COPING WITH TREATMENT – RELATED STRESS AND THE IMPACT ON ADHERENCE TO TREATMENT IN HAEMODIALYSIS

BY

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TABLE OF CONTENT

ABSTRACT

The purpose of this study was to investigate how haemodialysis patients at Chris Hani Baragwanath Hospital cope with stress related to their treatment and investigate further if the manner in which they cope, is related to adherence to the demands of the treatment. The haemodialysis treatment poses a range of unique challenges to patients. These patients are faced with strict guidelines regarding their diet and the amount of fluid that can be safely ingested. These aspects of treatment are self managed by the patient who has personal control over the amount and type of fluid and food that are ingested. Nevertheless there are aspects of haemodialysis that are beyond the patients control. However, this study focused on the stressful situation which is amenable to control by the patient.

In this study, systematic sampling method was used. A sample of 50 black patients was selected out of the population of 78 patients undergoing haemodialysis at Chris Hani Baragwanath Hospital. Selection was done by pulling out every third file from the filing cabinet. The sample was heterogenous in terms of age, gender and the level of education. The ages of the respondents ranged between 22 and 62 years. The mean age was 42 years. There were 24 females and 26 males. Their level of education ranged between no education at all to 4 year degree. The mean of their level of education was Std 6. A structured interview was conducted by the researcher, making use of Coping Strategy Indicator. Coping Strategy Indicator consists of the following subscales: Problem solving strategy, avoidance and seeking social support. Adherence to fluid intake restrictions was measured by the use of interdialytic weight gain.

The results showed a statistically significant correlation between Problem Solving coping and a favourable adherence to fluid intake restrictions. No statistically significant correlation was found for avoidance coping and for seeking social support. This study indicated that haemodialysis patients that were more adherent to fluid intake restrictions used Problem Solving Strategy as a way of coping with their treatment related stress. It is therefore concluded that for context in which greater personal control is possible, an intervention which is problem orientated may be of great value in enhancement of adherence behavior.

CHAPTER ONE

1.1 INTRODUCTION

Coping with perceived powerlessness is a major demand throughout chronic illness. All persons have a capacity for coping. Coping is stimulated in individuals with chronic health problems. Unlike acute crisis, during which denial of the impact of the threat is the usual means of coping, chronic illness brings about a confrontation with reality, adaptation, and participation in care. The individual and family must respond to the requirement of the external situation (for example, adhere to the medication regimen, participate in exercises, maintain a weight-reduction program or complete treatments such as self-dialysis), as well as respond to one's own feelings about the situation namely, powerlessness, depression or low self esteem (Miller, 1992).

Renal failure is one of the chronic diseases that appear to have a high prevalence in Southern Africa. The high prevalence of this disease is predicted as a result of hypertension and diabetes (Schlebusch, 1996).

Healthy kidneys clean the blood by filtering out extra water and wastes. When both kidneys fail, the body holds fluid. The blood pressure rises. Harmful wastes build up in the body. The body does not make enough red blood cells. When this happens, one needs treatment to replace the work of one's failed kidneys (Ford-Martin, 1999).

When the disease (diabetes or hypertension) damages the kidney so that they are no longer capable of adequately removing fluid and wastes from the body, chronic renal failure occurs. Chronic renal failure is irreversible and will eventually leads to total kidney failure, also known as End-stage Renal Disease (ESRD). Without proper treatment intervention to remove wastes and fluids from the bloodstream, ESRD is fatal (Ford-Martin, 1999).

Currently, there are two principal equally-effective therapies in addition to kidney transplantation, that is, haemodialysis and peritoneal dialysis. Haemodialysis can be described as a type of "mechanical blood wash." This kidney machine procedure usually takes 4 – 5 hours and has to be carried out regularly three times a week (Ford-Martin, 1999).

The technical advances in the area of renal dialysis has had a considerable effect on the relief of physical suffering and the prolonging of life in patients with end-stage renal disease. However, in spite of these improved techniques, many patients experience numerous subjective disturbances. Patients who are receiving chronic replacement therapy (dialysis) experience profound effect on their social and emotional functioning (Seedat, 1990).

1.2 PROBLEM STATEMENT

Individuals suffering from a chronic medical condition face a variety of stressful life circumstances involving a range of adaptational demands.

Chronically ill patients must cope with a loss of independence, the threat of disease progression and in most cases, the challenge of modifying their behaviour to meet the demands of a prescribed treatment regimen. Patient adherence to a prescribed treatment can involve a range of adaptive tasks including dietary change, use of medication and change in physical activity (Turk & Meichenbaum, 1991). These adaptive tasks reflect the patient's coping response and often have a substantial implication for treatment success and disease progression (Wiebe & Christensen, 1996).

These stressful life circumstances are also applicable to end-stage renal disease patients receiving haemodialysis as a renal replacement therapy. The haemodialysis treatment context poses a range of unique challenges to patients. Patients undergoing haemodialysis face strict guidelines regarding their diet and the amount of fluid that can be safety ingested (Wiebe & Christensen, 1995). These aspects of the treatment are self managed by the patient who has personal control over the amount and type of fluid and food that are ingested.

Other challenges faced by haemodialysis patients are, however, clearly beyond their control. During the haemodialysis sessions, three times weekly, the patient is a passive recipient of a treatment that is conducted with the assistance of a nurse or trained technician. Little participation is required or allowed of the patient while he or she undergoes the approximately 4 hour dialysis procedure. Patients potentially face a variety of stressful encounters related to the haemodialysis procedure over which they have little personal control. A sudden drop in blood pressure, problems with the vascular connection, nausea and vomiting, and painful cramps

during the procedure are examples of problems commonly reported by haemodialysis patients (Wiebe & Christensen, 1995).

Thus, the variety of challenges posed by the haemodialysis treatment modality provide an opportunity to examine the relation of coping to adaptation (adherence to restricted fluid intake) across stressful situations depending on whether the situation is controllable or beyond control by the individual.

There is modest empirical evidence that the way an individual copes with a stressful event bears a predictable relation to that individual's well being (Lazarus, 1993). The conclusions from past coping research have been inconsistent. Lazarus (1993) maintained that this inconsistency may in part be due to a failure to consider contextual influences. He suggested that the adaptational value of a particular type of coping, appears to be a function of the characteristics of the stressful encounter being considered (for example, the illness or treatment context).

Specifically, the controllability of a stressful situation may in part determine the utility of a particular coping strategy. For example, problem-focused coping strategy oriented toward modifying some aspect of the stressful situation may be associated with more positive outcome only if the encounter is actually amendable to controlling efforts (Folkman, 1984).

The question may thus be asked whether the patients who employ planful problem-solving strategy to confront potentially controllable stressors, will be able to adhere to fluid intake restrictions.

1.3 MOTIVATION OF THE STUDY

A study done in the renal unit at Chris Hani Baragwanath Hospital by the Nephrologist, Katz (2000), revealed a mortality rate of 19,7 % per year in this unit. Compliance to treatment requirements was found to be a major risk factor for dying in this population. Chris Hani Baragwanath Hospital being the largest in the Southern Hemisphere caters for a large number of predominantly black impoverished community. Since there is high prevalence of hypertension among blacks in South Africa (Seedat, 1990), which is a high risk factor for end-stage renal disease, this unit sees a large number of black patients with this chronic disease. However, very little is known in the line of their psychological functioning. Previous studies done in this unit have been mostly biological in nature.

Despite the fact that compliance to treatment is of clinical importance, research seeking to identify psychological issues related to compliance in this population remains limited. A non-published study done by a clinical psychologist, Deonarain (2000) indicated that 90 % of end-stage renal patients displayed "Avoidant" coping style and 10 % "Approach" coping style when dealing with their illness in general. It is therefore deemed appropriate to do a study on black population suffering from end-stage renal disease to find out how they cope with a specific aspect of treatment

modality so as to be able to devise an intervention program that will help them deal adaptively with this chronic disease.

1.4 THE OBJECTIVE OF THE STUDY

1.4.1 General Aim

It is the objective of this study to investigate the coping strategies used by the black haemodialysis patients and whether the utility of any specific coping strategy has an impact on adherence to treatment.

This study investigates three coping strategies, namely:

1. Problem-solving
2. Seeking Social Support and
3. Avoidance

1.4.2 Specific Aims

The specific aims of this study are:

1. to investigate coping strategies prevalent in a controllable aspect of haemodialysis and
2. to investigate the correlation between strategies and adherence to treatment in haemodialysis patients

1.5 GENERAL HYPOTHESIS

The present study will test the hypothesis that individual differences with regard to three sub-scales of the Coping Strategy Indicator would be associated with adherence to haemodialysis treatment.

1.6 THE SIGNIFICANCE OF THE PROPOSED STUDY

It is possible that the research findings of the present study can be employed in the following ways:

- It will help identify which coping mechanisms are most adaptive for a particular clinical problem given a certain set of contextual circumstances. This knowledge is essential in identifying and implementing the most useful coping-related intervention strategies, for example, the present data will demonstrate that for context in which greater **personal control** is possible, **problem-focused** coping intervention may be preferred (information provision, instructions in problem solving skills).

- It will help broaden the general understanding of behaviour of black population suffering from a chronic disease.

- It will also help in understanding the impact of individual differences in coping, on compliance with treatment requirements.

1.7 DELINEATION OF CHAPTERS TO FOLLOW

The present study will describe End-stage Renal Disease in Chapter two. This chapter will also give understanding of coping with a stressful situation. The role that coping processes play in adherence to treatment will be highlighted.

Chapter three deals with the empirical investigation involved in this study. The research aims are explicated as well as the methods used in subject selection. The testing procedure and the measuring instruments are discussed in detail.

Chapter four presents the statistical results of the empirical investigation. Chapter five presents and discusses the research results, limitations, recommendations and the conclusions of the investigation.

CHAPTER TWO

2.1 INTRODUCTION

The essential aim of this study is to demonstrate the coping strategies used by haemodialysis patients and to determine whether these coping strategies are related to compliance to treatment.

This chapter will give full understanding of chronic renal failure, its causes, incidence, treatment modalities used and stressors associated with haemodialysis. Coping with stressful situation will also be discussed in depth. This chapter also highlights the role that coping processes play in adherence to treatment, as well as the role that gender and personality play in the coping process.

2.2 CHRONIC KIDNEY FAILURE

2.2.1 Definition

Chronic kidney failure occurs when a chronic disease or disorder damages the kidneys so that they are no longer capable of adequately removing fluids and wastes from the body or of maintaining the proper level of certain kidney regulated chemicals in the bloodstream.

2.2.2 Description

Chronic renal/kidney failure is caused by a number of diseases and inherited disorders. The kidneys, which serve as the body's natural filtration system, gradually lose their ability to remove fluids and waste products (urea) from the bloodstream. They also fail to regulate certain chemicals in the bloodstream. Chronic kidney failure is irreversible, and will eventually lead to total kidney failure, also known as end-stage renal disease (ESRD). Without proper treatment intervention to remove wastes and fluids from the bloodstream, ESRD is fatal.

2.2.3 Distinction between acute and chronic renal failure

Acute kidney failure occurs when illness, infection or injury damages the kidneys. Temporarily, the kidneys cannot adequately remove fluids and wastes from the body or maintain the proper level of certain kidney regulated chemicals in the bloodstream.

Unlike chronic kidney failure, which is long term and irreversible, acute kidney failure is a temporary condition. With proper and timely treatment, it can be reversed. Often there is no permanent damage to the kidneys.

Acute kidney failure appears most frequently as a complication of serious illness, like heart failure, liver failure, dehydration, severe burns and excessive bleeding (hemorrhage). It may also be caused by an obstruction to

the urinary tract or as a direct result of kidney disease, injury or an adverse reaction to a medicine.

The kidneys are the body's natural filtration system. Waste products like urea and toxins, along with excess fluids, are removed from the bloodstream in the form of urine. Kidney (renal) failure occurs when kidney functioning becomes impaired. Fluids and toxins begin to accumulate in the bloodstream. As fluids build up in the bloodstream, the patient with kidney failure may become puffy and swollen (edematoes) in the face, hands and feet. Their blood pressure typically begins to rise, and they may experience fatigue and nausea (Ford-Martin, 1999).

2.3 CAUSES OF CHRONIC RENAL FAILURE

Kidney failure is triggered by disease or a hereditary disorder in the kidneys. Both kidneys are typically affected. The four most common causes of chronic kidney failure include:

2.3.1 Diabetes Mellitus

Long-term diabetes may cause the glomeruli, the filtering units located in the nephrons of the kidneys, to gradually lose functioning.

2.3.2 Glomerulonephritis

Certain types of glomerulonephritis are treatable, and may only cause a temporary disruption of kidney functioning.

2.3.3 Hypertension

High blood pressure is unique in that it is both a cause and a major symptom of kidney failure. The kidneys can become stressed and ultimately sustain permanent damage from blood pushing through them at an excessive level of pressure over a long period of time.

2.3.4 Polycystic kidney disease

It is an inherited disorder that causes cysts to be formed on the nephrons, or functioning units of the kidneys. These cysts hamper the regular functioning of the kidney.

2.3.5 Other possible causes of chronic kidney failure include kidney cancer, obstructions such as kidney stones, pylonephritis, reflux nephropathy, systemic lupus erythematosus, amylodosis, sickle cell anemia, alport syndrome and oxalosis (Ford-Martin, 1999).

2.4 SYMPTOMS OF CHRONIC RENAL FAILURE

Most symptoms of chronic kidney failure are not apparent until kidney disease has progressed significantly. Common symptoms include:

2.4.1 Anemia

The kidneys are responsible for the production of erythropoietin (EPO), a hormone which stimulates red cell production. If kidney disease causes shrinking of the kidney, this red cell production is hampered.

2.4.2 Bad breath or a bad taste in the mouth. Urea or waste products in the saliva may cause an ammonia – like taste in the mouth.

2.4.3 Bone and joint problems

The kidneys produce Vitamin D, which aids in the absorption of calcium and keeps bones strong. For patients with kidney failure, bones may become brittle.

2.4.4 Edema

Puffiness or swelling around the eyes, arms, hands and feet.

2.4.5 Frequent urination

2.4.6 Foamy or bloody urine

Bleeding may be from diseased or obstructed kidneys, bladder or ureters.

2.4.7 Headaches

High blood pressure may trigger headaches.

2.4.8 Hypertension or high blood pressure

The retension of fluids and wastes causes blood volume to increase, which in turn causes blood pressure to rise.

2.4.9 Increased fatigue

Toxic substances in the blood and presence of anemia may cause feelings of exhaustion.

2.4.10 Itching

Phosphorus, which is typically eliminated in the urine, accumulates in the blood of patients with kidney failure. This heightened phosphorus level may cause itching of the skin.

2.4.11 Lower back pain

Pain where kidneys are located.

2.4.12 Nausea, loss of appetite and vomiting. Urea in the gastric juices may cause upset stomach. This can lead to malnutrition and weight loss.

2.5 DIAGNOSIS

Kidney failure is typically diagnosed and treated by a nephrologist, a doctor that specializes in treating the kidneys. The patient that is suspected of having chronic kidney failure will undergo an extensive blood work-up. A blood test will assess the level of creatine, blood urea nitrogen, uric acid, phosphate, sodium and potassium in the blood. Urine samples will also be collected, usually over a 24 hour period, to assess protein loss. An X-ray, MRI, computed tomography scan, ultrasound, renal biopsy may be employed to determine the cause of kidney failure and level of remaining kidney functioning. A full assessment of the kidney is necessary to determine if the underlying disease is treatable and if the kidney failure is chronic or acute (Ford-Martin, 1999).

2.6 TREATMENT

Chronic kidney failure is an irreversible condition. Healthy kidneys clean the blood by filtering out extra water and wastes. They also make hormones that keep your bones strong and blood healthy. When both kidneys fail, the body holds fluid. Blood pressure rises. Harmful wastes build up in the body. The body does not make enough red blood cells. When this happens, the patient needs treatment to replace the work of his failed kidneys. Haemodialysis, peritoneal dialysis or kidney transplantation must be employed. In addition, dietary changes and treatment to relieve specific symptoms such as anemia and high blood pressure are critical to the treatment process (Ford-Martin, 1999).

2.6.1 Haemodialysis

Haemodialysis is a procedure that cleans and filters the blood. It rids the body of harmful wastes and extra salt and fluids. It also controls blood pressure and helps the body keep the proper balance of chemicals such as potassium, sodium and chloride. Haemodialysis uses a dializer or special filter to clean the patient's blood. The dializer connects to a machine. During treatment, the blood travels through tubes into the dializer. The dializer filters out waste and extra fluids. Then the newly cleaned blood flows through another set of tubes back into the body. The dialysis machine monitors and maintains blood flow. The patient's blood leaves and enters the body through two needles inserted into the patient's vein, called an access site.

Haemodialysis can be done at home or at a centre. At a centre, nurses or trained technicians perform the treatment. At home a patient performs haemodialysis with the help of a family member who has been properly trained.

Haemodialysis usually is done three times a week. Each treatment lasts from 2 to 5 hours. During treatment a patient can read, write, sleep, talk or watch television. Patients may experience unpleasant symptoms during many of the haemodialysis treatments. Between 15 and 45 percent of treatments are associated with symptoms such as hypertension, malaise, dizziness, muscle cramps, nausea, vomiting or headaches. These symptoms cannot be completely prevented, but the incidence and severity may be

reduced by the proper management of the dialysis prescription (Van Stone, 1983).

A proper diet help reduce the wastes that build up in the body. A dietician can help to plan meals according to doctor's orders. A protein restricted diet, low salt and a daily fluid intake of 600 ml are indicated. Too much fluid makes tissues swell. It also can cause high blood pressure and heart trouble. Salty foods make you thirsty and cause the body to hold water (Gutch & Stones, 1983).

Survival on haemodialysis depends on the ability of the patient to cope with a medical regimen that will influence all levels of his functioning – physical, social and psychological. The regimen to be followed by the patient demands self control, the ability to tolerate discomfort and inconvenience, and a commitment to attend dialysis three times a week (Joubert, 1981).

2.6.2 Peritoneal dialysis

Peritoneal dialysis is another procedure that replaces the work of a kidney. It removes extra water, wastes and chemicals from your body. This type of dialysis uses the lining of the abdomen to filter the blood. This lining is called the peritoneal membrane. A cleaning solution, called dialysate, travels through a special tube, surgically inserted into the abdomen. Fluid, waste and chemicals pass from tiny blood vessels in the peritoneal membrane into the dialysate. After several hours, the dialysate gets drained from the abdomen, taking the wastes from the blood with it. Then the abdomen is filled with fresh dialysate and the cleaning process begins again.

There are three types of peritoneal dialysis which vary by treatment time and administration method. They are: Continuous Ambulatory Peritoneal Dialysis (CAPD), Continuous Cyclic Peritoneal Dialysis (CCPD) and Intermittent Peritoneal Dialysis (IPD).

The most common type of peritoneal dialysis, the CAPD will be discussed. The CAPD needs no machine. It can be done in any clean, well lit place. With CAPD the blood is always being cleaned. The dialysate passes from a plastic bag through the catheter and into the abdomen. The dialysate stays in the abdomen with the catheter sealed. After 4 to 6 hours the solution is drained back into the bag and the abdomen is refilled with fresh solution through the same catheter. The process of draining the dialysate and replacing fresh solution takes 30 to 40 minutes. Most people change the solution four times a day. While the solution is in the abdomen, the empty plastic bag can be folded and be hidden under clothes around the waist or in a pocket.

Diet for peritoneal dialysis is slightly different than that for haemodialysis. A patient may be allowed to have more salt, protein and fluids. Sugar in dialysate may cause weight gain therefore the patient may need to cut back on the number of calories he eats (Ford-Martin, 1999).

In South Africa CAPD has offered a useful alternative to haemodialysis, and has allowed patients who would otherwise have died due to limited haemodialysis facilities, to be accepted into a renal replacement programme (Seedat, 1990).

- **Dialysis is not a cure**

Haemodialysis and peritoneal dialysis are treatments that try to replace failed kidneys. These treatments help a person feel better and live longer but they are not cures for ESRD. While patients with ESRD are now living longer than ever, ESRD can cause problems over the years. Some problems are disease, high blood pressure, nerve damage and anemia (having few red blood cells). Although these problems won't go away with dialysis, there are new and better ways to treat or prevent them (Ford-Martin, 1999).

2.6.3 Kidney transplantation

Kidney transplantation is a procedure that places a healthy kidney from another person into your body. This one new kidney does all the work that your two failed kidneys cannot do. One can receive a kidney from a member of ones family. This kind of donor is called a living related donor. Once can receive a kidney from a person who has recently died. This type of donor is called a cadaver donor. Transplantation is not a cure. There is always a chance that one's body will reject one's new kidney no matter how good the match. The chance of one's body accepting the new kidney depends on one's age, race and medical condition. However, transplants from living relatives often work better than transplants from cadaver donors. This fact is because they are usually a close match. One takes special drugs to help prevent rejection for the rest of one's life. Sometimes these drugs cannot stop one's body from rejecting the new kidney. If this happens one will go back to some form of dialysis and possibly wait for another transplant. Diet for transplant patients is less limiting than it is for dialysis

patients. One may still have to limit eating salty foods though. Medications may cause salt to be held in the body, leading to high blood pressure. One may still need to eat less protein to prevent higher levels of wastes to build up in the bloodstream (Ford-Martin, 1999).

2.7 STRESSORS ASSOCIATED WITH HAEMODIALYSIS

Most studies agree that dialysis can be very stressful to the patient. The most important sources of stress being:

2.7.1 Body image

Patients on haemodialysis may perceive themselves as part of the machine or may endow the machine with human qualities. They may incorporate into their body images the machine upon which their lives depend and may think of themselves as not entirely human. The individual may also experience a temporary loss of body part at each dialysis in that blood is viewed flowing outside of the body and into the machine. This visual experience can contribute to a disturbance in body image (Miller, 1998).

2.7.2 Frustration of Basic Drives

Persons with end-stage renal disease experience frustration of basic drives such as aggression, satisfaction of hunger and thirst, and sexual expression.

- They cannot compete as successfully at work and their capacity to participate in physical activities and athletics is limited.

- Eating is a satisfying and pleasurable experience and therefore patients with ESRD have difficulty complying with dietary and fluid restrictions.

- These persons also experience marked deterioration in sexual interest or performance, particularly males. This contributes to patients and spouses depression and marital discord (Miller, 1998).

2.7.3 Fear of death, Fear of life

Prolongation of life involves not only adding to the length of life but also involves the quality of life that is prolonged. Individuals with ESRD fear that their lives will be cut short, yet at the same time they fear that their lives may not be acceptable. In a study of life satisfaction of patients on dialysis, Jackle (1974) reported that these patients rated their present lives as slightly less satisfactory than did the normative group. There is also a strong fear that something will go wrong during haemodialysis, like hypovolemic shock, ruptured dialyzer, or separation of tubing connections. Individuals feel like they are at the mercy of the machine and are powerless to control it (Miller, 1998).

2.7.4 Dependence – Independence Conflict

People with ESRD on haemodialysis are confronted with dependence-independence conflict. They are expected to comply with the treatment regimen which requires dependent behaviour, however, they are also told to remain independent and live a "normal life" including meeting family, employment and social obligations. The major feeling experienced by these

patients is the one of helplessness. They feel trapped between the wish to be passive and dependent on one hand, and the expectation of health personnel that they be active and independent on the other (Miller, 1992).

2.7.5 Role disturbances

Haemodialysis may force the person to loose his social, family and occupational roles that are important to self concept. The loss of membership in a social group and loss of employment may result in feelings of isolation and disengagement. Role reversal within the family is common. The individual with ESRD may experience guilt for being unable to fulfil role expectations as a breadwinner, disciplinarian and decision maker. This inability to perform an expected role is a threat to the individual's self-esteem and may contribute to powerlessness. Marital discord and family tension may ensue (Schlebusch, 1990).

A study done in the University of Port Elizabeth in South Africa by Bezuidenhout & Potgieter (1998) revealed that haemodialysis leads to changes in the patient's traditional role as marital partners. If the patient is the husband, the marital relationship is altered by the husband's role change from that of a leader and breadwinner of the family, to that of dependency upon the wife and a spectator of the family activities. Also the wife would often take over the responsibility in disciplining the children. De-Nour and Czaczkes (1974) found that if both partners, during haemodialysis can continue their roles as before, the couple will function optimally, easing the process of adjustment (Bezuidenhout & Potgieter, 1998).

2.7.6 Life-style changes

Loss of financial security due to loss of employment is a major stress. The Disability Grant from the Government is usually inadequate resulting in decreased standard of living. Their life-style is also affected by uncertainty regarding future plans because of the uncertainty related to the illness especially those awaiting renal cadaveric transplants. Planning for vacations poses a major problem for those in haemodialysis. Time required for the dialysis treatment interferes with other activities and roles (Schlebusch, 1990).

2.7.7 Dialysis Procedure

Schlebusch (1990) indicated that immobility imposed by haemodialysis procedure, contributes to a loss of control by preventing individuals from meeting some of their needs for several hours. Once haemodialysis procedure is begun, the individual has little power to stop it.

Individuals sometimes experience uncomfortable symptoms during dialysis, such as leg cramps, weakness, nausea and vomiting. No matter how uncomfortable dialysis may be, if an individual wants to live, dialysis is the only option (Schlebusch, 1990).

2.7.8 Medical regimen

Other aspects of the medical regimen, besides dialysis, also may contribute to the individual's feelings of powerlessness. Although following the regimen may provide some feeling of power by helping with symptom

control, there is still the knowledge that the regimen is necessary for life. Dietary management in particular, poses many difficulties. Individuals feel that they cannot eat and drink whatever they want and join in the fun. Individuals expressed that the desire to eat or drink favourite foods is sometimes overwhelming. The dependence on medication also contributes to feelings of powerlessness. Although there may be uncomfortable side effect, the individual must take medication (Miller, 1992).

2.7.9 Physiological Stressors

Suzan Stapleton (1992) stated that the toxic effects of uremia are manifested in virtually every body system, namely:

- The disturbance in body chemistry like altered body fluid homeostasis and elevation of potassium, sodium, phosphorus, calcium, magnesium, creatinine and uric acid.

- Organ system disturbances (hypertension, heart failure, anemia, gastro intestinal irritation, clotting deficiencies and altered endocrine function).

- Decreased energy, impaired concentration, insomnia, weight loss and the restricted use of the limb with the fistula contributes to stress of persons on chronic haemodialysis (Miller, 1992).

The above mentioned stressors necessitates the utility of adaptive coping strategies for an individual to adhere to treatment.

2.8 COPING WITH STRESSFUL SITUATION

There has been a great deal of interest in the role of coping styles on health, personality and social functioning in recent years (Bonanno & Singer, 1988). It is widely recognised that adverse health consequences of stressors depend to a large extent on the individual's ability to cope with these stressors.

Coping strategies appear to mediate between antecedent stressful events and such consequences as anxiety, depression, psychological distress and somatic complaints. Increasingly emphasis has been placed on the individual's attempt to utilize personal and social resources to manage stress reaction. In addition, specific actions are taken to modify the problematic aspects of the environment. These are a diverse collection of cognitions and behaviours which are known as coping responses (Oliff, Broschot & Godaert, 1992).

This section commences with a description of coping, followed by definition of stressors and the role of stressful events. Thereafter the coping process and the functions of coping will be discussed, followed by the influence of gender on coping. In addition, the role that coping plays in compliance with treatment.

2.8.1 Description of coping

Kleinke (1998) defined coping as "the efforts we take to manage situations we have appraised as being potentially harmful or stressful." This definition of coping, which is adapted from Lazarus and Folkman (1984), has three key features:

i) it implies that coping involves a certain amount of effort and planning;
ii) it does not assume that the outcome of a coping response will always be positive, and
iii) it emphasizes coping as a process taking place over time.

These features are important in defining coping because they allow people to study different styles and strategies of coping and to evaluate which ones work best in different situations (Kleinke, 1998).

Different approaches to the study of coping have been pursued by various investigators. Some have emphasized general coping traits, styles or dispositions, while others have preferred to study active, ongoing coping strategies in particular stress situations. The former approach considers the individual differences in coping. It suggests the possibility that there are stable coping "styles" or "dispositions" that people bring with them to the stressful situation that they encounter. According to this view, people do not approach each coping context anew, but rather bring to bear a preferred set of coping strategies that remains relatively fixed across time and

circumstances (Billing & Moos, 1981). A person's coping style or disposition is typically assessed by personality tests, not by actual observation of what the person says or does in a particular stress situation (Billing & Moos, 1981). This approach is often used by researchers interested in the study of personality as it assumes that an individual will utilize the same type of coping in most stressful situations. If is for the individual a stable pattern or style.

The idea that such stable coping styles exist is somewhat controversial (Folkman & Lazarus, 1986), for example, have repeatedly emphasized that coping should be thought of as a dynamic process that shifts in nature from stage to stage of a stressful transaction. Such a view suggests that the development of a coping style would at best be counter productive, because it locks the person into one mode of responding rather than allowing the person the freedom and flexibility to change responses with changing circumstances (Carver, Scheier & Weintraub, 1989). In contrast, those concentrating on active coping strategies prefer to observe an individual's behaviour as it occurs in a stressful situation and then proceed to infer the particular coping processes implied by the behaviour (Monat & Lazarus, 1984).

In the light of the above description of coping it would follow that stressful events would tax one's coping styles. The role of stressful events in coping will be discussed in the following section.

2.8.2 The role of stressful events in coping

Research has identified a consistent relationship between stressful life events and physical and psychological disorders. Even though stressful events are often naturally occurring transitions in the fluidity of life, the underlying premise is that they create a temporary state of disequilibrium. These disturbances in turn require adjustments aimed at establishing a new homeostasis. The extra effort expended during the adaptation process is viewed as potentially draining and thus contributes to the deterioration of one's general well-being (Billing & Moos, 1984).

Stressful events seem to tax one's ability to cope. The term "stressors" is very relevant in discussing stressful events and will be explained in the next paragraph.

2.8.3 Definition of Stressors

The most conventional way of conceptualising stressors has been as discrete events that require adjustments in one's life pattern. However, the overall modest relationship between stressors and illness had led to considerable debate on what aspect of life events are stressful. Proposed relevant dimensions include the amount of change required, desirability versus undesirability of an event, and the extent to which the event was unexpected or uncontrollable (Kimball, 1984).

Generally, stress is perceived as a social or environmental event. Not everyone's stress is the same. Rather, stress is specific for the individual and his or her ability or inability to cope with it inadequately, adequately or even advantageously. Some stability and predictability of the environment is necessary for the individual to selectively identify and utilize appropriate definitions and means of coping with the distress. At the same time or subsequently, distress may be transferred or experienced as strain which is manifested by physiological and biochemical alterations in the organ system. This results in disordered function and the perception of pain or discomfort. The susceptibility of the individual to stress will depend on: the nature of the stimulus, perception and interpretation of the stimulus, and the repertoire of mental processes and defences at the disposal of the individual in coping with, and adapting to the stress (Elliott & Eisdorfer, 1982).

Stress and Coping

Stressful events impact on mood, which in turn impacts on how the individual copes. Given that stress leads to a negative mood, and that alleviating a negative mood is a desired outcome, individual's expectancy that they can alleviate negative mood should lead them to engage in such responses as planning to solve the problem, confronting the problem and seeking social support. These are all active attempts to cope with stress. In addition, weak expectancies for success at a task are associated, in general, with avoidance of the task. Coping can be viewed as a task that involves, in part, alleviating negative mood. Therefore, negative mood regulation (NMR) expectancies should be inversely related to avoidance responses to

stressors, such as distraction, denial and ineffectual emotional ventilation (Catanzaro & Greenwood, 1994).

2.8.4 Cognitive theory of coping

The cognitive theory of coping and psychological stress is a transactional theory in that the person and the environment are viewed as being in dynamic, mutually reciprocal, bidirectional relationship. Stress is conceptualised as a relationship between the person and the environment that is appraised by the person as taxing or exceeding his or her resources and as endangering his or her well being. The theory identifies two processes, that is, cognitive appraisal and coping functions as critical mediators of stressful person – environment relationships and their immediate and long term outcomes (Lazarus & Folkman, 1984).

2.8.4.1 Cognitive Appraisal

Cognitive appraisal is a process through which the person evaluates whether a particular encounter with the environment is relevant to his or her well being and, if so, in what way. There are two kinds of cognitive appraisal: Primary and Secondary.

Primary appraisal: When humans are faced with a potential challenge or stress, they first determine whether they are in jeopardy or danger. They ask themselves whether this is something worth getting upset about. Primary appraisal is concerned with individual's physical as well as psychological

well-being (Kleinke, 1998). A range of personality characteristics, including values, commitments, goals and beliefs about oneself and the world, helps to define the issues that the person identifies as having relevance to well-being in specific stressful transactions (Olff, Brosschot, Godaert, 1992).

Secondary appraisal: If one's primary appraisal tells one that one is in jeopardy, one need to ask what one can do to overcome or prevent harm or to improve the prospects for benefit. Various coping options are evaluated, such as changing the situation, accepting it, seeking more information or holding back from acting impulsively (Olff, Brosschot, Godaert, 1992).

Primary and secondary appraisal have an impact on how a person responds to a challenge or a threat. It is in one's best interest to make a realistic primary appraisal so that one does not ignore real problems (Kleinke, 1998).

2.8.4.2 Functions of coping

Coping refers to the person's cognitive and behavioural efforts to manage the internal and external demands of the person-environment transactions that is appraised as taxing or exceeding the person's resources. Coping has two major functions: dealing with the problem (problem focused coping) and regulating emotion (emotion focused coping).

Problem focused coping is aimed at problem solving or doing something to alter the source of the stress. The emotion-focused coping is aimed at reducing or managing the emotional distress that is associated with the situation. Although most stressors elicit both types of coping, problem-focused coping tends to predominate when people feel that something

constructive can be done, (the situation is perceived as controllable) whereas emotion-focused coping tends to predominate when people feel that the stressor is something that must be endured or the situation is uncontrollable (Lazarus & Folkman, 1993). Problem focused coping involves planning, taking direct action, seeking assistance, screening out other activities and sometimes even forcing oneself to wait before acting. It also includes aggressive interpersonal efforts to alter the situation, as well as cool, rational, deliberate efforts to solve the problem. Emotion-focused coping includes distancing, self-control, seeking social support, escape avoidance, accepting responsibility and positive reappraisal (Folkman & Lazarus, 1993).

Seeking social support is also relevant to problem-focused form of coping. People can seek social support for either of the two reasons: (i) For instrumental reasons, which means seeking advice, assistance or information. This is problem-focused coping. (ii) Seeking social support for emotional reasons is getting moral support, sympathy, or understanding. This is an aspect of emotion-focused coping. A distinction has been made between these two social support functions because they are different conceptually. The tendency to seek emotional social support is a double-edged sword. It would seem to be functional in many ways. For example, a person who is made to feel insecure by a stressful transaction can be reassured by obtaining this kind of support. This strategy can thereby foster a return to problem-focused coping. On the other hand, sources of sympathy sometimes are used more as outlets for the ventilation of one's feelings. There is evidence that using social support in this way may not always be very adaptive (Carver & Scheier, 1989).

Others have identified a third general style and function of coping: Avoidance focused coping, which entails attempting to remove oneself mentally or even physically, from threatening or damaging situations (Kohn, Hay & Legere, 1994). Avoidance is a useful strategy for coping with problems that don't have long-term consequences. It is often more adaptive to let brief irritations pass rather than to get upset about them. But avoidance is not a good strategy for coping with life challenges requiring involvement.

Research studies have found that it is best to seek information and be emotionally sensitive when we are confronted with stressful situation we can control. When faced with threats beyond our control, it is more adaptive to cope by allowing life to take its course (Kleinke, 1998).

Research by Kohn, Hay and Legere (1994) indicates that problem focused coping is significantly predictive of positive adaptation. On the other hand, emotion focused coping has consistently proven to be associated with negative adaptation. The evidence on avoidance-focused coping is more mixed. Some studies attribute negative adaptive consequences to avoidance-focused coping, others claim positive consequences and still others report no significant impact for avoidance-focused coping (Kohn, Hay & Legere, 1994).

Appraisal and coping functions play an important role as mediators of the stress process. However, gender differences impact on the appraisal and coping process.

2.8.5 Gender and Coping

Men and women differ in terms of their role obligations. Variation in occupational, marital and parental role reflects qualitatively different stressors demanding specific coping techniques. These distinctive role pattern can be held responsible for gender differences in attempts to adapt to and cope with problematic situations (Folkman & Lazarus, 1988).

Verbrugge (1985) asserts that women generally maintain stronger emotional ties with more people than men. When confronted with upheavals they are consequently more inclined to turn to those people and to medical drugs for relief. In contrast, men tend to opt more often for tension-reducing activities like alcohol consumption, smoking and drug abuse. Alternatively, they indulge in quiet brooding. In short, Verbrugge (1985) concludes that women generally cope more effectively with stressful encounters than men. Folkman & Lazarus (1980) suggested that one must take into account the fact that males and females are confronted with stressors of a different nature, requiring coping strategy that fit them best (Lazarus & Folkman, 1980).

Folkman & Lazarus (1980), studied the coping reactions of males and females in specific situations. They found that men explored more problem-focused coping strategies than women. However, this was only true for work situations and conditions marked by demands of acceptance or a need for further information. Other studies have shown coping behaviour specific

to each sex. Selective ignoring was the favourite coping style of women whereas self-reliance appeared to be a typically male coping strategy (Folkman & Lazarus, 1980).

Billing & Moos (1981) also paid attention to gender differences in coping. Major differences were obtained. Men reported a less frequent use of active-behavioural coping, avoidance and emotion-focused coping than women. Data reported by Astor-Dubin and Hammen (1984) suggested that female employ both cognitive and interpersonal strategies in dealing with stressful conditions, whereas men mainly restrict themselves to cognitive strategies. Stone & Neale (1984) found that men preferred direct action and that women used a variety of other coping strategies, focusing on religion, catharsis, relaxation, distraction and especially, the seeking of social support.

It is nevertheless true that there is some correspondence in these results. Most notably, women appear to have a stronger tendency to passive emotion-focused coping, including the expression of emotion and the seeking of social support. In contrast, men seem to prefer problem-focused coping and are less inclined to accept and wait passively. These different ways of coping impact on mental and physical well-being (Vingerhoets & Van Heck, 1990).

According to Kessler, McLeod and Wethington (1988) gender differences in health are to a large extent attribute to differences in the appraisal of stressors and the selection of coping strategies. The same view has been expressed by others (McLaughlin, Cormier & Cormier, 1988; Vingerhoets & Van Heck, 1990).

Differences in appraisal of a stressful situation and selection of coping strategy in dealing with a stressful encounter, influence adherence behaviour in chronic illness.

2.9 COPING AND COMPLIANCE TO TREATMENT

Previous reviews have concluded that there is no evidence for a predictable association between person factors and treatment adherence in chronic illness. Some studies relevant to chronic physical illness showed weak support for associations between adherence and constructs such as greater cooperativesness, higher frustration tolerance, a futuristic orientation and less demandingness. Insignificant or conflicting findings were observed for dependency, low self esteem, acting out and denial of the sick role. Many of these early studies relied on subjective ratings of various patient characteristics, based on clinical interviews. Such ill defined and understandardised measures were subject to interviewer biases (Wiebe & Christensen, 1996).

2.9.1 Standardised predictors of adherence

Later research has examined the utility of using standardised personality inventories as predictors of adherence. However, many of these studies have not been theoretically driven. The most commonly used inventory has been MMPI. In a recent study of Asthmatic patients, Mawhinney et al (1993), found that only scores on the scale tapping general anxiety (Scale 7) differentiated patterns of adherent and non-adherent medication usage. In

other cases, none of the basic scales of the MMPI have contributed to the prediction of adherence behaviour (Wiebe & Christensen, 1996).

Other researchers have advanced more theoretically driven explanations of adherence behaviour. Rhodewalt and Fairfield (1990) have applied the notion of psychological reactance to the understanding of patient non-adherence. They asserted that patients exhibiting the Type A behaviour pattern may be more likely to perceive medical regimens as threatening to their personal freedom and react with non-adherence in an attempt to regain perceived behavioural control (Wiebe & Christensen, 1996).

2.9.2 Locus of control and adherence

One of the most widely researched individual difference variable in health context has been locus of control. Originally derived from Rotter's (1966) social learning theory, locus of control reflects the extend to which individual expects desirable outcomes to be contingent upon their own actions or the influence of external factors. The construct of health locus of control reflects the degree to which individuals expect health-related outcomes to be contingent upon their own behaviour (internal health locus of control), the actions of a powerful other or random events (chance). A number of studies have reported that chronically ill patients with an internal locus of control exhibit more favourable adhence. For example, Poll & Kaplan De-Nour (1980) found that more pronounced internal locus of control expectancies significantly predicted more favourable adherence to dietary restrictions among chronic haemodialysis patients. Similarly,

Stanton, (1987) found that among hypertensive patients an internal health locus of control has been associated with more favourable adherence (Wiebe & Christensen, 1996).

2.9.3 Coping style and adherence

Wiebe & Christensen (1996) presented theory and supportive evidence that associations between person variables and adherence behaviour are more accurately viewed from a perspective that considers the interaction of individual differences with the disease and treatment related contextual factors. From this interactional perspective, they believed that predictable patterns of person-adherence behaviour associations can be readily identified.

They maintained that individuals vary widely in their preferences for active, behavioural involvement in their own medical care. Some patients characteristically maintain a passive patient role in health care context, while others prefer more active collaborative involvement with their health care providers. From an interactional perspective, adaptational outcomes should be best when the patient's characteristics or preferred style of coping is consistent with contextual features of the disease and treatment (Wiebe & Christensen, 1996).

In a study of centre and home haemodialysis patients, adherence was predicted to be maximised in cases in which the patient's preferred coping style matched the type of treatment they received, that is, staff-directed centre haemodialysis versus the more patient-directed home haemodialysis. Among patients undergoing the more staff-directed centre haemodialysis, a

performance for active involvement in one's own health care was associated with poorer dietary adherence. In contrast, for patients undergoing haemodialysis at home, where patient involvement and control is greater, patients with strong active coping preferences displayed better adherence (Wiebe & Christensen, 1996).

As the individual differences appear to influence adherence to treatment in chronic diseases, the role played by the stressful situation in adherence should also be considered.

2.9.4 Coping, control over stressful situation and adherence

While coping and adaptation to stress has remained a popular research topic for several decades, it has received considerable criticism on both methodological and theoretical grounds. Moreover, there is a general agreement among past reviews that there is little evidence that the way an individual copes with a stressful event bears a predictable relation to that individual's well-being (Lazarus, 1993).

However, Lazarus (1993) argued that the inconsistent conclusions from past coping research may in part be due to a failure to consider centextual influences. He suggested that the adaptational value of a particular type of coping appears to be a function of the characteristics of the stressful encounter being considered (for example, the illness or treatment context). Specifically, the controllability of a stressful situation has figured prominently in both coping theory and research as a contextual factor that

may, in part, determine the usefulness of a particular coping strategy (Lazarus, 1993).

In general research suggests that problem-focused coping strategies orientated toward modifying some aspect of the stressful situation are associated with more positive outcomes only if the encounter is actually amenable to controlling efforts. Conversely, for relatively uncontrollable stressors, emotion-focused strategies directed toward emotional regulation or reappraisal of the threat appear most adaptive. Other coping efforts such as those involving aggressive behaviour or risk taking (confrontive coping), do not appear to reflect either a problem-focused or emotion-focused function. This type of coping may be maladaptive regardless of the controllability of the situation (Wiebe & Christensen, 1996).

One recent study in the University of Iowa examined the potential interactive pattern involving coping, control and patient adherence in a sample of 60 end-stage renal disease patients undergoing centre haemodialysis. Consistent with prediction, patients were able to adhere most successfully with fluid intake restrictions, when they employed planful problem solving to confront potentially controllable stressors. In contrast, when dealing with less controllable stressors, patients who could regulate their own feelings successfully, were better able to adhere to restrictions. Contrary to prediction, positive reappraisal (another emotion-focused strategy) was not associated with adherence (Wiebe, Christensen & Lawton, 1995).

In addition to international studies, South Africa also takes part in studying adherence behaviour in end-stage renal disease.

2.9.5 Adherence behaviour: South African context

Schlebusch (1990) asserts that maladjustment to dialysis may be indicated by treatment non-adherence. He maintains that treatment non-adherence rate may vary generally. One study revealed 44 % undermining of dietary restrictions and in another study eight out of ten patients who had died had been treatment abusers. Deaths that result from treatment non-adherence to the chronic renal failure program have been evaluated from a suicidal framework, particularly if the patient unilaterally decides to terminate treatment. The degree of cognitive dysfunction and certain personality factors may further influence treatment adherence behaviour. In some patients, a wish to refute their feelings of dependency, denial may take the form of treatment non-adherence by missing dialysis sessions or by not adhering to dietary and fluid intake restrictions.

Schlebusch & Levin (1980) examined the possible prediction on psychological grounds of poor compliance to haemodialysis. The data for this study was derived from the renal unit at Addington Hospital in Durban. It was found that there were no statistically significant differences between compliars and non-compliars in terms of intelligence. There was a statistically significant difference between the two subgroups in terms of personality functioning (Schlebusch & Levin, 1980).

Schlebush (1996) argued that South African black patients have complex traditional sets of health beliefs which seem reasonable to them, but which could result in health-risk behaviour leading to lifestyle diseases. Attempts to introduce new health beliefs must take this into account. The degree to which patients perceive events which happen to them as dependent on chosen behaviour (internal locus of control), or as result of luck, chance, fate, or powers beyond their personal control (external locus of control) influence their health beliefs. However, although powerful, changing locus of control is not conclusive, in itself, to promote positive health beliefs and maximize health behaviour. He believed that individual patient personality factors also play a role, as do coping styles in adjustment to treatment.

In an unpublished study at Chris Hani Baragwanath Hospital by Deonarain & Katz (2000) examining psychological issues in black patients with chronic renal failure, 75 of a sample of twenty patients were poorly compliant to dialysis treatment (both haemodialysis and peritoneal dialysis), 90 % displayed avoidant coping styles. Cultural perceptions were found to be affecting their coping styles and compliance (Deonarain & Katz, 2000).

CHAPTER 3

3. EMPIRICAL INVESTIGATION

In the previous chapter the theoretical and empirical foundations for the present study had been laid, out of which the motivation for this study has grown. This chapter deals with the practical aspects of the research project, by firstly looking at the sample which was used, the process of testing and collection of the necessary data. This is followed by a discussion of the questionnaire used in this study. The reliability and validity of the questionnaire is provided as validation and justification for the use of this questionnaire. Lastly, the hypotheses are listed for this study, followed by the statistical analyses used for analyzing the data.

3.1 Research Aim

The aim of this study has been mentioned in Chapter one as an investigation of the impact of Coping Strategies on the compliance with treatment. Specifically, this research demonstrates that for stressful encounters involving a relatively more controllable aspect of haemodialysis, coping strategies that are clearly problem-focused in nature (namely, problem solving, seeking informational support) are predicted to be associated with more favourable compliance to treatment. It also demonstrates that for stressful encounters involving a relatively more controllable aspect of haemodialysis, coping strategies which are more emotional-focused in nature, namely, Avoidance is predicted to be associated with less favourable

compliance to treatment. In order to investigate these coping strategies, Coping Strategy Indicator Questionnaire was administered by making use of a structured interview as some of the subjects were illeterate. The Biographical Questionnaire was also completed.

3.2 Participants

Fifty patients participated in the study, all of whom had a diagnosis of End-Stage Renal Disease and were on haemodialysis. Written informed consent was obtained from all participants prior to the commencement of the study. None declined to take part in the study. The participants were assured that all information obtained was confidential. It was also explained to them that the aim of this study was to develop insight and understanding of the disease with the ultimate purpose of alleviating suffering by means of psychotherapeutic intervention.

All the interviews were conducted in the Renal Unit while patients were receiving haemodialysis. During this initial interview, the Demographic Questionnaire as well as the Coping Strategy Indicator Questionnaire were completed. The Demographic Questionnaire was used to obtain information pertaining to a number of variables, namely, age, marital status, gender, employment, educational level, number of months since first haemodialysis and number of failed renal transplantation.

All the subjects were black as this hospital serves predominantly black population. The sample was heterogenous in terms of age, gender and the level of education. All The respondents were above 18 years of age. Their

ages ranged between 22 years and 62 years. There were 24 (48%) females and 26 (52%) males. Forty percent of them was single, 48% married, 4% divorced and 8% widowed. Ten percent of the sample was illiterate, 32 % had Primary education, 46% had Secondary education while 12% had post secondary education. Seventy six percent of the sample was not employed while 24% was employed. Forty four percent of them lost their jobs due to haemodialysis. Ten percent of the sample had renal transplantation done but failed.

3.3 Sampling procedure

Sampling is a strategy used to enable researchers to pick a group of people and use it as a basis for making references about the population and to come to generalisation based on the response of the sample (Vockel & Asher, 1995).

In this study, systemic sampling method has been used. A sample of 50 patients was selected out of the population of 78 patients undergoing haemodialysis in the Renal Unit at Chris Hani Baragwanath Hospital. Selection was done by pulling out every third file from the filing cabinet.

3.4 Measuring Instruments

The measuring instruments used in this study are the Coping Strategy Indicator (CSI) by AmirKhan (1990) and Interdialytic weight gain (IWG) which serves as a measure of adherence to the fluid intake restrictions posed by the haemodialysis treatment.

3.4.1 The Coping Strategy Indicator (CSI)

The Coping Strategy Indicator (CSI) measures people's preferences for three coping strategies that have been identified in the research literature namely, problem solving, seeking social support and avoidance (AmirKhan, 1994).
It was used to assess the extent to which each of the following three fundamental coping strategies was employed by the subjects:

Problem solving

AmirKhan (1994) asserts that a problem solving strategy is an instrumental, practical strategy, apparently derived from the primitive "fight" response (Campbell & Spangenberg, 1999).

Problem solving describes deliberate problem-focused efforts to alter the situation, coupled with an analytic approach to solving the problem. It is assessed by items such as "I formed a plan of action in my mind" "I tried to solve the problem" "I weighed my options carefully." The advantage of problem solving as a coping strategy is that it provides a feeling of control over your life (Kleinke, 1998).

Avoidance

AmirKhan (1994) maintain that an avoidant strategy is related to the "flight" response in which physical or psychological withdrawal is used, for

example, fantasy, watching television et cetera (Campbell & Spangenberg, 1999).

Avoidance describes wishful thinking and behavioural efforts to escape or avoid the problem. It is assessed by items such as "I watched TV more than usual." "I avoided being with people." "I fantasized about how things could be different." Avoidance is often not a good coping strategy because it is associated with passivity and an attitude of being stuck (Kleinke, 1998).

Seeking Social Support

AmirKhan (1994) suggested that the social support seeking strategy includes all strategies of actively seeking comfort, advice or human contact from others in times of stress (Campbell & Spangenberg).

Seeking Social Support describes efforts to seek informational support, tangible support and emotional support. It is assessed by items such as "I let my feelings out to a friend." "I accepted help from a friend or relative." "I told people about the situation." "I went to a friend to help me feel better about the problem." Seeking support can be a useful coping strategy if other people can help one to take active steps to solve one's problems (Kleinke, 1998).

3.4.1.1 Administration

The items in the CSI have been designed to be answered in relation to a specific stressful encounter, although no single standardized method has

been devised for eliciting it. Like the Ways of Coping Questionnaire the method must be adapted to fit the needs of the specific study. For example, the Ways of Coping Questionnaire was used as an interview protocol in one set of studies and as a self administered assessment in another (Folkman & Lazarus, 1988). In the present study the Coping Strategy Indicator was used as an interview protocol.

Defining the focal encounter is critical to the proper administration of Coping Strategy Indicator. The investigator can select it for the individual if the investigator wishes to explore a specific question such as how people cope with an examination or with receiving a particular diagnosis. When individuals select their own focal encounter, it is necessary and challenging to ensure that they focus on one specific encounter such as an argument that occurred that morning with their spouses, rather than on a generalized condition of their lives such as a difficult marriage (Folkman & Lazarus, 1988).

The following instructions appear on the test:

Listed below are several possible ways of coping. Indicate to what extent you, yourself used each of these coping methods.

Try to think of the last time you experienced a problem with your fluid intake or blood chemistries e.g. problems with excessive fluid intake or dietary mismanagement. It must have occurred in the last six months and caused you to worry. Describe this problem in a few words (Wiebe & Christensen, 1996).

Participants were then asked to respond to Coping Strategy Indicator items on the basis of how they dealt with the specific problem they just described.

There are 33 items in the Coping Strategy Indicator Questionnaire, all of which are close questions that are to be answered using a scaling technique. A researcher indicated a response from the subject by putting a cross on the appropriate box on the scale provided for each question. The rates scale ranges from a lot, a little and not at all. The researcher used the Coping Strategy Indicator that was translated into Zulu as all the subjects understood Zulu very well.

3.4.1.2 Time frame

Instructions to respondents should include a limit on the amount of time that has elapsed since the encounter occurred. Shorter recall periods will reduce the chance of response distortion. It is stipulated that the event must be resent (occurring within the last six months) and important ("a problem that caused you to worry") (AmirKhan, 1994). In the present study, the participants were told to focus on a specific stressful event that had occurred within the last six months.

3.4.1.3 Scoring

Scoring the Coping Strategy Indicator is multidimensional and yields a coping profile for each respondent. Thus rather than pigenholing individuals as "Problem-solvers" or "avoiders", the CSI allows more complex patterns

of preferences to be exhibited. It allows individuals to score high on more than one coping scale. Responses are summed to form three scales namely, Problem-solving, Avoidance and Seeking social support (AmirKhan, 1994).

In the present study, the raw scores were obtained. Individuals responded to each item on a three-point scale, indicating the frequency with which each strategy was used: 1 indicates "Not at all" 2 indicates "a little" and 3 indicates "a lot."

In raw scoring, the raw scores are the sum of the subjects responses to the items that comprise a given scale. This method provides a summary of the extend to which each type of coping was used in a particular encounter. It needs to be noted that these are raw scores and not factor scores (Folkman & Lazarus, 1988).

3.4.1.4 Reliability

Reliability of the CSI can be evaluated by examining the internal consistency of the coping measures, estimated with Cronbach's coefficient alpha. AmirKhan (1994) found the CSI to be internally consistent with the alpha coefficient averaging 0,89.

In South Africa, the reliability of this measuring instrument was evaluated at Potchefstroom University with a group of 477 students, both black and white. It was evaluated by Du Toit (1999) in her study of "Dynamics of Life context, personal factors, coping processes and psychological well-being." The alpha coefficient for the three scales was:

Problem-solving	0,83
Seeking Social Support	0,90
Avoidance	0,74

This measuring instrument is therefore reliable for black South Africans.

3.4.1.5 Validity

AmirKhan (1994) did three tests of criterion-related validity with variations in both the types of stressors and respondents. The results confirmed the validity and wide applicability of the Coping Strategy Indicator.

Construct validity of the CSI was found in white South Africans in a study by Campbell and Spangenberg (1999), at the University of Stellenbosch, in their study "Stress and Coping Strategies in recently detoxified alcoholics."

Evidence of construct validity is found in the fact that the results of this study are consistent with the theoretical predictions namely,

1. the problem-solving strategy emerged as a significant negative predictor of depression. This implies that a problem-solving strategy contributed toward less depressive symptomatology.
2. Avoidant coping strategy emerged as a significant positive predictor of depression (Campbell & Spangenberg, 1999).

3.4.2 Adherence Assessment

Interdialytic weight gain served as the measure of adherence to the strict fluid intake restrictions posed by the haemodialysis treatment. Interdialytic weight gain is used both clinically and for research purposes as an indicator of fluid intake adherence behaviour (Wiebe & Christensen, 1995).

Interdialytic weight gain is determined by subtracting the postdialytic weight for the previous haemodialysis session from the predialytic weight for the current haemodialysis session. The values resulting from this computation are a valid reflection of the amount of fluid that the patient ingests between dialysis sessions (Wiebe & Christensen, 1995).

For obtaining more representative indicator of adherence over time, the mean interdialytic weight gain (IWG) averaged over twelve dialysis sessions (approximately four weeks) served as the dependent measure in this study. Higher IWG values are interpreted as reflecting poorer patient adherence with values over 2,5 kg generally indicative of problematic adherence (Wiebe & Christensen, 1995). In this study the weights of the subjects were available in their records.

3.4.3 The Research Design

The study used a single group, cross-sectional design with all measures taken in one observation.

3.4.4 General Hypothesis

Individual differences in coping would be associated with adherence to treatment.

This general hypothesis is subdivided into three research hypothesis.

Hypothesis 1

High levels of problem-solving in a more controllable stressful situation is predicted to be associated with the mean of interdialytic weight gain which is less than 2,5 kg.

Low levels of problem-solving in a more controllable stressful situation is predicted to be associated with the mean of interdialytic weight gain of 2,5 kg or above.

Hypothesis 2

High levels of Avoidance Coping Strategy in a more controllable situation is predicted to be associated with the mean of interdialytic weight gain of 2,5 kg and above.

Low levels of Avoidance Coping Strategy in a controllable situation is predicted to be associated with the mean of IWG of less than 2,5 kg.

Hypothesis 3

High levels of Seeking Social Support in a controllable situation is predicted to be associated with the mean of IWG of less than 2,5 kg.

Low levels of Seeking Social Support in a controllable situation is predicted to be associated with the mean of IWG of 2,5 kg and above.

3.4.5 Rationale for Hypothesis

The adaptational value of a particular type of coping appears to depend on the stressful encounter being considered, as explained in Chapter two. The role that different coping strategies play in adherence to haemodialysis treatment if the stressful situation is controllable is investigated.

3.4.6 Statistical Analysis

Descriptive statistics were used in order to define and describe the parameters of the sample.

Relationships between coping strategies and adherence to treatment were computed using Pearson's correlation procedures. This was to determine whether or not there existed significant relationships between the coping strategies and adherence to treatment.

T-test and the Analysis of variance (ANOVA) were utilized in order to compute and describe any significant differences between variables.

3.4.7 Summary

This chapter discussed the empirical component of the current investigation and presented the aim of the investigation.

Selection of subjects and the measuring instruments were also discussed. Lastly, the research hypothesis were presented.

The next chapter present the results of the investigation in terms of the research hypothesis and provides the basis for the final chapter which discusses and interpretes the results in the light of the theoretical orientation of the investigation.

CHAPTER 4

RESULTS

4 INTRODUCTION

This study was conducted in order to investigate the three Coping Strategies, namely Problem Solving, Avoidance and Seeking Social Support used by the black haemodialysis patients and whether the utility of any specific coping strategy has an impact on adherence to treatment as measured by interdialytic weight gain.

In this chapter frequency distribution of variables will be discussed by making use of tables.

Descriptive statistics will be used in order to describe the parameters of the sample. The mean, standard deviation, the minimum and the maximum scores will be computed.

Relationships between the Coping Strategies and Interdialytic weight gain scores will be computed using Pearson's correlation (r) procedures. This will be to determine whether or not there existed significant relationships between coping strategies and interdialytic weight gain.

Regression analysis will be performed in order to determine the effect of independent variables (Coping Strategies) on the dependent variables (Interdialytic weight gain).

T-test will be utilized in order to compute and describe any significant difference between the variables.

4.1 Representation of sample characteristics on tables

4.1.1 The sample consisted of 50 people. Both sexes were included toensure inclusivity and representativeness. There were 24 (48 %) females and 26 (52 %) males. This information is represented in Table 1.

TABLE 1: Distribution of sample according to Gender

	Frequency	**Percentage**
Female	24	48
Male	26	52
Total	50	100

4.1.2 Respondents differed in terms of marital status. Some respondents were single, divorced, widowed while others were married. The single, divorced and the widowed respondents were put in one group. Table 2 represents the marital status of the respondents.

TABLE 2: Distribution of sample according to marital status.

	Frequency	Percentage
Single, Divorced, Widowed	27	54
Married	23	46
Total	50	100

4.1.3 Level of education of the respondents

Respondents differed according to their level of education. Their level of education ranged between no education at all to a 4 year degree. Five respondents were totally illiterate while 6 of them were having tertiary education. The mean of their level of education was Std 6. Table 3 indicates the level of education of the respondents.

TABLE 3: Distribution of the sample according to their level of education

	Frequency	Percentage
Primary	21	42
Secondary	23	46
Post Secondary	6	12
Total	50	100

4.1.4 Employment status of the respondents

Some respondents were still employed despite their health status while others lost their jobs. Those who were still employed were getting their haemodialysis at night. Table 4 represents the employment status of the respondents.

TABLE 4: Distribution of sample according to employment status

	Frequency	Percentage
No	38	76
Yes	12	24
Total	50	100

4.1.5 Number of months since first dialysis

Some respondents had been on haemodialysis for a long time while other were not so long on haemodialysis. Their periods on dialysis ranged from 2 months to 168 months (14 years). Seventeen respondents had been on haemodialysis for more than 5 years. See Table 5 for the period spent by respondents on haemodialysis.

TABLE 5: Distribution of sample according to period on dialysis

	Frequency	Percentage
2 – 24 months	22	44
25 – 60 months	11	22
61 – 168 months	17	34
Total	50	100

4.1.6 Ages of the respondents

Respondents differed in terms of their age groups. Their ages ranged from 22 years to 62 years. The mean age of the sample was 42,38 years. More than half of the sample was in the age group 36 – 50 years. See Table 6 for the distribution of the sample according to age groups

TABLE 6: Distribution of sample according to age groups

	Frequency	Percentage
20 – 35 yrs	14	28
26 – 50 yrs	27	54
Above 50	9	18
Total	50	100

The next section will investigate how often this sample used each of the three coping strategies and how the sample adheres to treatment.

4.2 DESCRIPTIVE STATISTICS

The mean of the sample in terms of the use of the problem solving was 26,70. The means of avoidance coping and seeking social support were 21,28 and 25,62 respectively. According to the scoring guide of the coping strategy indicator, the average scores of each coping strategy were as follows:

Problem solving	:	26
Seeking Social Support	:	23
Avoidance	:	19

This implies that the present sample was average in the use of problem solving strategy (Score = 26,70). The use of seeking social support and avoidance strategy was above average (Scores = 25,62 and 21,82 respectively). Seventy two percent of this sample used avoidance coping while 56 % used problem solving coping. Seeking social support was used by 70 % of the sample. Some respondents used more than one coping strategy. Table 7 indicates the degree in which each coping strategy was used by the respondents and how this sample adhered to treatment requirements as measured by interdialytic weight gain (IWG).

TABLE 7: The use of coping strategies and adherence to treatment

	N	Minimum	Maximum	Mean	Std deviation
Problem Solving	50	14	33	26.70	4.83
Avoidance	50	12	28	21.28	3.49
Social Support	50	10	33	25.62	4.73
IWG	50	0.30	3.70	2.0306	0.7733

The mean degree of adherence in the sample fell into the favourable range of 2,03 kg. Nevertheless, a frequency distribution of IWG values indicated that 34 % of the present sample exhibited problematic adherence (IWG > 2,5 kg). Figure 1 indicated that the score of 2,5 kg had the highest frequency of about 12 respondents.

FIGURE 1 - Frequency distribution of the sample according to interdialytic weight gain.

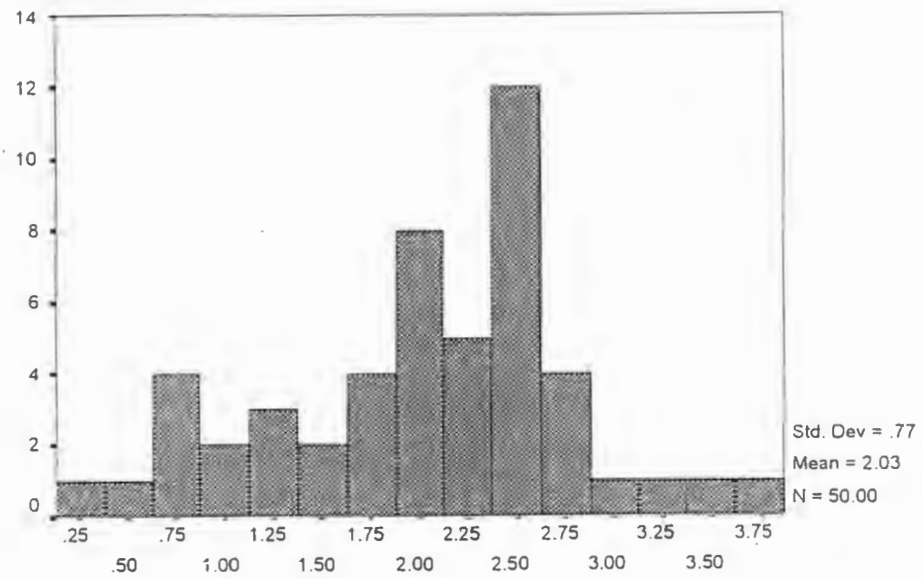


FIGURE 1 INTERDIALYSIS WEIGHT GAIN

The next section will investigate the correlation between the coping strategies and Interdialytic weight gain.

4.3 INFERENTIAL STATISTICAL ANALYSIS

4.3.1 Correlation Coeffients

In searching for relationships between the coping strategies and adherence to treatment, the following significant relationships were identified by making use of Pearson Product Moment Correlation = r.

The results of Hypothesis 1, 2 and 3 are given in Table 8.

TABLE 8 The relationship between coping strategies and IWG.

		Prob Solv	Avoidance	Soc. Supp	Interdia
Prob Solv	Pearson Correlation	1.000	-0.139	0.18	-0.425
	Sig (2-tailed)		0.336	0.901	0.002
Avoidance	Pearson Correlation	-0.139	1.000	0.043	0.167
	Sig (2-tailed)	0.336		0.768	0.245
Soc Supp	Pearson Correlation	0.018	0.043	1.000	-0.007
	Sig (2-tailed)	0.901	0.768		0.960
Interdia	Pearson Correlation	-0.425	0.167	-0.007	1.000
	Sig (2-tailed)	0.002	0.245	0.960	

Hypothesis I

Ho: There will be no inverse relationship between problem solving coping and IWG in a more controllable situation.

Ha: There will be an inverse relationship between problem solving coping and IWG in a more controllable situation.

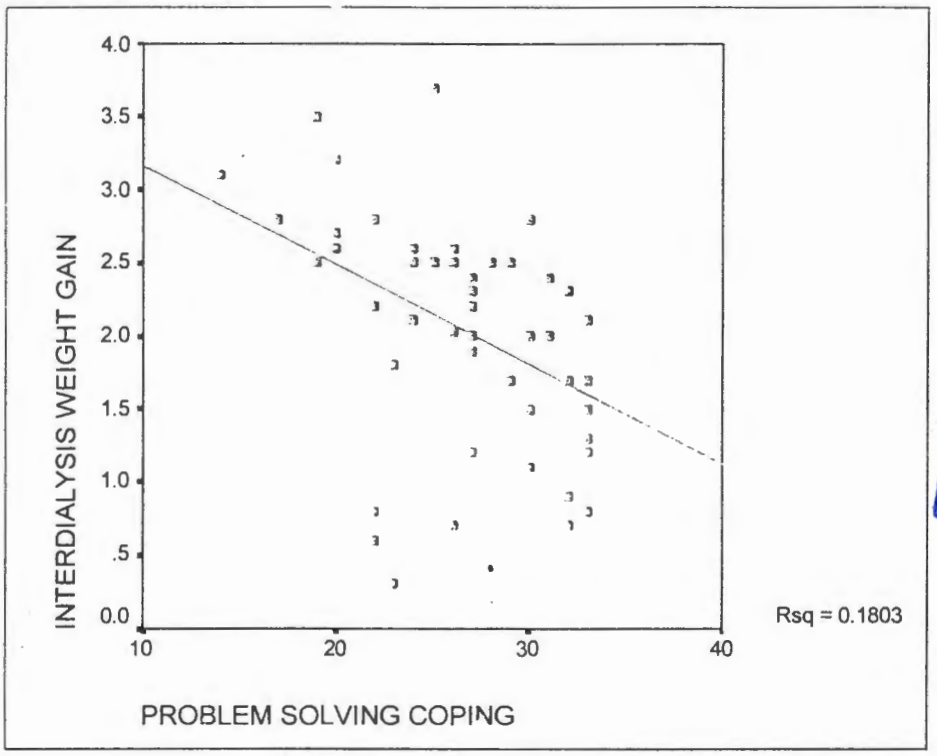
Table 8 suggests that there is a statistically significant inverse relationship between problem solving coping and interdialytic weight gain (Scores r = -0,428 P-value = 0,002).

This implies that high levels of problem solving coping were related to favourable adherence to fluid intake restrictions measured by means of IWG (< 2,5 kg) if the stressful situation is amenable to control.

The Null hypothesis of Hypothesis 1 is therefore rejected at 0,05 level of significance in favour of alternative hypothesis as P-value is < 0,05.

See Figure 2 for the confirmation of the correlation between problem solving coping and IWG.

FIGURE 2 Correlation between Problem Solving and IWG



Hypothesis II

Ho: There will be no direct relationship between avoidance coping strategy and interdialytic weight gain in a more controllable situation.

Ha: There will be a direct relationship between avoidance coping strategy and Interdialytic weight gain in a controllable situation.

This hypothesis implies that high levels of avoidance coping are associated with unfavourable adherence to fluid restrictions measured by making use of IWG (> 2,5 kg).

Table 8 suggests that there is no statistically significant relationship between avoidance coping and IWG (Scores r = 0,167 P-value = 0,245). The Null hypothesis of hypothesis II is therefore accepted as the p-value > 0,05.

Hypothesis III

Ho: There will be no inverse relationship between social support seeking and Interdialytic weight gain in a controllable situation.

Ha: There will be an inverse relationship between social support seeking and IWG in a controllable situation.

This hypothesis means that high levels of seeking social support are related to favourable adherence to fluid intake restrictions measured by IWG, (< 2,5kg) if the stressful situation is amenable to control.

Table 8 suggests that there is no statistically significant relationship between social support seeking and IWG (Scores r = -0,007 p-value = 0,960). The Null hypothesis of hypothesis III is therefore accepted as the p-value >0,05.

4.3.2 Regression analysis

A stepwise multiple regression analysis was conducted to determine whether coping strategies functioned as key variables in predicting interdialytic weight gain. A problem solving coping strategy emerged as a significant negative predictor of interdialytic weight gain. (P-value < 0,05).

As predicted, an independent variable, problem solving coping was found to have a significant positive effect on adherence to fluid intake restrictions.

Regression analyses for avoidance coping and seeking social support were not done since they were found not to be significantly correlated to IWG.

The next section will investigate the significant differences between variables of this sample by making use of T-tests.

4.4 COMPARISONS OF TWO GROUPS

Two groups can be compared for statistical differences by means of T-test for equality of means. By making use of the T-test the analytical procedure can then be expanded to determine how and where the groups differ.

4.4.1 Differences according to gender in terms of three coping strategies and Interdialytic weight gain (IWG).

H_o: There is no statistically significant difference between females and males in terms of the utility of coping strategies and IWG.

H_a: There is a statistically significant difference between females and males in terms of the utility of coping strategies and IWG.

The T-test for equality of means was performed to find out if there were any significant differences between the means of male and female respondents in terms of coping strategies and IWG. No significant differences were detected with regard to coping strategies and IWG. Null hypothesis was therefore accepted in all four variables. See Table 9 for confirmation of the foregoing results.

The T-test for equality of means was performed to find out if there were any significant differences between the means of male and female respondents in terms of Coping Strategies and IWG. No significant difference was detected with regard to Coping Strategies and IWG. Null hypothesis was therefore accepted in all four variables. See Table 9 for confirmation of the foregoing results.

TABLE 9: Differences according to gender

	Gender	**N**	**Mean**	**Std Deviation**
Prob Solv	Female	24	26.75	4.83
	Male	26	26.65	4.93
Avoidance	Female	24	21.88	4.01
	Male	26	21.77	3.00
Soc Supp	Female	24	24.63	5.13
	Male	26	26.54	4.22
Interdia	Female	24	1.9583	0.7604
	Male	26	2.0973	0.7941

4.4.2 Differences according to marital status with regard to coping strategies and IWG

H_o: There is no statistically significant difference between the single, divorced, the widowed and the married respondents in terms of coping strategies and the IWG.

H_a: There is a statistically significant difference between the single, divorced, the widowed and the married respondents in terms of coping strategies and the IWG.

The T-test for equality of means was performed to find out if there was any significant difference between the married and the unmarried in terms of four variables namely, problem solving, avoidance, seeking social support and IWG. No significant differences were found with regard to coping strategies and IWG. Null hypothesis were therefore accepted in all four variables.

Table 10 confirms the results.

TABLE 10: Differences according to Marital Status

	Marital Status	**N**	**Mean**	**Std Deviation**
Prob Solv	Single, Divorced, Widowed	27	26.67	4.75
	Married	23	26.74	5.04
Avoidance	Single, Divorced, Widowed	27	22.67	3.22
	Married	23	20.83	3.59
Soc Support	Single, Divorced, Widowed	27	25.33	5.42
	Married	23	25.96	3.86
Interdia	Single, Divorced, Widowed	27	2.0852	.6893
	Married	23	1.9665	.8732

4.4.3 Differences between the employed and the unemployed respondent with regard to three coping strategies and IWG

H_o: There is no statistically significant difference between the employed and the unemployed respondents with regard to three coping strategies and IWG.

H_a: There is a statistically significant difference between the employed and unemployed respondents with regard to three coping strategies and IWG.

According to group statistics there was a difference in the means of employed and unemployed respondents with regard to problem solving coping strategy. The T-test for equality of means was performed to find out if the difference was statistically significant. The difference was found to be statistically significant with p-value 0,017 < 0,05. (t = 2,477 df = 48 p-value = 0,017). The Null hypothesis was therefore rejected for problem solving at 0,05 level of significance. This implies that the respondents who were unemployed used problem solving coping more frequently than those who were employed.

No significant differences were found between the employed and the unemployed with regard to avoidance, seeking social support and IWG. Null hypothesis was therefore accepted.

Table 11 confirms these findings.

TABLE 11: Differences according to employment status

	Employment	Mean	Std Deviation
Prob Solv	No	27.61	4.38
	Yes	23.83	5.25
Avoidance	No	22.00	3.56
	Yes	21.25	3.33
Soc Supp	No	25.42	4.86
	Yes	26.25	4.43
Interdia	No	2.0034	.7284
	Yes	2.1167	.9321

4.5 COMPARISONS OF THREE OR MORE GROUPS

In multiple comparisons Analysis of Variable (ANOVA) is used to determine whether the differences between variables are statistically significant or not. Once the significance of the differences are established, the Scheffe Post Hoc Test is performed to determine where the differences are, e.g. between which age groups.

TABLE 12: Differences according to age

		Df	Mean square	F	Significance
Prob Solv	Between group	2	36.241	1.589	.215
	Within group	47	22.809		
Avoidance	Between group	2	31.494	2.780	.072
	Within group	47	11.327		
Soc Supp	Between group	2	67.112	3.280	.046
	Within group	47	20.459		
Interdia	Between group	2	0.533	0.887	.419
	Within group	47	0.601		

4.5.2 Differences among respondents according to period on dialysis with regard to three Coping Strategies and IWG

H_o: The differences among respondents according to period on dialysis will make no significant difference with regard to three coping strategies and IWG.

H_a: The differences among respondents according to period on dialysis will make a significant difference with regard to three Coping Strategies and IWG.

The ANOVA revealed no statistically significant difference among groups of respondents according to the period on dialysis with regard to three coping strategies and IWG. The Null hypothesis was therefore accepted for all variables, namely, problem solving, avoidance coping, seeking social support and IWG.

Although statistically not significant, descriptive statistics showed that respondents who had been on haemodialysis the longest used problem solving coping more frequently than those who had been on it for a shorter period.

The differences according to the period on dialysis in terms of coping strategies and IWG are represented in Table 13.

TABLE 13: Differences according to period on dialysis

		df	Mean square	F	Significance
Prob Solv	Between groups	2	59.132	2.708	0.077
	Within groups	47	21.835		
Avoidance	Between groups	2	11.651	0.957	0.391
	Within groups	47	12.172		
Soc Supp	Between groups	2	3.354	0.145	0.866
	Within groups	47	23.172		
Interdia	Between groups	2	0.856	1.459	0.243
	Within groups	47	0.587		

4.5.3 Differences among respondents according to level of education with regard to three Coping Strategies and IWG

H_o: Differences in educational level among respondents will make no statistically significant difference with regard to three Coping Strategies and IWG.

H_a: Differences in educational level among respondents will make a statistically significant difference with regard to three Coping Strategies and IWG.

The analysis of variance indicated that there was no statistically significant difference among respondents according to level of education with regard to problem solving, avoidance, seeking social support and IWG. All P-value > 0,05.

The null hypothesis was therefore accepted for problem solving, avoidance, seeking social support and IWG. See Table 14 for confirmation of the results.

TABLE 14: Differences according to level of education

		df	Mean square	F	Significance
Prob Solv	Between groups	2	5.939	0.246	0.783
	Within groups	47	24.098		
Avoidance	Between groups	2	10.176	0.832	0.442
	Within groups	47	12.235		
Soc Supp	Between groups	2	23.778	1.066	0.353
	Within groups	47	22.303		
Interdia	Between groups	2	0.567	0.946	0.396
	Within groups	47	0.599		

The next chapter discusses the results reported in this chapter. Limitations are discussed and recommendations are made concerning future research. In addition conclusions are drawn and summarized with regard to the findings of the present investigation and their empirical contribution to the existing literature.

CHAPTER 5

DISCUSSION OF RESULTS, RECOMMENDATIONS AND CONCLUSIONS

5.1 INTRODUCTION

Patients with a diagnosis of end-stage renal disease (ESRD) are confronted with a limited number of treatment options, essentially, transplantation or dialysis. Though transplantation may be considered the treatment of choice, the short fall in the number of suitable donor organs available, and clinical problems with transplant rejection, mean that the majority of patients with ESRD are treated using dialysis. However, irrespective of the mode of treatment, there is now considerable evidence that the clinical aspects of therapy place an enormous burden of stress on the individual (Martini & Thompson, 1999). Schlebusch (1990) maintains that there are many psychological issues involved in haemodialysis.

The present research explored the coping strategies used by black patients undergoing haemodialysis and the effect of these strategies on adherence to fluid intake restrictions imposed by haemdialysis.

The results from the present research highlighted one specific coping strategy which was found to be statistically significantly associated with adherence to fluid intake restrictions.

5.2 DISCUSSION OF PRELIMINARY RESULTS

5.2.1 Employment status, coping and adherence to fluid intake restrictions

The present study indicated that there is a statistically significant differences between respondents who were employed and those who were not employed at 5 % level of significance. Respondents who were unemployed were using Problem Solving Coping more frequently than those who were employed. These findings are not supported by findings of Christensen & Wiebe (1995) whereby no difference was found between the employed and the unemployed respondents in terms of the use of a coping strategy. Maybe unemployment is appraised as being very stressful by black South Africans and the unemployed believe that they have to focus on the problem and try to alter the source of stress. However, no significant differences were found between the employed and the unemployed respondents in both studies with regard to adherence to fluid intake restrictions.

5.2.2 Age of respondents, coping and adherence to fluid intake restrictions

The present study indicated that respondents in the age group 36 – 50 years were using social support more than those in the age group 20 – 35 years. The difference in seeking social support between these two age groups was statistically significant at 5 % level.

However, no statistically significant difference was found between age groups with regard to adherence to fluid intake restrictions. In contrast, Christensen & Wiebe (1996) found that older haemodialysis patients displayed more favourable fluid intake adherence than younger patients. Maybe in South Africa age has no bearing with regard to adherence behaviour.

5.2.3 Period on dialysis, coping and adherence to treatment

Although no statistically significant difference was found between patients who had been on dialysis for a long period and those who had been on it for a shorter period, the study indicated that patients who had been on dialysis for a long period used problem solving coping more frequently than those who had been on it for a shorter period. These findings can easily be compared to findings by Schlebusch (1995) that long-term dialysands (more than seven years) tend to perceive themselves as stronger than those who had been on dialysis for shorter periods. These findings tends to confirm the major role defence mechanisms play in the coping strategies. In patients who have been on dialysis for a shorter period, feelings of hopelessness and sadness predominates. Many such patients present with repeated physical complications. Patients on long-term dialysis show greater adaptation in that they display a degree of acceptance of their illness and treatment (Schlebusch, 1995).

Schlebusch (1995) further maintains that traditional beliefs and cross-cultural problems in many non-Westernized black patients in Southern

Africa can have a major impact on their attitude to ESRD and consequently on their adaptation to a Chronic renal failure program

5.3 DISCUSSION OF PRIMARY RESULTS

5.3.1 The results of hypothesis I, II and III

There was only one statistically significant relationship obtained between coping strategies and adherence to fluid intake restrictions. An inverse relationship between problem solving coping and adherence to fluid intake restrictions was obtained.

This implies that high levels of problem solving coping are associated with favourable adherence to fluid intake restrictions (< 2,5 kg) if the stressful situation is amenable to control. These findings confirm Hypothesis I. Christensen & Wiebe (1995) support these findings. They found out that coping efforts involving planful problem solving were associated with more favourable adherence if used in response to stressors involving a relatively controllable aspects of the haemodialysis context.

The present study revealed that 34 % of the respondents were not adherent to fluid intake restriction. These results confirmed findings by Christensen & Wiebe (1995) that between 30 % and 50 % of haemodialysis patients do not adhere to the fluid intake restrictions imposed by the treatment.

The predicted association between the type of coping and adherence to fluid restrictions was not obtained for avoidance and for social support seeking. It

is possible that avoidance being an emotion-focused coping, might become useful in a stressful situation which is perceived to be beyond control of an individual. Christensen & Wiebe (1995) found that for less controllable stressors, coping strategies directed toward emotional-regulation, were associated with more favourable adherence. Like in the present study, Christensen & Wiebe (1995) did not find the predicted association between seeking social support and adherence to fluid restrictions. Nevertheless, this does not detract any value from the significance of problem solving strategy.

5.3.2 Problem Solving as a Coping Strategy

Kleinke (1998) describes Problem Solving as the procedure a person follows when developing plans for responding to life challenges. It is a practical coping skill but it is also psychologically useful. The practice of good problem solving is a confidence builder. An individual's sense of competence and mastery will be bolstered when one has a problem solving skill at one's disposal. Effective problem solving skills are associated with good personal adjustment (Steward & Beck, 1995). Researchers have found that good problem solvers accept the fact that overcoming life challenges require personal effort (Kleinke, 1998).

Problem solving describes deliberate problem-focused efforts to alter the situation, coupled with an analytic approach to solving the problem. It is assessed by items such as "I formed a plan of action in my mind" "I tried to solve the problem" "I weighed my options carefully" "Tried to carefully plan a course of action rather than acting on impulse." It also involves accepting responsibility which is acknowledgement of one's own role in the

problem with a commitment to trying to put things right. The advantage of problem solving as a coping strategy is that it provides a feeling of control over one's life (Kleinke, 1998).

5.3.3 The process of problem solving

Kleinke (1998) outlines 5 stages of problem solving namely self perception, defining the problem, listing options, decision making and testing.

- **Self perception**

The first step in successful problem solving is developing the self perception that one is a problem solver. Problem solvers realize that problem situations are part of life and they are in touch with the fact that it is important to face such challenges calmly and rationally and not impulsively.

- **Defining the problem**

The first thing to do when faced with a threat or challenge is to understand exactly what is happening. Take some time to figure out the critical issues, then make a list of goals. This is a stage in problem solving when a support network can be helpful by encouraging one to take an objective view.

- **Listing options**

This is the stage where Plan A, Plan B and Plan C are defined. To develop good plans one has to remain open-minded. Before deciding on a course of

action, it is important to consider all alternatives. Again, support people can help one brainstorm and avoid getting stuck on one track.

- **Decision making**

If an individual has taken sufficient time to define the problem and generate many alternatives, one is ready to decide on a course of action. The decision making stage is much easier when an individual has a full grasp of the issues facing him/her and a flexible list of options. A person has to be flexible and have alternative plans if the first decision does not work out.

- **Testing**

If the first course of action achieves success, great! If not it is time to work through the stages of problem solving again.

5.3.4 The possible relationship between problem solving and adherence to fluid intake restrictions

In the present study a statistically significant relationship was found between problem solving coping and adherence to fluid intake restrictions. The respondents who were using problem solving coping in a controllable situation emerged as more adherent to fluid intake restrictions.

This was supported by the research findings of Christensen & Wiebe (1996) who found that problem focused coping strategies orientated toward modifying some aspects of the stressful situation are associated with more

positive outcome only if the encounter is actually amenable to controlling efforts.

Research done by Kohn, Hay & Legere (1994) also support the present study that problem-focused coping is significantly predictive of positive adaptation.

These findings are also supported by Kleinke (1998) who indicated that good problem solvers accept the fact that overcoming life challenges requires personal efforts.

5.4 LIMITATIONS OF THE STUDY

Although satisfactory results were obtained from the statistical analysis of the data, this study had some mentionable shortcomings.

A small sample size (N = 50) was used due to lack of interviewers.
An interview method of collecting data was used as some of the respondents were illiterate.

An all black sample was used and is not representative of the South African population. Accordingly, the findings cannot be generalized to a more diverse group.

Finally, only one measuring instrument was used, therefore the Coping Strategy Indicator could not be compared to another instrument which measures coping. The use of another questionnaire could have improved the

study. However, it would be desirable for future studies to include multiple methods of coping assessments.

5.5 RECOMMENDATIONS FOR FUTURE RESEARCH

The present study focused on coping with a stressful situation which is more amenable to control by an individual. It should be born in mind that haemodialysis patients are faced with other challenges which are clearly beyond their control. During haemodialysis sessions, three times weekly, the patient is a passive recipient of a treatment which is administered by a nurse or technician. Little participation is required or allowed during this four-hour procedure. A variety of stressful encounters related to haemodialysis procedure can occur, for example, a sudden drop in blood pressure, problems with vascular connection, nausea and vomiting and painful leg cramps. All these are perceived as beyond control of the patient. It is recommended that the role of a less controllable stressful situation in coping be taken into account in future research so as to investigate which coping strategy will be adaptive in such situations.

It is also necessary that this study be replicated utilizing a larger sample size and more coping Questionnaires so that the measuring instruments can be compared.

In South Africa, very little research exists on coping with chronic illness among blacks. It should be borne in mind that in most African cultures, groupness, as opposed to individualism in western cultures, is predominant. In these cultures, a person is seen as belonging to a larger group, an

extended family. An individual's problem is regarded as the problem of the extended family, an individual does not suffer alone. Usually a collective decision is made which is sometimes binding. This situation influences coping behaviour either positively or negatively. It is therefore recommended that the role of an extended family in coping among non-westernized end-stage renal patients be investigated in future research.

5.6 CONCLUSION

An important goal of coping research in clinical population is to identify which coping mechanisms are more adaptive for a particular clinical problem taking into account the controllability of a stressful situation. This knowledge is central to the task of identifying and implementing the most useful coping-related intervention strategies.

From the literature as well as the present study, it can be seen that Problem Solving Strategy, can be associated with adherence to fluid intake restrictions imposed by haemodialysis treatment. The study indicates that haemodialysis patients that are more adherent to fluid intake restrictions used Problem Solving Strategy as a way of coping with their controllable aspect of haemodialysis treatment.

Since the facilitation of treatment adherence behaviour can be problematic, appropriate therapeutic strategies must be devised to enhance adherence to treatment. A dynamic insight-orientated psychotherapy which involves problem focused approach is recommended.

In conclusion, the present study shows that Problem Solving Strategy plays a central role in adherence behaviour. Therefore one can conclude that for context in which greater personal control is possible, an intervention which is problem orientated may be of value in enhancement of adherence behaviour.

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APPENDIX

PERSONAL CODE:.....

DEMOGRAPHIC QUESTIONNAIRE

1. Age in years ☐

2. Marital Status:
   - Single ☐
   - Married (civil /customarily) ☐
   - Widowed ☐
   - Divorced ☐
   - Separated ☐

3. Gender_____

4. Do you have a job? _____

5. Did you loose your job as result of haemodialysis? _____

6. Your level of education? _____

7. Number of months since first haemodialysis _____

8. Number of previous failed renal transplantation _____

Coping Strategy Indicator
(J.H. Amirkhan, 1990)

Listed below are several possible ways of coping. Indicate to what extent you, yourself used each of these coping methods.

Try to think of the last time you experienced a problem with your fluid intake or blood chemistries e.g. problems with excessive fluid intake or dietary mismanagement. It must have occurred in the last six months and caused you to worry. Describe this problem in a few words.

_____

_____

_____

_____

_____

With this problem in mind, indicate how you yourself coped by checking the appropriate box for each coping behavior listed on the following pages. Answer each and every question even if some may sound similar.

Keeping that stressful event in mind, indicate to what extent you...

1. Let your feelings out to a friend? ☐ A lot ☐ a little ☐ Not at all

2. Rearranged things around you so that your problem had the best chance of being resolved? ☐ A lot ☐ a little ☐ Not at all

3. Brainstormed all possible solutions before deciding what to do? ☐ A lot ☐ a little ☐ Not at all

4. Tried to distract yourself from the problem? ☐ A lot ☐ a little ☐ Not at all

5. Accepted sympathy and understanding from someone? ☐ A lot ☐ a little ☐ Not at all

6. Did all yo7u could to keep others from seeing how bad things really were? ☐ A lot ☐ a little ☐ Not at all

7. Talked to people about the situation because talking about it helped you to feel better? ☐ A lot ☐ a little ☐ Not at all

8. Set some goals for yourself to deal with the situation? ☐ A lot ☐ a little ☐ Not at all

9. Weighed your options very carefully? ☐ A lot ☐ a little ☐ Not at all

10. Daydreamed about better times? ☐ A lot ☐ a little ☐ Not at all

11. Tried different ways to solve the problem until you found one that worked? ☐ A lot ☐ a little ☐ Not at all

12. Confided your fears and worries to a friend or relative? ☐ A lot ☐ a little ☐ Not at all

13. Spent more time than usual alone? ☐ A lot ☐ a little ☐ Not at all

14. Told people about what needed to be done to straighten things out? ☐ A lot ☐ a little ☐ Not at all

15. Thought about needed to be done to straighten things out? ☐ A lot ☐ a little ☐ Not at all

16. Turned your full attention to solving the problem? ☐ A lot ☐ a little ☐ Not at all

17. Formed a plan of action on your mind? ☐ A lot ☐ a little ☐ Not at all

18. Watched television more than usual? ☐ A lot ☐ a little ☐ Not at all

19. Went to someone (friend or professional) in order to help you feel better? ☐ A lot ☐ a little ☐ Not at all

20. Stood firm and fought for what you wanted in the situation? ☐ A lot ☐ a little ☐ Not at all

21. Avoided being with people in general? ☐ A lot ☐ a little ☐ Not at all

22. Buried yourself in chores or sports activity to avoid the problem? □ A lot □ a little □ Not at all

23. Went to a friend for advice on how to change the situation? □ A lot □ a little □ Not at all

24. Went to a friend to help you feel better about the problem? □ A lot □ a little □ Not at all

25. Accepted sympathy and understanding from friends who had the same problem? □ A lot □ a little □ Not at all

26. Slept more that usual? □ A lot □ a little □ Not at all

27. Fantasized about how things could have been different? □ A lot □ a little □ Not at all

28. Identified with characters in sport or television? □ A lot □ a little □ Not at all

29. Tried to solve the problem? □ A lot □ a little □ Not at all

30. Wished that people would just leave you alone? □ A lot □ a little □ Not at all

31. Accepted help form a friend or relative? □ A lot □ a little □ Not at all

32. Sought reassurance from those who know you best? □ A lot □ a little □ Not at all

33. Tried to carefully plan a course of action rather that acting on impulse? □ A lot □ a little □ Not at all