

**UNIVERSITY OF KWAZULU NATAL**

**FACTORS THAT FACILITATE ADHERENCE TO  
HAEMODIALYSIS THERAPY AMONGST PATIENTS WITH  
CHRONIC RENAL FAILURE**

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**FACTORS THAT FACILITATE ADHERENCE TO  
HAEMODIALYSIS THERAPY AMONGST PATIENTS WITH  
CHRONIC RENAL FAILURE**

*A Dissertation submitted to the School of Nursing,  
University of KwaZulu Natal, Durban*

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Masters Curationis (Critical Care and Trauma Nursing)*

**BY**

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## DECLARATION

I declare that “**FACTORS THAT FACILITATE ADHERENCE TO HAEMODIALYSIS THERAPY AMONGST PATIENTS WITH CHRONIC RENAL FAILURE**” is my own work. It has never been submitted for any other degree or examination to any other University. All references used have been acknowledged by means of referencing.



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## DEDICATION

THIS WORK IS DEDICATED TO ALL PEOPLE WITH CHRONIC  
RENAL FAILURE AS WELL AS TO MY GRANDFATHER,  
MTHOLWAPHI AND MY LATE GRANDMOTHER, BABANGILE  
“DONDA” FOR TAKING CARE OF ME DURING MY  
CHILDHOOD, SENDING ME TO SCHOOL AND FOR LOVING ME.

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**ABSTRACT**

**FACTORS THAT FACILITATE ADHERENCE TO  
HAEMODIALYSIS THERAPY AMONGST PATIENTS WITH  
CHRONIC RENAL FAILURE**

A study was done to examine factors that facilitate adherence to haemodialysis therapy amongst patients with chronic renal failure and the sources of support available to them. A self developed questionnaire was used to collect data from the respondents.

The respondents were purposive and conveniently selected according to the set criteria. The sample consisted of 118 respondents that were selected from four hospitals, two provincial hospitals and two private hospitals. Permission to conduct the study was requested by means of written letters to all people concerned. Letters granting permission were obtained from the two provincial hospitals. The Heads of the Renal Units of the two private hospitals gave verbal permission.

Data was analyzed using the Statistical Package for the Social Sciences (SPSS 11.5). Demographic data was analysed through frequency counts. Crosstabulations using Chi-square analysis was performed to test the relationship between the factors that facilitate adherence to haemodialysis therapy and the indicators for adherence.

The results were presented in the form of Tables and Figures (Graphs).

From the findings the researcher concluded that in order for a haemodialysis patient to adhere to therapy restrictions, the following should be adequate: physical factors, socio-economic factors, psychosocial factors which also encompasses cultural factors. Health education proved to be having a very good impact. Higher level of education is not that essential as long as the patient can read, write and understand the instructions. Religious factors did not have much effect on facilitation of adherence to haemodialysis therapy.

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# **CHAPTER 1: INTRODUCTION TO THE STUDY**

## **1.1 BACKGROUND TO THE STUDY**

Haemodialysis therapy for chronic renal failure has been a reality for approximately forty years. This therapy was successfully used for the first time in Seattle, United States of America (USA), in March 1960, on two patients with chronic renal failure. Both patients were successfully treated as chronic haemodialysis patients until their deaths in 1987 and 1971 respectively (Drukker 1986, cited in Maher, 1989). The arteriovenous shunt was also developed in 1960 and was soon followed by advances in transplantation and peritoneal dialysis (Hoffart, 1989) cited in (Anthony, 1999). Worldwide, the number of patients with end-stage renal disease (ESRD) is increasing at an alarming rate. In the USA, approximately 200 000 patients are on haemodialysis therapy (Bommer, 2002).

Baer (1998) reported that worldwide chronic renal failure is increasing more rapidly than was anticipated, as there was hope that the end-stage renal failure population would decrease by the 1980s. The occurrence has in fact risen by 7.8% annually for the past decade. Kjellstrand and Dossetor (1992) reported the incidence of chronic renal failure in eleven selected countries. New cases varied from 34 per million population per year in Ireland to 144 per million population per year in the United States of America (USA). For the patients who were maintained on dialysis, the prevalence varied from 226 per million population per year in Ireland to 778 per million population per year in Japan (Kjellstrand & Dossetor, 1992). In 1998 the prevalence of end-stage renal disease was even

higher in Japan at 1 565 per million population when compared with the USA at approximately 256 per million population. In Germany and other European countries such as Italy, Austria, Spain and France, the prevalence was lower than in Japan but higher than in the United States of America, ranging from 670 to 764 per million population (Bommer, 2002).

Unfortunately there appears to be no reliable statistics on the incidence of renal diseases and haemodialysis in African countries, but there is a general impression that such diseases are common. Incidences at least three to four times those in developed countries are estimated (Barsoum 1992, cited in Kjellstrand & Dossetor, 1992, & Naicker 2003). According to the Census 2001, the total South African population is estimated at 44 819 778, with 35 416 166 (79%) being Blacks or Africans, 4 293 640 (9.6%) Whites, 3 994 505 (8.9%) Coloureds and 1 115 467 (2.5%) Indians. According to the Daily News (2000) the annual incidence of chronic renal failure is estimated at eighty (80) new cases per million South Africans. Personal communication with National Renal Care (April 2004) revealed that in South Africa there is a total of approximately 2388 patients known to be suffering from chronic renal failure and approximately 1515 of them are on chronic dialysis therapy. Chronic haemodialysis is a well established treatment for end-stage renal disease (Iseki, Nishime, Uehara, Osawa & Fukiyama, 1994). These figures include both private and provincial centers. The KwaZulu Natal province has about 12 centers offering haemodialysis therapy (National Renal Care, 2004).

According to Naicker (2003) among Black communities the annual incidence of

chronic renal failure is thought to be about two hundred and forty (240) per million. In a six year study of 3 632 patients with end-stage renal disease (ESRD), based on the South African Dialysis and Transplant Registry (SADTR) statistics, hypertension was reported to be the major cause of end-stage renal disease (ESRD) in 34.6% of Blacks, 20.9% of mixed group race, 13.8% of Indians and 4.3% of Whites (Naicker, 2003). Major medical centers in South Africa can accommodate approximately 1000 people on their dialysis programmes annually, whilst only approximately 300 transplants are performed annually. About 8000 South Africans die each year owing to renal failure, all of whom could be saved through dialysis and organ transplantation (Daily News, 2000). According to Professor Meyer cited in Daily News (2000) up to 70% of patients with kidney failure will die because they cannot be accommodated on existing dialysis programs.

According to Naicker (2003), the statistics of the South African Dialysis and Transplant Registry (SADTR) reflect the patients selected for renal replacement therapy. It does not accurately reflect the etiology of chronic renal failure, as public sector state facilities will offer renal replacement therapy only to patients who are eligible for a transplant.

Hamilton (1999) reported that there are currently three therapies to manage chronic renal failure. These are haemodialysis, peritoneal dialysis and kidney transplantation. The process of haemodialysis involves the removal of waste materials or poisons from the patient's blood by using the principle of dialysis; that is the molecules tend to move from an area of high concentration to an area

of low concentration. This involves diffusion, osmosis and filtration. Haemodialysis is performed on patients whose kidneys have ceased to function. The process takes place in an artificial kidney or dialyser (Martin, 1998).

Peritoneal dialysis is a process whereby body waste products are removed from the blood by passing a cannula into the peritoneal cavity, running in a dialyzing fluid and draining it out after an interval. Kidney transplantation is the transfer of a complete kidney from a donor to replace a diseased one (Martin, 1998).

In South Africa, renal disease treatment rates of 99 per million population were reported. Dialysis and transplant programs in the rest of Africa are dependent on the availability of funding and donors. Services are still predominantly urban and therefore generally inaccessible to the poorer, less educated rural patient. There is not enough money for health care in the developing world, particularly for expensive and chronic treatment such as renal replacement therapy, like haemodialysis (Naicker, 2003). According to Bommer (2002), end-stage renal disease patients represent about 0.12% of the total United States population of 270 million. Caring for these patients costs more than 18 billion US Dollars per year, around 6% of the total annual Medicare budget. Patients with chronic renal failure face a number of stressors which make their life difficult. Unemployment is one of the stressors among chronic end-stage renal disease patients (Kimmel, 2000, and Kurtner, Brogan & Fielding, 1991).

Another problem that is experienced by these patients relates to co-existing diseases (comorbidity) and their medications. Rahman, Fu, Sehgal & Smith

(2000) acknowledge the fact that the effect of age and comorbid conditions, particularly cardiovascular disease must be considered when studying patients undergoing chronic haemodialysis. A study on effect of renal diseases and comorbid conditions on survival in chronic dialysis patients was conducted in Okinawa, Japan. It revealed that the survival rate of patients with Diabetes Mellitus and Systemic Lupus Erythematosus was poor when compared with chronic glomerulonephritis (Tozawa, Kunitoshi, Chiho, Saori, Yasushi, Masanobu, Nozomi, Takeshi & Shuichi, 2002; Iseki et al, 1994). According to Bommer (2003) and Watson's (1999) the, most frequent causes of chronic renal failure are glomerulonephritis (25%), diabetes mellitus (20%), hypertension (10%), polycystic kidney disease (10%), pyelonephritis and reflux nephropathy (10%), unknown causes 12%. Other causes include interstitial nephritis associated with drug abuse and chronic obstruction. Bommer (2003) also supports Watson's 1999 by stating that among the causes of chronic kidney disease, there are five leading ones, namely in descending order, diabetes mellitus (being the highest), hypertension, glomerulonephritis, cystic kidney disease and other urological diseases being (the lowest on the list). These diseases are the main causes of end-stage renal disease in patients who are already on dialysis therapy. Bommer (2003) stated that the longer survival of patients with chronic kidney disease leads to more comorbid diabetes mellitus and hypertension. The analysis revealed that patients with glomerulonephritis are the youngest (Bommer, 2003). Patients with diabetic nephropathy have the most problems noted, the most emergent and severe problems. They also utilized the highest number of diagnostic tests, required the most complex treatment and the longest physician time spent per encounter. With increasing number of

elderly and diabetic patients, more physician time will be required for the overall care of the dialysis patient, and increasing costs associated with necessary diagnostic tests and referrals can be expected (Radecki & Nissenson, 1989) supported by (Bommer, 2003).

Report about adverse reactions due to drugs used for comorbid conditions have been encountered. Some medicines can be well tolerated by most haemodialysis but there are others that can produce unpleasant side effects (Bastani, Galli and Gellens, 1998). Wolcott, Maida, Diamond and Nissenson (1986) conducted a study on treatment compliance in end-stage renal disease patients on dialysis in Los Angeles, USA. They found that noncompliance with haemodialysis therapy was common and there were different rates of noncompliance with diet, fluid restrictions and medications.

## **1.2 PROBLEM STATEMENT**

The incidence of chronic illness like end stage renal disease is increasing. Haemodialysis is one of the treatments for chronic renal failure. It is performed intermittently at weekly or even lesser intervals. It takes three to four hours per session depending on the amount of toxic waste the patient's body produces. Usually the bigger the amount of toxic waste the longer the therapy session (Personal communication, 2002). It is long term and tends to be expensive. Trying to adhere to this treatment, patients spend many hours away from work and this leads to conflict with the employers. This conflict may result in unemployment which makes the treatment even more unaffordable.

Chronic renal failure is often accompanied by other comorbid diseases like

Diabetes Mellitus, Hypertension, and Systemic Lupus Erythematosus. According to Iseki et al (1994), this means that these patients would be on other chronic medications which they might not be able to tolerate. Chronic illness, like end-stage renal disease, is stressful for both the patient and his or her family because it requires expensive, lengthy and stressful therapy, for example, haemodialysis. This stress may lead to psychosocial problems which can result in poor adherence to or withdrawal from the therapy, thus worsening the patient's physical condition. These patients need to have well-developed and effective coping mechanisms and support systems in order to cope with the demands of haemodialysis therapy. In this study the researcher attempts to identify factors that enable patients with chronic renal failure to adhere to haemodialysis therapy. Several countries, for example America, Australia, England and Sweden, have researched this topic but no such studies appear to have been undertaken in this country. Despite the extent of the problem, the researcher is attempting to close this gap.

### **1.3 THE PURPOSE OF THE STUDY**

The purpose of this study was to identify factors that facilitate patients with chronic renal failure to adhere to haemodialysis therapy, and to investigate their sources of support.

### **1.4 THE RESEARCH OBJECTIVES**

The objectives of this study were to:

- Identify factors that enable chronic renal failure patients to adhere to haemodialysis therapy.

- Establish the sources of support that help them to deal with haemodialysis therapy.

## **1.5 SIGNIFICANCE OF THE STUDY**

Patients undergoing haemodialysis therapy for chronic renal failure undeniably undergo a complete change in their lives. They experience physical, psychosocial and financial problems. Literature says these problems contribute to their poor adherence to therapy (Tsay, 2003; Allshouse, 1993 cited in Halm, Meyers & Bennetts, 2000; White & Grenyer, 1999 & Galpin, 1992). This does not only affect them, but their friends and families are also grossly affected. Considering all the problems that the haemodialysis patient experiences, there seems to be a need to understand their problems so that they can be helped. The findings from this study will inform nephrology nurses to base their intervention on the evidence given by the community they serve. These nurses need to put emphasis in the health education on the facts that were found to rank high as incentives to adherence.

## **1.6 OPERATIONAL DEFINITION OF TERMS**

### **1.6.1 Chronic renal failure**

Chronic renal failure is an irreversible destruction of kidney tissue occurring over a period of months or years. Usually a patient is considered as in chronic renal failure if his or her kidneys do not return to normal functioning after about six to eight weeks of treatment, or when the size of the kidneys has decreased. In the early stages patients present with non-specific symptoms such as fatigue, lethargy, pruritis and emotional lability. As the kidney condition deteriorates, the

patients become symptomatic. This condition has three stages, namely diminished renal reserve, renal insufficiency and end stage renal disease (Clochesy, Breu, Cardin, Whittaker & Rudy, 1996; Ruppert, Kernicki & Dolan, 1996). In this study chronic renal failure is considered the same as the end-stage renal disease during which the patient's kidney is no more salvageable and is on haemodialysis therapy.

### **1.6.2 End-stage renal disease**

This is the final stage of chronic renal failure that is irreversible. During this stage the kidney has approximately 90% nephron loss and the glomerular filtration rate is decreased by 80%. The renal function is severely impaired. During this stage the patient can only be kept alive either by dialysis therapy or renal transplantation (Clochesy et al, 1996; Ruppert et al, 1996). In this study end-stage renal failure is considered the same as chronic renal failure.

### **1.6.3 Dialysis**

Dialysis is the artificial means of removing metabolic waste products and excess fluid from the blood of a patient with renal failure in order to prevent symptoms of uraemia and other complications (Ruppert et al, 1996). In this study dialysis will refer to both peritoneal dialysis and haemodialysis.

### **1.6.4 Haemodialysis**

Haemodialysis is the extracorporeal removal of waste products from a patient's blood. Patient's blood is run through an artificial kidney placed extracorporeally in a dialysis machine. As the blood runs through the artificial kidney it does so

alongside the dialysate with constituents almost in the same concentration as normal blood. The blood and the dialysate is separated by a thin cellophane membrane which is semi permeable to allow some of the constituents of the blood (usually above normal in renal failure) to pass through into the dialysate for excretion. This is through the processes of diffusion, osmosis and filtration. (Macpherson, 1995; Clochesy et al 1996 & Ruppert et al, 1996). In this study haemodialysis may also be referred to as dialysis.

### **1.6.5 Adherence**

Adherence is usually used interchangeably with compliance. However compliance has been widely criticized because of its authoritarian connotation. The patient is required to submit to the wishes of the professional (Ryan, 1994; Lowry, 1998). Thus the concept adherence will be used for this study. In this study adherence means the patient's efforts to work actively and collaboratively with the haemodialysis team, in order to make the therapy a success despite all its problems.

#### **1.6.5.1 Indicators of adherence**

**Diet:** The dialysis patient's nutrition is crucial. The goal is to ensure that the patient is getting enough calories to prevent body protein catabolism, to maintain fluid and electrolyte balance, and to counteract the vitamin-poor low-protein diet and loss of water soluble vitamins during dialysis (Dunn, 1993). To be diet adherent a respondent had to list all three types of diets, that is low sodium (low salt), low potassium and low protein diet. If the respondent mentioned two out of three types of diets, he or she is considered non adherent.

To be adherent to low sodium diet the respondent had to avoid foods with high salt content like:

- biltong, snoek and pickled fish, salted nuts
- some tinned foods as they might be high in salt, if food is tinned in salt water ensure to drain or rinse food.
- use minimum salt when cooking and do not add any at the table

To be adherent to low protein diet the respondent had to:

- eat less red meat, poultry, fish, eggs, dairy products, lentils
- the food should preferably be boiled.

To be adherent to low potassium diet the respondent had to:

- avoid foods like nuts, peanut butter, dried fruit, all bran cereal, crisp packet chips, chocolate and chocolate flavoured drinks, malt drinks, brown sugar, oranges, bananas, guavas, apples and their juices (The KwaZulu-Natal Dietitians, 2001; Inkosi Albert Luthuli Central Hospital Dietitians, 2004).

**Fluid:** To be adherent to fluid intake a respondent had to:

- not have taken more than 500ml (2 cups) of fluids per day
- not have gained more than 0.5kg in two months.

Foods like maas, ice, cool drinks, jelly, gravy, sauces, thin porridge, soup and alcoholic drinks are counted as fluids (KZN Dietitians, 2001).

**Attendance of therapy sessions:** To be adherent to attendance of haemodialysis therapy a respondent should attend all therapy sessions without even missing one of them. The prescribed number of sessions per week should be covered.

### **1.6.6 Sources of support**

Sources of support are the structures from which the patient gets various types of

help, for example, family and prayer, when she or he encounters problems with the therapy. Cummings (1985), cited in Maher (1989), stated that support systems are important for all human beings, especially for haemodialysis patients, since these systems help the patients to adapt to a complex and limiting lifestyle.

### 1.7 CONCEPTUAL FRAMEWORK

According to Polit and Hungler, 1993 a conceptual framework is a combination of interrelated concepts that are assembled together in some rational scheme by virtue of their relevance to a common theme. According to Bezuidenhout (1995), research pertaining to chronic renal failure and coping indicates a variety of factors that play a role in coping and adherence to therapy. The conceptual framework was self made based on 'Factors affecting adjustment' by Bezuidenhout (1995) with some adjustments from other literature. See Figure 1.1 below.

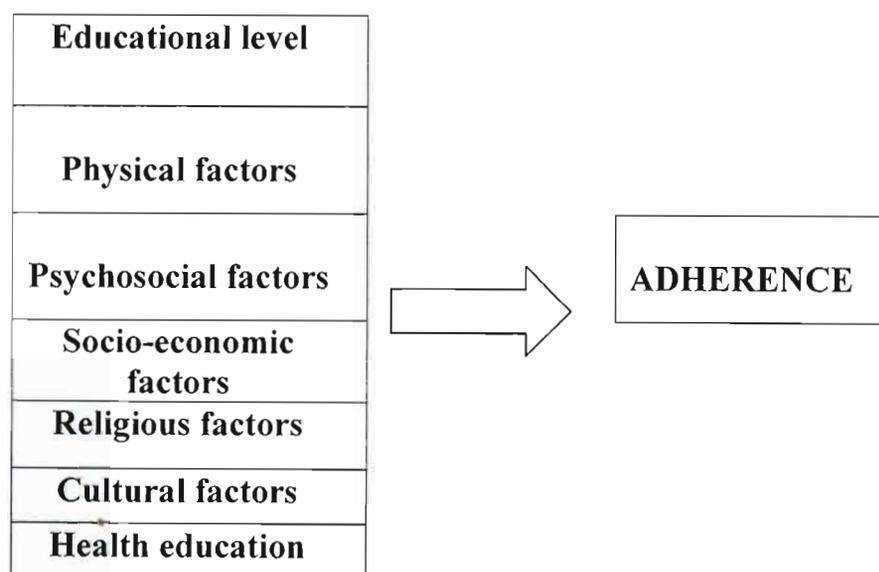


Figure 1.1: Factors affecting adherence

### **1.7.1 Educational level**

Adler (1975), De-Nour and Czaczkes (1974), cited in Bezuidenhout (1995), have associated higher levels of education with successful adjustment to the haemodialysis therapy. O'Brien (1990) cited in Pang, Ip & Chang (2001) contends that haemodialysis patients with low socio-economic status have difficulty in complying with therapeutic regimens because of the often associated lower level of education and thus knowledge about their treatment. Lannon (1997) stated that educational level determines how the health information is presented.

### **1.7.2 Physical factors**

The most obvious change in body image, is brought about by the formation of an arteriovenous fistula (Galpin, 1992). The patient might also lose a lot of weight due to body protein catabolism if he or she is not getting enough proteins, despite the fact that high protein diet is restricted (Dunn, 1993).

### **1.7.3 Psychosocial factors**

When haemodialysis patients are more satisfied with their social support, they tend to have more control of fluid intake although their family income are not high, thus the psychosocial need of haemodialysis patients should not be undervalued (Pang et al, 2001). White & Grenyer (1999) conducted a phenomenological study exploring the experience of dialysis for the patient and his or her partner. It was found that the partner's support could reduce or modulate the negative experience of dialysis. Another study was conducted by Kimmel (2000) in Washington (USA), where it was also discovered that

satisfaction with marital status was associated with an increased perception of social support amongst patients and decreased level of illness effects.

#### **1.7.4 Socio-economic factors**

Pang et al, (2001) stated that lower monthly family income was considered to be a predictor of low daily interdialytic weight gain. O'Brien (1990) cited in Pang et al (2001) contends that haemodialysis patients with lower socio-economic status may have greater problems complying with therapeutic regimens because of the difficulty in obtaining special dietary requirements. The patient needs an income to meet the financial demands of haemodialysis therapy. Unfortunately most patients who are on haemodialysis therapy are unemployed or have low incomes. That was proven in a study on the employment status and ability to work amongst working-age chronic dialysis patients which was conducted by Kurtner et al (1991) in Atlanta, USA. According to Lannon (1997) the income also determines how the health information is presented, especially for uninsured patients who cannot afford expensive treatment regimen.

#### **1.7.5 Religious factors**

Religion is an organised system of beliefs concerning the nature, cause and the purpose of the universe, especially belief in or worship of God or gods (Andrew & Boyle, 1999). Religious beliefs may influence the patient's course of action since they form an integral component of culture (Andrew & Boyle, 1999). Experience has shown that some religious beliefs tend to sustain the believers by giving them hope and strength to withstand stressful experiences thus they adhere to haemodialysis therapy.

### **1.7.6 Cultural factors**

Definition of culture according to (Mead cited in Andrew & Boyle, 1999) culture is arts and sciences, religion and philosophies, system of technology, political practices and habits of daily living. Culture influences peoples' perception of illness and health (Andrew & Boyle, 1999). In order to promote adherence, (Lipman & Pinder, 1997) acknowledge the need for culture-sensitive health care, since it is realized that 80% of Blacks still use traditional medicine (Herberg, 1989). The South African government is also working towards incorporating traditional healers into the national health care system (ANC, National Health Plan, 1994).

### **1.7.7 Health Education**

There are three main components of health education for patients on chronic haemodialysis therapy namely diet, fluids and attendance of therapy sessions.

When diet is prescribed the comorbid conditions are also taken into consideration and a dietitian is also involved (Dunn, 1993). The diet usually involves avoiding or cutting down on product that cannot be eliminated by the damaged kidneys. The patient should be on low sodium, low potassium and low protein diet (KwaZulu-Natal Dietitians, 2001; Dunn, 1993).

## **1.8 CONCLUSION**

Knowing the problems of patients who are undergoing haemodialysis therapy and how to cope with them can help the patients to cope better with the therapy and improve adherence. The following chapter deals with the relevant literature surrounding chronic renal failure, haemodialysis, used in this study.

## **CHAPTER 2: LITERATURE REVIEW**

### **2.1 INTRODUCTION**

This chapter deals with the reviewed literature concerning studies undertaken on haemodialysis therapy and chronic renal failure. This chapter is organized according to the conceptual framework.

### **2.2 CHRONIC RENAL FAILURE**

According to Clochesy et al (1996) a variety of mechanisms are responsible for kidney injury that ultimately progresses to end stage renal disease (ESRD). These include abnormal immunologic process, coagulation disorders, vascular disorders, infection, metabolic and biochemical disturbances. The clinical course of chronic renal failure culminating in ESRD is slow, progressive and irreversible. The process may take from a few months to a many years to become evident. Clinical signs and symptoms may not occur until the glomerular filtration rate is decreased by approximately 80% (Clochesy et al, 1996). The clinical course of renal failure progresses through three stages. These stages are:

- Diminished renal reserve, which has a glomerular filtration rate (GFR) of approximately 50% to 90% of normal, there is 40% nephron loss. The nephrons hypertrophy and homeostasis is maintained.
- Renal insufficiency which has a glomerular filtration rate of approximately 20% to 50% of normal, there is 50% to 75% of nephron destruction, and
- End-stage renal disease, which is irreversible 90% functional nephron loss (Clochesy et al, 1996, and Ruppert et al, 1996)

According to Clochesy et al (1996) and Ruppert et al (1996), the kidneys of a patient with end-stage renal disease have about 90% nephron loss and a glomerular filtration rate of 5% to 10% of normal and the kidneys lose their ability to regulate the internal environment. During this stage the patient is symptomatic and the functioning of body systems is altered. As renal failure progresses to end-stage renal disease, which has no cure, and the glomerular filtration rate falls below 5ml per minute, the kidneys lose their compensatory capabilities. They cannot excrete waste products and thus these accumulate in the body and cause uraemia, which negatively affects all the systems of the body, and threatens the life of the patient. At this stage the patient needs renal replacement therapy, in the form of dialysis or transplantation. Dialysis is the means of sustaining life by removing uraemic toxins and maintaining fluid and electrolyte balance. Basically there are two types of dialysis therapy; they are peritoneal dialysis and haemodialysis (Ruppert et al, 1996).

Haemodialysis is the process whereby toxic waste material or poison from the patient's blood is removed by means of a dialyser (also known as an artificial kidney). It is performed in patients with malfunctioning kidneys. The patient's blood is circulated through a cellophane tube on the other side of which is the dialyzing solution containing electrolytes in the concentration that should be in normal blood (Macpherson, 1995). The nephrology team does the clinical assessment to determine the dialysis prescription for the individual patient (Clochesy et al, 1996).

It is important to adhere to haemodialysis therapy because this procedure helps

to remove water and metabolic waste products that build up in the body during metabolism. If these are not removed they might become toxic and make the patient feel sick. The patient might experience high blood pressure, swelling of the limbs and around the eyes, nausea and vomiting, headaches, shortness of breath, bad breath and confusion (Dunn, 1993; Clochesy et al, 1996; KwaZulu-Natal Dietitians, 2001).

### **2.2.1 Problems with haemodialysis therapy**

According to the South African Renal Society (1999), the National Health protocol has defined the criteria for chronic dialysis in the public sector. Only patients who are legible for renal transplantation are admitted for chronic haemodialysis. The private sector has its own criteria.

Legibility for transplantation is stringent because of the following: Age limit for renal transplantation in the provincial hospital is 60 years therefore the cut off age for chronic haemodialysis in the provincial hospitals is 60 years of age.

Compliance (adherence) restrictions and compliance has been made one of the criteria for transplantation legibility. Distance from the haemodialysis centre for example 110km (Port Shepstone) is also an implied criterion because it can affect attendance. According to Tsay & Healstead (2002) cited in Tsay (2003) patients with chronic renal failure undergo a complex treatment regimen involving dialysis and a wide range of dietary restrictions and lifestyle changes which affect their social and psychological functioning. There is intensive modification in lifestyle. The diet, fluids and recreation is changed to suit therapy recommendations. A current example is the change in the lifestyle of

the well known New Zealand, national rugby team (All Blacks) player, Jona Lomu. He suffers from nephrotic syndrome and he no longer plays for his team, instead he attends four haemodialysis sessions a week. His speed has become a slow limp meaning that his body image has changed (Swan, 2004). If one is unable to modify ones lifestyle, one is not admitted to the programme and is automatically not legible for renal transplant. Comorbid diseases like Hypertension, Diabetes Mellitus and Lupus Erythematosus and their treatment pose a problem to patients. The comorbid diseases were among the reasons that prevented Mr Thiagraj Soobramoney from being admitted into the haemodialysis programme at Addington Hospital in Durban. On top of his chronic renal failure, he was diabetic and suffered from ischaemic heart disease and cerebro-vascular disease (Chaskalson & Madala, 1997). The side effects worsen the patient's adherence problem. Body image is also grossly affected. The patient may lose weight or gain weight and end up looking different. The treatment may alter the patient's physical features e.g. the moon face of a patient on corticosteroids. The patient might look pale because of anaemia due to destruction of red blood cells during haemodialysis. Cost of haemodialysis therapy is high, not only the therapy but the traveling, medications and diet itself. There are also 'hidden' criterion e.g. if one has no running water one cannot be admitted to the therapy since at one stage or another one might need CAPD. CAPD needs running water. Thus the poorest of the poor who live in the shacks with no water cannot be admitted to the haemodialysis programme. That is because of the poor socio-economic status (Personal communication, 2002).

## **2.3 FACTORS AFFECTING ADHERENCE**

### **2.3.1 Educational level**

Individuals, who have progressed academically are said to have a better understanding of the nature of the illness and how to deal with its demands and thus adhere to the therapy (Adler, 1975 and De-Nour and Czaczkes, 1974) cited in Bezuidenhout (1995). According to Brunier, Graydon, Rothman, Sherman & Liadsky (2002) a study to describe the characteristics of renal peer support volunteers among them were dialysis patients, was conducted in Toronto, Canada. Almost half of the volunteers had a university level of education. The findings indicated that renal peer support volunteers after participating in a kidney foundation of Canada training programme, maintained and improved their own well being from helping others newly diagnosed with renal failure (Brunier et al, 2002). Barsoum (1992), cited in Kjellstrand & Dosseter (1992), highlighted the importance of education and knowledge by displaying the price one pays for ignorance. He reported that on the African continent, with the exception of a few countries, a patient diagnosed with chronic renal failure starts a long, tough struggle of survival during which he or she will meet innumerable difficulties, threats and disappointments. Most of these patients are frustrated about the discrepancy between how much they expect from and how much they get out of medical and social support. Their expectations mainly depend on their knowledge about modern treatment of chronic renal failure. Their knowledge depends on their culture, educational level and standard of public information available. These factors reflect the community's lifestyle, which is mainly influenced by cultural, economical and political standards. Unfortunately there is poor dissemination of information and treatment among poor and uneducated

people. Patients with chronic renal failure in the tribal communities of Central Africa are not even aware that there are replacement therapies like haemodialysis available for chronic renal failure (Barsoum, 1992, cited in Kjellstrand & Dossetor, 1992).

### **2.3.2 Physical factors**

Patients undergoing haemodialysis therapy may experience a number of physical problems like side effects and complications. Some of these may be acute and life-threatening. They are treated as emergencies, and they usually manifest during the haemodialysis therapy sessions. Among them are, for example, haemorrhage, hypotension and air embolism Blagg (1983), cited in Maher, 1989 & Dunn, 1993). Despite advances in dialysis techniques, patients with end-stage renal failure on chronic maintenance haemodialysis have high mortality rate. This is primarily due to cardiovascular diseases, including ventricular arrhythmias and sudden cardiac death (Meier, Vogt & Blanc, 2001).

Other side effects might not be life threatening, for example fatigue, muscle cramps, itching, constipation, poor appetite, bad taste, nausea and vomiting change in body image (Blagg, 1983, cited in Maher, 1989; Galpin, 1992; Dunn, 1993; Clochesy et al, 1996 & Dolan, 1996). Goichechea, de Squera, Ochando, Andrea & Caramelo (1999) in Madrid, Spain conducted a study on uremic pruritis (itching), an unresolved problem in haemodialysis patients. About 64% of dialysis patients were found to be suffering from pruritis. There was significant correlation between xerosis and pruritis. It was also found that pruritis was severe enough to interfere with daytime activity and sleeping pattern

(Goicoechea et al, 1999). It was also found that the patients without pruritis were better dialysed and had better nutritional state. No single factor could be implicated as a cause of uremic pruritis (Goicoechea et al, 1999). Taste acuity is partially impaired in diabetic patients who are on haemodialysis therapy. This problem contributes to poor appetite, which leads to malnutrition and poor prognosis (Matsuo, Nakamoto, Nishihara, Yasunaga, Yanagida, Matsuo & Sakemi, 2003). A study aimed to quantify and compare the taste acuity of 24 diabetic and 24 non-diabetic patients was carried out in a kidney center in Saga, Japan. The results were that bitter and total taste acuity was significantly impaired in diabetic haemodialysis patients (Matsuo et al, 2003).

A descriptive correlational study to examine fatigue among a group of 39 adult patients with renal failure who required maintenance haemodialysis was conducted in Ireland. This study indicated that high levels of fatigue, together with low vitality, reduced motivation, reduced activity and mental fatigue are experienced by adult haemodialysis patients (McCann & Boore, 2000). Dunn (1993) also mentioned that haemodialysis patients tend to be tired after treatment, thus need to rest by taking a nap to revive their bodies. Physical therapy or exercise should not be scheduled after therapy sessions. According to McCann & Boore (2000), depression was significantly associated with physical health status, sleep problems and anxiety. These problems may discourage some of the patients from continuing with haemodialysis therapy. The formation of arteriovenous fistula changes the body image (Galpin, 1992). Scarring occurs and an established, well developed fistula can be a very embarrassing and frustrating disfigurement, especially in hot weather. The central lines for

haemodialysis therapy access established on the forearm, neck and anterior chest are not easy to conceal (Galpin, 1992). This upsets the patient and negatively affects adherence to therapy as this may affect their emotional status and thus their coping.

A survey to determine the significant stressors and coping mechanisms, which were related to quality of life among dialysis patients, was conducted by Lok (1996), in a Sydney dialysis centre in Australia. It revealed that the limitation of physical activity was the most troublesome stressor, followed by decrease in social life, uncertainty about the future, fatigue and muscle cramps. Some of the other identified stressors included anxiety, depression, feelings of inadequacy, pain, discomfort, fluid and diet restrictions and weakness. Gurkils & Menke (1988), cited in Lok (1996), found that physiological stressors were more troublesome than psychosocial stressors in haemodialysis patients. These physical factors can make haemodialysis so unpleasant that the patient might end up not adhering to therapy. According to Eidemak, Haaber, Feldt-Rasmussen, Kanstrup & Strandgaard (1997) physical exercise has no untoward effect on progression of chronic renal disease. Controlled exercise can improve the well being and exercise capacity of patients with chronic renal failure both before and after the start of dialysis (Eidemak et al, 1997).

Patients who find it difficult to attend therapy sessions during the day can now either be on home-based or hospital based haemodialysis. According to Pierratos (2004) daily nocturnal home dialysis was developed to satisfy the need for a highly effective, smooth, and cost effective home dialysis therapy. According to

Hryciw, Courtney, Herian, Wales, Bainley, Adams & Foster (2004) the home nocturnal haemodialysis program was initially intended to serve people living in remote areas that were not serviced by a satellite haemodialysis unit.

Studies on comorbid diseases were conducted by Bommer (2003), Iseki et al (1994) and Radecki & Nissenson (1989). They revealed that diabetes mellitus is the highest ranking comorbid disease, followed by hypertension. A report by Radecki & Nissenson (1989) about a national sample of dialysis physicians was used to obtain data for comparison of patient characteristics, comorbid conditions and treatment patterns associated with the five leading causes of end stage renal disease (ESRD). The data was used to assess trends in physician care for ESRD patients and likely changes in program costs. Haemodialysis patients with comorbid diseases were found to have greater daily interdialytic weight gain and thus more non-compliance Merkus et al (2000) cited in Pang et al (2001).

It decreases the overall cost of patient care and improves cost utility when compared to conventional haemodialysis. It allows unrestricted diet, improves anaemia and nutrition, improves cardiac output, there is less fatigue and cramps, thirst, nausea and vomiting, disappears and improves the quality of life, (Hryciw et al 2004; Pierratos, 2004; Vos, Stokvis, Verhallen & Kooistra, 2004). According to the study done by Vos, et al (2004), nocturnal home haemodialysis results in a tremendous quality of life, but the patients and their partners need active support. It can be done from 3 nights per week to every night. A study conducted between 1994 and 1997 by Pierratos, Ouwendyk, Francoeur, Vas,

Raj, Ecclestone, Langos and Uldall on home dialysis, proved that nocturnal haemodialysis is the most efficient form of dialysis and is well tolerated by the patients. It also provides the highest clearance of any dialysis modality currently in use in chronic dialysis patients. The amount of blood pressure control and number of medications needed is reduced. There is increased energy and well being (Pierratos et al, 1998).

### **2.3.3 Psychosocial factors**

According to Walsh (1999), when a person with chronic renal failure requires haemodialysis therapy, it is natural that he or she and the family will be concerned. Knowledge that the patient's depends on the procedure is extremely threatening. Severe anxiety may be manifested due to concern for the future and life expectancy. Some patients find it very difficult to accept and they may first present with anger which is followed by depression (Walsh, 1999).

The results of a study carried out in Hong Kong on psychosocial correlates of fluid compliance among Chinese haemodialysis patients revealed that satisfaction with social support was the largest predictor of daily interdialytic weight gain (Pang et al, 2001). Allshouse (1993) cited in Halm, Myers & Bennetts (2000) stated that according to the patient illness does not only entail physical discomfort of ill health, but all the social and psychological ramifications of being unwell. The broader meaning of illness in this emotional and social context, its effects on their lives and on the lives of those around them may be far more important to patients than the physical impairment itself (Allshouse, 1993 cited in Halm et al, 2000). According to Halm et al (2000) a

survey conducted in United Hospital, in St Paul, Minn indicated that 35% of patients find it difficult to find someone to talk to about their concerns. When a patient voices a desire to find someone to talk to about their concerns, that wish is regarded as related to sociocultural identity (Halm et al, 2000).

According to Welch & Austin (2000) depression is very prevalent among patients with end-stage renal disease (ESRD) particularly those undergoing haemodialysis therapy. Beard (1969), cited in Bezuidenhout (1995), stated that patients who have the greatest abilities to relate satisfactorily with others, who have a strong, deep relationship with a significant person and who have the ability to draw upon the relationship in a sharing way during the times of stress, discouragement and loneliness, make the best initial adjustment to their disease and to the uncertainty of their future. Committed persons have both a reason and an ability to turn to others for assistance in times demanding readjustment (Kobasa, 1979).

White & Grenyer (1999) described end-stage renal disease as a progressive, debilitating, chronic illness, and as the disease progresses, constant adaptations are required. The family, and most relationships that existed prior to the illness, are progressively changed by the presence and the responsibility of caring for a dialysed person. These changes may be stressful to both the patient and his or her loved ones. According to a descriptive study on meaning of illness in chronic renal failure conducted by Caress, Luker and Owens (2001), patients who regard renal failure as a challenge do well and take active part in treatment. Those who regard renal failure as a punishment are bitter, angry and confused by their

situation and tend to do badly.

In Sweden, Lindqvist, Carlsson and Sjode'n (2000) conducted a study on coping strategies and health related quality of life amongst spouses of continuous ambulatory peritoneal dialysis, haemodialysis and transplant patients. This study suggested that emotive, evasive and fatalistic coping are less than optimal ways of dealing with problems caused by a partner's treatment. According to White & Grenyer (1999) a phenomenological study to investigate biopsychosocial impact of end-stage renal disease on dialysis patients and their partners was conducted in Australia. The results indicated that nurses need to recognize and respond to emotional impact that chronic illness and its treatment have on families. The study revealed anger, depression and hopelessness among the patients. There was sadness, resentment, guilt and loss among the partners (White & Grenyer, 1999).

A survey conducted by Lok (1996) on patients in two dialysis centers in Sydney, Australia, revealed that chronic dialysis patients are subjected to multiple psychological and physiological stressors and may feel threatened by many potential losses and changes in lifestyle. Kimmel (2000) stated that these patients sustain numerous losses, including the loss of kidney function, well being, place in the family and workplace, time, financial resources and sexual function. It does not come as a surprise that most of these patients suffer from depression at one stage or another. Galpin (1992) also emphasized the effect of change in body image on the patient's self esteem. This affect the patient's sexual function since the body image is interwoven with sexual identity and

patterns of sexual functioning (Galpin, 1992). This problem is rarely discussed in the haemodialysis unit, because there is lack of privacy, patients at times lack confidence in confidentiality thus are reluctant to admit to a discredited self image. At times the very close relationship between the haemodialysis nurses and the patients could be inhibiting as the patient might feel that he or she will lose his or her self esteem in the eyes of the nurses (Galpin, 1992). These patients will in turn pretend to be happy to hide intense feelings which if they are not acknowledged, could lead to deeper depression (Salter, 1988 cited in Galpin, 1992). Lok (1996) also found that patients with chronic illness perceive different levels of quality of life and may exhibit varying coping mechanisms in dealing with stressors in daily life. Because of these, it is important for the haemodialysis nurses to undergo training on counseling in order to give basic emotional support (Galpin, 1992).

Emotional problems are present in most chronic dialysis patients and may be a major impediment to the goal of restoring the patient to a useful and meaningful life. The dialysis patient needs support to establish that his efforts are indeed meaningful to family and friends (Gutch & Stoner, 1983). Some non-profit organizations like the KwaZulu-Natal Kidney Association further organize social functions at which patients and their families can meet other people with similar problems (KwaZulu-Natal Kidney Association, 2002).

#### **2.3.4 Socio-economic factors**

According to Watson (1979) and Walsh (1999), when one is nursing a haemodialysis patient, there are a number of factors to be considered. Socio-

economic and emotional concerns are amongst those factors. The therapeutic regimen may curtail his or her role in business. It may mean changing the occupation or giving up employment or at best, working only part-time unless home dialysis can be provided. The adjustments that have to be made may cause both social and economic changes for family members, especially if the patient has been the main source of income or is the mother. Special diet requirements and transport to and from the dialysis unit may incur problematic additional expense. Referring the patient to the social worker may be helpful (Walsh, 1999; Watson, 1979).

Unemployment is one of the stressors among chronic end-stage renal disease patients (Kimmel, 2000, and Kurtner, Brogan & Fielding, 1991). A study conducted by Kimmel (2000) in Washington, USA, revealed that a large percentage of the end-stage renal disease population is unemployed or unable to work, perhaps partly because of old age, medical illness and social disincentive. Unfortunately most chronic haemodialysis patients are unemployed, even if they and their doctors feel that they could manage to work. This was revealed in a study carried out by Kurtner et al (1991) on the employment status and ability to work amongst working-age chronic dialysis patients, in Atlanta, USA. It was found that only 11% of the total sample was employed, yet one third of the non-employed patients said they were able to work and most had made some efforts to get employment. Unemployment proved to be one of the discouraging factors amongst chronic haemodialysis patients, since it caused economic insecurity among most patients (Kurtner et al, 1991).

Patients from a low socio-economic background may fail to meet the financial demands of haemodialysis therapy. They might fail to attend therapy sessions because they live far from the hospital and cannot afford transport fare or might fail to adhere to dietary restrictions because they do not have enough money to buy food. The patient might be working fewer hours or be unemployed because of his or her debilitating condition (Kimmel, 2000). Most people on chronic haemodialysis therapy are poor and they cannot afford paying for transport and buying prescribed diet. Fortunately there are some non-profit organizations like the KwaZulu-Natal Kidney Association. It provides limited support like transport fare to needy patients mainly in public hospitals. This organization has moved a step further. If all goes well from July 2004 this association will on monthly basis provide supplementary food parcels to haemodialysis patients in order to curb the problem of diet non-adherence. The association is approached by the social workers whilst they are still processing the government grant (Telephonic Communication, KwaZulu-Natal Kidney Association, 2004).

Most patients suffering chronic renal failure opt for kidney transplants instead of remaining on haemodialysis, as a result in many countries the demand for kidneys outweighs the supply Ram (2002). This is considered as one of the causes of global trafficking of human organs. A field research into the global traffic of organ harvesting in many parts of the world was conducted by a team led by Scheper-Hughes at Berkeley. This was carried out in Argentina, Brazil, Cuba, India, Israel, Turkey, South Africa and United States of America (Ram, 2002). This research shows that abuses associated with kidney transplants occur all over the world in various forms. In some countries, including South Africa

organs are removed from dead bodies without the permission and knowledge of the deceased families (Ram, 2002).

According to Ram (2002), there is also a lot of exploitation of people in subordinate work positions since they are poor and they need money and some other benefits. The subordinate donors are promised secure employment, housing or other benefits for donating their kidneys. Zargooshi (1999) conducted two studies on 300 kidney vendors in India. A large percentage of vendors 65% reported that kidney sale caused negative effects on employment as 38% of donors lost their jobs because they were unable to resume work immediately after the operation. Many donors are afraid of going back to work fearing that they will injure the remaining kidney. Eighty per cent of the vendors stated that if given a chance to reverse their lives, they would not donate their kidneys and would also advise others against donating their kidneys (Ram, 2002). There are not many people who are eager to enlist for organ donation. This decreases the number of organ donors and it places a heavy load on the already overloaded haemodialysis units.

Haemodialysis is an expensive therapy. The high cost of haemodialysis therapy was illustrated by Williams (1998) when he stated that keeping one patient on haemodialysis therapy for one year means ten coronary artery bypass grafts foregone. It is said that one haemodialysis therapy session is estimated to cost approximately R600.00 (Personal communication, 2002). It is estimated that it costs the state approximately R60 000.00 per annum to treat one patient twice a week by haemodialysis in a state hospital. The private hospitals charge

approximately R1 000.00 per session, meaning the cost is approximately R104 000.00 per annum if the patient attends two sessions per week (Chaskalson & Madala, 1997).

The average cost of renal treatment in a South African government hospital is as follows:

- haemodialysis X 1 session	R600.00
- insertion of subclavian line	R600.00
- C.A.P.D. X 1 month	R5297.00
- Tenckhoff insertion	R2380.00
- Hourly P.D. Cycles	R2351.00
- Kidney transplant excluding theatre and medication	R10750.00

(Personal communication, 2002).

Because of the shortage of resources the government hospitals have come up with a set policy, which is a guideline in regard to the use of the dialysis resources. Only patients who suffer from acute renal failure that can be treated by renal dialysis are given automatic access to renal dialysis. Patients suffering from chronic renal failure which is not reversible are not automatically admitted to the programme (Chaskalson & Madala, 1997). According to the guidelines the primary requirement for admission of such persons to the dialysis programme is that the person must be eligible for a kidney transplant. This person will be provided with dialysis therapy until the kidney is found and a transplant is completed. The person must be free from significant vascular or cardiac diseases. This was among the reasons that ruled against Mr Thiagraj Soobramoney who had taken the Minister of Health KZN to the Constitutional Court of South Africa because the Renal Unit of the Addington hospital could

not accommodate him in the haemodialysis programme (Chaskalson & Madala, 1997).

### **2.3.5 Religious factors**

An anonymous author cited in Martsolf & Mickley (1998) stated that there is no profit in curing the body if in the process we destroy the soul. The holistic view acknowledges that people have inner experiences that are subjective mystical and religious that may affect health (Edlin & Golanty, 1992 cited in Patterson, 1998). A holistic health care involves willingness to use a wide range of interventions (Pietroni, 1987 cited in Patterson, 1998). Religious factors are among the several factors that give meaning and order to the cultural groups and these factors influence the care and health status of individuals, families, groups and institutions (Leninger, 1988 cited in Martsolf & Mickley, 1998). Andrew & Boyle (1999) suggested that the health care workers should ask patients or their relatives about their religious beliefs and priorities as that can promote mutual goals and priorities between the health worker and the patient. According to Omonzejele (2003) in Africa, medicine cannot be separated from religion because the patient's body, soul and spirit form an integrated whole. Furthermore findings from a study on spirituality and sexual orientation to mental well-being and functional status conducted by Coleman (2003) indicated that spirituality had a direct relationship with cognitive and social functioning.

Most religions offer support to their followers in times of difficulties and enables them to deal with stressful situations. Religions like Christianity, Islam and Judaism promote and support most measures that promote health and longevity

(Kaye, 1992, cited in Kjellstrand and Dossetor, 1992). According to Halm et al (2000) when a patient wants to talk to someone about his or her concerns, it indicates his or her socio cultural identity and spiritual needs. Operationally a spiritual need is any need related to a person's beliefs, practices, habits, norms, customs and rituals. Such needs are addressed by interventions that provide emotional support, which is also known as spiritual care (Halm et al, 2000). A project to determine the spiritual needs of patients in heart/lung conducted in the center at United Hospital in St Paul, Minn in 1996 revealed that the interventions used by the chaplains were very helpful. The interventions included reading scripture, holding hands, talking with patients, praying with or for the patients and administering sacraments (Halm et al, 2000).

According to Kaye (1992), cited in Kjellstrand and Dossetor (1992), within the views of Judaism, Christianity and Islam, an individual is not a solitary agent or an individual adrift in an ocean with only his resources and responsibilities but is tied, related, serving something wholly other outside of the person and bearing a special relation to him or her. As a result life has a unique value and significance. Judaism favours life so much that in order to promote health and save life, numerous religious observations may be disregarded. The followers of Jewish faith are also very supportive and caring towards the sick person. The ill person is obligated to receive treatment and every effort must be taken by those who care for him or her to either restore him or her to health or to alleviate suffering. In most instances, haemodialysis and other forms of life support are carried on until total collapse of bodily functions occurs.

### **2.3.6 Cultural factors**

According to Leninger (1988) cited in Martsolf & Mickley (1998) culture is a learned, shared, and transmitted value, beliefs, norms and life practices of a particular group that that guides thinking, decisions and actions in patterned ways. In some cultures a sick person's condition deteriorates and report in advanced stage whilst he or she is seeking treatment from the traditional healers. According to Ward-Collins (1998) a key component of successful interactions with culturally diverse patients is to avoid using stereotypical and judgemental words. For patient's advocacy, nurses should actively support autonomy, beneficence and human dignity. This also incorporates understanding of and sensitivity to cultural and generational differences (Ward-Collins, 1998). This is also supported by Saxena & Panhotra (2003) who stated that every culture and civilization throughout history has used a range of plants or plant derivatives for the prevention and treatment of diseases. According to the World Health Organisation and the African National Congress, people have the right of access to traditional practitioners as part of their cultural heritage and belief system (A National Health Plan for South Africa, 1994).

According to Tyler (1985), in the rural areas eighty percent (80%) of African people use traditional healers. They first consult their tribal healers and only if their methods do not succeed will they consult a doctor (Tyler, 1985). More than one third of the United States population uses some form of alternative medical therapy (Heyneman, 2003). A study on herbal products and conventional medicines used by community-residing older women, conducted by Yoon & Horne (2001) revealed that about 50% of these women over age 65years used

some herbal products and most of them do not discuss the use of herbal products with their health care provider. There is also a risk of interaction between herbal products and conventional medications (Yoon & Horne, 2001). In an African perspective according to Berends (1998), Western medicine contributes to the curing of the disease but has limitations since it cannot identify who caused the disease only identifies the cause. According to Thorpe (1993) the traditional healers play a very important role because they are considered as the focal point of communication between the community members and the spirits of the dead. A man's existence is determined by his relationship with the living and the deceased who are honoured as ancestors (Prinsloo, 2001). This combination of Western medicine and traditional remedies is explained by Manganyi (1974) as a sociocultural regression. It is related to the degree of stress experienced by the individual or the family due to competing world views. Urban Africans attend tribal doctors to either confirm or dispute the diagnosis of the physician (Tyler, 1985). According to Tyler (1985), in some tribal customs, diseases of the kidneys, bladder and sometimes the genitals are treated with dangerous concoctions of bark, poisonous plants and a long draught of African beer. Profound sweating, violent vomiting and purging follows. Such treatment has been implicated as one of the causes of end stage renal disease (chronic renal failure) in African patients. Most of these patients end up being listed for haemodialysis treatment but, according to Mongangane (1981), cited in Tyler (1985) eight percent (8%) of these patients abscond from chronic haemodialysis treatment and never return. The World Health Organisation emphasises the point that support of people who prefer to use traditional medicine does not mean that their access to Western medicine has to be affected (WHO, 2002).

### **2.3.7 Health Education**

Patients with chronic renal failure often fail to adhere to a prescribed diet and fluid regimen. This undermines the effectiveness of care and leads to unpredictable progression of the disease and greater likelihood of complications (Tsay, 2003). According to Martens (1998) there is little documented research about patient education, despite its accepted importance. A combination of both oral and written information is seen as ideal (Martens, 1998). This is supported by Inkosi Albert Luthuli Central Hospital Dietitians (2004) who provide patients with brochures and pamphlets to guide and remind them the instructions given. An ethnographic study of the process of medication discharge education (MDE) revealed that the manner in which the doctor or nurse teaches may have an influence on how the information is remembered. Many informants shared that it was important for them to feel that they were seen as individuals (Martens, 1998). Health educators, usually trained nurses, provide patients and their families with practical information (Tromp, van Dulmen and van Weert, 2004). The importance of health education by the haemodialysis team can never be overstressed. It forms the basis of the whole therapy to be rendered. The haemodialysis team educates the patient on several aspects of chronic renal failure and haemodialysis therapy like the diet which includes restriction of some or all of potassium, phosphorus, sodium and fluid intake (Durose, Holdsworth, Watson & Przygodzka, 2004). The usual renal diet should have low potassium, because high blood potassium is dangerous to renal patients and could result in cardiac arrest since it cannot be excreted in urine. According to Dunn (1993) all patients with renal disease must to a certain extent limit their intake of protein. Protein byproducts accumulate and elevate blood urea levels

which cause uremia in a patient with renal failure. This can cause poor appetite, nausea and vomiting, headaches, bad breath and confusion to the patient. Intake of high protein diet for example milk, eggs, lamb, legumes and organ meat should be restricted (Dunn, 1993). Haemodialysis patients are generally on salt and fluid restricted diets (Dunn, 1993). Low sodium or low salt diet, because high sodium diet leads to fluid retention and cause fluid overload, swelling of ankles and around the eyes, high blood pressure, shortness of breath and heart failure. According to Dunn (1993) most haemodialysis patients tend to have high potassium levels since their kidneys cannot regulate potassium and sodium excretion. They are taught to avoid for example high potassium foods like banana, chocolates, nuts and dried fruit. They are advised on foods to take and the amount to take plus they are taught how to prepare the food in order to lessen the content of potassium. Usually the vegetables are washed, cut into small pieces and boiled in lots of water and throwing the water away after cooking (KwaZulu-Natal Dietitians, 2001).

Attendance of therapy sessions is very important since missing even one session can lead to accumulation of fluids, metabolic waste products and death. It is important to make prior arrangement to make up for a missed session and for patients going on holiday (Personal communication, 2002). The patients are also taught about the importance of doing exercises 3 to 4 times a week for 10 to 20 minutes. Exercise helps one to maintain ones ideal body weight and reduces ones risk of having lifestyle diseases like diabetes (Inkosi Albert Luthuli Central Hospital Dietitians, 2004). The exercise can be in the form of walking up and down a flight of stairs, 50 to 100 skips with a skipping rope, gardening or

mowing the lawn or taking up gym. It is important that the patient first consult the doctor if he or she has had some heart problems (IALCH Dietitians, 2004).

The importance of interdisciplinary education was proven by the study conducted by Tromp et al, in Netherlands, in 1998. The study was on interdisciplinary preoperative education in cardiac surgery given by nurses, doctors and health educators. This was found to save time for both the health worker and the patient. The intervention gave positive results. The results showed that the information given by the different healthcare providers covered a wide range of topics and there were significant overlaps (Tromp et al, 2004).

There is also haemodialysis jargon, weight gain, thirst interventions, care of the vascular access, exercise, entertainment and attendance of therapy sessions. The team also highlights the importance of adherence to therapy since it is among the criteria for acceptance to kidney transplant waiting list (Personal communication, 2002).

#### **2.4 ADHERENCE VERSUS COMPLIANCE**

The concept adherence is increasingly used instead of compliance because it stresses the active, knowledgeable cooperation of a client with the treatment regimen. Failure to adhere to the treatment regimen constitutes non-adherence. Fawcett (1995) in Playle & Keeley (1998) describes the way in which the terminology has changed non-compliance to a preferred term non-adherence.

The treatment may include a special diet, a modification in activity (change in type such as special exercises or an increase or decrease in level), or medications

(Lewis & Collier, 1987).

The patients are expected to adhere to:

- the diet that is usually restricted such as, low sodium, low potassium, low protein and low phosphorus. Food is usually boiled but well balanced, with less fat content.
- fluid intake that is not more than 500ml per day and not to gain more than 1.5 to 2kg per day or not to gain 0.5 kg in two months (IALCH Dietitians, 2004).
- attendance of haemodialysis therapy sessions should be as prescribed, not a single session must be missed, since that can mean a difference between life and death. Prior arrangement can be made for patients who are on holidays to receive their therapy at the nearest haemodialysis centre.

Failure to adhere to the above constitutes non-adherence. Fawcett (1995) in Playle & Keeley (1998) describes the way in which the terminology has changed non-compliance to a preferred term non-adherence.

Compliance is the extent to which a person's behaviour coincides with, adheres or conforms to health advice (Waller & Altshuler, 1998). It refers to the cooperation of the client with the treatment regimen prescribed (Lewis & Collier, 1987). Compliance is the indication of trust by the client or patient in the supplied health care system.

To many authors the concept compliance is becoming more and more unsuitable in the modern patient centred, humanitarian approach to nursing because of the following reasons:

- It has an authoritarian connotation, described as paternalistic perception of the nurse patient relationship with the nurse viewed as an expert and the patient assuming a dependent or childlike role. The patient is required to submit to the wishes and instructions of the professional (Ryan, 1994; Lowry, 1998). This authoritarian approach clashes with the more active role proposed in the Primary Health Care philosophy.
- There is a value judgment inherent in the label of non-compliant. For example, the above perception suggests that the non-compliant patient is uncooperative, disobedient and deserves to be blamed (Marland, 1998; Lundgren, 1998).

According to Ekerling & Kohrs (1984) cited in Marland (1998), fifty percent (50%) of patients with chronic diseases do not comply. The non-compliance rates are lower for patients with acute diseases (Cameron & Gregor (1987) in Marland, 1998). Marland (1998) argues that there is no general agreement on specific criteria to define non-compliance, such as how often must the patient fail to take the correct dose to be labelled as non-compliant. Ward-Collins (1998) proposes the elimination of the word “non-compliance” from the professional vocabulary and considers a better, more respectful, therapeutic and less negative alternative word “non-adherence”.

A study of fluid compliance among haemodialysis patients conducted in Hong Kong revealed that haemodialysis patients who have comorbid diseases have greater daily interdialytic weight and thus more non-compliance (Pang et al,

2001). There was also a report of poorer outcomes for patients with long term dialysis and those with more severe comorbid conditions (Merkus et al, 2000 & Yavus et al, 2000 cited in Pang et al, 2001).

According to Tsay (2003) many end-stage renal disease patients have difficulty in complying with fluid restrictions. They need major lifestyle changes and self-efficacy to comply with treatment regimen of their chronic illness. A person with an increased perception of self efficacy is more likely to participate in self care activities and thus increase adherence to treatment regimen (Tsay, 2003).

## **2.5 CONCLUSION**

The conceptual framework was used to organize literature and to develop the questionnaire for data collection. It was again used to guide the data analysis and presentation. The following chapter deals with the research methodology used in the study. It gives information about the research design, setting, sample, the questionnaire and data collection.

## **CHAPTER 3: RESEARCH METHODOLOGY**

### **3.1 INTRODUCTION**

In this chapter the researcher gives an overview of the methodology used in this study, the research approach, data-collecting instrument and ethical considerations.

### **3.2 RESEARCH DESIGN**

A quantitative approach was used in this study because the researcher wanted to investigate the interrelationships of variables within the population. The questionnaire was used to gather the data. It was non-experimental research (Polit & Hungler, 1993).

### **3.3 THE SETTING AND POPULATION**

The setting was the Renal Units of two provincial and two private hospitals, in the Durban metropolitan region. In 1995 the population of Durban was estimated at 2.2 million Urban Strategy (1995) cited in McCarthy (1999). Durban is in the province of KwaZulu-Natal in South Africa. The population of KwaZulu-Natal was estimated at 8 417 021 in 1996 and 9 426 017 in 2001 (Census, 2001). The chosen hospitals are known teaching hospitals and they have a large number of patients who are on maintenance (chronic) haemodialysis. According to the records of the Renal Units, the number of haemodialysis patients fluctuates and this is because of newly diagnosed, transferred or even deceased patients. Table 3.1 illustrates the statistics of each Renal Unit in January 2002.

HOSPITAL	NUMBER OF PATIENTS ON HAEMODIALYSIS THERAPY	NUMBER OF HAEMODIALYSIS MACHINES
Provincial 1	Ninety (n = 90)	Twenty-five (n = 25)
Provincial 2	Thirty-eight (n = 38)	Eight (n = 8)
Private 1	Seventy-five (n = 75)	Eleven (n = 11)
Private 2	Twenty-eight (n = 28)	Eight (n = 8)
TOTAL (N)	TWO HUNDRED AND THIRTY ONE (N = 231)	FIFTY TWO (N = 52)

**Table 3.1: Statistics for January 2002 at each renal unit.**

All the machines were used during the morning sessions and a few would be free during the afternoon sessions. The haemodialysis unit in Provincial Hospital 1 had a staff of eight (8) nurses. Provincial Hospital 2 had nineteen (19) nurses. In Private Hospital 1 there were nine (9) staff members, including the technicians. Private Hospital 2 six (6) staff members including technicians. There was always a registered nurse who is trained and has experience in the unit (Personal communication 2002). The South African Renal Society (SARS) requires that the staff to patient ratio for chronic dialysis should be 1:4 (SARS, 1999). The information from the respondents' records revealed that some of the respondents were from as far as Newcastle, Ulundi and Port Shepstone. From Durban, where the haemodialysis centres are located, these places are approximately 350km, 250km and 110km respectively.

### **3.4 THE SAMPLE**

Sampling is the process of selecting a portion of the respondents from the entire

population in order to represent the whole population (Polit & Hungler, 1993). The sample in this study was patients with chronic renal failure who were undergoing haemodialysis therapy at the four (n = 4) hospitals. The respondents were identified in the Renal Units during their therapy sessions. Approximately twenty (n = 20) respondents were to be selected by purposive sampling from each of the four (n = 4) hospitals. They were also informed that they had the right to withdraw from the study at any time. Purposive and convenient sampling methods were used. Purposive sampling allowed the researcher to consciously select certain respondents to be included in a study for a specific purpose (Polit & Hungler, 1993). Convenient sampling because the respondents were conveniently present at the dialysis unit. The researcher did not target a particular gender, age or race, anyone who was willing and also meets the criteria was taken into this study. The researcher was allowed limited time to collect data. In order to save time the researcher had to eliminate persons who did not meet the criteria right from the beginning, for example some:

- haemodialysis units cater for both chronic and acute renal failure patients.
- patients had been on haemodialysis therapy for less than two months.
- patients had had kidney transplantation that had somehow failed.
- patients were younger than 18 years of age thus could not give consent.

#### INCLUSION CRITERIA

- All population groups and both genders were admitted in the study.
- The minimum age was eighteen years so that the respondents were able to give informed consent.
- The respondents should have been on chronic haemodialysis therapy for

a minimum of two months as the researcher was of the opinion that this was sufficient time to have experienced the therapy.

- No previous kidney transplantation.

### **3.5 THE QUESTIONNAIRE**

The questionnaire had both open-ended and closed-ended questions, and was developed by the researcher based on the conceptual framework and literature reviewed. This questionnaire had responses from which the respondents had to choose, and these responses were numerically coded to aid data analysis, nominal and ordinal measures were used to code the questions. A pilot study was carried out on five ( $n = 5$ ) respondents to test the questionnaire before it was issued to other respondents.

Each respondent was assigned a unique identity number and issued a questionnaire with a covering letter explaining the purpose of the study in detail, what the respondents were expected to do, their rights, the contact number and address of the researcher. The respondents were requested to complete the questionnaire in writing whilst undergoing haemodialysis therapy.

#### **3.5.1 Pilot study**

A pilot study is a trial run of a major study, it is done on a limited number of subjects from the same population in order to get information to improve the project and assess its feasibility (Polit & Hungler, 1993; Brink, 1996). A pilot study was carried out on five ( $n = 5$ ) respondents who matched the inclusion criteria, at one of the four chosen renal units. The respondents were given the questionnaire to complete and the researcher then analyzed their responses to

establish if there had been any difficulties in completing the tool. Findings from the pilot study demonstrated that the tool was easy to understand. There was no ambiguity or misunderstanding. No alterations were made to the questionnaire.

### **3.6 DATA COLLECTION METHOD**

Data collection is the process of selecting respondents and gathering data from them (Burns & Grove, 1997). The researcher requested permission from the management of the four (4) hospitals to conduct the study. Permission was granted and the researcher approached the Renal Units managers, explained the purpose of the research and asked for permission to talk to the staff in each unit in order to establish a rapport and to be introduced to the respondents. Thereafter the researcher explained the study and its purpose to the respondents. The researcher then asked for verbal consent from the respondents and the questionnaire was given to the respondents, filled in during dialysis and collected by the researcher at the end of the therapy session.

### **3.7 RELIABILITY AND VALIDITY**

Reliability and validity are closely related qualities which are both considered when selecting a research instrument.

#### **3.7.1 Reliability**

Reliability of an instrument refers to the degree of consistency or accuracy with which an instrument measures an attribute (Polit & Hungler, 1993). It is concerned with consistency, reliability and repeatability of the information

(Brink, 1999). In this study reliability of the questionnaire was done by issuing the same questionnaire twice on different occasions (test-retest reliability) to ten percent (11) of the total sample (118) respondents. The retest was part of the main study and was administered two weeks after the first test to determine the difference in responses given by the respondents, thus estimating consistency. The paired T-test was done and the results show that the difference was not significant. The mean difference was -1.36 and the t-value was relatively small, -0.883. See Table 3.2.

	Mean	N	Std. Deviation	Std. Error Mean
Pair TEST1	120.82	11	11.383	3.432
1 TEST2	122.18	11	9.163	2.763

	Paired Differences					t
				95% Confidence Interval of the Difference		
	Mean	Std. Deviation	Std. Error Mean	Lower	Upper	
Pair 1 TEST1-TEST2	-1.36	5.124	1.545	-4.81	2.08	.883

	Df	Sig. (2-tailed)
Pair 1 TEST1 – TEST2	10	.398

**Table 3.2: Paired T-Test**

### **3.7.2 Validity**

Validity refers to the degree to which the instrument measures what it is supposed to measure and whether the data collected is the true picture of what is happening (Couchman & Dawson, 1990). This is called the instrument validity (Brink, 1996). According to Brink (1996) there are four most common types of

validity and these are:

- Content validity which is an assessment of how well does the instrument represents all the different components of the variables to be measured.
- Face validity means that the instrument appears to measure what it is supposed to measure.
- Criterion validity the instrument is compared to another measure which is known to be valid.
- Construct validity is concerned with the question: What construct is the instrument actually measuring? (Polit & Hungler 1993; Brink, 1996).

For this study validity was measured by means of content validity. In this study, content validity was established by letting the questionnaire be analyzed by the research committee which involved the senior researchers (Burns, 1987; Polit & Hungler 1993). A few alterations were suggested and were subsequently done. Table 3.2 illustrates the checklist used to determine content validity.

Objectives	Factors	Questions measuring the objective in the questionnaire
OBJECTIVE 1	DEMOGRAPHIC DATA	
	Educational level	5.1
	Physical factors	2.1, 2.1a, 2.1b, 2.2, 2.2a, 2.2b, 2.3,a, 2.3b, 4.1.1b(1), 6.2b(3), 8.1b(2)
	Socio-economic status	3.1, 3.1a, 3.1b, 3.2, 3.2a, 3.2b, 3.3, 3.3a(1&2), 6.2a(1), 6.2b(1), 8.1, 8.1a (1,2,4&5), 8.1b(1)
	Health education	2.1(1), 4.3.1, 4.3.1b(1&4), 5.1, 5.1a(1,2&3), 5.1b(1,2&3), 6.1, 6.2, 7.1& 7.1a, 8.1, 8.1a(3)
OBJECTIVE 2	SOURCES OF SUPPORT	
	Interpersonal relationship	3.1b(3&4), 3.2b(2&3), 3.3a(1&2), 3.3b(3), 4.1.1, 4.1.1a, 4.1.1b, 4.2.1b(3), 4.3.1a(1&4), 5.1a(3), 6.2a(2), 8.1a(5), 8.1b(3&4)
	Religious factors	4.2.1, 4.2.1a, 4.2.1b(1&3)
	Cultural factors	4.3.1, 4.3.1a(1,2&3), 4.3.1b(2&3)

**Table 3.2: Checklist to determine content validity**

### 3.8 DATA ANALYSIS

Data were analyzed by means of a quantitative data computer statistical analyzing software package called Statistical Package for the Social Sciences (SPSS) version 11.5. The data was presented in graphs, frequencies, tables and cross tabulations. The findings will be discussed.

### **3.9 ETHICAL CONSIDERATIONS.**

Permission to conduct this study was granted by the Ethical Committee of the University of Natal, the Medical superintendents of the two provincial hospitals, the Management board of one of the private hospitals and the Head of the Renal Unit of another private hospital, which was participating in the study. Once permission was granted, the provincial hospital required that the researcher to sign an indemnity form before she commenced the study and this was done. The respondents were asked to give verbal consent after they had been given an explanation of the research and read the covering letter. Verbal consent had been agreed upon when the research proposal was accepted. The respondents were assured that their names would indeed never be mentioned in the study. Anonymity and confidentiality were maintained throughout the study. A unique code was assigned to each respondent and only the researcher had access to it during the duration of the study, as the information was never divulged to any person known or unknown to the respondents. The respondents were also informed that the information given during the study would be published but could not be traced back to them. They were also informed that they had the right to withdraw from the study at any time. The respondents volunteered to participate in the study. Some respondents were so eager to participate that the number exceeded the agreed upon twenty respondents per institution. It was difficult for the researcher to disappoint the respondents. That is how the researcher ended up with 118 respondents instead of 100 respondents.

### **3.10 CONCLUSION**

This chapter focused on the research methodology. The next chapter will look at

the presentation and interpretation of data.

## CHAPTER 4: DATA ANALYSIS

### 4.1 INTRODUCTION

The data in this study were analyzed by means of a computer software package called Statistical Package for the Social Sciences (SPSS) Version 11.5. The results were interpreted according to the sections of the questionnaire, namely demographics, physical factors, socioeconomic factors, psychosocial factors and adherence. The sampled population totalled one hundred and eighteen (n = 118) respondents.

### 4.2 DEMOGRAPHIC INFORMATION

#### 4.2.1 Personal information

Seven percent (8) of the respondents were aged 18 – 25 years. Forty three percent (51) were aged 26 – 45 years. The next age group of 46 – 60 years made up 39% (46) and respondents aged 60 years and over formed 11% (13). Thus the majority of the respondents were in the second group, 43.2% (51) being between 26 and 45 years. This information is illustrated in Table 4.1.

Male (men) respondents formed a bigger group, 60% (71), of the respondents as compared to females (women) who represented 40% (47) of the group. Sixty eight percent (80) of the respondents were unemployed, with 23% (27) being employed. Nine percent (10) of the respondents were self employed and 1% (1) of the respondents did not respond to this question. Most respondents were probably unemployed because of illness or loss of work because they constantly needed to attend haemodialysis therapy.

Forty eight percent (57) of the respondents had a gross annual income that was below R15 000.00, followed by 36% (43) of the respondents who received an income above R29 000.00 per annum. Those who made between R25 000.00 – R29 000.00 per annum represented 4% (5) of the group and those who made between R15 000.00 - R20 000.00 represented 3% (4). Two percent (2) made between R20 000.00 - R25 000.00 per annum. Five percent (6) of the respondents did not respond to this question.

Sixty percent (71) of the respondents owned the houses they lived in and 39% (46) were renting. One percent (1) of these respondents did not respond to this question. Most of the respondents, 31% (36) had more than three dependants, 29% (34) had no dependants, 18% (21) had two dependants and 9% (11) had one dependant each.

Most respondents 58% (68) were married, 24% (28) were single and 9% (11) were widowed. Divorcees made up a group of 6% (8) of the respondents, 2% (2) were cohabitating and 1% (1) separated from a partner. The majority of these respondents had partners to offer them support and encouragement.

The majority of the respondents, 63% (74) went as far as secondary education and 27% (32) had tertiary education. Respondents with primary education made up 9% (10) and 2% (2) had no education at all. On the whole the majority of these respondents were mainly made up of people with higher education, thus their understanding of the instructions and adherence could have been easier than for people with lower education.

When considering racial distribution, Africans and Asians represented 44% (52) of the respondents each, followed by Whites at 10% (12) and Coloureds representing 1% (1). There was 1% (1) respondent who classified the racial group as being “other” but did not specify the group. The risk factors might be racially associated.

Christianity was the most dominant religion, representing 55% (69) of the respondents, with followers of Hindu faith at 21% (25) and followers of the Islamic faith making up 12% (14) of the respondents. Six percent (7) of the respondents followed the traditional African religion and 3% (3) followed other religions which they did not specify. The large percentage of Christians might reflect the fact that Christians form the majority of South African general population. There was also no significant difference between adherence of respondents who are treated in private sector and those treated at the public hospitals. The above information is supported by Table 4.1.

DEMOGRAPHIC	PRIVATE (%)	PUBLIC (%)	NUMBER (%)
1.1 AGE (in years): 18 – 25 26 – 45 46 – 60 Above 60	4 (3.4%) 19 (16.1%) 21 (17.8%) 10 (8.5%)	4 (3.4%) 32 (27.1%) 25 (21.2%) 3 (2.5%)	8 (6.8%) 51 (43.2%) 46 (39%) 13 (11%)
1.2 GENDER: Female Male	19 (16.1%) 35 (29.6%)	28 (23.7%) 36 (30.5%)	47 (39.8%) 71 (60.2%)
1.3 MARITAL STATUS: Single Married Cohabitation Divorced and Separated Widowed	7 (5.9%) 36 (30.5%) 0 3 (2.5%) 8 (6.8%)	21 (17.8%) 32 (27.1%) 2 (1.7%) 6 (5.1%) 3 (2.5%)	28 (23.7%) 68 (57.6%) 2 (1.7%) 9 (7.6%) 11 (9.3%)
1.4 HIGHEST EDUCATIONAL LEVEL: Tertiary Secondary Primary None	14 (11.9%) 31 (26.3%) 8 (6.8%) 1 (0.8%)	18 (15.3%) 43 (36.4%) 2 (1.7%) 1 (0.8%)	32 (27.1%) 74 (62.7%) 10 (8.5%) 2 (1.7%)
1.5 EMPLOYMENT: Employed Self employed Unemployed Missing	15 (12.7%) 2 (1.7%) 36 (30.5%) 1 (0.8%)	12 (10.2%) 8 (6.8%) 44 (37.3%) 0	27 (22.9%) 10 (8.5%) 80 (67.8%) 1 (0.8%)
1.6 ANNUAL GROSS INCOME: Below R15 000 R15 001 – R20 000 R20 001 – R25 000 R25 001 – R29 000 Above R29 000 Missing	18 (15.3%) 1 (0.8%) 2 (1.7%) 1 (0.8%) 30 (25.4%) 2 (1.7%)	40 (33.9%) 4 (3.4%) 0 4 (3.4%) 13 (11%) 3 (2.5%)	58 (49.2%) 5 (4.2%) 2 (1.7%) 5 (4.2%) 43 (36.4%) 5 (4.2%)
1.7 NUMBER OF DEPENDANTS: None One Two Three Above three	13 (11%) 3 (2.5%) 11 (9.3%) 13 (11%) 14 (11.9%)	21 (17.8%) 8 (6.8%) 10 (8.5%) 3 (2.5%) 22 (18.6%)	34 (28.8%) 11 (9.3%) 21 (17.8%) 16 (13.6%) 36 (30.5%)
1.8 ACCOMODATION: Rented Owned	18 (15.3%) 35 (29.7%)	28 (23.7%) 36 (30.5%)	46 (39%) 71 (60.2%) 1 (0.8%)
1.9 RACIAL BACKGROUND: African Asian and Coloured White	20 (16.9%) 26 (22%) 8 (6.8%)	32 (27.1%) 27 (22.9%) 4 (3.6%)	52 (44.1%) 53 (44.9%) 12 (10.2%)
1.10 RELIGIOUS BELIEF: African Christian Hindu Islam Other	1 (0.8%) 30 (25.4%) 13 (11%) 9 (9.3%) 1 (0.8%)	6 (5.1%) 39 (33.1%) 12 (10.2%) 5 (4.2%) 2 (1.7%)	7 (5.9%) 69 (58.5%) 25 (21.2%) 14 (11.9%) 3 (2.5%)

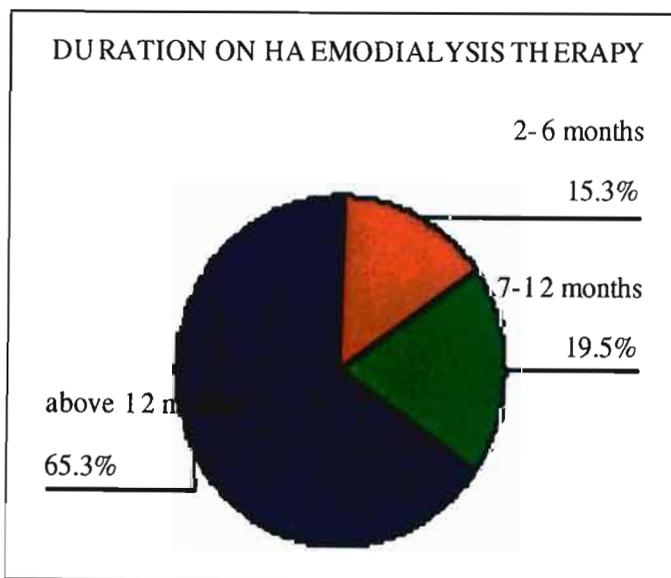
**Table 4.1: Demographic Information**

#### **4.2.2 Comorbid diseases**

The majority of the respondents suffered from other medical conditions. Fifty seven percent (67) suffered from Hypertension, whereas 16% (19) had other diseases for example Gout and Arthritis. Fifteen percent (18) had Diabetes Mellitus and 1% (1) had Systemic Lupus Erythematosus. Forty eight percent (57) of the respondents were taking antihypertensive drugs, 33% (45) of the respondents were on other medicines, such as corticosteroids and anti-inflammatory medicines. Thirteen percent (15) of the respondents were on hypoglycaemic medicines and 1% (1) was on immunosuppressive medicines.

#### **4.2.3 Duration on haemodialysis therapy**

The majority of the respondents, that is 65% (77), had been on haemodialysis therapy for a period of longer than twelve months. Twenty percent (23) had been on therapy from 7 - 12 months and 15% (18) had been on therapy for 2 - 6 months only. This is illustrated in Figure 4.1.



**Figure 4.1: Duration on haemodialysis therapy**

#### **4.2.4 Health education**

The respondents were asked whether they understood the instructions given during health education. Ninety nine percent (117) said “yes” and 1% (1) of the respondents said “no”. Those who said “yes” were further asked what made them understand the information given. Fifty seven percent (67) were given pamphlets to read at home, 40% (47) were given health education slowly and 17% (20) were allowed to do things their own way, the way they understood them. Other reasons were as follows: 1% (1) of the respondents had watched a video on haemodialysis therapy, another respondent 1% (1), stated that the haemodialysis team was helpful, whereas 2% (2) only responded under “other” but did not give specific reasons. The only respondent 1% (1) who did not understand the instructions said the reason was that too much information was given at the same time. The majority of the respondents were given pamphlets to read at home and reinforced the health education given by the haemodialysis team. The respondents could always refer back to the pamphlets if they wanted to check some facts or forgotten something.

#### **4.3 FACTORS AFFECTING HAEMODIALYSIS ADHERENCE**

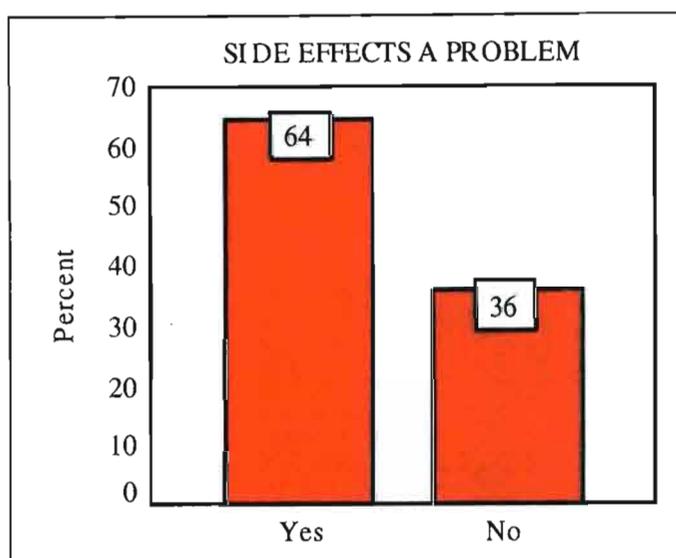
Descriptive statistics were used to analyze this data according to the physical factors, socioeconomic factors, psychosocial factors, religious factors, cultural factors, health education and adherence.

### **4.3.1 Physical Factors**

#### **4.3.1.1 Side effects**

The respondents were asked if they were troubled by the side effects of haemodialysis therapy. The majority of the respondents, 64% (76) said that they were, as opposed to 36% (42) who said that they could manage the side effects.

This is illustrated in Figure 4.2.



**Figure 4.2: Side effects were a problem**

Those who had problems were further asked to state the most troublesome side effects. Tiredness was chosen as the most common problem at 36% (42) and was followed by cramps at 23% (27). Constipation was rated third at 10% (11) and nausea and vomiting was fourth at 9% (10). Other problems were lack of libido, and itching, both representing 3% (4) of the responses. Only 1% (1) of the respondents was troubled by headache. The respondents who were not troubled by the side effects were asked how they managed to them. Nineteen percent (22)

of those respondents said they stick to the instructions given by the haemodialysis team and 15% (18) said they just ignored the side effects.

#### **4.3.1.2 Body image**

The respondents were asked if they were comfortable with their body image. Seventy percent (91) of the respondents were comfortable and 23% (27) were not comfortable. They were further asked to state what made them comfortable or not. Forty three percent (51) were comfortable because they were made aware of the changes in their appearance before they happened and 29% (34) had seen people with the same problem before. Amongst those who were uncomfortable with their body image 12% (14) felt like that because other people were ignorant about the disease, chronic renal failure and haemodialysis therapy. Nine percent (10) said that other people thought that the condition was infectious.

#### **4.3.1.3 Activities for relaxation**

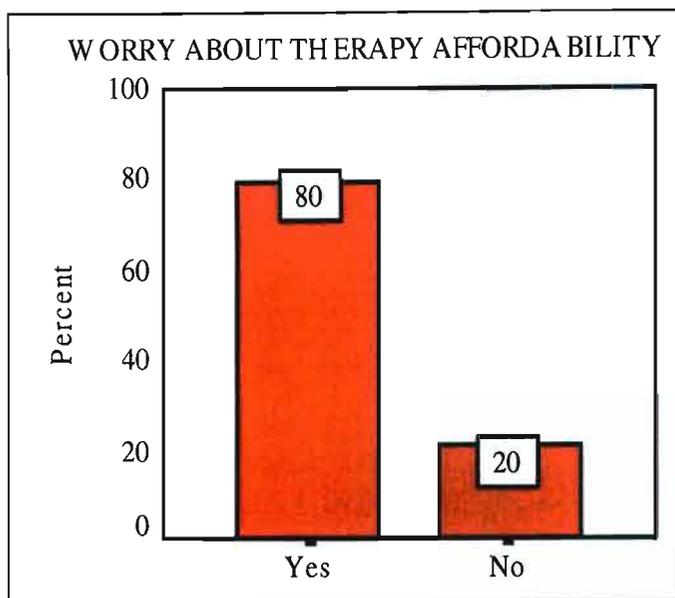
The respondents were asked if they were doing any activities for relaxation. Eighty three percent (98) said “yes” and 16% (19) said “no”. Those who were doing some activities were further asked to state the ones they preferred. Forty four percent (52) of the respondents preferred listening to music and 28% (33) preferred exercises. Those who were not doing any activities were also asked to give their reasons. Eleven percent (13) of the respondents said they were always tired and 3% (4) were not interested.

### **4.3.2 Socio-economic Factors**

In this category future affordability of therapy and decrease in gross income was considered.

#### **4.3.2.1 Affordability of treatment**

The respondents were asked if they were ever worried that someday they might not be able to afford to pay for the therapy. Seventy nine percent (93) of the respondents had this worry but 20% percent (24) had no such worry. This is illustrated in Figure 4.3. One percent (1) of the respondents did not respond to this question.



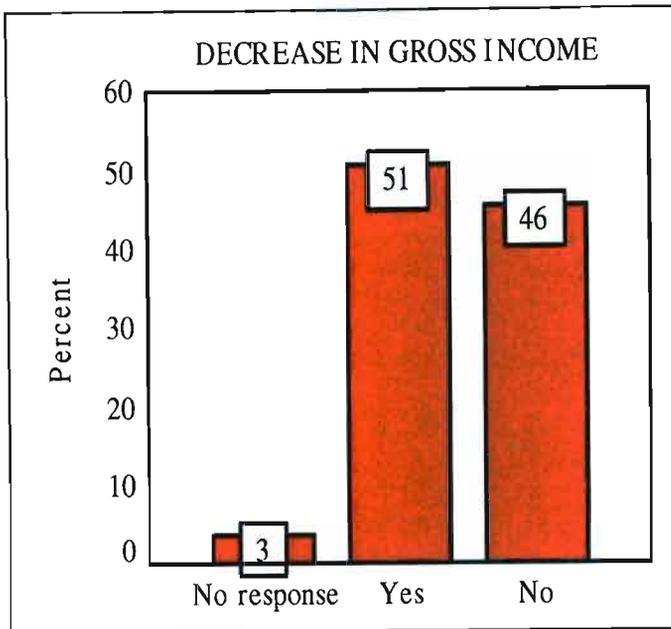
**Figure 4.3: Worry about affordability of therapy in the future.**

Amongst those who had this worry, 37% (44) of the respondents stated that inadequate Medical Aid was the main cause of the worry, with loss of their jobs representing 11% (13) of the respondents. Eleven percent (13) of those who had no worry were convinced that their families would definitely pay for therapy

should it be necessary, and 3% (4) of the respondents had health insurance policies which would then pay for the therapy.

#### **4.3.2.2 Decrease in annual gross income**

Respondents were asked whether there was any decrease in their gross annual income since they had started haemodialysis therapy. Fifty percent (59) reported a decrease in income and 46% (54) reported no decrease. Amongst the causes of decreased income, 14% (16) of the respondents mentioned that they had reduced their number of working hours and 3% (4) of the respondents stated that they were often booked off sick. Of those who said they had no decrease in income, 10% (12), stated that they had made provision for chronic illness and 6% (7) had arranged to have therapy sessions after work. The respondents were further asked if they regretted the decrease in income. Thirty six percent (42) of the respondents said “yes” and 23% (27) said “no”. Amongst the reasons that were given by those who regretted this reduction in gross annual income, 22% (26) mentioned that it had resulted in a change in lifestyle and 11% (13) stated that the lower income had had a bad impact on their families. Those who had no regrets, that is 11% (13), were grateful that haemodialysis therapy gave them another chance to live and 9% (11) stated that their families were satisfied that they were alive and did not worry about financial changes. Figure 4.4 illustrates the percentages of the respondents who had a decrease in their gross income, respondents who had no decrease and those who did not respond to the question.



**Figure 4.4: Decrease in annual gross income**

### **4.3.3 Psychosocial Factors**

In this category of data interpersonal factors were considered.

#### **4.3.3.1 Interpersonal factors**

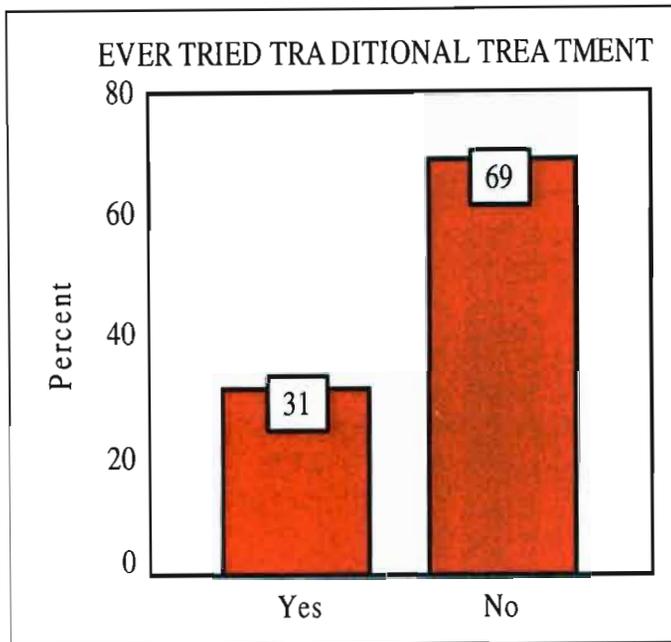
The respondents were asked if they were able to find time to be with their families and friends. Eighty nine percent (105) of the respondents said “yes” and 10% (11) said “no”. Those who said “yes” were asked how they managed to find time to spend with their families and friends. Forty five percent (53) of the respondents said they always tried to do things together with their families and friends and 42% (50) of the respondents said they always spent therapy free days with families and friends. The respondents who said “no” were asked what hindered them from finding time to spend with families and friends. Six percent (7) of the respondents stated that all available time was taken up by therapy and 4% (5) of the respondents said that they were always tired and drowsy.

#### **4.3.4 Religious Factors**

The respondents were asked if they thought their efforts were in vain. Eighty three percent (98) of the respondents thought that their efforts were not in vain, whereas 14% (17) thought that their efforts were indeed in vain. Thirty seven percent (44) of the respondents strongly believed that their prayers to get kidney donors would soon be answered. Twenty five percent (29) of the respondents were offered support in the form of prayers by families and religious groups. The respondents who thought that their efforts were in vain, were asked what made them think so and 7% (8) of them said they had no hope of getting a donor because there was a long waiting list. Five percent (6) also stated they had been praying for a long time for donors but their prayers had not been answered.

#### **4.3.5. Cultural Factors**

The respondents were asked whether they had ever tried traditional treatment. Thirty one percent (37) of the respondents said “yes”. Sixty nine percent (81) of the respondents had never tried traditional treatment. This is illustrated in Figure 4.5. Their reasons were as follows: Thirty one percent (36) of the respondents who had never tried traditional healers said they had no faith in them and 17% (20) of these respondents had never been exposed to traditional healers. Eighteen percent (21) of the respondents who had tried traditional healers stated that when one is desperate one tries anything that is available and 8% (9) of the respondents said that traditional treatment was part of their cultural heritage.



**Figure 4.5: Ever tried traditional treatment**

#### **4.4 ADHERENCE**

Case by case analysis of adherence was done based on predetermined criteria as follows:

An adherent respondent is a respondent who:

- answered “yes” to the question on whether he or she managed to adhere to the prescribed diet and

- listed all the following:

- Low sodium (salt)
- Low potassium
- Low protein

A fluid adherent respondent is the one who:

- has not taken in more than the prescribed 500ml fluid per day unless otherwise instructed by the haemodialysis team member.

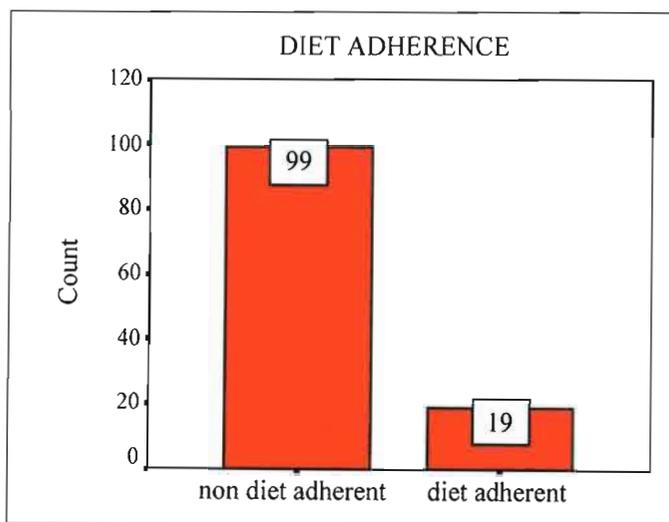
- has not gained more than 0.5kg in two months.

A respondent who is attendance adherent is the one who:

- has never missed haemodialysis therapy sessions even on a single occasion.

#### **4.4.1 Diet Adherence**

To be diet adherent a respondent had to list low sodium, low potassium and low protein diet in total. If the respondent mentioned only one or two of the factors he or she was considered non adherent. The findings according to indicators revealed that only 16.1% (19) out of 118 respondents were diet adherent. This is illustrated in Figure 4.6.



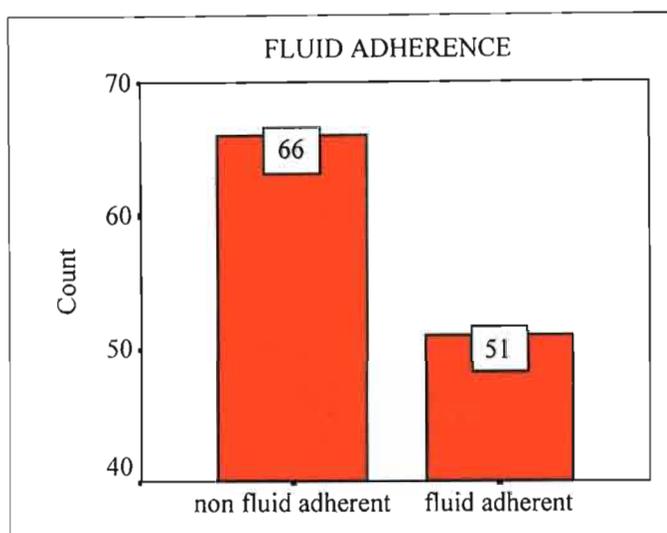
**Figure 4.6: Diet adherence**

#### **4.4.2 Fluid Adherence**

To be adherent to fluid intake a respondent had to not have taken in more than 500ml per day unless instructed otherwise and not gained more than 0.5kg in two months.

The respondents were asked to write down their average daily fluid intake. Fifty three percent (62) of the respondents indicated an average of 251ml - 500ml per

day and 29% (33) of them indicated 751ml – 1000ml per day. The respondents were further asked to indicate their average weight gain over past two months. Thirty three percent (39) of the respondents indicated that they had gained more than 0.5kg and 32% (38) had gained less than 0.5kg. According to indicators, only 43.6% (51) out of 117 respondents were found to be fluid adherent. This is illustrated in Figure 4.7.



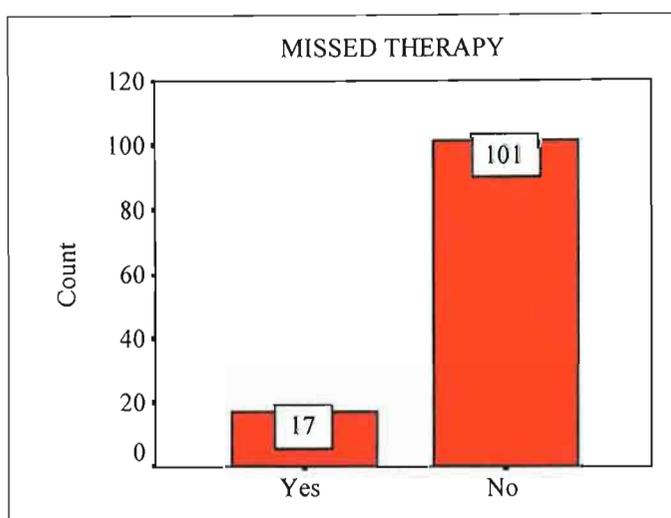
**Figure 4.7: Fluid adherence**

#### **4.4.3 Adherence and Attendance**

To be adherent to attendance of haemodialysis therapy sessions the respondent should attend all sessions without missing even a single one.

The respondents were asked if they had ever missed haemodialysis therapy sessions. Eighty six percent (101) said “no” and 14% (17) said “yes”. The 101 respondents who had never missed therapy sessions were further asked how they managed to attend all therapy sessions. Thirty five percent (41) of the respondents had their own transport, 31% (36) were driven to and from the therapy centre and 8% (9) of them walked to and from the dialysis centres since

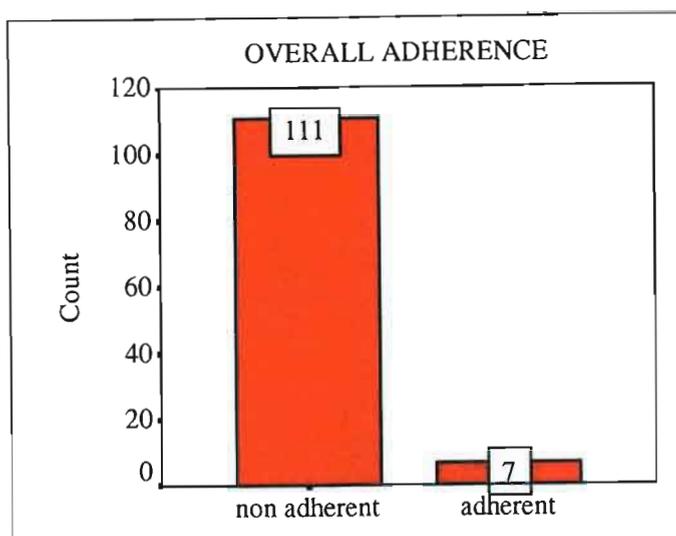
they were close to their residential areas. Amongst the respondents who had missed therapy sessions, 4% (5) of them said they were on holiday and had not made prior arrangements for haemodialysis therapy. Three percent (4) of the respondents said they lived far from the therapy centre. The figure 4.8 illustrates the percentages of the respondents who had missed therapy sessions and those who had never missed therapy sessions.



**Figure 4.8: Missed haemodialysis therapy sessions**

#### **4.4.4 OVERALL ADHERENCE**

Overall adherence includes all three factors that were selected in this study as indicators of adherence. The overall adherence was then analyzed but only 7/118 met overall adherence criteria. This is illustrated in Figure 4.9. However, 7 is too little a number for the calculation of chi-square test. Therefore each adherent variable was considered so that factors affecting it could be considered.



**Figure 4.9: Overall adherence**

#### **4.4.5 Adherence and Factors Affecting Adherence**

##### **4.4.5.1 Adherence and Demographic information**

Only 19 (16.1%) respondents were diet adherent. There were 8 respondents who were aged between 18-25, only 25% (2) of them were diet adherent. The majority of respondents, 51 were aged between 26-45 years. Only 19.6% (10) were diet adherent. Forty six respondents were aged between 46-60, only 10.9% (5) were diet adherent. Out of 13 respondents aged above 60 years, only 15.2% (2) were diet adherent. The Pearson Chi-Square revealed .600, indicating that there is no significant relationship between diet adherence and age of the respondent.

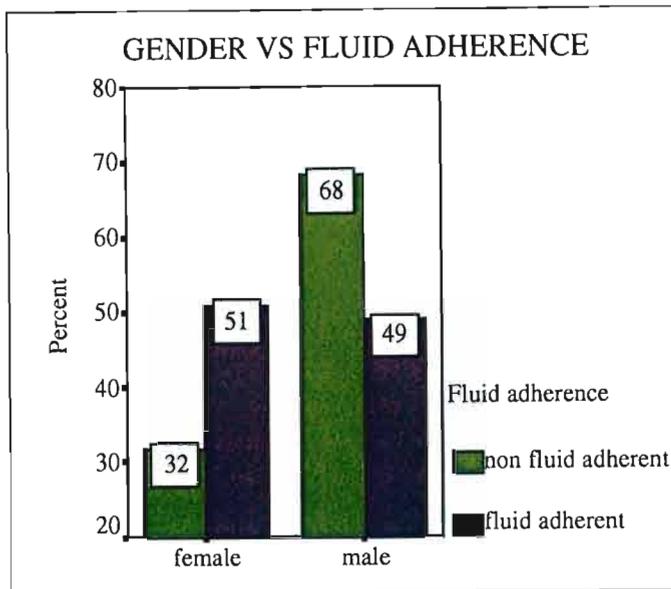
Out of 117 respondents only 43.6% (51) were fluid adherent. Those aged between 26-45 years were the most adherent to fluid restrictions at 50% (25). The Pearson Chi-square showed .690 which is not significant. Thus no relationship exists between the age of the respondent and fluid adherence. Out of 118 respondents 85.6% (101) of them had never missed haemodialysis therapy sessions. Those aged above 60 years were 13 and had a highest attendance percentage of 92.3% (12). They were followed by ages 46-60 with 89.1% (41)

out of 46 respondents. There were 8 respondents aged 18-25 and they got 87.5% (7), lowest attendance was by the ages 26-45, they were 51 and 80.4% (41) had never missed therapy sessions. The Pearson Chi-Square showed .555, indicating that there is no significant relationship between age of the respondent and missing therapy sessions.

Cross tabulation was done on diet adherence and gender. The findings were 16.9% (12) males were diet adherent as compared to 14.9% (7) females. The Fisher's Exact test showed 1.000, which is not significant, thus no relationship exists between gender and diet adherence. On fluid adherence females scored 55.3% (26) thus were more adherent to fluid therapy than males at 35.7% (25). The Fisher's exact test showed .039, which is significant and thus there is a relationship between gender and fluid adherence. This is illustrated in Table 4.2. and Figure 4.10.

Chi-Square Test					
	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Fisher's Exact Test				.039	.028

**Table 4.2: Gender and Fluid Adherence**



**Figure 4.10: Gender and fluid adherence**

Out of 71 male respondents 88.7% (63) of them had never missed therapy sessions. Only 80.9% (38) females had never missed therapy sessions. The Fisher's exact test showed .287, indicating that there is no significant relationship between missing therapy sessions and gender. Diet adherence of the respondents was further matched with marital status. It was found that cohabitating respondents had the highest percentage 50% (1) on diet adherence, but the results could not be conclusive since there were only two respondents who were cohabitating. The widowed respondents were considered as the most adherent 27.3% (3). The least adherent to diet were the single respondents at 14.3% (4). The Pearson Chi-Square showed .478 which is not significant thus no relationship exists between diet adherence and marital status. Marital status was further matched with fluid adherence. Widowed respondents were the most adherent at 63.7% (7). Married respondents were the least adherent at 38.8% (26). The Pearson's Chi-square showed .376, which is not significant, indicating that there is no significant relationship between marital status and fluid

adherence. Marital status was matched with missing therapy sessions. Cohabiting (2) and separated (2) respondents scored 100% each. Their sum total was too small to be considered. Therefore widowed respondents 90.9% (10) were considered as the most adherent to attendance of therapy sessions. The Pearson Chi-Square showed .852, which is not significant, thus there is no relationship between marital status and missing therapy sessions. The married respondents could have been thought to be the most adherent because of the support which is assumed they get from their partners.

Diet adherence was matched with educational level. Respondents with secondary school level 18.9% (14) were the most adherent to diet, the least adherent were those with primary education at 10% (1). It could have been expected that respondents with tertiary education would have been the most adherent since they are considered to understand health education and instructions easily and are supposed to be having more insight and knowledge about their condition and its treatment. The Pearson Chi-Square showed .705 which is not significant thus no relationship exists between educational level and diet adherence. Educational level was matched with fluid adherence, respondents with no education got 100% (2). Their sum total was too small. Respondents with tertiary education 46.9% (15) were considered as the most fluid adherent. The Pearson Chi-square showed .397, not significant thus no relationship exists between fluid adherence and educational level. Educational level was further matched with missing therapy sessions. Respondents with no education 100% (2) had the highest percentage, but they were too small a number to be considered. Respondents with tertiary education 96.9% (31) were considered as the most adherent to attendance of

therapy sessions. The Pearson Chi-Square showed .119, which is not significant thus no relationship exists between missing therapy sessions and level of education.

The employed respondents 25.9% (7) were the most adherent to diet and the self employed 10% (1) were the least adherent to diet. The Pearson Chi-Square showed .219, which is not significant thus no relationship exists between diet adherence and employment status. Employment was matched with fluid adherence. Again the employed respondents 48.1% (13) were the most adherent. The Pearson Chi-Square showed .868, not significant meaning that there is no significant relationship between fluid adherence and employment status. Missed therapy sessions was matched with employment. The self employed respondents 100% (10) were the most adherent to attendance of therapy sessions. It seems they organise their time well so that their work does not compromise time for therapy sessions. The unemployed 86.3% (69) were the second. It is assumed that they have all the time to attend therapy sessions, but problems like lack of transport fare might prevent them from attending therapy sessions. The Pearson Chi-Square showed .220, not significant thus no relationship exists between missing therapy sessions and employment status.

Out of 58 respondents who were getting a gross annual income less than R15 000 per annum 17.2% (10) of them were diet adherent and theirs was the highest score. The next group was made up of respondents getting the gross annual income above R29 000. They scored 16.3% (7) on diet adherence. The Pearson Chi-Square test showed .483 and was not significant thus no

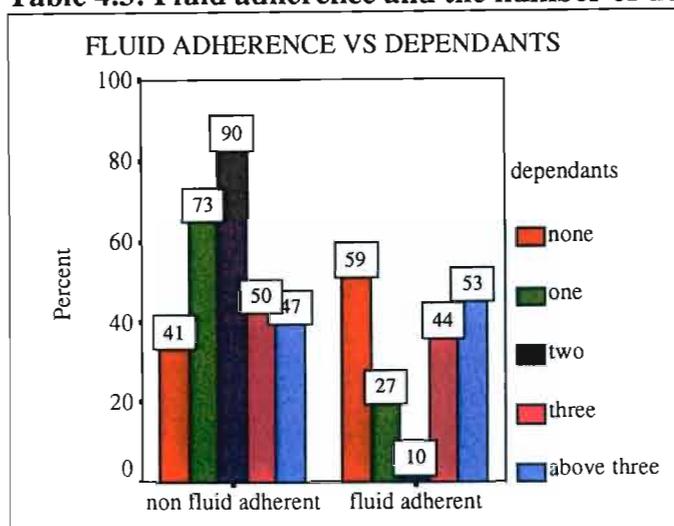
relationship exists between diet adherence and gross annual income. Gross annual income was matched with fluid adherence and 53.4% (31) of the respondents getting income below R15 000 were fluid adherent. The next group was made up of respondents above R29 000 per annum and it scored 34.9% (15) for fluid adherence. The Pearson Chi-Square showed .372, not significant thus no relationship exists between fluid adherence and gross annual income. Gross annual income was further matched with missing haemodialysis therapy sessions. Those getting an income between R25 001-R29 000 were the most adherent to attendance of therapy sessions and they scored 100% (5). Those getting an income above R29 000 were second and they scored 86% (37). The Pearson Chi-Square showed .913, not significant. Thus there exists no relationship between the gross annual income and missing haemodialysis therapy sessions.

Diet adherence was matched with the number of dependants for each respondent. Respondents with one dependant each were the most adherent 27.3% (3), they were followed by those with two dependants at 19% (4). The Pearson Chi-Square showed .829, not significant. Fluid adherence was matched with the number of dependants for each respondent. Respondents with no dependants were the most adherent, they scored 58.8% (20). They were followed by those with above three dependants at 52.8% (19). The Pearson Chi-Square revealed .004, which is significant. There is a relationship between the number of dependants and fluid adherence although this seems to be by chance. This is illustrated in Table 4.3 and Figure 4.11.

### Chi-Square Test

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	15.605	4	.004

**Table 4.3: Fluid adherence and the number of dependants**



**Figure 4.11: Fluid adherence and the number of dependants**

Missing haemodialysis therapy sessions was matched with the number of dependants. Respondents with three dependants each scored 100% (16) and they were followed by respondents with one dependant each scoring 90.9% (10). The Pearson Chi-Square results were .386 and not significant. Thus no relationship exists between missing haemodialysis therapy and the number of dependants.

Diet adherence was matched with accommodation. The respondents who lived in rented accommodation were the most diet adherent at 17.4% (8). Those who owned their accommodation scored 14.1% (10). Fisher's Exact Test results showed .794, not significant thus no relationship exists between diet adherence and accommodation. The most fluid adherent respondents were those renting the accommodation. They scored 45.7% (21) as compared to those who owning

accommodation at 42.9% (30). Fisher's Exact Test results .849, not significant. There is no relationship between fluid adherence and accommodation. The respondents who owned accommodation scored the highest on attendance of haemodialysis therapy sessions. They got 85.9% (61) and those who rented accommodation got 84.8% (39). Fisher's Exact Test results 1.000, not significant. Thus there exists no relationship between owning or renting accommodation and missing haemodialysis therapy.

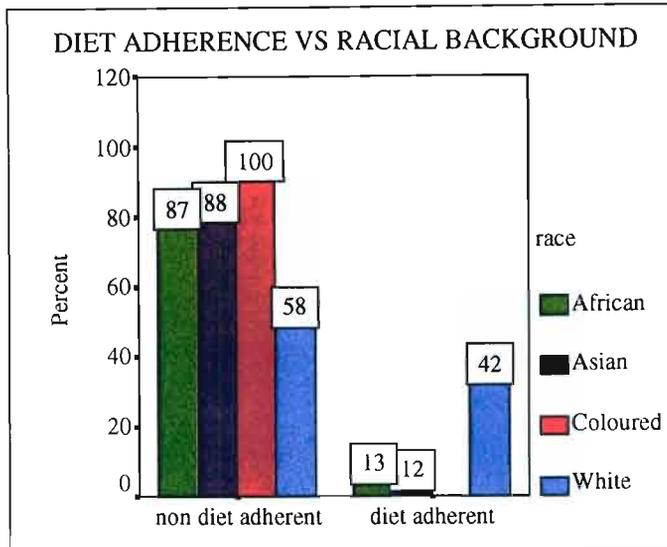
Diet adherence was matched with the respondent's religion. Those who followed other (not specified) religions were the most adherent at 33.3% (1), followed by those following African religion scoring 28.6% (2). Pearson Chi-Square results .681, no significant relationship exists between diet adherence and religion. Respondents following Christianity were the most fluid adherent at 47.8% (33), they were followed by the followers of Islamic religion scoring 42.9% (6). Pearson Chi-Square results .802, no significant relationship exists between fluid adherence and religion. Followers of Hindu religion at 100% (25) and other religions 100% (3) were the most adherent with attendance of therapy sessions. They were followed by the followers of African religion who scored 85.7% (6). Pearson Chi-Square results were .112, no significant relationship exists between missing haemodialysis therapy sessions and religion.

The racial background of respondents was matched with diet adherence. The Whites were the most diet adherent, they scored 41.7% (5), followed by Africans at 13.5% (7). Pearson Chi-Square results .027, significant. This is illustrated in Table 4.4 and Figure 4.2.

### Chi-Square Test

	Value	df	Asmp. Sig. (2-sided)
Pearson Chi-Square	7.188	2	.027

**Table 4.4: Diet adherence and racial background**



**Fig 4.12: Diet adherence and racial background**

The Africans at 53.8% (28) were the most fluid adherent, they were followed by the Whites at 41.7% (5). Pearson Chi-Square results were .140, no significant relationship exists between fluid adherence and racial background. Racial background was further matched with attendance of haemodialysis therapy sessions. Asians and Coloureds scored 90.6% (46) and were followed by Africans at 82.7% (43). Pearson Chi-Square results .288, no significant relationship exists between attendance of therapy sessions and racial background of the respondent.

Comorbid diseases were matched with diet adherence, fluid adherence and attendance of haemodialysis therapy sessions. Only 4.3% (1) respondent with Diabetes Mellitus was diet adherent. The Fisher's Exact Test showed .117, no

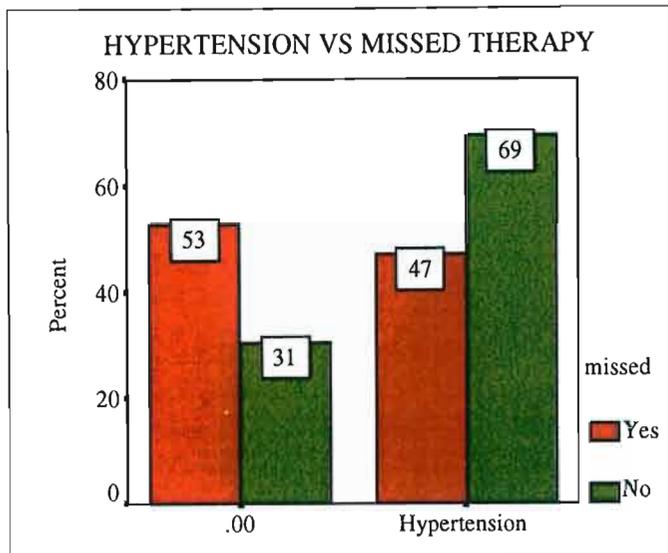
significant relationship exists between diet adherence and Diabetes Mellitus. There were 30.4% (7) fluid adherent respondents with Diabetes Mellitus. The Fisher's Exact Test showed .169, no significant relationship between exists between fluid adherence and Diabetes Mellitus. Eighty seven percent (20) respondents with Diabetes Mellitus had never missed haemodialysis therapy sessions. Fisher's Exact Test showed 1.000, no significant relationship exists between attendance of therapy sessions and Diabetes Mellitus.

Only 16.7% (13) respondents with hypertension were diet adherent. The Fisher's Exact Test showed 1.000, no significant relationship exists between diet adherence and hypertension. Fluid adherence among respondents with hypertension was 46.8% (36). Fisher's Exact Test showed .432, no significant relationship exists between fluid adherence and hypertension. Attendance of haemodialysis therapy sessions was matched with hypertension. Most respondents who had hypertension 89.7% (70) had never missed haemodialysis therapy sessions. The Fisher's Exact Test showed 0.97 which is borderline, some relationship might exist. This is illustrated in Table 4.5 and Figure 4.13.

**Chi-Square Test**

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Fisher's Exact Test				.097	.067

**Table 4.5: Missed therapy sessions and hypertension**



**Figure 4.13: Missed therapy sessions and hypertension**

Diet adherence was matched with Systemic Lupus Erythematosus, the score was 100% (1) respondent was diet adherent. Fisher's Exact Test results .161, not significant thus no relationship exists between diet adherence and Systemic Lupus Erythematosus. The respondent with Systemic Lupus Erythematosus was not fluid adherent. Fisher's Exact Test results 1.000, no significant relationship exists between fluid adherence and Systemic Lupus Erythematosus. This respondent had never missed haemodialysis therapy sessions, score 10% (1). Fisher's Exact Test results 1.000, no significant relationship exists between Systemic Lupus Erythematosus and missing therapy sessions.

There were 13.6% (3) respondents who suffered from other comorbid diseases and were diet adherent. The Fisher's Exact Test results 1.000, not significant thus no relationship exists between suffering from other comorbid diseases and diet adherence. There were 31.8% (7) respondents who suffered from other comorbid diseases but were fluid adherent. The Fisher's Exact Test results .242, not significant Thus there is no relationship between fluid adherence and suffering

from other comorbid diseases. The respondents who suffered from other diseases but had never missed haemodialysis therapy scored 77.3% (17). The Fisher's Exact Test results .309, not significant thus no relationship exists between suffering from other comorbid diseases and missing haemodialysis therapy sessions.

Respondents who suffer from no other conditions scored 22.2% (4) when matched with diet adherence. The Fisher's Exact Test showed .487, not significant thus no relationship exists between suffering from no other conditions and diet adherence. These respondents were then matched with fluid adherence and they scored 50% (9). The Fisher's Exact Test showed .611, not significant meaning that there is no relationship between suffering from no other conditions and fluid adherence. The respondents with no other conditions were again matched with attendance of haemodialysis therapy sessions and they scored 94.4% (17). Fisher's Exact Test showed .465, not significant. Thus there is no relationship between missing of haemodialysis therapy sessions and suffering from no other conditions.

Diet adherence was matched with the respondents who were on anti-diabetic treatment. They were all 100% (14) non diet adherent. Fisher's Exact Test results .122, not significant thus no relationship exists between diet adherence and being on anti-diabetic treatment. There were 35.5% (7) respondents who were on anti-diabetic and still fluid adherent. Fisher's Exact Test results showed .579, not significant. Thus no relationship exists between getting anti-diabetic treatment and fluid adherence. The respondents who were on anti-diabetic treatment scored

78.6% (11) when matched with attendance or therapy sessions. Fisher's Exact Test results were .423, not significant. Thus there is no significance relationship between missing haemodialysis therapy sessions and being on anti-diabetic treatment.

The respondents who were on hypotensive medicines were matched with diet adherence. Only 15.9% (10) were diet adherent. The Fisher's Exact Test results were 1.000, not significant thus no relationship exists between taking hypotensive medicines and diet adherence. These respondents were again matched with fluid adherence and 48.4% (30) were fluid adherent. Fisher's Exact Test results were .350, not significant. Thus there is no significant relationship between fluid adherence and being on hypotensive medicines. Respondents on Hypotensive medicines were further matched with missed haemodialysis therapy sessions and the score was 87.3% (55). The Fisher's Exact Test results were .608, not significant. Thus there exists no relationship between being on hypotensive medicines and missing haemodialysis therapy sessions.

Taking of immunosuppressive treatment was matched with diet adherence, the respondent was 100% (1) diet adherent. The Fisher's Exact Test results showed .161, not significant thus no relationship exists between diet adherence and being on immunosuppressive treatment. The respondent who was on immunosuppressive treatment was 100% (1) non-fluid adherent. Fisher's Exact Test results showed 1.000, not significant meaning that there is no significant relationship between fluid adherence and being on immunosuppressive treatment. The respondent was again matched with attendance of haemodialysis therapy

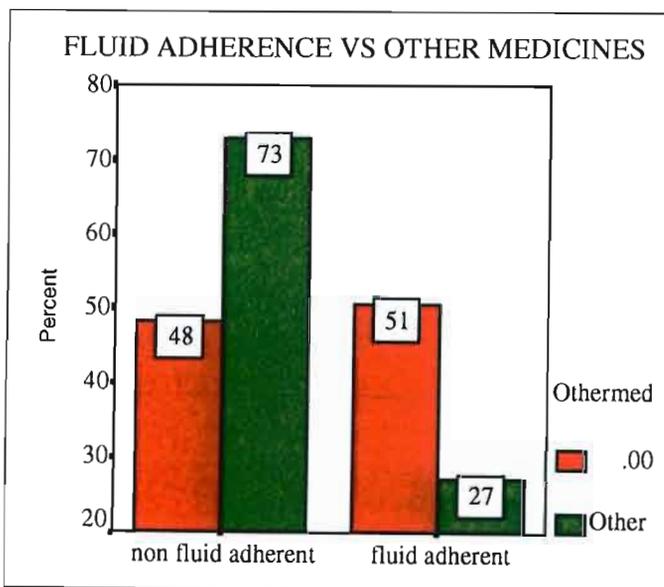
sessions and scored 100% (1). The Fisher's Exact Test results showed 1.000, not significant. Thus there is no relationship between taking immunosuppressive treatment and missing haemodialysis therapy sessions.

The respondents who were taking other medicines were matched with diet adherence and they scored 21.6% (8). The Fisher's Exact Test results showed .289, not significant thus no significant relationship exists between diet adherence and taking other medicines. Twenty seven percent (10) of respondents who were taking other medicines were fluid adherent. Fisher's Exact Test showed .017 which is significant. Thus there is a relationship between other medicines and fluid adherence. This is illustrated in Table 4.6 and Figure 4.14.

**Chi-Square Tests**

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Fisher's Exact Test				.017	.011

**Table 4.6: Fluid adherence and other medicines**



**Figure 4.14: Fluid adherence and other medicines**

The respondents who were taking other medicines scored 86.5% (32) when matched with missed therapy sessions. The Fisher's Exact Test results were 1.000, not significant. Thus no relationship exists between taking other medicines and missing haemodialysis therapy sessions.

The respondents who were on no medication scored 8.3% (1) when matched with diet adherence. The Fisher's Exact Test results were .688 and not significant thus no relationship exists between diet adherence and being on no medication. These respondents scored 58.3% (7) when matched with fluid adherence. The Fisher's Exact Test results were .361 and not significant, no relationship exists between fluid adherence and being on no medication. The respondents were further matched with missed haemodialysis therapy sessions and they scored 91.7% (11). The Fisher's Exact Test results were 1.000, not significant. Thus there is no relationship between missing haemodialysis therapy sessions and being on no medication.

The respondents' duration on haemodialysis therapy was matched with diet adherence. Those who had been on therapy for the duration of 2-6 months scored 27.8% (5), they were followed by those who had a duration between 7-12 months who scored 17.4% (4). The Pearson Chi-Square results were .302, not significant thus no relationship exists between duration on haemodialysis therapy and diet adherence. The most fluid adherent respondents 47.4% (36) when matched with duration on haemodialysis therapy were those who had been on therapy for above 12 months. They were followed by those with the duration of 2-6 months at 44.4% (8). The Pearson Chi-Square results were .346 and no significant

relationship exists between duration on haemodialysis therapy and fluid adherence. Those who had been on therapy for duration of 2-6 months scored 88.9% (16) thus were the most adherent to attendance of therapy sessions. They were followed by those who had been on haemodialysis therapy for above 12 months at 87% (67). The Pearson Chi-Square results were .525, not significant. Thus there is no relationship between missing haemodialysis therapy sessions and duration on haemodialysis therapy.

#### **4.4.5.2 Adherence and Type of institution**

There were 54 respondents from the private institutions, only 20.4% (11) of them were diet adherent. There were 64 respondents from the public institutions, only 12.5% (8) were diet adherent. The Fishers Exact Test showed .317 which is not significant thus no relationship exists between diet adherence and the type of institution where the respondent receives haemodialysis therapy. Out of 54 respondents from the private institutions, 42.6% (23) were fluid adherent. There were 63 respondents from the public institutions, 44.4% (28) of them were fluid adherent. The Fisher's Exact Test showed .854, which is not significant thus no relationship exists between fluid adherence and type of institution. From the 54 respondents who were treated at the private institutions, 88.9% (48) of them had never missed therapy sessions. Sixty four respondents were treated at the public hospitals, 82.8% (53) of them had never missed therapy sessions. The Fisher's Exact Test revealed .434, not significant. Thus no relationship exists between missing haemodialysis therapy sessions and type of institution.

#### 4.4.5.3 Adherence and Physical factors

- **Side effects**

The respondents who were not troubled by side effects of haemodialysis therapy were matched with diet adherence. Only 11.9% (5) respondents were diet adherent and the results of the Fisher's exact test showed .439 meaning that there is no significant relationship between being not troubled by side effects and diet adherence. Only 36.5% (15) respondents were adherent to fluid restrictions. The Fisher's exact test showed .245 not significant. Thus there is no relationship between fluid adherence and being not troubled by side effects. These respondents were further matched with missing haemodialysis therapy sessions and 83.3% (35) had never missed therapy sessions. The Fisher's Exact Test showed .596, not significant. Thus there is no relationship between missing haemodialysis therapy and not being troubled by side effects.

- **Change in body image**

Out of 91 respondents who were comfortable with their body images only 17.6% (16) were adherent to prescribed diet. Fisher's Exact Test revealed .558 which is not significant. Thus there is no significant relationship between diet adherence and being comfortable with the body image. From ninety respondents who were comfortable with their body image only 45.6% (41) of them were adherent to fluid restrictions. Fisher's exact Test showed .510 which is not significant. There is no relationship between fluid adherence and being comfortable with body image. Ninety one respondents were comfortable with their body images and 86.8% (79) of them never missed haemodialysis therapy sessions. Fisher's Exact Test showed .536 which is not significant. Thus there is no relationship between

being comfortable with the body image and missing haemodialysis therapy sessions.

- **Activities for relaxation**

Ninety eight out of 117 respondent stated that they were doing some activities for relaxation but only 15.3% (15) of them were adherent to prescribed diet. Fisher's Exact Test revealed .509, not significant thus no relationship exists between diet adherence and activities for relaxation. Out of ninety seven respondents 43.3% (42) were adherent to fluid restrictions. Fisher's Exact Test showed .803, not significant indicating that there is no relationship between activities for relaxation and fluid adherence. Out of ninety eight respondents who were doing some activities, 87.8% (86) of them had never missed haemodialysis therapy. Results of Fisher's Exact Test were .150, not significant. Thus there is no relationship between missing haemodialysis therapy sessions and doing some activities for relaxation.

#### **4.4.5.4 Adherence and Socio-economic factors**

- **Worry about affordability**

Twenty four respondents stated that they have no worry that they might someday not afford paying for haemodialysis therapy. Only 16.7% (4) of them were adherent to prescribed diet and the results of Fisher's Exact Test were .762 which is not significant. Thus no relationship exists between worrying about affordability of treatment and diet adherence. Only 52.2% (12) out of 23 respondents were adherent to fluid restrictions. Fisher's Exact Test showed .482 which is not significant, meaning that there is no relationship between fluid

adherence and worrying about affordability of treatment. Ninety six point five percent (23) respondents who have no worry about affordability of treatment had never missed haemodialysis therapy sessions. Fisher's Exact Test revealed .190, not significant. Thus there is no relationship between missing haemodialysis therapy sessions and worrying about affordability of treatment.

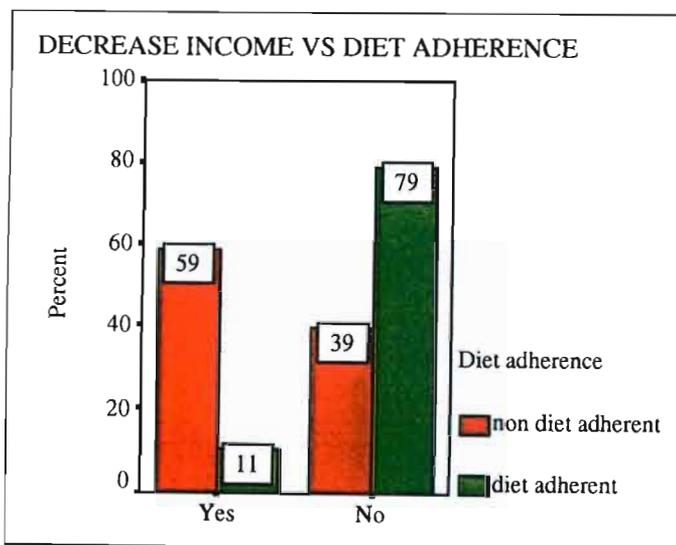
- **Decrease in annual gross income**

Out of 60 respondents who experienced a decrease in gross income only 3.3% (2) were adherent to prescribed diet. Results of Fisher's Exact Test were .000 which is very significant. Thus there appears to be a relationship between a decrease in annual gross income and diet adherence. This is illustrated in Table 4.8 and Figure 4.15.

**Chi-Square Test**

	Value	Df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Fisher's Exact Test				.000	.000

**Table 4.7: Decreased annual gross income and diet adherence**



**Figure 4.15: Decreased annual gross income and diet adherence**

Out of 59 respondent who had a decreased in gross income 40.7% (24) were adherent to fluid restrictions. Fisher's Exact Test revealed a score of .453 and it is not significant. Thus there is no significant relationship between fluid adherence and a decrease in annual gross income. Eighty eight point three percent (53) of these respondents had never missed haemodialysis therapy sessions. Fisher's Exact Test showed .430, not significant. Thus there is no significant relationship between missing haemodialysis therapy sessions and a decrease in annual gross income.

- **Regret the decrease in annual gross income**

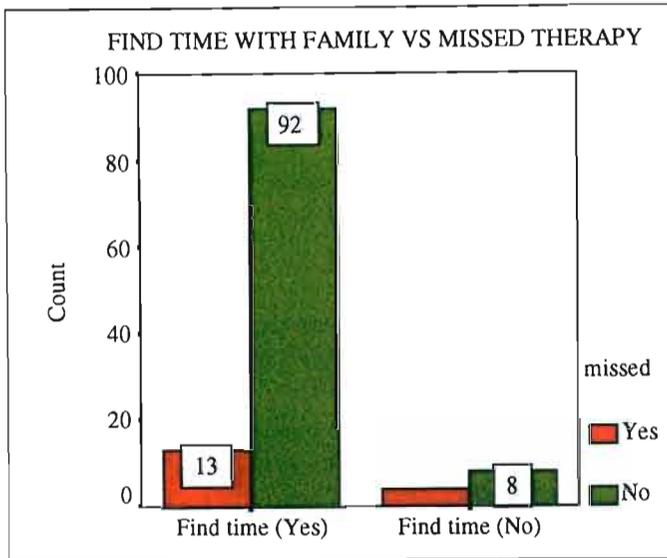
The respondents who experienced a decrease in gross income were further asked if they regret that decrease and 27 of them said no. Only 14.8% (4) of these respondents were adherent to the prescribed diet. Fisher's Exact Test results .201 and is not significant. Thus there exists no significant relationship between diet adherence and not regretting the decrease in annual gross income. Forty four point four percent (12) of these respondents were adherent to fluid restrictions. Fisher's Exact Test revealed a score of 1.000, not significant. Thus no relationship exists between fluid adherence and not regretting the decrease in annual gross income. Of the respondents who did not regret the decrease in the gross income, 88.9% (24) had never missed haemodialysis therapy sessions. Fisher's Exact Test revealed a score of 1.000, not significant. Thus there exists no relationship between not regretting the decrease in gross income and missing haemodialysis therapy sessions.

#### 4.4.5.5 Adherence and Psychosocial factors

One hundred and five out of 118 respondents said that they do get time to spend with their families and friends. Only 15.2% (16) of them are adherent to diet. Fisher's Exact Test results .410 and not significant. Thus no relationship exists between diet adherence and getting time to spend with family and friends. Out of 104 respondents who had time to spend with families and friends, 43.3% (45) were adherent to fluid restrictions. Results of Fisher's Exact Test were 1.000 and not significant. Thus there is no significant relationship between fluid adherence and getting time to spend with family and friends. Out of 105 respondents who had time to spend with family and friends, 87.6% (92) of them had never missed haemodialysis therapy sessions. Results of Fisher's Exact Test are .073 which is borderline. Thus there might be some relationship between missing haemodialysis therapy sessions and getting time to spend with family and friends. This is illustrated in Table 4.9 and Figure 4.16.

Chi-Square Test					
	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Fisher's Exact Test				.073	.073

**Table 4.8: Find time to be with family and missed therapy sessions**



**Figure 4.16: Find time to be with family and missed therapy sessions**

#### 4.4.5.6 Adherence and Religious factors

Ninety eight out of 115 respondents thought that their efforts were not in vain but only 16.3% (16) were adherent to the prescribed diet. Fisher's Exact Test revealed a score of 1.000 which indicates no significant relationship between diet adherence and thinking that the efforts were not in vain. Out of 97 respondents who thought that their efforts were not in vain, 42.2% (39) were adherent to fluid restrictions. The results of Fisher's Exact Test were .426 and not significant. Thus there is no significant relationship between thinking that the efforts were not in vain and adherence to fluid restrictions. Eighty seven percent (85) out of 98 respondents who thought that their efforts were not in vain had never missed haemodialysis therapy sessions. Fisher's Exact Test revealed the results as .276 indicating that there is no significant relationship between missing haemodialysis therapy sessions and thinking that the efforts were not in vain.

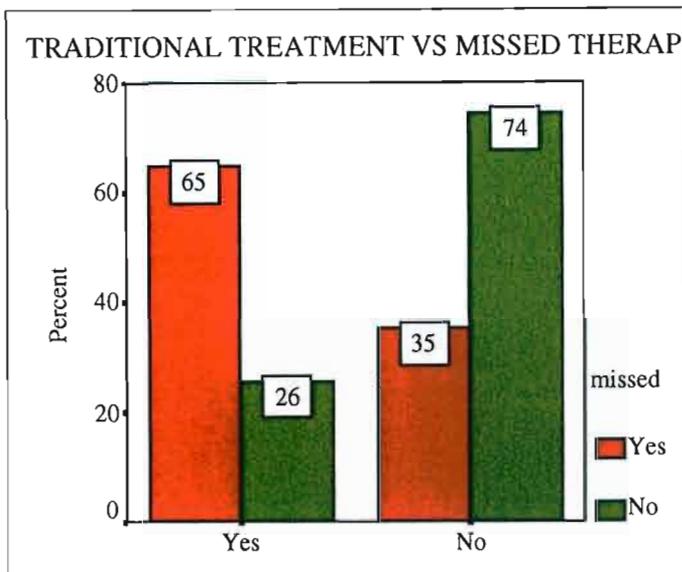
#### 4.4.5.7 Adherence and Cultural factors

Eighty one out of 118 respondents had never tried traditional treatment. Only 13.6% (11) of the 81 respondents were adherent to prescribed diet. The results of the Fisher's Exact Test were .289 and not significant. Thus there is no significant relationship between diet adherence and trying traditional treatment. Out of 80 respondents who had never tried traditional treatment, 42.5% (34) were adherent to fluid restrictions. Fisher's Exact Test revealed .841 which is not significant. Thus there is no is no significant relationship between fluid adherence and trying traditional treatment. Out of 81 respondents who had never tried traditional treatment 92.6% (75) had never missed haemodialysis therapy sessions. Fisher's Exact Test results .003 which is very significant. There is a relationship between trying traditional treatment and missing haemodialysis therapy sessions. This is illustrated by Table 4.9 and Figure 4.17.

**Chi-Square Test**

	Value	Df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Fisher's Exact Test				.003	.002

**Table 4.9: Tried traditional treatment and missed therapy sessions**



**Figure 4.17: Tried traditional treatment and missed therapy sessions**

#### **4.4.5.8 Adherence and Health education**

All 118 respondents understood instructions given during health education but only 16.1% (19) of them were adherent to prescribed diet. One hundred and seventeen respondents responded to the question on fluid adherence. They all understood the instructions given during health education but only 43.6% (51) respondents were adherent to fluid restrictions. Out of 118 respondents who understood instructions 85.6% (101) of them had never missed haemodialysis therapy sessions. Chi-square statistics not computed because all respondents understood instructions given during health education.

### **4.5 SOURCES OF SUPPORT**

Sources of support are all the structures that render various types of help to the respondent. In this study the sources of support are divided into interpersonal relationships, religious beliefs and cultural beliefs.

#### **4.5.1 Interpersonal relationships**

This might for example be with the partner, family and friends, non profit organizations and support groups formed by patients or the sympathizers. One hundred and five respondents stated that they do find time to be with family and friends. Only 15.2% (16) were adherent to diet. The Fisher's Exact Test revealed .410, which is not significant. Thus there is no significant relationship between finding time to be with family and friends and diet adherence. Out of 104 respondents who said they do find time to be with families and friends, only 43% (45) were adherent to fluids restrictions. The Fisher's Exact Test showed 1.000, which is not significant. Thus there is no significant relationship between fluid adherence and finding time to be with family and friends. Out of 105 respondents who said they do find time to be with families and friends, 87.6% (92) had never missed therapy sessions. The Fisher's Exact Test revealed .073 which is borderline. There might be some relationship between missing haemodialysis therapy sessions and finding time to be with family and friends.

#### **4.5.2 Religious beliefs**

The religious groups like members of church denominations might offer support to the fellow members in the form of prayers. Out of 98 respondents who thought that their efforts were not in vain, only 16.3% (16) were diet adherent. The Fisher's Exact Test showed 1.000, which is not significant. Thus there is no relationship between diet adherence and thinking that the efforts are not in vain. Out of 97 respondents who thought that their efforts were not in vain, only 40.2% (39) were fluid adherent. The Fisher's Exact Test showed .426 which is not significant. Thus there is no significant relationship between fluid adherence and

thinking that the efforts are not in vain. Ninety eight respondents thought that their efforts were not in vain and 86.7% (85) of them had never missed therapy sessions. The Fisher's Exact Test showed .276 which is not significant. Thus there is no relationship between missing haemodialysis therapy and thinking that the efforts are not in vain.

#### **4.5.3 Cultural beliefs**

Some people tend to turn to their cultural beliefs if they are in a stressful situation. The patient might consult the traditional healer or fortune teller not only for treatment, but for support. He or she might for example like to know whether the treatment is going to work or ask the ancestors to look after him or her. Eighty one respondents had never tried traditional treatment. Only 13.6% (11) of the 81 respondents were adherent to prescribed diet. The results of the Fisher's Exact Test were .289 and not significant. Thus there is no significant relationship between diet adherence and trying traditional treatment. Only 42.5% (34) of 80 respondents who had never tried traditional treatment were adherent to fluid restrictions. Fisher's Exact Test revealed .841 which is not significant. Meaning that there is no relationship between fluid adherence and trying traditional treatment. Out of 81 respondents who had never tried traditional treatment 92.6% (75) had never missed haemodialysis therapy sessions. Fisher's Exact Test results showed .003 which is significant. Thus there is a significant relationship between missing haemodialysis therapy sessions and trying traditional treatment. This is illustrated in Table 4.4.

#### **4.5.4 Adherence and sources of support**

According to the above results the only significant relationship when considering adherence and sources of support exists between trying traditional treatment and missing haemodialysis therapy sessions.

#### **4.6 CONCLUSION**

In this chapter the researcher analyzed data using SPSS version 11.5 and used graphs and tables to illustrate the results. The next chapter contains a discussion of the findings as well as the limitations and recommendations of the study.

# **CHAPTER 5: DISCUSSION OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS**

## **5.1 INTRODUCTON**

In this chapter the researcher discusses the findings of the study against the background of the literature reviewed. The findings of the study are discussed in relation to the objectives and the conceptual framework. The researcher further discusses the limitations and recommendations of this study.

## **5.2 DISCUSSION OF THE RESULTS**

### **5.2.1 The objectives of this study were to:**

- Identify factors that enable patients with chronic renal failure to adhere to haemodialysis therapy.
- Establish the sources of support that help patients with chronic renal failure to deal with haemodialysis therapy.

### **5.2.2 Factors determining adherence**

#### **5.2.2.1 Educational Level**

This study revealed that the majority of the respondents, 63% (74), had secondary education, while 27% (32) of the respondents had tertiary education. Educational level was matched with diet adherence, fluid adherence and attendance of haemodialysis therapy sessions. The Pearson Chi-Square results for all three were .705, .397 and .119 respectively. All of them were not significant. Thus this study revealed that there was no relationship between the level of

education and adherence to haemodialysis therapy. These findings do not support Bezuidenhout (1995) & Brunier et al (2002) who associated higher levels of education with successful adjustment to therapy.

#### **5.2.2.2 Physical Factors**

According to the findings, the majority, 64% (76), of the respondents were troubled by the side effects of the haemodialysis therapy. Thirty six percent (42) of the respondents chose tiredness (fatigue) as the most troublesome side effect followed by cramps 23% (27) of the respondents, then constipation 10% (11) of the respondents. The side effects were matched with diet adherence, fluid adherence and attendance of haemodialysis therapy sessions. Fisher's Exact Test results were .439, .245 and .596 respectively. They were all not significant, thus there is no relationship between side effects and adherence to haemodialysis therapy. Diet adherence, fluid adherence and attendance of therapy sessions were matched with being comfortable with body image. Fisher's Exact Test results were .558, .510 and .536 respectively, and not significant. Thus there was no relationship between being comfortable with ones body image and adherence to haemodialysis therapy. Activity for relaxation was matched with diet adherence, fluid adherence and attendance of therapy sessions. The Fisher's Exact Test results were .509, .803 and .150 respectively. They were not significant, thus no relationship exists between activity for relaxation and adherence to haemodialysis therapy. Research findings by Eidemak et al, (1997) state that physical exercise had no ill effect on progression of renal disease. A large percentage of respondents with hypertension were found to have never missed therapy sessions, Fisher's Exact Test results .097 borderline. The results might be

the result of good health education. Most respondents 73% who were on other medicines were not fluid adherent. Fisher's Exact Test results 0.17, very significant. Other medicines negatively affect fluid adherence. Fluid adherence is reputed to be difficult, supported by O'Brien (1990) cited in Pang et al (2001).

### **5.2.2.3 Socio-economic Factors**

Affordability to pay for haemodialysis therapy was matched with diet adherence, fluid adherence and attendance of therapy sessions. Fisher's Exact Test results were .762, .482 and .190 respectively, not significant. Thus there is no significant relationship between affordability to pay for therapy and adherence to haemodialysis therapy. Decreased annual gross income was matched with diet adherence, fluid adherence and attendance of haemodialysis therapy sessions. Fisher's Exact Test results for diet adherence were .000 and significant. There is a significant relationship between decreased gross income and diet adherence. Findings are supported by O'Brien (1990) cited in Pang et al, (2001) stating that haemodialysis patients with lower socio-economic status may have greater problems complying with therapeutic regimens because of the difficulty in obtaining special dietary requirements. For fluid adherence and attendance of therapy sessions Fisher's Exact Test results were .453 and .430 respectively. Not significant, thus no relationship exists between decreased gross income and diet and fluid adherence. Regretting decrease in annual gross income was matched with diet adherence, fluid adherence and attendance of haemodialysis therapy sessions. Fisher's Exact Test results were .202, 1.000 and 1.000 respectively, not significant. Thus there is no relationship between regretting a decrease in annual gross income and adherence to hemodialysis therapy. These results do not

support the literature by Watson (1979) & Kimmel (2000) which stated that adjustment to haemodialysis therapy brings about social and economic changes. The studies conducted by Kimmel (2000) and Kurtner, Brogan & Fielding (1991) in Washington, USA, and Atlanta, USA, revealed that a large percentage of people with end-stage renal disease are unemployed. Kurtner et al (1991) also indicated that unemployment proved to be one of the discouraging factors amongst patients who are on chronic haemodialysis therapy, since it causes economic insecurity.

#### **5.2.2.4 Psycho-social Factors**

Finding time to be with family and friends was matched with diet adherence, fluid adherence and attendance of haemodialysis therapy sessions. Fisher's Exact Test results for diet adherence and fluid adherence were .410, 1.000 respectively. The findings in this study do not support the literature by Pang et al (2001) which states that higher level of satisfaction with social support provided by family was the most important factor in determining patients with better fluid restriction compliance. The results for finding time to be with family and friends and missing haemodialysis therapy sessions were 0.73, which is borderline. The results could be considered as indicative of some relationship between finding time to be with family and friends and missing haemodialysis therapy sessions. It is supported by Pang et al (2001) and also White & Grenyer (1999) who asserts that a partner's support could reduce the negative experience of dialysis. Kimmel (2000) also discovered that satisfaction with marital status was associated with increased perception of social support and decreased level of illness effects.

### **5.2.2.5 Religious factors**

Thoughts about efforts being in vain were matched with diet adherence, fluid adherence and attendance of haemodialysis therapy. Fisher's Exact Test results were 1.000, .426 and .276 respectively. Results not significant, thus no relationship between religion and adherence to haemodialysis therapy. These findings do not support Kaye (1992), cited in Kjellstrand & Dosseter (1992), when he says that religions like Christianity, Islam and Judaism promote and support most measures to promote health and longevity.

### **5.2.2.6 Cultural factors**

Trying traditional treatment was matched with diet adherence, fluid adherence and attendance of haemodialysis therapy sessions. Fisher's Exact Test results for diet adherence and fluid adherence were .201 and .841 respectively, not significant. Meaning there is no relationship between diet adherence and fluid adherence trying traditional treatment. Fisher's Exact Test results for attendance of haemodialysis therapy sessions were .003, which is significant. Thus there is a relationship between missing therapy sessions and trying traditional treatment. Respondents of white racial background were found to be more diet adherent, Pearson's Chi-Square results .027 which is significant. There is a relationship between diet adherence and racial background, which in turn influences cultural practices. Literature by Tyler (1985) and Mueller, Scott, Sowinski & Pragg (2000) confirm that some patients on haemodialysis therapy do take some herbal remedies despite being warned against them. Thus there is a relationship between trying traditional treatment and attendance of haemodialysis therapy sessions. Other patients attend traditional healers for divination only, not to take herbal

remedies. Prinsloo (2003) and Thorpe (1993) acknowledge that the traditional healer plays a vital role in African culture. He or she connects the living with their ancestors, since the relationship with the ancestors is important to the existence of Africans (Prinsloo, 2001).

#### **5.2.2.7 Health education**

Understanding instructions given during health education was matched with diet adherence, fluid adherence and attendance of haemodialysis therapy. The Chi square could not be computed since all respondents understood the instructions well. The study results support the literature by Ward-Collins (1998) who emphasises the importance of communication which is essential during health education. In this study health education was given in both oral and written form. This combination is recommended by (Martens, 1998).

### **5.2.3 Adherence**

#### **5.2.3.1 Diet, fluids and attendance**

The results of the study revealed that only 16.1% of respondents were diet adherent, 83.9% were non adherent. Only 43.6% respondents were fluid adherent, 56.4% was non adherent to fluids restrictions. Most respondents 85.6% had never missed haemodialysis therapy sessions, only 14.4% had missed therapy sessions. The overall adherence was 5.9%, and overall for non-adherence was 94.1%. The total sum for adherent patients is 7 out of 118 respondents figure is too small. The overall results of this study are not surprising research has proven that it is difficult to adhere to haemodialysis therapy regimen. This is supported by (Pang et al, 2001)

### 5.3 LIMITATIONS OF THE STUDY

- The results of this study cannot be generalised to all patients who are undergoing chronic haemodialysis therapy, since convenience sampling was used. Purposive sampling method was used together with the convenience sampling method, which is reputed to be the weakest (Polit & Hungler 1993). The researcher chose it because the researcher had to take any willing respondent as long as he or she meets the criteria. The time was also limited. Only four centres were included in the study, involving other centres might have yielded different results.
- The criteria for adherence was also too strict, the respondent should have mentioned all three low sodium, low potassium and low salt diet to be considered diet adherent. The respondent had to have attended all therapy sessions to be considered adherent to attendance of therapy.
- The researcher feels the questionnaire did not give the respondents an opportunity to air their views. Adding open-ended questions could yield more information from the respondents. The questionnaire had too many questions and that was tiring to some respondents, especially because the respondents were easily fatigued.
- With some respondents the catheter for access to the cardiovascular system was on the hand that was used for writing thus they were unable to answer the questionnaire during therapy sessions. Not much could be done about this if there was no other suitable site but an interview could solve this problem since the interviewer could be doing the writing or be electronically recording the respondents' answers. The researcher allowed these 18 respondents to take the questionnaires home, fill them in and

bring them back on the next therapy session. Of these 18 questionnaires 72% (13) were returned only 28% (5) of them were not returned.

- Most respondents were very willing to participate in this study, but some of them could not finish filling the questionnaire since they were overcome by fatigue or drowsiness. An interview would cater for these respondents as well as those who could not read and write.

## **5.4 RECOMMENDATIONS**

### **5.4.1 Education**

- The researcher feels that health education about haemodialysis therapy should not only be given to patients undergoing therapy and their families but also the members of the community should be educated so that they can be more supportive to these patients. The results indicated that there is still a need to educate our society about chronic renal failure because there is still a lot of ignorance about this condition and its treatment as illustrated by 9% (10) of people who think that chronic renal failure is infectious. More media publicity should be given to chronic renal failure and haemodialysis therapy.
- Nutrition education must be continuous, patients must be encouraged to adhere to the treatment restrictions since according to the indicators 83.9% (99) respondents were not diet adherent and 56.4% (66) respondents were not fluid adherent. This is also supported by Durose et al (2004) who stated that most patients reported that they find diet adherence the most difficult part of treatment regimen.

- Employers and employees also need to be taught about this condition and haemodialysis therapy so that they can be more accommodating to people who need some time off to attend therapy sessions rather than aggravating unemployment rates, which are already high in South Africa. The demographic information of this study revealed that 67.8% (80) of the respondents were unemployed. Were it not for the 8.5% (10) self employed respondents, the number of unemployed respondents would be higher. Unemployment is one of the stressors among haemodialysis patients, this is supported by (Kimmel, 2000) and Kurtner, Brogan & Fielding, 1991).

#### **5.4.2 Practice**

- Nocturnal haemodialysis could be a solution for patients who are employed, since it can lessen the number of off sick days and improve the number of working hours, thus improving the patient's salary and gross income. It also improves the quality of life (Vos et al, 2004; Hryciw et al, 2004 & Pierratos et al, 1998).
- People like dieticians are to cater for nutritional needs, psychologists to look at the psychological effects of haemodialysis therapy, social workers to arrange disability grants and other relevant members of the multidisciplinary team could be involved in the care of a patient who is on haemodialysis therapy for chronic renal failure. Encourage the patients' families to plant vegetable gardens if possible so that they can always have fresh vegetables to alleviate the high cost of nutrition.

- The private and public hospitals could be made to work together in catering for rendering haemodialysis therapy to chronic patients. The government could arrange that patients be done haemodialysis at the nearest centre even if it is private hospital. That can give patient more time to be with his or her family, give the patient more time to rest, save the family the cost of transporting the patient from a distant hospital in case he or she dies whilst in hospital. It will also save the department of health from paying for patient's transport at least three times a week. The taxpayer will in turn benefit.
- Cultural background of the patient should be acknowledged the patients can feel free to give information about consulting traditional healers since they are some form of support to some people. In this study 31% had tried traditional treatment. The percentage could be higher since most people of African background use both traditional and Western treatments but the traditional part is usually kept a secret. According to Thorpe (1993) traditional treatment is also considered as a focal point for communication between the community and the ancestors. Culture sensitive nursing care should be encouraged sothat patients can feel free to give information about traditional treatment.
- Organisations like KwaZulu Natal Kidney Association should be encouraged.
- Acknowledgement of traditional healers' rights, health educating them and incorporating them in health services could improve adherence to haemodialysis therapy among patients with chronic renal failure. Some patients utilise them as some form of support system.

### **5.4.3 Research**

For further research it may be recommended that:

- The South African Dialysis and Transplant Registry recommence the keeping of statistics for patients who are on haemodialysis therapy. The researchers could access recent statistics.
- A qualitative study on factors that facilitate adherence to chronic haemodialysis be carried out.

### **5.5 CONCLUSION**

From the findings of this study it emerged that the factors mentioned in the conceptual framework, namely level of education, physical status, interpersonal relationships, socioeconomic status, religious beliefs and cultural beliefs whether good or poor are not always predictors of adherence to haemodialysis therapy. However there is a relationship between comorbid diseases and attendance of haemodialysis therapy which is a physical factor. A decrease in annual gross income promotes non adherence to diet. Sources of support such as family, partners and culture do promote attendance of therapy sessions but it all depends whether the respondent does find time with family. The higher number of dependants can affect the respondent's economic status but could also be a source of support. Respondents with more dependants were more adherent to fluids. The higher number of dependants can affect the respondent's economic status but could also be a source of support. Trying traditional treatment negatively affects attendance of therapy sessions. It is noted that the respondents were not completely non adherent, since before cross tabulations the figures of

adherence were high but were lowered when compared with the indicators for adherence. In this study the overall findings were that most patients who are on chronic haemodialysis were not adherent to haemodialysis therapy, only 7/118 met overall adherence criteria. It was also noted that most respondents were faithfully attending therapy sessions.

## REFERENCES

African National Congress. (1994). A National Health Plan for South Africa.

Prepared by the ANC with technical support of WHO and UNICEF.

Johannesburg.

Andrew, M.M. & Boyle, J.S. (1999). Transcultural concepts in nursing care. 3<sup>rd</sup>

Edition. Philadelphia: Lippincott: Williams & Wilkins.

Anthony, I.(1999). The evolving role of the nephrology nurse. Nursing Times,

95 (12), 58 - 59.

Baer, C.L. (1998). Care of the critically ill chronic renal failure patient: crises,

challenges and choices. Critical Care Clinics of North America, 10 (4),

433 - 447.

Bastani, B., Galli, D. & Gellens, M.E. (1998). Cimetidine-induced climacteric

symptoms in a young man maintained on chronic haemodialysis. American

Journal of Nephrology, 18, 538 - 540.

Berends, B. (1998). Mission and Health Care. REC Mission Bulletin, XVIII(2):

3-13.

Bezuidenhout, F.J. (1995). Factors influencing adjustment to chronic renal

failure. Membrane, 13 (1), 4 - 8.

Bezuidenhout, F.J. (1991). Nurse-patient relationship: a preliminary finding of a study of the end-stage renal patient in South Africa. Membrane, 11 (1), 10 - 13.

Bommer, J. (2002). Prevalence and socio-economic aspects of chronic kidney disease. Nephrology Dialysis Transplant, 17, (Suppl. 11): 8 - 12.

Brink, H.L. (1996). Fundamentals of Research Methodology for Health Professionals. Cape Town: Juta & Co

Brunier, G., Grayon, J., Rothman, B. Sherman, C. & Liadsky, R. (2002). The psychological well being of renal peer support volunteers. Journal of Advanced Nursing, 38 (1), 40 - 49.

Burns, N. (1987). The practice of nursing research: Conduct, critique and utilization. Philadelphia: W. B. Saunders.

Burns, N. & Grove, S.K. (1997). The practice of nursing research: Conduct utilization. 3<sup>rd</sup> ed. Philadelphia: W.B. Saunders.

Caress, A.-N., Luker, A.K. & Owens, R.G. (2001). A descriptive study of meaning of illness in chronic renal disease. Journal of Advanced Nursing, 33 (6), 716 - 727.

Chaskalson, P. & Madala, J. (1997). Thiagraj Soobramoney versus Minister of Health (KwaZulu-Natal). Constitutional Court of South Africa CCT 32/97.

Clochesy, J.M., Breu, C., Cardin, S., Whittaker, A .A. & Rudy, E.B. (1996). Critical Care Nursing. 2<sup>nd</sup> ed. Philadelphia: W.B. Saunders.

Coleman, C.L. (2003). Spirituality and sexual orientation: relationship to mental well-being and functional health status. Journal of Advanced Nursing, 43 (5), 457 - 464.

Couchman, W. & Dawson, J. (1990). Nursing and health care research. A practical guide. London: Scutari Press.

Curtis, J.R. & Williams, G.B. (1975). Clinical Management of Chronic Renal Failure. London: Blackwell Scientific Publications.

Daily News. (2000). Giving the gift of life, (9), 5.

Dolan, J.T. (1996). Critical Care Nursing: Clinical Management through the Process Philadelphia: W. B. Saunders.

Dunn, S.A. (1993). How to Care for the Dialysis Patient. American Journal of Nursing, 6, 26 - 34.

Durose, C.L., Holdsworth, M., Watson, V. & Przygodzka, F. (2004).

Knowledge of dietary restrictions and medical consequences of non-compliance by patients on haemodialysis are not predictive of dietary compliance. (Current Research). Journal of the American Dietetic Association.

[http://www.findarticles.com/cf\\_0/m0822/1\\_104/112800967/print.jhtml](http://www.findarticles.com/cf_0/m0822/1_104/112800967/print.jhtml)

Eidemak, I., Haaber, A.B., Feldt-Rasmussen, B., Kanstrup, I-L. & Strandgaard,

S. (1997). Exercise Training and the Progression of Chronic Renal Failure.

Nephron, 75, 35 - 40.

Galpin, C. (1992). Body image in end-stage renal failure. British Journal of

Nursing, 1 (1), 21 - 23.

Goicoechea, M., de Sequera, P., Ochando, A., Andrea, C. & Caramelo, C.

(1999). Uremic Pruritis: An unresolved Problem in Haemodialysis

Patients, Nephron, 82, 73 – 74.

Gutch, C.F. & Stoner, M.H. (1983). Review of Haemodialysis for Nurses and

Dialysis Personnel. 4<sup>th</sup> ed. St Louis: Mosby.

Halm, M.A., Myers, R.N. & Bennetts (2000). Providing spiritual care to

cardiac patients: Assessment and implications for practice. Critical Care

Nurse, 20 (4), 54 - 72.

Hamilton, M. (1999). Causes and effects of renal failure. Nursing Times, 95 (12), 59 - 60.

Herberg, P. (1989). Theoretical Foundations of Transcultural Nursing in Boyle, J. S. & Andrews M. M. (1989). London: Scott, Foreman and Company.

Heyneman, C.A. (2003). Preoperative Considerations: Which herbal Products Should Be Discontinued Before Surgery? Critical Care Nurse. 23 (2), 116- 123.

Hryciw, E., Courtney, N., Herian, N., Wales, L.,Bainey.,C., Adams,C. & Foster, J. (2004). Establishing a home nocturnal hemodialysis program: Starting from scratch". Hemodialysis International, 8(1), 98. Abstract.

Inkosi Albert Luthuli Central Hospital Dietitians (2004). Your Diet On Haemodialysis.

Iseki, K., Nishime, K., Uehara, H., Osawa, A. & Fukiyama, K. (1994). Effects of Renal Diseases and Comorbid Conditions on Survival in Chronic Dialysis Patients. Nephron. 68, 80 - 86.

Kimmel, P.L. (2000). Psychological factors in adult end-stage renal disease patients treated with haemodialysis. Correlates and outcomes. American Journal of Kidney Diseases, 35 (4), 132 - 140.

- Kjellstrand, C.M. & Dossetor, J.B. (1992). Ethical problems in dialysis and transplantation. Dordrecht: Kluwer Academic Publishers.
- Kobasa, S.C. (1979). Stressful life events, personality and health: an enquiry into hardiness. Journal of Personality and Social Psychology, 37, 1 - 11.
- Kurtner, N.N., Brogan, D. & Fielding, B. (1991). Employment status and ability to work among working-age chronic dialysis patients. American Journal of Nephrology, 11, 334 - 340.
- Lannon, S. (1997). Using Health Promotion Model to Enhance Medication Compliance. Journal of Neuroscience Nursing, 29 (3), 170 – 177.
- Lewis, S.M. & Collier, I.C. (1987). 2<sup>nd</sup> ed. Medical-Surgical Nursing Assessment and Management of Clinical Problems. New York. McGraw-Hill Book Company.
- Lindqvist, R., Carlsson, M. & Sjoden, P.-O. (2004). Coping strategies of people with kidney transplants. Journal of Advanced Nursing, 45 (1), 47 - 52.
- Lindqvist, R., Carlson, M. & Sjoden, P.-O. (2000). Coping strategies and health related quality of life among spouses of continuous ambulatory and dialysis, haemodialysis and transplant patients. Journal of Advanced Nursing, 31 (6), 1398 - 1408.

- Lipman, J. & Pinder, M. (1997). What is feasible and what is affordable in intensive care? South African Medical Journal, 87 (2), 127 -128.
- Lok, P. (1996). Quality of life among dialysis patients. Journal of Advanced Nursing, 23, 873 - 881.
- Lowry, D. A. (1998). Issues on non-compliance in Mental Health. Journal of Advanced Nursing, 28 (2), 280 – 287.
- Lundgren, B. S. (1998). Compliance A Patient's Privilege? American Journal of Nursing, 98 (10), October, p 19.
- Macpherson, G. (1995). Black Medical Dictionary. 38<sup>th</sup> ed. London: A & C Black Publishers Ltd.
- Maher, J.F. (1989). Replacement of renal function by dialysis. 3<sup>rd</sup> ed. Dordrecht: Kluwer Academic Publishers.
- Manganyi, N.C. (1974). Health and disease – Some Topical problems of socio-cultural transition. S. A. Medical Journal, 48, 922 - 924.
- Marland, G. (1998). Partnership encourages patients to comply with treatment. Nursing Times, 94 (27), 58 - 59.
- Martens, K.H. (1998). An ethnographic study of the process of medication discharge education (MDE). Journal of Advanced Nursing, 27, 341-348.

- Martin, E. A. (1998). Concise Medical Dictionary. 5<sup>th</sup> ed. Oxford: Oxford University Press.
- Martsolf, D.S. & Mickley, J.R. (1998). The concept of spirituality in nursing theories: differing world-views and extent of focus. Journal of Advanced Nursing, 27, 294 – 303.
- Matsuo, S., Nakamoto, M., Nishihara, G., Yasunaga, C., Yanagida, T., Matsuo, K., & Sakemi, T. (2003). Impaired Taste Acuity in Patients With Diabetes Mellitus on Maintenance Haemodialysis. Nephron Clinical Practice, 94, c46 – c50.
- McCann, K. & Boore, J.R.P. (2000). Fatigue in persons with renal failure who require maintenance haemodialysis. Journal of Advanced Nursing, 32 (5), 1132 - 1142.
- McCarthy, J. (1999). Greater Durban Metropolitan Area: Current realities: Durban. Our land and our people -South Africa. Info.  
<http://www.local.gov.za/DCD/policydocs/whitepaper/further/frchp04.html>
- Meier, P., Vogt, P. & Blanc, E. (2001). Ventricular Arrhythmias and Sudden Cardiac Death in End-Stage Renal Disease Patients on Chronic Haemodialysis. Nephron, 87, 199 – 214.
- Mueller, B.A., Scott, M.K., Sowinski, K.M. & Pragg, K.A. (2000). Noni Juice (Morinda citrifolia): Hidden Potential for Hyperkalaemia? American Journal of Kidney Diseases, 35 (2), 310 - 312.
- Naicker, S. (2003). End-stage renal disease in sub-Saharan and South Africa. Kidney International. 63 (83), 119-122.
- Nocturnal Haemodialysis. [http://www.nocturnaldialysis.org/nocturnal\\_haemodialysis.htm](http://www.nocturnaldialysis.org/nocturnal_haemodialysis.htm). (2003). 1 – 9.

- Omonzejele, P. (2003). Current ethical and other problems in the practice of African Traditional Medicine. Medicine and Law, 22: 29-38.
- Pang, S.K., Ip, W.-Y. & Chang, A.M. (2001). Psychosocial correlates of fluid compliance among Chinese haemodialysis patients. Journal of Advanced Nursing, 35 (5), 691 - 698.
- Patterson, E.F. (1998). The philosophy and physics of holistic health care: Spiritual healing as a workable interpretation. Journal of Advanced Nursing, 27, 287 - 293.
- Personal Communication. (2002). Addington Hospital Renal Unit.
- Personal Communication.(2004). National Renal Care.
- Pierratos, A., Ouwendyk., Franceur, R., Vas, S., Raj, D.S.C., Ecclestone, A.-M., Langos, V. & Uldall, R. (1998). Nocturnal Haemodialysis: three-year experience. Journal of American Society of Nephrology, 9 (5), 859 - 868.
- Pierratos, A. (2004). Daily (quotidian) nocturnal haemodialysis: Nine years later. Haemodialysis International 8 (1), 45 – 50.
- Playle, F. P. & Keeley, P. (1998). Non-compliance and professional power. Journal of Advanced Nursing, 27, 304-311.
- Polaschek, N. (2003). Living on dialysis: concerns of clients in a renal setting. Journal of Advanced Nursing, 41(1), 44 - 45.
- Polit, D.F. & Hungler, B.P. (1993). Essentials of Nursing Research. Methods, Appraisal and Utilization. Philadelphia: J. B. Lippincott.
- Prinsloo, E.D. (2001). A comparison between an African (Ubuntu) and Western Philosophy. Curationis, 24(1): 58-65.

- Radecki , S.E. (1989). Dialysis for Chronic Renal Failure: Comorbidity and Treatment Differences by Disease Etiology. American Journal of Nephrology, 9, 115 - 123.
- Ram, D. (2000). Investigation. International traffic in human organs. <http://www.frontlineonnet.com//1907/19070730.htm>. Frontline, 19 (7).
- Rahman, M., Fu, P., Sehgal, A.R., & Smith, M.C. (200). Interdialytic Weight Gain, Compliance With Dialysis Regimen, and Age Are Independent Predictors of Blood Pressure in Haemodialysis Patients. American Journal of Kidney Diseases, 35 (2), 257- 265.
- Roderick, P. & Khan, I. (2003). Epidemiology of Chronic Renal Failure and Renal Therapy. 3<sup>rd</sup> ed. mmd1175@abdn.ac.uk.
- Ruppert, S.D., Kernicki, J.G. & Dolan, J.T. (1996). Dolan's Critical Care Nursing Clinical Management Through the Nursing Process. 2<sup>nd</sup> ed. Philadelphia: F. A. Davis Company.
- Ryan, T. (1994). Interpretations of illness and non-compliance with nursing care. British Journal of Nursing, 3 (4), 163 - 167.
- South African Renal Society. 1999. Recommended standards for chronic dialysis of adult patients in South Africa. <http://www.doh.gov.za/mts/docs/renal.html>
- South African Statistics Council Sub- committe report. <http://www.statss.gov.za/special Projects/Census2001/html/CinBrief/CIB2001.pdf>
- Swan, L. (2004). Jona Lomu Battles Nephrotic Syndrome. People, 18(11), 36.
- Telephonic Communication. (2004). The KwaZulu Natal Kidney Association.

- The KwaZulu-Natal Dietitians. Department of Health (2001). Your Health is our Future.
- Thorpe, S.A. (1993). Shamans, medicine men and traditional healers. Pretoria: University of South Africa.
- Tozawa, M.-I., Kunitoshi, I., Chiho, O., Saori, H., Yasushi, Y., Masanobu, T., Nozomi, T., Takeshi, T. & Shuichi. (2002). Analysis of drug prescription in chronic haemodialysis patients. Nephrology Dialysis Transplantation, 17 (10), 1819.
- Tromp, F., van Dulmen, S. & van Weert, S. (2004). Interdisciplinary preoperative patient education in cardiac surgery. Journal of Advanced Nursing, 47(2), 212-222.
- Tsay, S.L. (2003). Self-efficacy training for patients with en-stage renal disease. Journal of Advanced Nursing, 43 (4), 370 -3 75.
- Tyler, P. (1985). African tribal medicine and its role in modern nephrology. EDTNA Journal V, 11, 35 - 40.
- Vanherweghem, J.L. (2000). Nephropathy and Herbal Medicine. American Journal of Kidney Diseases, 35 (2), 330 - 332.
- Vos, H., Stokvis, S.J.A., Verhallen, A. & Kooistra, M.P. (2004). Rehabilitation Nocturnal home hemodialysis: Patient's perspective. Hemodialysis International, 8(1), 105. Abstract.
- Walsh, M. (1999). Watson's Clinical Nursing and Related Sciences. 5<sup>th</sup> ed. London. Balliere Tindall.
- Ward-Collins, D. (1998). "Noncompliant" Isn't there a better way to say it? American Journal of Nursing, 98(5), 27-32.

- Watson, J. (1979). Medical and Surgical Nursing and Related Physiology. 2<sup>nd</sup> ed. London: W. B. Saunders.
- Welch, J.L. & Austin, J.K. (2001). Stressors, coping and depression in haemodialysis therapy patients. Journal of Advanced Nursing, 37 (2), 200 – 207.
- White, Y. & Grenyer, B.F.S. (1999). The biopsychological impact of end-stage renal disease. The experience of dialysis patients and their partners. Journal of Advanced Nursing, 30, (6), 1312 - 1320.
- Williams, A. (1988). Health Economics: The end of Clinical Freedom? British Medical Journal, 297, (11), 183 – 186.
- Wolcott, D.L., Maida, C.A., Diamond, R. & Nissenson, A.R. (1986). Treatment compliance in end-stage renal disease patients on dialysis. American Journal of Nephrology, 6, 329 - 338.
- World Health Organisation (2002). WHO Traditional Medicine Strategy 2002-2005. Geneva. World Health Organisation.
- Yoon, S.L. & Horne, C.H. (1999). Herbal products and conventional medicines used by community-residing older women. Journal of Advanced Nursing, 33 (1), 51 - 59.
- Zargooshi, J. (1999). Investigation International traffic in human organs. <http://www.rontlineonnet.com/f/1907/19070730.htm>. Frontline, 19 (7), 2002.

ANNEXURE A

**Faculty of Community & Development  
Disciplines**

**RESEARCH ETHICS COMMITTEE**

Student: M S T. M. Shabalala

Research Title: A DESCRIPTIVE SURVEY OF FACTORS

THAT FACILITATE ADHERENCE TO HAEMODIALYSIS THERAPY

AMONG CHRONIC RENAL FAILURE PATIENTS

A. The proposal meets the professional code of ethics of the Researcher:  YES  NO

B. The proposal also meets the following ethical requirements:

	YES	NO
1. Provision has been made to obtain informed consent of the participants.	✓	
2. Potential psychological and physical risks have been considered and minimised.	✓	
3. Provision has been made to avoid undue intrusion with regard to participants and community.	✓	
4. Rights of participants will be safe-guarded in relation to:		
4.1 Measures for the protection of anonymity and the maintenance of confidentiality.	✓	
4.2 Access to research information and findings.	✓	
4.3 Termination of involvement without compromise.	✓	
4.4 Misleading promises regarding benefits of the research.	✓	

Signature of Student: *Shabalala* Date: 23/03/2001

Signature of Supervisor: *[Signature]* Date: 23.03.2001

Signature of Head of School: *[Signature]* Date: 26/03/2001

Signature of Chairperson of the Committee: *[Signature]*

Date: 26.3.2001

## ANNEXURE B

Dear Participant

I am a Master's student doing Critical Care and Trauma with the School of Nursing at the University of Natal, Durban. I humbly request you to participate in my research study that is looking at the factors that encourage patients with chronic renal failure to deal with haemodialysis therapy. The information will be collected by means of a questionnaire. I will be grateful if you can spare forty-five minutes of your time to fill the questionnaire whilst undergoing haemodialysis therapy. You are free to withdraw from the study anytime during its progress. Confidentiality and anonymity will be maintained throughout the duration of the study. The information given during the study will be published but can neither be traced back to you nor your hospital.

Thank you

Yours sincerely  
Thandi Shabalala (student)

Supervisor: Ms P. Brysiewicz  
And  
Mrs B. R. Bhengu

---

Mhlonipheki

Ngingumhlangikazi ongumfundi waseNyuvesi yaseNatal egatsheni eliseThekwini. Ngenza izifundo zeMasters, yezifundo zokuhlenga abagula kakhulu nabalimele. Ngenza ucwaningo, ngabantu abagula ngezinsaba bese belashwa ngokuhlazwa kwegazi kusetshenziswa umshini. Ngifisa ukwazi kabanzi ukuthi yiziphi izinto ezisiza lababantu ukuthi bangadikibali. Ngiyakunxusa ukuba usebenzisane nami kulolucwaningo. Ngicela ungiophe cishe imizuzu engamashumi amane nanhlano (45) esikhathini sakho sokwelashwa ukuphendula imibuzo ngesikhathi welashwa. Uma ungakwazi ukufunda ulimi lwesiNgisi ngizokusiza ngokukutolikela imibuzo. Ukhululekile ukuthi wenqabe uma ungathandi, awuphoqelekile.

Ungayeka (ungahoxa) futhi noma yinini, ngisho ubusuvumile ukuthi sizosebenzisana. Imininingwane eyotholakala ngalolucwaningo iyoshicilelwa kodwa nginesiqiniseko sokuthi igama lakho nelesibhedlela sakho angeke lidalulwe. futhi akckho oyokwazi ukuthi yikuphi okwashiwo nguwana.

Ngiyabonga

Ozithobayo  
Thandi Shabalala (umfundi)

Supervisor: Ms P. Brysiewicz  
Kanye no  
Mrs B. R. Bhengu

Telephone Numbers

Thandi Shabalala : 0828695847 (cellular)  
Ms Brysiewicz : 031 2601281 (work)  
Mrs Bhengu : 031 2601134 (work)

## ANNEXURE C

### PARTICIPANT'S CODE:

**INSTRUCTION:** PLEASE MARK YOUR RESPONSE WITH A CROSS (X)  
IN AN APPROPRIATE BOX (CHOOSE ONE RESPONSE ONLY)

#### A.1. DEMOGRAPHIC FACTORS

##### 1.1. Age

18-25 years		1
26-45		2
46-60		3
Above 60		4

##### 1.2. Gender

Female		1
Male		2

##### 1.3. Marital status

Single		1
Married		2
Cohabitation		3
Divorced		4
Separated		5
Widowed		6

##### 1.4. Highest educational level

Tertiary		1
Secondary		2
Primary		3
None		4

##### 1.5. Employment

Employed		1
Self employed		2
Unemployed		3

##### 1.6. What is your annual gross income?

Below 15 000		1
15 001-20 000		2
20 001-25 000		3
25 001-29 000		4
Above 29 000		5

1.7. Number of dependants

None		1
One		2
Two		3
Three		4
Above three		5

1.8. Accommodation

Rented		1
Owned		2

1.9. Racial background

African		1
Asian		2
Coloured		3
White		4
Other		5

1.10. Religious belief

African		1
Christian		2
Hindu		3
Islam		4
Other		5

1.11. Do you have other medical conditions?

Diabetes Mellitus		1
Hypertension		2
Lupus Erythematosus		3
Other		4
None		5

1.12. Are you currently on any medication?

Antidiabetic		1
Hypotensive		2
Immunosuppressive		3
Other		4
None		5

1.13. For how long have you been on haemodialysis therapy?

2 – 6 months		1
7 –12 months		2
Above 12 months		3

A.2. PHYSICAL FACTORS

2.1. Do the side effects of haemodialysis therapy trouble you?

Yes		1
No		2

2.1a. If your answer is **yes**, which one do you consider as the most troublesome?

Nausea and vomiting		1
Constipation		2
Tiredness		3
Cramps		4
Other.....		5

2.1b. If your answer is **no**, what do you do to deal with them?

I stick to the instructions given by the haemodialysis team		1
I just ignore them and regard them as a small price to pay for my life		2
Other.....		3

2.2 Do you feel comfortable about your body image in the presence of other people?

Yes		1
No		2

2.2ba. If your answer is **yes**, what makes you comfortable?

I was made aware of these changes before they even occur		1
I have seen people with this problem before		2
Other.....		3

2.2b. If your answer is **no**, what makes you uncomfortable?

There are people who do not know the cause of the changes		1
Some people think that my illness is infectious		2
Other.....		3

2.3 Do you do any activities for relaxation?

Yes		1
No		2

2.3a. If your answer is **yes**, which activities do you prefer?

Exercises		1
Meditation		2
Listening to music		3
Other.....		4

2.3b. If your answer is **no**, what stops you?

I am always tired		1
I am not interested		2
Other.....		3

### A.3. SOCIO-ECONOMIC FACTORS

3.1. Do you ever worry that someday you may not afford paying for the haemodialysis therapy?

Yes		1
No		2

3.1a. If your answer is **yes**, what causes the fear?

I may lose my job because I am always tired and my productivity has declined		1
I do not earn enough money to have adequate medical aid cover		2
Other.....		3

3.1b. If your answer is **no**, what gives you assurance?

I have enough funds to see me throughout my lifetime		1
I have an insurance policy that will cater for my health needs		2
My family will take over and pay for my treatment		3
My support group will raise funds to pay for my therapy		4
Other.....		5

3.2. Has there been a decrease in your gross income since you have started therapy?

Yes		1
No		2

3.2a. If your answer is **yes**, what caused the decrease in your gross income?

I work less hours in order to attend haemodialysis sessions		1
I am often booked off sick in order to attend therapy and because of the side effects of the therapy		2
Other.....		3

3.2b. If your answer is **no**, what prevents the decrease in your gross income?

I make up for lost hours by working overtime when I feel better		1
My employer made provision for people with chronic diseases such that their income is not negatively affected		2
The haemodialysis team arranged that my therapy sessions be after working hours so that my work and gross income is not affected by my therapy		3
Other.....		4

3.3. If you answered yes to the above question, do you regret the decrease in your gross income that is caused by the number of hours spent on haemodialysis?

Yes		1
No		2

3.3a. If your answer is **yes**, what makes you regret?

The decrease in my gross income has lowered my standard of living and changed my lifestyle		1
The impact of low income has a bad effect on my family		2
Other.....		3

3.3b. If your answer is **no**, what causes you not to regret?

I have sacrificed my lifestyle for a good cause		1
What matters the most is the fact that this therapy gave me a chance to continue living		2
My family is satisfied by the fact that I am alive and that matters the most		3
Other.....		4

#### A.4. PSYCHOSOCIAL FACTORS

##### 4.1. INTERPERSONAL RELATIONSHIP

4.1.1. Do you find time to be with your family and friends?

Yes		1
No		2

4.1a. If your answer is **yes**, how do you manage to get time to be with them?

My family and friends always try to be with me on my therapy free days		1
We always try to do things together		2
Other.....		3

4.1b. If your answer is **no**, what hinders you?

I am always tired therefore I sleep whenever I get an opportunity		1
All available time is taken up by my therapy		2
Other.....		3

##### 4.2. RELIGIOUS FACTORS

4.2.1. Do you think your efforts are in vain?

Yes		1
No		2

4.2a. If your answer is **yes**, what makes you think they are in vain?

I have no hope of getting a donor since we are so many in the waiting list		1
I have been long praying for a donor but my prayers are not answered		2
Other.....		3

4.2b. If your answer is **no**, what makes you think they are not in vain?

I strongly believe that my prayers to get a donor will soon be answered		1
I regard every new day as an achievement and a miracle		2
My family and my religious group offer me support in the form of prayers		3
Other.....		4

##### 4.3. CULTURAL FACTORS

4.3.1. Have you ever tried traditional treatment?

Yes		1
No		2

4.3a. If your answer is **yes**, what made you try it?

It is part of my cultural heritage		1
When one is desperate one tries anything that is recommended		2
Traditional healers were more convincing		3
The discouraging attitude of the health personnel		4
Other.....		5

4.3b. If your answer is **no**, what stopped you from trying it?

My treatment may interact with it and give bad results		1
I have no faith in it		2
I have never been exposed to it		3
The haemodialysis team advised me against it		4
Other.....		5

A.5. HEALTH EDUCATION

5.1. Do you understand the instructions given by the haemodialysis team?

Yes		1
No		2

5.1a.If your answer is **yes**, what makes you understand?

I was given health education slowly during different haemodialysis therapy sessions over a period of time		1
Pamphlets were given and explained to me and I took them home to read at leisure		2
The team allowed me to do things on my own, the way I understand them		3
Other.....		4

5.1b. If your answer is **no**, what makes you unable to understand?

I was given health education immediately after being told about my diagnosis of chronic renal failure and its treatment and I was too stress to understand		1
I was given health education only once during the initiation of haemodialysis therapy		2
I am unable to remember what I was taught, there was too much information		3
Other.....		4

B.6.ADHERENCE

6.1. DIET

What is your prescribed diet?

.....

6.2. Do you manage to adhere to the prescribed diet?

Yes		1
No		2

6.2a. If your answer is **yes**, what makes it manageable?

I have enough money to cater for my nutritional needs		1
My family and friends always ensure that my meals are attractively prepared		2
Other.....		3

6.2b. If your answer is **no**, what makes you fail to adhere?

When I am short of money I eat whatever is available in the house		1
The prescribed diet is not always palatable		2
I am usually tired therefore I cannot always prepare my meals		3
Other.....		4

7. FLUIDS

7.1. What is your average fluid intake per day?

.....

7.2. What is your average weight gain over the past two months?

Less than 0,5 kg		1
0,5 kg only		2
More than 0,5 kg		3
None		4

8. ATTENDANCE

8.1. Have you ever missed haemodialysis therapy?

Yes		1
No		2

8.1a. If your answer is **yes**, what was the cause?

I live far from the haemodialysis centre		1
At times I run out of transport fare		2
I had to go on holiday		3
There was no transport to take me to the haemodialysis centre		4
My employer does not easily release me for therapy sessions		5
Other.....		6

8.1b. If your answer is **no**, how do you manage?

I have my own transport		1
I walk to and from the haemodialysis centre since it is nearer to my residential area		2
I have someone to drive me to and from the haemodialysis centre		3
My employer easily releases me for therapy sessions		4
Other.....		5

ANNEXURE D



Office of the Medical Superintendent  
Addington Hospital  
P O Box 977  
DURBAN  
4000

Tel: (031) 327 2568/2970 Fax: (031) 368 3300

Your reference:

Our reference:

AD/9/2/3/R

Enquiries: Dr D.K. Naidoo  
Extension: 327 2566/2970

13 June 2001

Thandekile M. Shabalala  
University of Natal  
School of Nursing  
Faculty of Community and Development Disciplines  
DURBAN  
4041

Dear T. Shabalala

REQUEST FOR PERMISSION TO CONDUCT A RESEARCH STUDY IN THE HAEMOLIALYSIS UNIT OF ADDINGTON HOSPITAL

Your request in the above regard has been approved by the Office of the Superintendent-General, KwaZulu-Natal, Health Services.

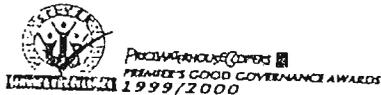
Please liaise with Prof Naicker, Head - Dialysis and Transplant on ext: 2289 for further arrangements.

You are wished every success with your study.

(for) CHIEF MEDICAL SUPERINTENDENT

ERN/rb

c.c. Prof Naicker



## ANNEXURE E



KwaZulu-Natal Provincial - Health Services  
King Edward VIII Hospital

### Office of the Chief Medical Superintendent

Postal Address: Private Bag, Dalbridge, 4014. • Telephone: 031 3603015 • Fax: 031 2061457 • Email Address: [mhlambi@dohke8.kzntl.gov.za](mailto:mhlambi@dohke8.kzntl.gov.za)

Reference: KE 2/7/1  
Research Programming  
26 April 2001

Miss Thandelize M. Shabalala  
School of Nursing  
Faculty of Community and Development Disciplines  
Durban  
4001

#### **REQUEST TO CONDUCT RESEARCH AT KING EDWARD VIII HOSPITAL.**

1. I am pleased to inform you that your application dated 23 March 2001 is approved.
2. Please furnish the following to King Edward VIII Hospital Management:
  - (i) a copy of the progress report to the Ethical Committee or quarterly reports from other institutions.
  - (ii) full acknowledgement of King Edward VIII Hospital's role in the study in all publications and reports.
  - (iii) A copy of the publication or report on completion of study.
3. King Edward VIII Hospital Management reserves the right to terminate the permission for the study should circumstances so dictate.
4. Thanking you in anticipation.

Yours sincerely:

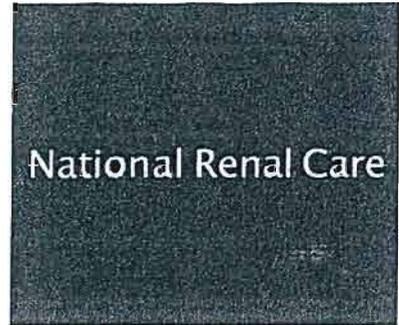


Dr. S.A. Mhlambi  
Chief Medical Superintendent.

ANNEXURE F

P O Box 701128  
Overport  
4067

Tel : 031 - 202 8730  
Fax : 031 - 202 8817



# Fax

To: Jan Wilson From: Mrs W E Rowbotham  
Fax: 011 - 4824404 Pages: 13 including this one  
Phone: \_\_\_\_\_ Date: 10/4/01  
Re: \_\_\_\_\_ CC: \_\_\_\_\_

Urgent  For Review  Please Comment  Please Reply  Please Recycle

Dear Sam

Please let me know a.s.a.p  
what you think of this  
research request

Thanks WR