The Use of Guided Imagery and Progressive Relaxation in Treating Hemodialysis Patients for Dietary Compliance

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THE USE OF GUIDED IMAGERY AND PROGRESSIVE RELAXATION IN TREATING HEMODIALYSIS PATIENTS FOR DIETARY COMPLIANCE

by

James B. Morrissey

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THE USE OF GUIDED IMAGERY AND PROGRESSIVE RELAXATION IN TREATING HEMODIALYSIS PATIENTS FOR DIETARY COMPLIANCE

James B. Morrissey, Ed.D
Western Michigan University, 1985

Studies have confirmed that many hemodialysis patients experience numerous psychological difficulties as a result of their physical illness. One behavioral manifestation of these psychological states is noncompliance with imposed dietary restrictions. In spite of life threatening implications, many hemodialysis patients find it very difficult to maintain dietary compliance.

Recently, guided imagery and progressive relaxation have been used as methods to assist clients to overcome negative psychological states. In most cases, the treatments are adjunctive to on-going counseling or psychotherapy. The purpose of this investigation was to test the idea that guided imagery and progressive relaxation alone can be successfully used by hemodialysis patients to aid them to achieve dietary compliance.

One research hypothesis stated that dialysis patients who were exposed to the guided imagery/progressive relaxation tape would show significant loss of weight when compared with patients who listened only to a tape consisting of musical tones. A second research
hypothesis stated that dialysis patients who showed high ability to visualize as determined by the Vividness of Visual Imagery Questionnaire (VVIQ) would show significantly more weight loss when compared with patients who were exposed to the same tape but had low visualization ability.

Twenty-nine (29) hemodialysis patients from Borgess Medical Hospital volunteered for the experiment. All subjects were assessed to have either low, medium, or high visualization ability and placed within that respective group. Half of each visualization group was provided the guided imagery/progressive relaxation tape, and half listened only to the tape consisting of musical tones. A pre/post experimental/control group design was used to assess what effect the guided imagery/progressive relaxation tape had upon the subjects' ability to maintain dietary compliance.

The results obtained did not support the hypothesis that guided imagery and progressive relaxation, in and of itself, was an effective tool for assisting hemodialysis patients achieve dietary compliance, regardless of visualization ability.

It was concluded that guided imagery may be more effective when used in conjunction with other therapies which focus upon reduction of psychological difficulties and that encourage a therapeutic client/therapist relationship.
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James B. Morrissey
# TABLE OF CONTENTS

ACKNOWLEDGEMENTS ........................................ ii
LIST OF TABLES .......................................... vi

## CHAPTER

I. INTRODUCTION ................................. 1
  Background of the Study ................ 1
  Statement of the Problem ................. 3
  Limitations of the Study ............... 7
  Significance of the Study .............. 8
  General Research Question .............. 9
  Summary ................................... 10

II. REVIEW OF LITERATURE ....................... 11
  History of Dialysis ..................... 11
  Physiological Factors of Dialysis Patients .......... 14
  Emotional Problems of Dialysis Patients .......... 15
  Dietary Compliance ..................... 20
  History of Guided Imagery .............. 22
  Guided Imagery With Hemodialysis Patients .......... 27

III. METHOD ........................................ 29
  Subjects ................................... 29
  Procedure ................................ 29
  Instrumentation .......................... 30
  Treatment Procedure ..................... 31
LIST OF TABLES

1. Pre-Post Mean Weights of Patients Assigned to Treatment and Control Groups 37

2. Comparisons of Means of Experimental and Control Groups on Weight in Kg. 38

3. Comparisons of Mean Weights of Low and High Visualization Groups 39
CHAPTER I

INTRODUCTION

Background of the Study

Before the development of an efficient means of extracorporeal dialysis, thousands of patients suffering from chronic progressive renal failure (also called chronic kidney disease, terminal renal failure, and terminal uremia) were doomed to die. In 1960, Scribner, Hegstrom, and Buri demonstrated that patients with chronic kidney disease could not only be kept alive, but could return to useful, profitable lives. Since the development of the artificial kidney machine, over 71,982 patients are presently living with its assistance, and over 15,700 people had their lives sustained due to renal transplantation (National Dialysis Registry, 1983).

Even though thousands of dialysis patients have had their lives sustained by artificial means, complex medical and psychological problems continue to plague this patient population. Regardless of whether the treatment is performed at home or in the hospital, the patient must adjust to the gravity of the situation and significant changes in lifestyle. The patient must also come to grips with the proposition of an early death.
Emotional problems of the hemodialysis patient have been widely discussed by various researchers. The conclusions that are drawn range at one extreme from describing hemodialysis patients' adaptation and adjustment to their treatment as poor (Shea, Boydan, Freeman, & Schreiner, 1965), with psychotic reactions (Cooper, 1967) and other adjustment problems related to under-control of aggression, hostility, depression, and over-dependency (Burford, 1972). At the other extreme their adjustment has been characterized as remarkably good (Johnson, Wagoner, Hunt, Mueller, & Hollenbeck, 1966). The general consensus of opinion, however, appears to be that hemodialysis patients experience a wide array of intense life stressors and adjustment problems that are directly related to their dependency upon artificial kidney machines as a means of maintaining life (Springer, 1975). These life stressors are typically related to depression and anxiety, independency and dependency need conflicts, marital and family discontent, sexual impotence or inadequacy, financial problems, unemployment or vocational maladjustment, and accompanying loss of self-concept, as well as stress resulting from innumerable medical and physical complications. Accompanying these difficulties are increased feelings of helplessness and hopelessness with heightened suicidal risk.

A nonfunctioning kidney results in the need for an
artificial means of filtering waste products which are normally filtered through the normal operation of a functioning kidney. If waste products and fluids accumulate in the blood and in the tissue, the person may become seriously ill, and develop a life-threatening state. For these reasons, it becomes necessary for the person with impaired or absent kidney function to undergo continual filtration on a hemodialysis machine. In most cases, the patient must be on the dialysis machine for four hours a day three days a week. Along with treatment with the machine, the patients are required to monitor their food and liquid intake. Dietary compliance is vitally important to the health and well-being of the dialysis patient.

Dietary treatment has three goals: (1) to provide an adequate intake of protein and calories to maintain and repair body structure; (2) to control the intake of fluids and salts (Na) to avoid overload and hypertension; and (3) to restrict the intake of potassium (K) to a level that will prevent cardiac complications. Protein, sodium, potassium fluid, calories, calcium, and phosphorus are the main dietary elements which must be controlled in patients with renal disease.

Statement of the Problem

Most people in our society develop individualized
eating patterns and food preferences, and take the availability of all types of food for granted. For many people, changing eating patterns can be difficult to reverse for eating patterns have been ingrained for years. The proper maintenance of food and liquid intake is of major importance to hemodialysis patients. The dietary restrictions required are usually in conflict with the patient's normal eating habits and, more importantly, are in conflict with the family's eating patterns. There also appear to be very complex psychological and physiological components contributing to dietary noncompliance.

In a survey performed by Abram, Moore, and Westervelt (1971) a suicide incidence rate of more than 400 times that of the normal population was discovered. In 3,478 patients analyzed, 192 exhibited life-threatening behavior. Of those, 117 died as a consequence of noncompliance to the treatment regime, especially the inclusion of forbidden fluids and foods. Patients should typically gain up to three pounds between dialysis treatments. However, food and liquid abusers gain between three and six pounds between sessions. In evaluating dietary compliance, measuring the patient's weight is the best method for determining cooperation of the patient with the treatment regime. To date, traditional methods for promoting dietary compliance have not been successful
with a portion of the hemodialysis population. Adjunctive methods are now being tried which rely less on information and cognitive functions and more on altered states of consciousness.

Guided imagery, as defined by Gawain (1978), is the process of forming images and thoughts in the mind, consciously or unconsciously, and then transmitting them to the body as signals or commands.

Some researchers believe that guided imagery, along with relaxation, can be an effective adjunctive treatment for a variety of psychological and physiological illnesses. For example, instruction in relaxation and guided imagery was used to assist individuals in achieving their desired goals, such as improvement in use of negative ideation and desensitization to anxiety producing situations.

Systematic desensitization, a prototype of conditioning, has been one of the most widely used varieties of behavioral treatment. Sheikh (1983) states the procedure for systematic desensitization consists essentially of the following steps: (1) preparation of a hierarchy of anxiety-producing stimuli; (2) training in progressive relaxation; (3) visualizing the least anxiety-arousing response while relaxed until the relaxation replaces anxiety; and (4) moving on to the next scene of the heirarchy (p. 405).
With the use of guided imagery the subjects can desensitize themselves to anxiety producing situations and improve their functioning.

Relaxation is described as an innate, integrated set of physiological changes that can be elicited by psychological means. Decreased oxygen consumption, respiratory rate, and heart and muscle tension are the primary physiological changes occurring during the relaxation process. These changes are hypothesized to result from an integrated, hypothalmic response leading to a decreased sympathetic nervous system.

Simonton, Simonton, and Creighton (1981) utilized both relaxation and guided imagery in their holistic treatment of cancer patients. They believed that, through regular self-regulatory exercises such as guided imagery and relaxation, persons can gain mastery over self-defeating behavior. Simonton et al. (1981) believed that visualization (guided images) and relaxation can be used successfully with other illnesses to obtain desirable outcomes. Thus, the present study was conducted to evaluate the use of guided imagery and progressive relaxation in assisting hemodialysis patients in attaining dietary compliance.

This research suggests an adjunctive treatment which may significantly improve the physical and psychological well-being of the hemodialysis patient population. The
objectives of the study were to ascertain the feasibility of using guided imagery procedures and relaxation in assisting hemodialysis patients in gaining control of or keeping within prescribed limits of their eating and drinking behavior.

The objectives of this research were:

1. To develop a relaxation/guided imagery scheme which may be used with hemodialysis patients.

2. To compare a treatment and control group on the effectiveness of guided imagery in promoting dietary compliance.

3. To determine the feasibility of using relaxation and guided imagery as an adjunctive treatment procedure with hemodialysis patients.

Limitations of the Study

There are a few limitations of this study that must be mentioned. During the dialysis treatment, a number of irritating and uncomfortable physiological sensations occurred. Some of these sensations were itching or burning of the limbs, stomach cramps, and nausea and queasiness. Four patients reported that these sensations interfered with their ability to concentrate on specific body areas because it intensified their awareness of the unpleasant sensation. Physical discomfort may have resulted in a loss of motivation and a resistance to
using the relaxation/guided imagery method to the fullest extent.

Another limitation of the study is the lack of assessment regarding the patients' previous knowledge of guided imagery and their faith in that methodology to produce behavioral change. Many researchers believe that a person's belief system and his/her perceived confidence in the selected treatment are essential factors in the complex problem of behavior change.

Certain methodological limitations were also evident in this study because of its setting. Experiments conducted in field settings lack the rigorous controls of laboratory experiments. For example, samples could not be randomly drawn, contact with subjects was unavoidable and treatment effects between the experimental and control groups were not equated. Generalizations, too, of the results must be continuously pronounced.

Significance of the Study

Many patients suffering from chronic renal disease experience numerous negative psychological states such as feelings of helplessness and hopelessness. They also experience accompanying feelings of anxiety and depression, resulting from the chronic nature and medical treatments involved in the illness. Because of this, many hemodialysis patients fail to comply with the dietary
restrictions imposed upon them by the treatment, in spite of its life threatening implications. It has been determined that patients suffering from chronic renal failure possess a 400% higher incident rate of suicide when compared with the normal population. Many of these patients die because they refuse to comply with the dietary restrictions.

It is believed that guided imagery in conjunction with progressive relaxation may be a method that hemodialysis patients may use to overcome negative psychological states, aid them to achieve dietary compliance, and prolong their lives.

General Research Question

There are three mind-body relationships underlying this study: (a) undergoing chronic hemodialysis treatment causes many patients to experience physiological and psychological difficulties; (b) many patients have a very difficult time complying with their specialized diet; and (c) guided imagery has been used as an adjunctive treatment to aid patients in recovery from physiological and psychological symptoms. Thus, it is believed that the use of guided imagery may enable hemodialysis patients to comply with dietary restrictions imposed as a result of their disease.
Summary

The background of the study cited many of the psychological difficulties hemodialysis patients experience as a result of their medical difficulties. It was noted that noncompliance to their imposed diet, in spite of its life threatening implications, is quite common.

The literature review in Chapter II expands upon the history of hemodialysis, the psychological factors of dialysis patients, and suggests reasons for dietary noncompliance. It is also noted in Chapter II that guided imagery in conjunction with progressive relaxation has been used by many people in overcoming negative psychological states and as a method for obtaining desired goals.

It was assumed and theorized that guided imagery used in conjunction with progressive relaxation could be a useful tool in assisting dialysis patients to comply with their diet. Several related research questions were discussed supporting the research hypotheses to be investigated, and the research design is explicated in Chapter III.

Results obtained from conducting the experiment, along with statistical summaries, are presented in Chapter IV. Following traditional dissertation models of style, conclusions, discussion of results, and implications are presented in Chapter V.
CHAPTER II

REVIEW OF THE LITERATURE

The review of the literature is organized in the following manner: (a) a brief history of dialysis is presented; (b) physiological factors of dialysis patients are discussed; (c) emotional problems of dialysis patients are identified; (d) dietary compliance literature is reviewed; and (e) a history of guided imagery and guided imagery with hemodialysis patients is presented.

History of Dialysis

The principle of the artificial kidney was first proposed in 1913 by Odel, Rowntree, and Turner (Cited by Czaczkes and De-Nour, 1978) and grew out of their work in treating uremic animals. They tried a method by which the blood of a living animal could be submitted to dialysis outside the body and returned to natural circulation. However, the artificial kidney did not come into clinical use until 30 years later because of the lack of a dependable dialyzing membrane and the lack of an anticoagulant to keep blood from clotting outside the body. In the 1920's, the natural body substance called heparin—which can prevent the blood from clotting
outside the body—was synthesized and became available for use. Cellophane, which serves as a semipermeable dialysis membrane, became commercially available in the 1930's. These two major developments paved the way for the development of the artificial kidney machine.

William Kolff (Cited by Czaczkes and De-Nour, 1978), who conducted the first human experiments in Holland during World War II, is credited with the development of the first workable artificial kidney machine. Kolff visited the United States after the war, and his work came to the attention of a group of renal specialists at the Peter Bent Brigham Hospital in Boston. The Peter Bent Brigham group developed the artificial kidney into a practical reality in 1948 and 1949. Their "Kolff-Brigham" rotating-drum artificial kidney was used extensively after 1950; in the Korean War it was used to treat acute kidney failure in wounded American soldiers.

None of the artificial kidney machines was used to treat patients with chronic renal failure because of the problem of gaining repeated access to the bloodstream. In order to treat patients with acute renal problems, such as soldiers in the Korean War, a surgical incision and vessel cannulation had to be performed each time the patient was hooked up to the machine. The vessels were ligated and the site closed after each treatment, rendering it unsuitable for chronic dialysis because the
patient soon ran out of sites that could be easily used.

The next step in the development of chronic hemodialysis was achieved by Scribner and Quinton (Cited by Czaczkes and De-Nour, 1978) at the University of Washington in Seattle. They are credited with the development of the first practical apparatus that would allow access to the bloodstream without multiple surgical incisions. The apparatus—called a cannula (or external shunt)—consisted of two teflon tubes placed in the arm by surgically inserting each tube into an artery and a vein and then joining the two tubes together outside the arm with a soft plastic connecting tube. In March, 1960, such a cannula was placed in the locally anesthetized left forearm of Clyde Shields, a 39 year old machinist. He became the world's first patient on chronic hemodialysis. As a result of Scribner's invention, long-term chronic hemodialysis became a practical reality. However, the shunt proved to be somewhat inadequate as it caused infections, bloodclotting, and on some occasions would dislodge, causing life-threatening hemorrhages. The development of the internal fistula was another important breakthrough that allowed for direct access to the blood without infection and released the patient from repetitive vascular access surgeries.

In the early 1960's, there was a period of considerable controversy about chronic hemodialysis. The
treatment was extremely expensive, and the number of facilities able to provide dialysis was limited, leading to the question of who should receive treatment and live, and who should die. Selection committees (dubbed "life or death committees" by the mass media) made up of physicians and laymen were formed to determine the best candidates for long-term dialysis. Because of the ability of private industry to mass-produce the machinery for the artificial kidney and associated equipment, and because state and federal funding mechanisms were set up to absorb some of the operating costs, the selection committees were gradually phased out. It was the passage of federal legislation which created the End-Stage Renal Disease (ESRD) Medicare Program, which finally provided government funding for all those in need of dialysis treatment. Because of this funding, the number of dialysis patients increased from 5,000 in 1972 to 40,000 by the end of the decade. By 1973, chronic hemodialysis had become a common medical treatment procedure, available to all patients in the United States.

Physiological Factors of Dialysis Patients

According to McGovern (1982), when kidney function is impaired or entirely absent, a person's diet and fluid intake must be altered to conform to the kidney's limited or absent function. Impaired kidneys are unable to
adequately filter the waste products which result from the nutritional and metabolic activity of the body, nor are they able to regulate the body's fluid balance properly. Waste products and fluid accumulates in the blood and in the tissues, and the person becomes puffy and does not feel well. If the condition is allowed to go unchecked, the person can become quite ill and even get into a life-threatening state. For these reasons, it becomes necessary for the person with impaired or absent kidney function to have professional assistance to monitor diet and fluid intake carefully. Such monitoring involves regulation of intake of protein, sodium, potassium, fluid, and calories. The regulation of these substances is done to minimize the waste products produced by the body's use of protein, to avoid too much fluid, and to maintain sodium, potassium, and chloride ion levels within normal limits.

Though dietary compliance is determined by the blood chemical analysis and the patient weight gain between treatments, Oleszec (1983) believes that the least contaminated variable in determining food and liquid abuse is the patient's weight.

Emotional Problems of Dialysis Patients

As the '70's were a period of much growth and expansion in the physical treatment of the dialysis
patient, it was also a time of investigating and treating the psychological ramifications of those patients. Abram (1969) reported that some patients on hemodialysis require specific psychotherapeutic intervention. Problems related to independency-dependency conflicts and depression were reported to be of particular concern, with crisis-oriented intervention being the most frequent type of treatment. In a later report, Abram (1974) made the following comments relating to the role of psychotherapists in the nephrology service:

Most patients would not have sought or needed any form of psychiatric therapy if it had not been for the pressures and burdens imposed by their illness and its treatment. Thus, their "normality" or lack of psychopathology in the usual use of the term and the pervasive mechanisms of denial diminish motivation in seeking or acquiring psychiatric aid. Psychotherapeutic measures are, therefore, directed toward patients who manifest overt problems with overdependency (express repression), excess independency (rebellion from the regime), depression or the eruption of underlying anxiety which at times is the harbinger of the psychotic episode. (p. 70)

According to Springer (1975), treatment for the psychological difficulties of the dialysis patient can be performed adequately by a psychologist. Because of their training in vocational counseling, research, rehabilitation work, psychological testing and assessment, and group procedures—in addition to their training in psychology and psychotherapeutic theories and techniques—psychologists are able to bring special
skills to nephrology patients who are intensely in need of such services.

The first reports dealing with the emotional problems faced by hemodialysis patients began in 1962. Brown, Maher, Lapierre, Bledsoe, and Schreiner (1962) reported that several psychiatric disturbances—ranging from acute paranoid psychosis, severe mental depression, and hostility toward dialysis—were evident in chronic hemodialysis patients. Gonzales, Pabico, Brown, Maher, and Schreiner (1963) reported that the psychological stress related to hemodialysis caused the termination of treatment in one patient who developed a paranoid psychosis after one month of treatment. Two other patients were reported to have developed severe depressive reactions. The remaining patient in the study was seen as seemingly well adjusted, cheerful, and tolerant. Shea et al. (1965) reported that each of the nine patients in their study "manifested significant psychological reactions while on the dialysis program" (p. 558). They characterized the emotional adjustment to the basic disease process as being generally poor. The researchers concluded that "the additional stress of hemodialysis seemed to precipitate schizophrenic-like episodes in two patients, psychotic depressive reactions in one patient, and a number of severe neurotic depressive reactions in all but one of the other patients" (p. 562). The authors believed that
the AV shunts were a constant reminder to patients of their conditions and their dependence on the dialyzers. They further reported that "a few patients either attempted to deny their illness or subjected their arm to unnecessary trauma as a possible expression or gesture of suicide" (p. 562).

Brand and Komorita (1966) reported that "the nature of chronic renal failure, the restrictions and modifications imposed, and the necessary repetition of treatment suggest that these patients may have difficulty in maintaining emotional and physical equilibrium" (p. 1778). The authors identified denial as a major defense mechanism to control anxiety and found that identification of the patients' needs could not be based only upon the complaints that were voiced by the patients.

Hampers, Schupak, Lowrie, and Lazarus (1973) state that by far the most common psychological manifestation of chronic dialysis is depression. Once established, depression maintains itself at some level throughout the course of treatment, but it is cyclic in its expression. The initial confrontation with the physician and medical staff, i.e., the introduction to dialysis, result in the most pronounced and obvious symptoms. As the patient begins to feel better medically with the dialysis treatment and is confronted with other patients in
similar situations, some of whom have undergone the therapy successfully, new hopes arise. The time during which severe depression is manifested is variable, depending on the course of the individual patient, but usually subsides after the first few weeks. Depression may worsen if the patient has been unrealistic in what he expects from dialysis and if he does not feel totally "normal" again.

Many interpersonal relationships, especially within the immediate family, have a great bearing on the patient's psychological outlook. Family situations which are strained, or in which attitudes toward the sick individual change, can aggravate the depressive mood.

There is extreme disagreement about the frequency and severity of anxiety in chronic dialysis patients. Isiadinso, Sullivan, & Baxter (1975) reported prominent anxiety in all of the patients studied, while Cazzullo (1973) found that anxiety reactions were very common at the commencement of dialysis, but that within time the patients developed psychological defenses against anxiety. Czaczkes and De-Nour (1978) performed a study testing 100 dialysis patients. They found that nearly three-quarters of the patients did not have any symptoms of overt anxiety. Moderate anxiety was found in 20% of the patients and 7% of the patients had severe anxiety.

According to Czaczkes and De-Nour (1978), in all
studies of anxiety among hemodialysis patients, anxiety is higher while patients are actually on dialysis and is manifested in a number of ways; insomnia, difficulty in concentration, and eating disturbances are common. On the whole, however, it is believed that anxiety among dialysis patients is not a major problem.

Dietary Compliance

For many patients on hemodialysis, compliance to the medical routine—especially in the area of diet and fluid restrictions—is a difficult and chronic problem. Reichsman & McKegney (1974) confirmed that diet is the major problem for most patients on maintenance hemodialysis, requiring restrictions on fluid, electrolyte, and protein intake. Even though the dietary and fluid restrictions were stricter in the past, abuse of diets remains quite high. All patients, in varying degrees, initiated and savored conversations about food, especially favorite foods no longer permitted. The frequency of these discussions suggests a preoccupation with the subject (Friedman, Goodwinn, & Chaudhry, 1970). Friedman et al., (1970) also reported gross abuse of the diet by 39% of the patients. The importance of compliance is paramount; eight out of ten patients who died on dialysis were rated as abusers of the diet.

Gombos, Lee, Horton, & Cummings (1964) conducted
four case studies and found that two of the four patients
did poorly on dialysis. They did poorly as a result of
dietary indiscretions which resulted in edema and
hyperkalemia. Kaplan, De-Nour, & Czaczkes (1972) studied
43 patients on chronic hemodialysis in an attempt to
identify personality factors causing noncompliance with
the dialysis regimen. The authors used compliance to the
dietary regimen (i.e., compliance to fluid, potassium,
and salt restrictions) as indicators for noncompliance.
Their results indicated that, on the whole, adherence to
the diet was poor, with 45% of the patients being rated
as abusers.

Czaczkes and De-Nour (1978) made the following
comments regarding diet compliance of hemodialysis
patients:

a) Compliance with the diet is very important
for patients' physical welfare, as well as for
their survival.

b) It is comparatively very easy to measure
compliance of dialysis patients as one does not
have to rely on patients' reports but can use
objective measures, such as weight gain and
biochemical data.

c) The few available reports indicate that
compliance is a major problem and that most
patients do not adjust to it.

d) One cannot but wonder why there are hardly
any reports about patients' compliance, or
rather patients' noncompliance, with the diet.
Our impression has been that this lack of
information is due mostly to the unwillingness
or inability of physicians to face the issue
and is related to physicians' denial. (p. 103)
History of Guided Imagery

The problem of defining images is not essentially different from the problem commonly faced by any researcher attempting to define any other complex phenomena. In *Mental Imagery*, Richardson (1969) reviews some classical definitions and offers a four-part statement, the first two labeled subjective, the latter two objective. He says:

Mental imagery refers to (1) all those quasi-sensory or quasi-perceptual experiences of which (2) we are self-consciously aware, and which (3) exist for us in the absence of these stimulus conditions that are known to produce their genuine sensory or perceptual counterparts, and which (4) may be expected to have different consequences from their sensory or perceptual counterparts. (pp. 2-3)

Quasi-sensory or quasi-perceptual experiences refer to any concrete re-presentation of sensory, perceptual, affective, or other experiential states.

It has long been held that images are like "pictures in the head". The foremost theorist in this vein today is Allen Paivio (1971). Paivio emphasized that we have two kinds of codes in which to store information—pictorial and verbal. Images are thought to be concrete (i.e., they represent specific instances and are modality specific) and parallel, in contrast to verbal representations.

Imagery has always been with us as a part of our heritage being first derived from magic, art, religion, philosophy, and literature. Psychiatry, from its
beginning, has used techniques based on people's ability to visualize. Beginning with Sigmund Freud, psychotherapists have asked patients to form spontaneous images in their minds.

Jung is not generally known to be a pioneer in the study of imagery, but actually dedicated his life to understanding the relationship between imagery and psychological development, which he called "individuation". Jung (1972) believed that images serve to compensate for the limited perspective of our conscious awareness. He also believed that there is a pattern series of images which parallel the individuation process, which can facilitate the process of individuation.

Though the study of imagery has always been a part of the study of the mind, with the decline of the structuralists and the growth of behaviorism in the 1920's mental imagery began to fade as a serious subject of investigation. From the late 1920's until the late 1940's and early 1950's, the attention of most academic psychologists in the English-speaking world was focused on other problems, notably upon theoretical issues in the field of learning. Thus, the study of imagery almost disappeared as a theoretical construct. Since the 1960's the re-emergence of imagery as a phenomenon worthy
of study by psychologists may be divided into that based on experimental and behavioral considerations.

The Korean prisoners of war (POW's) resulted in the availability of funds for studies on the psychological effects of perceptual isolation. As a result, much literature began to accumulate during the 1960's relating to spontaneously occurring non-object-bound experiences (images) with vividness and variety.

During this time, cognitive psychology began to use imagery as a major theoretical construct. Bugelski (1977) states:

For some time (Miller et al., 1960) the image is some kind of global cognitive map, "all the accumulated, organized knowledge that the organism has about itself and its world". For others (Paivio, 1971) it is, in at least some respects, the equivalent of meaning. For Mowrer (1960) it is an internal model which controls approach and avoidance behavior. Some investigators cautiously view imagery as a helpful, if unexplained, mnemonic device (Atkinson & Rough, 1975). Others (Anderson & Bower, 1973) have used it as a steppingstone to more "powerful" forms of representations, namely propositions, as cognitive mechanisms. (pp. 39-52)

The documentation of the clinical applications of imagery is widespread. Some of the most innovative work in this area so far has been done by O. Carl Simonton, a radiation oncologist in Fort Worth, Texas, and his wife, Stephanie Simonton. In their clinical practice, they have examined the psychosocial factors of cancer and sought a means of altering those in a positive direction.
The Simontons were the first to show that the factors thought to cause cancer could be influenced by stress reduction and the use of guided imagery. The Simontons (1975) believe that, even though the visualization technique is simple, it can bring about dramatic results. The Simontons instructed each patient in a simplified form of autogenic relaxation with a focus on breathing. When a state of relaxation was established, the patients visualized a pleasant, natural scene such as a little brook in a meadow or whatever occurred to them. When the patients could do this, they were asked to visualize their illness in any way that it appeared to them; and this ranged from seeing the cancer as a cauliflower to a piece of hamburger with strands extending out from it into other areas. Next, the patients visualized their particular form of treatment. If it was radiation therapy, they imagined tiny bullets of energy hitting all the cells in the area of the tumor. The patients visualized a great army of white blood cells as they performed their function of transporting the dead cancer cells through the blood, liver, kidneys, and then out of the system.

Lerner (1985) evaluated complementary cancer therapies such as:

(1) psychological approaches, both psychotherapy and imagery; (2) diet and nutritional-metabolic approaches; (3) lifestyle and health promotion approaches; (4) spiritual approaches.
(5) alternative immune therapies; (6) alternative medical therapies that include unconventional use of chemotherapy; and (7) folk medicine. (p. 36)

Lerner (1985) also believes:

Of all complementary therapies, psychological approaches to cancer currently have the greatest credibility in conventional medical circles. In major cancer centers, Simonton-type imagery, relaxation and patient support groups are increasingly accepted, but their effects are believed to be limited to enhancing the quality of life, promoting acceptance of medical treatment, or relieving discomfort and pain. The question of whether psychological approaches can effect tumor growth remains the unresearched critical issue. (pp. 36-37)

He further states:

Of the patients who undergo complimentary cancer therapies, 10% receive no benefit. Forty percent experience "transient subjective benefits" that may include such profoundly important personal outcomes as improved morale, relief of pain, a feeling of peace, and improved physical health. Another 40% experience less transient subjective benefits. They develop a strong conviction that the complementary therapy has given them an extended disease-free interval with improved quality of life, whether or not the perception is objectively true. A minority of patients, 10%, experience long-term subjective and objective improvements in their health, including partial or complete remission of the cancer. (p. 39)

Thus, the Simonton's (1975) optimism regarding the effectiveness and use of guided imagery and progressive relaxation in the treatment and cure of cancer does not seem to be shared by everyone. Lerner (1985) believes that there is little credible scientific evidence to support the notion that guided imagery has extended the
patient's life, improved the quality of life, or cured the disease.

Guided Imagery with Hemodialysis Patients

The literature regarding the use of guided imagery techniques with hemodialysis patients is limited and of the case study variety. There are three studies reported which have utilized similar techniques successfully. Diamond (1981) tried hypnosis and guided imagery with a 30 year old female undergoing hemodialysis. Presenting problems listed by the referring agency included hyperemotionality during dialysis and an inability by dialysis technicians to secure an adequate blood flow volume. The patient complained of an injection phobia and low pain tolerance threshold. Since each of these problems appeared to be dynamically linked to the patient's perceived threat to her independence, a modified desensitization procedure using hypnosis was employed. This modification involved a standard desensitization procedure while simultaneously employing suggestions designed to facilitate dialysis through an increase in perceived self-control and to help the patient incorporate the dialysis process into her personal needs for independence. These procedures resulted in both psychological and physiological changes including a substantial increase in blood flow. These
gains have been maintained for 30 months following the termination of treatment.

Dy and Fabbri (1972) utilized combinations of relaxation, guided imagery, autosuggestion, and hypnosis to treat a highly anxious hemodialysis patient. Because of the techniques utilized by Dy and Fabbri, the patient was able to overcome anxiety and the dependency on an artificial respirator was extinguished, making the patient medically manageable.

Higgins (1984) tried guided imagery with hemodialysis patients for control of food and liquid intake. He found that guided imagery is not an effective treatment for the control of food or liquid intake without the patient first having the capacity to image. It was concluded that guided imagery may be a valid therapeutic intervention with hemodialysis patients that demonstrate the ability to image. Two of the studies incorporated hypnosis in the treatment regime and achieved moderate levels of success. Thus, it was clear that a group design using guided imagery in conjunction with progressive relaxation was warranted.
CHAPTER III

METHOD

Subjects

The subjects who participated in the research were patients selected from the hemodialysis department of the outpatient dialysis unit at Borgess Medical Center in Kalamazoo, Michigan. Borgess maintains a nephrology department with approximately 45 patients who are undergoing outpatient hemodialysis. Of these 45 patients, 29 volunteered to participate in the research. The patients, 14 males and 15 females, ranged in age from 22 to 76 years of age. All patients were on dialysis three or four times a week for a four hour period. The patients were receiving dialysis between the dates of November 1 to 31, 1984, during which time the study was conducted.

Procedure

To begin the research experiment, permission was obtained from the Borgess Medical Hospital Administration following procedures established by the hospital staff for research involving human subjects. In order to aid them in their decision, a copy of the research proposal was provided. For clarification of intentions,
a meeting was arranged with the nursing staff where they were presented with the opportunity to ask questions regarding the research procedures and also to review the proposal.

Individuals from the sample population were personally contacted by the experimenter, informed of the aspects of the experiment, its procedures were outlined and subject participation was requested. Volunteer subjects from the dialysis unit signed the Participation Consent Form indicating their willingness to voluntarily participate in the study (see Appendix A).

Instrumentation

Before the experiment, all subjects were administered the Vividness of Visual Imagery Questionnaire (VVIQ) to evaluate their ability to visualize images (see Appendix C). Marks (1973) stated, "the VVIQ is a brief 16 item questionnaire with a test-retest reliability coefficient of 0.74 (n = 68) and a split-half reliability coefficient of 0.85 (n = 150)" (p. 18). The image summoned for each item is rated along a five-point scale of vividness—once with the eyes open, and once with the eyes closed. On the basis of total scores on the VVIQ, the subjects were divided into good, average, or poor visualizer categories, respectively.

Although chemical analysis is a method of analyzing
patient compliance to adherence to appropriate food and liquid intake, it is likely to be contaminated by extraneous variables. These variables are problems with the dialysis process, the patient's illness, or with the dialysis machine itself. According to Oleszec (1983), the least contaminated variable in determining compliance to diet is the patient's weight before engaging in treatment. In this experiment, the weight prior to each dialysis session was compared to the post-dialysis treatment weight of the following treatment. The weight was measured in kilograms in which one kilogram equals 2.2 pounds. Dietary noncompliance would be indicated by an increase in weight of more than two kilograms between treatments (see Appendix D).

Treatment Procedure

At the beginning of each dialysis treatment all patients, treatment and controls, listened to a 20 minute tape recording. The experimental group listened to a tape consisting of a combination of relaxation/guided imagery instructions while the control group listened to a 20 minute tape consisting of musical tones. All patients were instructed to listen to their tape during each dialysis treatment for a period of one month.

The relaxation/guided imagery tape was adapted from two sources. Surwit (1977) developed a relaxation theme
consisting of a series of progressive relaxation instructions beginning with relaxing the feet and progressing up through the legs, mid-section, and head. The guided imagery segment of the tape was adapted from Simonton's et al. (1981) use of guided imagery with cancer patients. The tape requested that the patient visualize him or herself as adopting certain positive attitudes about the dialysis treatment and overall well-being. Most important, the imagery stresses the importance of visualizing him or herself in control of both his/her life and diet (see Appendix B).

The control group also listened to a 20 minute tape. However, the tape consisted solely of several pleasant musical tones and gave no relaxation or guided imagery instructions. The 20 minute music tape was a segment selected from the album, "Spectrum Suite", composed by Steven Halpern (1977).

Research Design

The intent of this study was to assess what effect the relaxation/guided imagery tape may have upon the subject's ability to maintain dietary compliance. In order to achieve this objective, a Pre/Post Experimental/Control Group Design (Stanley and Campbell, 1963) was utilized in which all 29 subjects were randomly assigned into either the experimental or control group. The
subjects were given a pre-test to determine their ability to visualize. The test used to determine the subjects' visualization ability was the Vividness of Visual Imagery Questionnaire (VVIQ). The subjects were determined to have either low, medium or high visualization ability and placed within that respective group. The low visualization group was comprised of nine subjects while the medium and high groups were comprised of 10 subjects in each group. Half of the subjects within each visualization ability group were randomly assigned to the control group and half were assigned to the experimental group.

Upon beginning dialysis treatment, each subject within the experimental group was given the relaxation/guided imagery tape recording. Because of the physical constraints placed upon the subjects resulting from the dialysis treatment and to insure treatment compliance, the tape recording was turned on by the experimenter. In addition, the stereo head phones were placed on each subject's head and adjusted for comfort. Each subject within the experimental group listened to the relaxation/guided imagery tape three times a week for a period of one month. This resulted in the experimental group receiving a minimum of 12 treatments.

The control group was treated exactly like the experimental group; however, they listened only to
musical tones and received no relaxation/guided imagery instructions.

In order to determine the effect of the treatment, the average weight of each person eight weeks prior to the experiment was compared to the average weight of each subject during the four week experiment.

Variables

The dependent variable in this study is the subjects' weight, which is measured before and after each dialysis treatment in kilograms. The independent variable in this study is the relaxation/guided imagery tape, which is administered during each dialysis treatment.

Research Hypotheses

For purposes of the study, the following two research hypotheses were developed.

**Hypothesis One**

Dialysis patients (n = 15) who were exposed to the relaxation/guided imagery tape for a four week period will show significant loss of weight when compared with patients who listened to the music tape (n = 14).

**Hypothesis Two**

Dialysis patients (n = 5) who show high ability to
visualize will show significantly more weight loss when compared with patients who were exposed to the same tape but had low visualization ability (n = 5).

Testable null forms of the research hypotheses will be stated in Chapter IV, Data Analysis.
CHAPTER IV
DATA ANALYSIS

This investigation attempted to clarify the relationship between hemodialysis patients' ability to visualize and their ability to utilize visualization/guided imagery as a method for the control of food and liquid intake.

To determine the effects of the independent variable guided imagery, and the dependent variable weight change, experimental and control group mean-weights were compared. The statistical test used to determine statistical significance between the two groups was the t-test for independent means in the Statistical Package (STP) contained in the PDP-10 computer at Western Michigan University.

The research was completed on 29 hemodialysis patients at Borgess Hospital in Kalamazoo, Michigan. From this sample population 15 subjects were randomly assigned to an experimental group and 14 subjects were assigned to a control group. Within the experimental and control group each person was divided according to their ability to visualize, as assessed by the Vividness of Visual Imagery Questionnaire (VVIQ). Each subject in the experiment was determined to have either low, medium, or high
visualization ability, respectively. Half of the subjects in each of the visualization categories were given a visualization tape and half were given a tape consisting of music. In Table I, assignment of subjects and their weights is presented.

Table 1
Pre-Post Mean Weights of Patients Assigned to Treatment and Control Groups

<table>
<thead>
<tr>
<th>Test Group</th>
<th>Visualization Ability</th>
<th>Treatment</th>
<th>N</th>
<th>Mean Weight Kg.</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>L</td>
<td>V</td>
<td>105</td>
<td>79.65</td>
<td>6.905</td>
</tr>
<tr>
<td>2</td>
<td>M</td>
<td>V</td>
<td>111</td>
<td>64.92</td>
<td>20.15</td>
</tr>
<tr>
<td>3</td>
<td>H</td>
<td>V</td>
<td>119</td>
<td>81.26</td>
<td>5.841</td>
</tr>
<tr>
<td>4</td>
<td>L</td>
<td>M</td>
<td>126</td>
<td>68.89</td>
<td>6.693</td>
</tr>
<tr>
<td>5</td>
<td>M</td>
<td>M</td>
<td>131</td>
<td>81.55</td>
<td>18.34</td>
</tr>
<tr>
<td>6</td>
<td>H</td>
<td>M</td>
<td>131</td>
<td>63.74</td>
<td>10.22</td>
</tr>
<tr>
<td>7</td>
<td>L</td>
<td>V</td>
<td>46</td>
<td>80.15</td>
<td>6.002</td>
</tr>
<tr>
<td>8</td>
<td>M</td>
<td>V</td>
<td>58</td>
<td>65.87</td>
<td>20.33</td>
</tr>
<tr>
<td>9</td>
<td>H</td>
<td>V</td>
<td>49</td>
<td>81.50</td>
<td>6.815</td>
</tr>
<tr>
<td>10</td>
<td>L</td>
<td>M</td>
<td>63</td>
<td>70.14</td>
<td>6.295</td>
</tr>
<tr>
<td>11</td>
<td>M</td>
<td>M</td>
<td>65</td>
<td>80.89</td>
<td>17.10</td>
</tr>
<tr>
<td>12</td>
<td>H</td>
<td>M</td>
<td>69</td>
<td>64.03</td>
<td>10.63</td>
</tr>
</tbody>
</table>

Visualization Ability:  
L = Low visualization ability  
M = Medium visualization ability  
H = High visualization ability

To determine the effects of the independent and dependent variable, the mean weights were calculated two
months prior to the experiment and compared to the mean weight of the patient during the one month experiment. The statistical test to determine significance between the two groups was a t-test for independent means.

Null Hypothesis One

No significant difference will be found in dietary compliance between the subjects who were exposed to the visualization tape for a four week period when compared to subjects exposed to the musical tones for the same time period.

In order to test Null Hypothesis One, a t-test was computed on mean weight between the experimental and control groups. As evidenced in Table 2, the t-test score obtained was 2.305 resulting in a probability of .022.

Table 2

Comparisons of Means of Experimental and Control Groups on Weight in Kg.

<table>
<thead>
<tr>
<th>Group</th>
<th>N</th>
<th>Mean Wgt. Kg.</th>
<th>SD</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre Visualization</td>
<td>335</td>
<td>75.34</td>
<td>4.66</td>
<td>3.568</td>
<td>.001</td>
</tr>
<tr>
<td>Pre Music</td>
<td>388</td>
<td>71.42</td>
<td>14.81</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Post Visualization</td>
<td>153</td>
<td>75.17</td>
<td>15.29</td>
<td>2.305</td>
<td>.022</td>
</tr>
<tr>
<td>Post Music</td>
<td>197</td>
<td>71.55</td>
<td>14.02</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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The indication of significant weight differences between the visualization and music groups were due to the differential weight distribution between the two groups before the treatment, and not due to the treatment. The lack of significant weight gain or loss made suspect the notion that visualization affects weight change. Null hypothesis one, therefore, was not rejected.

Null Hypothesis Two

After being exposed to the visualization tape no significant difference will be found in dietary compliance as measured by weight loss between the subjects who show a high ability to visualize and those that show a low ability to visualize.

In order to test Null Hypothesis Two, a t-test was computed on mean weight between subjects having high and low visualization ability within the experimental group. The t-test score obtained 1.022 resulting in a probability of .309.

Table 3
Comparisons of Mean Weights of Low and High Visualization Groups

<table>
<thead>
<tr>
<th>Group</th>
<th>N</th>
<th>Mean Wgt. Kg.</th>
<th>SD</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low Visualization</td>
<td>46</td>
<td>80.15</td>
<td>6.002</td>
<td>1.022</td>
<td>.309</td>
</tr>
<tr>
<td>High Visualization</td>
<td>49</td>
<td>81.5</td>
<td>6.815</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The lack of measures of weight change between the low and high visualization group makes suspect the notion that visualization ability affects weight change. Null hypothesis two, therefore, was not rejected.

Summary

In Chapter IV an attempt to clarify the relationship between a person's ability to visualize and their ability to use guided imagery and progressive relaxation as a method for the control of food and liquid intake was presented. The study also tested the hypothesis that subjects who were exposed to guided imagery and progressive relaxation for a four week period would lose significantly more weight than subjects who were exposed only to musical tones for the same time period.

The results obtained indicated that a relationship between guided imagery and dietary compliance of hemodialysis patients, regardless of visualization ability, did not exist within the parameters of the experiment. However, many of the hemodialysis patients reported that the guided imagery and progressive relaxation experience was pleasant and satisfying. Nearly all subjects reported having some subjective benefit of improved ability to relax which may have given them at least partial relief over the chronicity of their illness. Thus, guided imagery and progressive relaxation
may have been beneficial even though it did not assist the patients in losing weight.
CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

It is established that many hemodialysis patients suffer a variety of emotional stresses as a result of their illness and treatment. Briefly, some of these are: fear of dying and of frequent subjections to pain and illness; fear of loss of job and income; uncertainty about the future; and changes in life-style, family and social status. Being confronted with these stressors over a long period of time can lead to intense feelings of depression and anxiety with accompanying feelings of helplessness and hopelessness regarding one's life situations.

Many of these patients choose not to comply with their diet restrictions in spite of the life threatening implications. The reason for this, according to Czaczkes and De-Nour (1978), is related to the following personality traits: 1) low frustration tolerance, 2) acting out tendencies, 3) suicidal tendencies, 4) excessive primary and/or secondary gains from the sick role, 5) denial of the sick role and 6) various beliefs and superstitions. It is also believed that many patients direct their anger and frustration toward the medical staff by dietary overindulgence. Even more commonly, when well meaning
family members are concerned and attempt to regulate this aspect of their therapy, dietary intake may be utilized as an infantile angry "slap at the family".

Since dietary compliance is extremely important to the physical well being of the hemodialysis patient, the purpose of this research was to find a method by which dialysis patients could overcome their psychological stressors and, thus, control their food and liquid intake.

Guided imagery has been used by many psychologists and researchers as a method for altering negative psychological states. The most dramatic results come from Simonton's et al. (1981) use of guided imagery along with relaxation to overcome the negative psychological states of cancer patients. Simonton et al. (1981) state that relaxation and mental imagery (visualization techniques) are excellent adjunctive tools for creating and reinforcing the patients' belief in their ability to recover from their illness. "Visualization is the central element of our approach. Not only does guided imagery possess creative positive changes, it is also a means of self-discovery in other areas of the patient's life" (p. 89-90).

The general research hypothesis derived from the review of the literature was that dialysis patients who demonstrate the ability to visualize will be able to maintain dietary compliance of their food and liquid
intake with the aid of relaxation/guided imagery techniques when compared with patients possessing limited visualization ability. Another research hypothesis stated that those patients who listened to the 20 minute relaxation/guided imagery tape at each dialysis session would lose significantly more weight when compared with patients who listened only to music.

The sample for this research consisted of 29 hemodialysis patients at Borgess Medical Center in Kalamazoo, Michigan. All patients were on dialysis three or four times a week for a four hour period.

All subjects were given a pre-test used to determine the subject's ability to visualize. Each subject was determined to have either low, medium or high visualization ability. The groups were then divided, half receiving relaxation/guided imagery, and the other half listening to music.

To determine the effect of the independent and dependent variable the mean weights were calculated two months prior to the experiment and compared to the mean weights during the one month experiment. The statistical test to determine significance between the two groups was a t-test for independent means.

Conclusions

The results obtained from the testing of null
hypotheses one and two indicated that an effect attributable to guided imagery and dietary compliance of hemodialysis patients, regardless of visualization ability, did not exist in this study. The inability to obtain significant differences indicates that guided imagery may not be an effective adjunctive treatment for dietary compliance.

It was theorized that hemodialysis patients who show a high ability to visualize, as determined by the VVIQ, would show significant more weight loss when compared to patients who possess only limited ability. However, the research did not support this notion. The research suggested that visualization ability had no effect upon weight loss. It may be that visualization ability may not be the only criteria by which to determine whether guided imagery and progressive relaxation may be an effective treatment. Sheikh (1983) stated that a relationship existed between creative cognitive style and the capacity for imagery. However, he cautioned that at the present time there is no way of clearly determining whether some characteristics of the client (e.g., sex, age, cognitive style) makes one a more suitable candidate for imaged based therapies. Thus, the Vividness of Visual Imagery Questionnaire (VVIQ), which was the instrument used in this study to determine visualization ability, may not be an effective indicator of the person's capacity to
actually use guided imagery and progressive relaxation to effect behavior change.

Guided imagery may be a more effective treatment tool when it is used in conjunction with other psychotherapeutic modalities. It is believed by many contemporary psychologists that behavioral change comes about primarily through the therapeutic client/therapist relationship. Beck, Rush, Shaw and Emery (1979) believe that "behavioral change can become gimmick-orientated to the point of ignoring the human aspects of the therapist-patient interaction and that all change is in part due to the therapist being able to communicate warmth, accurate empathy and genuineness" (p. 45-46).

Patterson (1974) believed that providing a facilitative or therapeutic relationship is the necessary and sufficient condition for helping those persons who are failing to develop or progress toward self-actualizing behavior. If they are provided with the appropriate kind of relationship their inherent capacity to grow and develop will manifest itself.

According to Rogers (1951) therapeutic change is most likely to occur when:

1. The therapist is able to participate completely in the patient's communication.
2. The therapist's comments are always right in line with what the patient is trying to say.
3. The therapist treats the patient as an equal.
4. The therapist is well able to understand the patient's feeling.
5. The therapist really tries to understand the patient's feelings.
6. The therapist always follows the patient's line of thought.
7. The therapist's tone of voice conveys the complete ability to share the patient's feelings. (pp. 53-54)

In this study experiment relaxation/guided imagery was the only variable used to effect behavioral change. A therapeutic relationship was not established with the research subjects. It may be that for image-based therapy to be more effective it must be utilized in conjunction with other therapies which incorporate a therapeutic relationship.

It is believed that raising the client's hope and expectation of recovery or improvement over his symptoms increases the client's motivation and in many cases actually decreases the client's symptoms.

Frank (1975) stated:

Part of the healing power of all forms of psychotherapy lies in the ability to mobilize the patient's hope of relief. If the patient believes strongly in the cure... by his very belief he at once obtains sufficient moral support to face all of his problems with some degree of equanimity. Greater success in solving his problems, in turn results in increased satisfaction and diminished frustration ameliorating his distress. (p. 71-72)

According to Frank, Koehn-Saric, Imber, Liberman, & Stone (1978) task relevance, that is, tasks which an individual regards as either important or unimportant, is an extremely important variable to the outcome of treatment. It is important that the patients perceive...
these tasks as relevant to themselves and to their improvement. Therefore, a patient's success at these process tasks (as determined by direct and indirect feedback from the analyst) may be experienced as mastery which, of itself, may constitute therapeutic improvement.

The patients involved in this experiment did not interact directly with the experimenter, eliminating any possibility of mobilizing the patients' hope and motivation. Also, no instruction was provided to the patients regarding the positive clinical effects and use of guided imagery. This may have left the patients without an understanding of the relevance guided imagery may have on their present life situation.

Recommendations

As a result of the conclusions stated above the relationship between relaxation/guided imagery and diet compliance of hemodialysis patients requires research other than of a pre-post group design.

This research clearly stated that visualization ability is not a determining factor, in and of itself, in predicting whether hemodialysis patients can use guided imagery and progressive relaxation to effect weight change. Given the fact that no instrumentation has been developed which can successfully predict which patients can use guided imagery, much research must be done in
this area. Once an instrument is developed it could be used to select appropriate clients for image-based therapy.

Image-based therapy may be more effective if used in conjunction with other therapies which stress the importance of client/therapist relationship. Rogers (1976) states, "gradually I have come to the conclusion that one's learning which applies to all of those experiences is that it is the quality of the personal relationship which matters most" (p. 86).

It is recommended that further research be undertaken in which the patient and therapist become actively involved in developing a therapeutic relationship, and that the use of guided imagery is incorporated within that relationship as an added tool to bring about behavioral change. Group designs, then, may be used after these conditions are established.

Some time should be given to educate the client as to the potential positive effects of guided imagery. Therapists must also help the clients become aware of the relevancy guided imagery may have in the client's own personal life situation. If this were provided, an increase in the client's motivation and a mobilization of the client's hope of recovery may be established. It is through the development of a therapeutic relationship coupled with relevance of the treatment and the
establishment of hope and motivation that behavioral change becomes most effective.
APPENDIX A

Participation Consent Form


I understand that Mr. Morrissey is a Doctoral student at Western Michigan University and that the results of his study will be shared with his faculty and committee advisors. However, my individual participation will be kept totally confidential and will not be shared without my permission.

Signed ____________________________ Date ____________________________
APPENDIX B

Relaxation/Visualization Transcript

Let's begin by allowing your eyes to drift shut and try to settle down as best you can. For the next few moments begin to adopt an attitude that nothing is of much importance other than concentrating on this exercise—relaxing. Begin by directing your internal attention to your feet. Do not tense your feet, simply study the level of tension in the muscles of your feet. Now—under your control,— say the word, "relax" to yourself and slowly let any existing tension go. Study the relaxation as it comes into those muscles—under your control—pleasantly deeper and deeper—under your control. Simply allow the muscles of your feet to relax. Now—focus your attention on the muscles of your thighs. Assess the amount of tension present in this part of your body. Study the tension without making any movement. Now—think of the word "relax" and let the tension go, studying the relaxation as it flows into the muscles of your legs—under your control—deeper and deeper now, deeper and deeper, feeling more and more relaxed. As the muscles of your legs continue to relax focus your attention on the muscles of your arms. Assess the amount of tension that is present in these large muscles. Now—again say the word "relax" to yourself and let the
tension go. Feel the relaxation coming into your muscles--under your control. It's as if you were sinking into a soft cushion--pleasantly deeper and deeper, and deeper and deeper. Let the chair support your weight and try to follow the flow of relaxation just a little deeper now. Now--focus your attention on the muscles of your stomach. Study the level of tension present in these muscles. Think the word "relax" and allow the tension to disappear. Let your stomach sag, relaxing more and more--under your control. It doesn't matter what you look like when you're relaxed. What's important is that you're relaxing deeper and deeper. Notice that your breathing moves downward as these muscles relax. Stomach breathing is relaxed breathing. Now--direct your attention to your hands. Notice if any tension is present in your muscles and forearms. Think of the word "relax". Slowly let the tension go, allowing the relaxation to flow deeper and deeper from your arms to your hands to the rest of the muscles in your body, as you're feeling more and more relaxed now, more and more comfortable. Now--concentrate on the muscles in the back of the neck and in the shoulders. Concentrate on any tension that might be present in these muscles. Let your shoulders sag and come forward, and relax the shoulders and let the tension go. Your shoulders are drooping more and more now. Your head is tilted forward more and more, relaxing. As your head
comes forward let it rest in any position that is comfortable. Now--focus your attention on your forehead and scalp. Notice if any tension is present in this area and if so, let it go. Let it go--under your control. As you relax, imagine your forehead becoming smoother and smoother, like a piece of rumpled silk smoothing over the top of your head and down over the upper part of your face. Allow the relaxation to spread from the forehead to the muscles in your eyes and from the eyes to the muscles around your mouth. As your mouth relaxes study the relaxation as it flows to your cheeks--under your control. Allow your lips to part slowly--your jaw to sag--your face to become expressionless, relaxing deeper and deeper now--feeling more and more, more and more comfortable--more and more relaxed--feeling yourself deeper and deeper and deeper into feeling relaxed. Continue relaxing for a moment or two and enjoy the feeling in your body which you have allowed to occur--under your control--as you're feeling more and more relaxed and more and more comfortable. Now--while you're feeling relaxed, I would like you to create an image in your mind's eye of the dialysis machine. Imagine it in any form that makes sense to you. Imagine the machine pumping fluid throughout your body. Imagine yourself becoming stronger and stronger as the fluid circulates throughout your body. Imagine yourself becoming more
healthy and more and more in control over your own life. Imagine yourself developing more and more self confidence and more and more self control. The key to your success is confidence—confidence in yourself, confidence in your ability to do whatever you truly want to do, confidence that you will accomplish your goal through the power of your own mind—the power of your own thought. What you imagine and tell yourself has the greatest of power over your life. What you tell yourself determines whether you feel cheerful or gloom or worried and the way you feel determines to a great extent the health and well being of your physical body. When you're bothered and unhappy, your body simply can not function properly. What you tell yourself and how you see yourself has an enormous impact on your life. Imagine yourself becoming more energetic and at the same time less tense, less nervous, less worried or anxious. I would like you to imagine that your mind and body are relaxed, calm and are at peace with the universe and because you are calm and at ease, you will have greater energy and your mind will be clearer and sharper and more focused. Consequently, you will be able to see problems and perspective and handle problems easier, efficiently, effectively and confidently without becoming bothered and tired out. Above all tell yourself that you can do something that you want to do very much, like controlling your food and liquid intake. Control of
food and liquid intake is important to your health. Now—imagine yourself becoming more and more healthy as you control your food and liquid intake. Imagine yourself as you would like to be. The key to this is image. Actually imagine yourself being successful with your diet and imagine yourself feeling more healthy, more in control, and successful over the most important factors in your life. Now— I would like you to maintain this level of relaxation as your eyelids begin to lighten up. You can begin to feel more and more alert with the ability to resume. Now—let your eyes open and you are ready to resume your usual activity.
### APPENDIX C

**VIVIDNESS OF VISUAL IMAGERY QUESTIONNAIRE**

<table>
<thead>
<tr>
<th>(a)</th>
<th>Eyes open =</th>
</tr>
</thead>
<tbody>
<tr>
<td>(b)</td>
<td>Eyes closed =</td>
</tr>
<tr>
<td>Total (a+b) =</td>
<td></td>
</tr>
</tbody>
</table>

**Name:**

**Time on dialysis**

| Yrs | Mos |

**Age:**

**Male or Female:**

**Occupation:** (if student, then give course of study and stage reached).

Visual imagery refers to the ability to visualize, that is, the ability to form mental pictures, or to "see in the mind's eye". Marked individual differences have been found in the strength and clarity of reported visual imagery and these differences are of considerable psychological interest.

The aim of this test is to determine the vividness of your visual imagery. The items of the test will possibly bring certain images to your mind. You are asked to rate the vividness of each image by reference to the 5-point scale given below. For example, if your image is "vague and dim" then give it a rating of 4. After each item, write the appropriate number in the box provided.
The first box is for an image obtained with your eyes open and the second box is for an image obtained with your eyes closed. Before you turn to the items on the next page, familiarize yourself with the different categories on the rating scale. Throughout the test, refer to the rating scale when judging the vividness of each image. Try to do each item separately, independent of how you may have done other items.

Complete all items for images obtained with the eyes open and then return to the beginning of the questionnaire and rate the image obtained for each item with your eyes closed. Try and give your "eyes closed" rating independently of the "eyes open" rating. The two ratings for a given item may not in all cases be the same.

Rating Scale
The image aroused by an item might be:

Perfectly clear and as vivid as normal vision . . . . Rating 1

Clear and reasonably vivid . . . . Rating 2

Moderately clear and vivid . . . . Rating 3

Vague and dim . . . . Rating 4

No image at all, you only "know" that you are thinking of the object . . . . Rating 5

In answering items 1 to 4, think of some relative or friend whom you frequently see (but who is not with you at present) and consider carefully the picture that comes
before your mind's eye.

<table>
<thead>
<tr>
<th>Item</th>
<th>Rating with eyes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. The exact contour of face, head, shoulders and body.</td>
<td></td>
</tr>
<tr>
<td>2. Characteristic poses of head, attitudes of body, etc.</td>
<td></td>
</tr>
<tr>
<td>3. The precise carriage, length of step, etc. in walking.</td>
<td></td>
</tr>
<tr>
<td>4. The different colors worn in some familiar clothes.</td>
<td></td>
</tr>
</tbody>
</table>

Visualize a rising sum. Consider carefully the picture that comes before your mind's eye.

<table>
<thead>
<tr>
<th>Item</th>
<th>Rating with eyes</th>
</tr>
</thead>
<tbody>
<tr>
<td>5. The sun is rising above the horizon into a hazy sky.</td>
<td></td>
</tr>
<tr>
<td>6. The sky clears and surrounds the sun with blueness</td>
<td></td>
</tr>
<tr>
<td>7. Clouds. A storm blows up, with flashes of lightning.</td>
<td></td>
</tr>
<tr>
<td>8. A rainbow appears.</td>
<td></td>
</tr>
</tbody>
</table>

Rating Scale

The image aroused by an item might be:

- Perfectly clear and as vivid as normal vision: . . . . Rating 1
- Clear and reasonably vivid: . . . . Rating 2
- Moderately clear and vivid: . . . . Rating 3
- Vague and dim: . . . . Rating 4
- No image at all, you only "know" that you are thinking of the object: . . . . Rating 5
Think of the front of a shop which you often go to. Consider the picture that comes before your mind's eye.

<table>
<thead>
<tr>
<th>Item</th>
<th>Rating with eyes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Open</td>
</tr>
<tr>
<td>9.</td>
<td>The overall appearance of the shop from the opposite side of the road.</td>
</tr>
<tr>
<td>10.</td>
<td>A window display including colors, shapes and details of individual items for sale.</td>
</tr>
<tr>
<td>11.</td>
<td>You are near the entrance. The color, shape and details of the door.</td>
</tr>
<tr>
<td>12.</td>
<td>You enter the shop and go to the counter. The counter assistant serves you. Money changes hands.</td>
</tr>
</tbody>
</table>

Finally, think of a country scene which involves trees, mountains and a lake. Consider the picture that comes before your mind's eye.

<table>
<thead>
<tr>
<th>Item</th>
<th>Rating with eyes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Open</td>
</tr>
<tr>
<td>13.</td>
<td>The contours of the landscape.</td>
</tr>
<tr>
<td>14.</td>
<td>The color and shape of the trees.</td>
</tr>
<tr>
<td>15.</td>
<td>The color and shape of the lake.</td>
</tr>
</tbody>
</table>
**Rating Scale**

The image aroused by an item might be:

- **Perfectly clear and as vivid as normal vision** . . . . Rating 1
- **Clear and reasonably vivid** . . . . Rating 2
- **Moderately clear and vivid** . . . . Rating 3
- **Vague and dim** . . . . Rating 4
- **No image at all, you only "know" that you are thinking of the object** . . . . Rating 5
### Appendix D

**Routine Orders:**

<table>
<thead>
<tr>
<th>Date:</th>
<th>Dialysis No:</th>
<th>Machine No:</th>
<th>DRY WT:</th>
<th>LAST WT:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Laboratory Tests:**

- **Na:**
- **K:**
- **LD:**
- **PhR:**
- **HCT:**
- **Per Dialysis Evaluation:**
- **Treatment Plan:**

**Blood Flow:**

- **Venous Pressure:**
- **Arterial Pressure:**
- **PERFusion:**
- **Fetal Saline:**
- **UF:**
- **HEPARIN:**
- **CL. TIME:**

**Intake:**

- **Oral:**
- **Prime:**
- **Rinse:**
- **Other:**
- **Total:**

**Output:**

- **Urine:**
- **Femoral:**
- **Other:**
- **Total:**

**Pulse:**

<table>
<thead>
<tr>
<th>TIME</th>
<th>PRE</th>
<th>POST</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Dialysis Notes:**

- **Time:**
- **Dialysis Notes:**

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BIBLIOGRAPHY


