVE (LETHARGIC) Tends to relax. Regressive. Tends to withdraw, under pressure especially.	ACTIVE (ENERGETIC) Outgoing. Tends to find security in action.
II	SOCIABLE Communicative. Optimistic about final outcomes. Tends to become attached. Seeks personal acceptance, appreciation.	INDIVIDUALISTIC Reserved. Tends to set own goals. Not too adaptable. Pessimistic about what reality has to offer.
III	CRITICAL Inclined to be verbally punitive, sarcastic. Irritable. Not too well liked.	PERMISSIVE Tolerant, altruistic. Adequate control of hostile impulses. Well liked.
IV	INCONSISTENT (UNDEPENDABLE) No sign of manifest anxiety (carefree). Easy going. Compromises easily. Not especially neat. Self-indulgent. High frustration tolerance.	CONSISTENT (DEPENDABLE) Emotionally rigid. Uncompromising. Strong, positive controls. Neat, punctual.
V	EFFICIENT (SYSTEMATIC) Exacting. Consistent. Compulsive habits. "Strong Character." Tendency to avarice and mistrust (in extreme cases).	INEFFICIENT (FLEXIBLE) Adaptable. Generous. No well establishes work habits.

Subtest	High Score	Low Score
VI	EGOCENTRIC Exaggerated consciousness of importance. Stront need for recognition, with high aspiration level.	SELF-EFFACING Self-admitted inferiority, with passive need for recognition.
VII	In Males: SENSITIVE-CONFLICTUAL (EFFEMINOID) Submissive-receptive. Co-operative but self-conscious.	In Males: AGGRESSIVE-DOMINANT (MASCULINE) Denial of tendency to female identification. Over-compensated attitude.
	In Females: COOPERATIVE (FEMALE) Submissive-receptive attitude, characteristic of culture pattern in Western society.	In Females: INCOOPERATIVE (MASCULINOID) Domineering, over-compensated. Tendency to self assertiveness and denial of feminine traits.
VIII	In Males: AGGRESSIVE-DOMINANT (MASCULINE) Determined attitude. Aggressive.	In Males: SENSITIVE-CONFLICTUAL (EFFEMINOID) Unaggressive, apprehensive.
	In Females: SENSITIVE-CONFLICTUAL (MASCULINOID) Overcompensated attitude, to prove equality with males.	In Females: COOPERATIVE (FEMININE) Submissive/receptive attitude characteristic of culture pattern in Western society
IX	EMOTIONALLY MATURE Sensitive to people. Tends to be loyal, and to accept authority.	EMOTIONALLY IMMATURE Repressed anxiety and guilt. Unresolved conflicts. Insensitivity to others. Tends to reject authority.
X	SOCIALLY MATURE Positive feelings toward social world. Tends to seek wider contacts. Willingness to accept responsibility. High leadership quality.	SOCIALLY IMMATURE Social ambivalence. Inability to accept responsibility. Tends to narrow range of contacts. Low leadership quality.

APPENDIX H

MEDITATION GROUP	DIAGNOSTIC EVALUATIONS
Highly Successful	
n = 3	Obsessive-compulsive with depressive features.
	Obsessive-compulsive with hysterical features and mildly depressive trends.
	Paranoid with obsessive-compulsive and hysterical features.
Moderately Successful	
n = 3	Obsessive-compulsive, with strong hysterical features and mild paranoid trends.
	Schizophrenic or decompensated obsessive-compulsive.
	Hysterical with obsessive-compulsive trends.
Poor Meditators Who Stayed	
n = 2	Obsessive-compulsive with mild hysterical features.
	Obsessive-compulsive with mild hysterical features.
Poor Meditators Who Left	
n = 4	Paranoid with strong depressive trends and hysterical features.
	Obsessive-compulsive with major hysterical trends and important paranoid features.
	Obsessive-compulsive with mild hysterical trends.
	Hysterical with strong obsessive-compulsive trends.

APPENDIX I

OBESE Ss	DIAGNOSTIC EVALUATIONS
	Obsessive-compulsive with mild hysterical features.
	Obsessive-compulsive with mild hysterical features.
	Obsessive-compulsive with strong hysterical features and mild paranoid trends.
	Obsessive-compulsive with depressive features.
	Paranoid with obssive-compulsive and hysterical features.
NON-OBESE Ss	
	Obsessive-compulsive with hysterical features and mildly depressive trends.
	Obsessive-compulsive with major hysterical trends and important paranoid features.
	Obsessive-compulsive with mild hysterical trends.
	Hysterical with strong obsessive compulsive trends.
	Hysterical with obsessive-compulsive trends.
	Schizophrenic or decompensated obsessive-compulsive.

BIBLIOGRAPHY

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

Anand, B. K., Chhina, G. S., and Singh, B. Some aspects of electroencephalographic studies in yogis. In Altered states of consciousness, pp. 503-506. Edited by C. T. Tart. New York: John Wiley & Sons, Inc. 1969.

Brobeck, J. R. Mechanism of the development of obesity in animals with hypothalamic lesions. Physiol. Rev., 1946, 26, 541-557.

_____. Food intake as a mechanism of temperature regulation. Yale J. Bio. & Med., 1948, 20, 545-560.

_____. The physiology of appetite. In Overeating, overweight, and obesity. Proceedings of Nutrition Symposium, Harvard School of Public Health, National Vitamin Foundation, New York, 1953.

Berger, E. M. Zen Buddhism, general psychology, and counseling psychology. J. Coun. Psy., Summer 1962, 9, 122-127.

Brosin, F. As quoted in Overeating, overweight, and obesity. Proceedings of Nutrition Symposium, Harvard School of Public Health, National Vitamin Foundation, New York, 1953, 36-48.

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

_____. Transformation of oral impulses in eating disorders, a conceptual approach. Psychiat. Quart., 1961, 35, 458-481.

_____. Eating disorders. New York: Basic Books, Inc., 1973.

Bruch, H. and Touraine, G. Obesity in childhood: V. The family frame in obese children. Psychosom. Med., 1940, 2, 141-206.

Burdon, A. and Paul, L. Obesity: a review of the literature, stressing the psychosomatic approach. Psychiat. Quart., 1951, 25, 568-580.

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

Cannon, W. B. Bodily changes in pain, hunger, fear and rage. 2nd ed. New York: Appleton, 1915.

Cannon, W. B. and Washburn, A. L. An explanation of hunger. Am. J. Physiol., 1912, 29, 441-454.

Carrington, P. and Ephron, H. W. Meditation as an adjunct to psychotherapy. In New dimensions in psychiatry: a world view. Edited by Silvano Arieti. New York: John Wiley & Sons, 1975, 262-291.

Deikman, A. Deautomatization and the mystic experience. In Altered states of consciousnes . Edited by C. T. Tart. New York: John Wiley & Sons, Inc., 1969a, 503-506.

_____. Experimental meditation. In Altered states of consciousness. Edited by C. T. Tart. New York: John Wiley & Sons, 1969b, 199-218.

_____. A bimodal consciousness. Arch. Gen. Psychiat., 1971, 25, 481-489.

Deutsch, F. Choice of organ in organ neurosis. Int. J. Psychoan., 1939, 20, 252-254.

Erikson, E. H. Traumatische konfigurationen im spiel. Imago., 1937, 23, 447-462.

Feirstein, A. Tolerance for unrealistic experience. J. Cons. Psy., 1967, 31, 387-395.

Freud, S. (1900). The interpretation of dreams. Standard Ed. 4 & 5. London: Hogarth Press, 1953.

_____. (1911) Formulations regarding the two principles in mental functioning. In Collected papers, 4, pp. 13-21. New York: Basic Books, 1959.

Frolich, A. E. Ein fall vontumor de hypophysis cerebri ohne akromegalie. Wien. Klin. Wschr., 15, 883-906, 1901. Reprinted Res. publ. Ass. Nerv. Ment. Dis., 20, 1940.

Fromm, E., Suzuki, D. T. and DeMartino, R. Zen Buddhism and psychoanalysis. New York: Harper & Row, 1960.

Glucksman, H. and Hirsch, J. The response of obese patients to weight reduction. Psychosom. Med., 1968, 30, 1-11.

Glucksman, H., Hirsch, J., McCully, R., Barron, S., and Knittle, J. The response of obese patients to weight reduction. Psychosom. Med., 1968, 30, 359-378.

Goldberger, L. Individual differences in the effects of perceptual isolation as related to Rorschach manifestations of the primary process. Unpublished doctoral dissertation, New York University, 1958.

Goldberger, L. and Holt, R. R. Experimental interference with reality contact; individual differences. In Sensory Deprivation, pp. 130-142. Edited by P. Solomon et al. Cambridge: Harvard University Press, 1961.

Gray, S. J. As quoted in Overeating, overweight, and obesity. Proceedings of Nutrition Symposium, Harvard School of Public Health, National Vitamin Foundation, New York, 1953, 49-52.

Grossman, M. I. et al. The effect of insulin on food intake after vagotomy and sympathectomy. Amer. J. Physiol., 1947, 149, 100-104.

Haimes, A. Zen Buddhism and psychoanalysis. A bibliographic essay. Psychologia, 1972, 15, 22-30.

Hebb, D. O. The organization of behavior. New York: Wiley, 1949.

Heatherington, A. As quoted in Overeating, overweight, and obesity. Proceedings of Nutrition Symposium, Harvard School of Public Health, National Vitamin Foundation, New York, 1953.

Heatherington, A. W. and Ranson, S. W. Hypothalamic lesions and adiposity in the rat. Anatomical Record. 1940, 78, 149-172.

Herrigel, E. Zen in the art of archery. New York: Pantheon, 1953.

Hirsch, S. and Knittle, J. The fat child is father of the man. New York Times Magazine Section, Sept. 13, 1970.

Hines, M. Meditation and creativity. Senior thesis. Princeton University, Princeton, N.J., 1973.

Holt, R. R. and Havel, J. A method for assessing primary process and secondary process in the Rorschach. In Rorschach Psychology. Edited by Maria A. Rickers-Ovsiankina. New York: John Wiley & Sons, 1960, 263-318.

Hughes, R. and Reuder, M. Estimates of psychological time among obese and non-obese women. J. of Psy., 1968, 70, 213-219.

Kapleau, P. The three pillars of Zen. New York: Harper & Row, 1966.

Karp, S. and Perdes, H. Psychological differentiation (field dependence) in obese women. Psychosom. Med., 1965, 27, 238-244.

Kasamatsu, A. and Hirai, T. An electroencephalographic study on the zen meditation (zazen). In Altered states of consciousness, pp. 489-502. Edited by C. T. Tart. New York: John Wiley, 1969.

Kelman, H. Communing and relating. Part I. Past and current perspects. Amer. J. Psychoanal., 1958, 18, 77-98.

_____. Eastern influences on psychoanalytic thinking. Psychologia, 1959, 2, 73-75.

_____. Psychoanalytic thought and Eastern wisdom. In Science and psychoanalysis. Vol. III. New York: Gruen & Stratton, May, 1960.

Klein, G. S., Gardner, R. W., and Schlesinger, H. J. Tolerance for unrealistic experience: a study of the generality of a cognitive control. Brit. J. Psychol., 1962, 53, 41-55.

Klein, G. S. and Schlesinger, H. J. Perceptual attitudes towards instability. I. Prediction of apparent movement experiences from Rorschach responses. J. Pers., 1951, 19, 289-302.

Kondo, A. Zen psychotherapy: the virtue of sitting. Chicago Rev., 1958, 12(2), 57-64.

Kotov, B. and Murowski, B. A Rorschach study of the personality structure of obese women. J. Clin. Psy., 1952, 8, 391-396.

Kris, E. Psychoanalytic explorations in art. New York: International Universities Press, 1952.

Krout, M. H. and Krout, J. Measuring personality in developmental terms, the personality preference scale. Genetic Psy. Monogr., 1954, 50, 289-335.

Kubie, L. S. Research in protecting preconscious functions in education. In Contemporary educational psychology. Edited by R. M. Jones. New York: Harper Torch Books, 1967.

Kurland, H. Extreme obesity: a psychophysiological disorder. Psychosom. Med., 1967, 8, 107-111.

Lawrence, S. B. From Zazen to videotape: encounter group innovations. In Confrontation. Edited by L. Blank et al. New York: MacMillan Co., 1971.

Lesh, T. V. The relationship between Zen meditation and the development of accurate empathy. Unpublished doctoral dissertation, University of Oregon, 1969.

Levey, D. H. The cause of obesity. J. Amer. Med. Assoc., 1931, 97, 1659-1663.

Linden, W. The relation between the practicing of meditation by school children and their levels of field dependence-independence, test anxiety, and reading achievement. Unpublished doctoral dissertation, New York Univeristy, 1972.

Lurie, L. A. Endocrinology and understanding and treatment of the exceptional child. J. Amer. Med. Assoc., 1938, 110, 1531-1535.

Maupin, E. Individual differences in response to a Zen meditation exercise. Unpublished doctoral dissertation, Michigan University, 1962a.

_____. Zen Buddhism: a psychological review. J. Consult. Psy., 1962b, 26, 362-378.

_____. On meditation. In Altered states of consciousness, pp. 187-198. Edited by C. T. Tart. New York: John Wiley, 1969.

McGough, E., Silverman, S., and Bogdonoff, M. Patterns of fat mobilization in field-dependent field-independent subjects. Psychosom. Med., 1965, 27, 245-256.

Mittleman, M. Juvenile adipose genital dystrophy, neurologic and psychopathic aspects. Endocrinology, 1938, 23, 637-645.

Neisser, U. The multiplicity of thought. In Comtemporary educational psychology. Edited by R. M. Jones. New York: Harper Torch Books, 1967.

Newburg, H. Obesity. Arch. Int. Med., 1942, 70, 1033-1035.

Orme-Johnson, D. Autonomic stability and transcendental meditation. Psychosom. Med., 1973, 35, 341-349.

Pelletier, K. R. Altered attention deployment in meditation. Unpublished paper, University of California, Berkeley, Calif., 1973.

Pine, F. and Holt, R. R. Creativity and primary process. A study of adaptive regression. J. Abn. & Soc. Psy., 1960, 61, 370-379.

Rappaport, D. The theory of ego autonomy: A generalization. Bull. Menninger Clin., 1958, 22, 13-35.

Rappaport, D., Gill, M., and Schafer, R. Diagnostic psychological testing. New York: International Universities Press, 1968.

Reeve, G. H. Psychological factors in obesity. Am. J. Ortho., 1942, 12, 674-677.

Rubin, T. I. Forever thin. New York: Bernard Geis Assoc., 1970.

Rynearson, E. G. The problem of obesity. Proc. Inst. Med. Chicago, 1944, 15, 35-42.

Schachtel, E. G. Metamorphosis. New York: Basic Books, 1959.

Schachter, S. The interaction of cognitive and physiological determinants of emotional states. Adv. in Exp. Soc. Psy., 1964, 1, 49-80.

Schachter, S. Some extraordinary facts about obese humans and rats. Amer. Psy., 1971, 26, 129-144.

Schachter, S., Goldman, R., and Gordon, A. Effects of fear, food deprivation and obesity on eating. J. Pers. & Soc. Psy., 1968, 10, 91-97.

Schachter, S. and Gross, L. Manipulated time and eating behavior. J. Pers. & Soc. Psy., 1968, 10, 98-106.

Schafer, R. Psychoanalytic interpretation in Rorschach testing. New York: Grune & Stratton, 1954.

_____. Regression in the service of the ego: the relevance of a psychoanalytic concept for personality assessment. In Assessment of human motives. Edited by G. Lindzey. New York: Rinehart, 1958.

Schultz, J. H. and Luthe, W. Autogenic training: a psychophysiologic approach to psychotherapy. New York: Grune & Stratton, 1959.

Schuster, R. Meditation: philosophy and practice in a drug rehabilitation setting. In press, Drug Forum, 5(2), 1976.

Seeman, W. S., Nidich, S., and Banta, T. Influence of transcendental meditation on a measure of self-actualization. J. Couns. Psy., 1972, 19, 184-187.

Shaffi, M. Adaptive and therapeutic aspects of meditation. Int. J. Psychoan. Psychotherapy, 1973a, 2, 364-382.

_____. Silence in the service of the ego: psychoanalytic study of meditation. Intl. J. Psychoan., 1973b, 54, 431-443.

_____. Meditation and the prevention of alcohol abuse. Amer. J. Psychiat., 1975, 132, 942-945.

Shapiro, D. Neurotic styles. New York: Basic Books, 1965.

Stagner, R., Lawsin, P., and Welden, M. J. The Krout personal preference scale: a factor analytic study. J. Clin. Psychol., 1955, 11, 103-113.

Stunkard, A. Some interpersonal aspects of an Oriental religion. Psychiat., 1951, 14, 419-431.

_____. Studies on the physiology of hunger. Amer. J. Clin. Nutr., 1957, 5, 203-210.

_____. The dieting depression: untoward responses to weight reduction regimens among certain obese women. J. Nerv. & Ment. Dis., 1956, 123, 194-195.

_____. Eating patterns and obesity. Psychiat. Quart., 1959, 33, 284-295.

_____. Obesity and the body image. Amer. J. Psychiat., 1967, 123, 1443-1449.

Stunkard, A. and Griggs, R. The interpretation of gastric motility. Arch. Gen. Psychiat., 1964, 11, 82-29.

Stunkard, A. and Koch, G. The interpretation of gastric motility. Arch. Gen. Psychiat., 1964, 11, 74-82.

Stunkard, A. and Mendelson, M. Obesity and body image. Amer. J. Psychiat., 1967, 123, 1296-1300.

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

Van Dusen, W. Zen and Western psychotherapy. Psychologia, 1958, 1, 229-230.

Wallace, R. , and Benson, H. The physiology of meditation. Scientific American, 1972, 222(2), Feb. 1972, 84-90.

Watts, A. Psychotherapy East and West. New York: Mentor, 1961.

Weiss, P. The contribution of Georg Wilhelm Groddeck on Zen Buddhism and psychiatry. Psychologia, 1960, 3, 50-57.

Witken, H. Psychological differentiation and forms of pathology. J. Abn. Psy., 1965, 70, 317-336.

Wolf, W. Reflections on Zen Buddhism, psychology and psychotherapy. Amer. J. Psychotherapy, 1957, 11, 866-869.