

UNIVERSITY OF CAPE COAST

CORRELATION BETWEEN PSYCHOSOCIAL FACTORS AND
HEALTH-RELATED QUALITY OF LIFE AMONG HAEMODIALYSIS
PATIENTS IN KUMASI, GHANA.

BY
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of Education Studies, University of Cape Coast, in partial fulfilment of the
requirements for the award of Master of Philosophy degree in Clinical Health
Psychology.

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DECLARATION

Candidate's Declaration

I hereby declare that this thesis is the result of my own original research and that no part of it has been presented for another degree in this university or elsewhere.

Candidate's Signature.....Date.....

Name:.....

Supervisor's Declaration

We hereby declare that the preparation and presentation of the thesis were supervised in accordance with the guidelines on supervision of thesis laid down by the University of Cape Coast.

Principal Supervisor's Signature.....Date.....

Name:.....

Co-Supervisor's Signature.....Date.....

Name:.....

ABSTRACT

End-stage renal disease, which is a public health problem that tends to take dimensions of an epidemic, is now prevalent in Ghana. The treatment modality available in Ghana for ESRD is haemodialysis. However, haemodialysis is both lifesaving and life altering. As such, ESRD and its treatment create turmoil that affects all aspects of a patient's life. This study, therefore, aimed at evaluating the correlation between psychosocial factors and health-related quality of life of haemodialysis patients.

The study performed a descriptive correlation study of 30 End-stage renal disease patients who had received maintenance haemodialysis for more than 3 months at two dialysis centres in Kumasi, Ghana.

The results of the study revealed that 80% and 20% of patients met the clinical diagnosis of severe depression and anxiety respectively. The results again indicated that respondents had poor or comprised quality of life. On the correlational analysis, depression and anxiety had an inverse or negative correlation with perceived health related quality of life of patients, perceived social support had a negative correlation with both depression and anxiety, and lastly income levels had a negative correlation with depression.

It is recommended that a comprehensive clinical health psychology service to run concurrently with a renal counselling support service within the dialysis centers. Furthermore, dialysis treatment should be made affordable to improve the emotional wellbeing of haemodialysis patients.

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DEDICATION

To my parents, Mr. Amoako Bonti, Mrs. Martha Homeda and my siblings.

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LIST OF ABBREVIATIONS

ESRD	End-Stage Renal Disease
HD	Haemodialysis.
RRT	Renal Replacement Therapies
DOPPS	Dialysis Outcomes and Practice Patterns Study
CKD	Chronic Kidney Disease
RRT	Relational Regulation Theory
HRQOL	Health Related Quality Of Life
USRDS	U.S. Renal Data System
PCS	Physical Component Score
GFR	Glomerular Filtration Rate
ESA	Erythropoietin-Stimulating Agents
IQOL	Individual Quality Of Life
BDI	Beck Depression Inventory
PCS & MCS	Physical Component Summary & Mental Component Summary Subscale.
BKD	Burden of Kidney Disease Subscale
SYMP & PRO	Symptoms and Problems Subscale.
EFKD	Effects of Kidney Disease Subscale.

CHAPTER ONE

INTRODUCTION

Background of the Study

Chronic kidney disease (CKD) is the progressive loss of kidney function occurring over months to years (National Kidney Foundation, KDOQI, 2002). CKD can be classified into five stages with stage five known as End-Stage Renal Disease (ESRD). For an individual to have the diagnosis of ESRD or Chronic Renal Failure (CRF) he/she must lose over one-third of their kidney function. This loss of function should persist for over three months. Signs and symptoms usually start when the kidneys are working below 40%. Once they are working below 10%, individual needs dialysis or a transplant to stay alive (Steddon, Ashman & Cunningham, 2006).

Chronic renal failure affects between 5%-15% of the adult population in the developed world (Coresh, Selvin, Stevens, Manzi & Kusek, 2007). From the year 2000 to 2015, incidence and prevalence of ESRD are said to have increased by 44% and 85%, respectively, and prevalence rates per million population increased 70% (Gilbertson, Lui & Xue, 2005). In Africa, end-stage renal disease is estimated to affect about 10.4% of some populations (Afolabi, Abioye-Kuteyi, Arogundade & Bello 2009) making it a significant public health issue. The same End-stage renal disease or renal failure accounts for 8-10% and 5% of medical admissions in Nigeria (Akinsola, Odesanmi, Ogunniyi, & Ladipo, 1989) and Ghana (Plange-Rhule, Phillips, Acheampong, & Saggar-Malik, 1999) respectively. Osafo, Mate-Kole, Affram, and Adu (2011) found a prevalence of 46.9% among hypertensive patients in a Ghanaian outpatient setting. Mortality associated with end-stage renal disease

(ESRD) is also high according to Ansell, Roderick, & Udayaraj (2006). According to Mate-Kole, (2007) there is an epidemic of kidney disease in Ghana where increasing numbers of end-stage renal patients require haemodialysis. He further states that 10% of all medical admissions have chronic kidney disease. In Ghana, haemodialysis is the main treatment option since peritoneal dialysis is not offered in Ghana, and until recently, renal transplants were also not done in the country (Ababio, 2013).

The disease, treatment and associated demands have significant impact on the patient's physical and emotional wellbeing and interfere with the patients social roles (Saban, Stroupe, Bryant, Reda, Browning, & Hynes 2008). The heavy psychosocial burdens borne by patients with end-stage renal disease are well recognised. The common psychosocial problems in chronic dialysis patients include anxiety, depression, hostility, and suicidal tendencies (Devins, Binik, & Mandin, 2008). With respect to the particular life situations experienced by renal patients (loss of renal function, impaired well-being and loss of position in family and work, as well as loss of time, compromised financial resources and loss sexual function) anxiety and depression are relatively common. Depression in renal patients has been associated with immunological and nutritional dysfunction (Kimmel, Wehis, and Peterson, 1993; Kimmel, 2002), a more negative perception of disease (Kimmel, 2001), and a decreased HRQOL (Patel, Shah, Peterson, & Kimmel, 2002). Anxiety has been associated with decreased HRQOL, primarily in the first few months of haemodialysis and in elderly patients (Cukor, Cohen, Peterson, and Kimmel, 2007). Patients with both depression and anxiety may represent a population at particular risk of high mortality and morbidity. Comorbid

depression has been associated with more profound physiological abnormalities and treatment resistance (Pollack, 2005).

The prevalence of depressive disorder in haemodialysis patients is at 20% to 30%, while that of anxiety prevalence is also at 19% to 30% (Cukor, et al. 2007; Cukor, Peterson, Cohen, & Kimmel 2006; Taskapan et al., 2005). A qualitative study on haemodialysis patients in Ghana by Achempinm-Ansong and Donkor, (2012), appears to indicate that the respondents in that study experienced depression, anxiety, fear, and anger about their dependence on haemodialysis for their survival.

Social support consists of obtaining resources (whether material, cognitive, or emotional) through interaction with other people or sources of support. These resources reduce the perception of bodily threat and facilitate a more effective approach to coping with stressful situations (Kimmel, 2001). In renal patients, social support influences survival, adherence to treatment, and the intensity of symptoms of depression (Patel, Peterson & Kimmel, 2005; McClellan, Stanwyck & Anson, 1993). According to Cohen et al., (2007) increased social support in ESRD has the potential to affect outcomes positively, through a number of mechanisms including decreased levels of depression affect, increased patient perception of quality of life, increased access to health care, increase patient compliance with prescribed therapies, and direct physiologic effects on immune system. The disease and its dialysis treatment affect social aspects of dialysis patients' life in Ghana (Achempinm-Ansong & Donkor, 2012). Individuals with ESRD social experiences included challenges encountered with their sexual activities, intentional self-isolation

from social gatherings, and strained interpersonal relationships with family members and friends (Achempinm-Ansong & Donkor, 2012).

In recent decades, several medical advancements in optimizing haemodialysis techniques have been made. However, it has been argued that a number of restrictions and modifications accompany this treatment, which have a detrimental impact on the quality of patient's life and affect individuals' physical and psychological well-being (Gerogianni, 2003).

In order to evaluate the interference that renal disease and its treatments produce in the adaptive functioning of these patients, HRQOL (HRQOL) was developed as a method of measurement. HRQOL is an evaluation of individual health and functioning in terms of daily activities, including physical, psychological, and social function, and the patient's general perception of health, mobility, and emotional well-being (Gerogianni, 2003). It is now a fundamental component of providing integrated care for patients with chronic disease. Over the past few decades, quality of life research endpoints have emerged as valuable research tools in assessing the outcome of therapeutic intervention in chronic diseases (Kaufman, 2001). ESRD is one such chronic disease causing a high level of disability in different domains of patients' lives, leading to impaired quality of life (Saban et al., 2008). The availability of various renal replacement therapies (RRT) has reduced the severity of symptoms and resulted in longer survival of ESRD patients (Hudson & Johnson, 2004). However, haemodialysis alters the life style of the patient and family and interferes with their lives. The major areas of life affected by ESRD and its treatment includes employment, eating habits, vacation activities, sense of security, self-esteem, social relationships, and the

ability to enjoy life (Smeltzer & Bare, 2004). Due to these reasons, the physical, psychological, socioeconomic, and environmental aspects of life are affected negatively, leading to compromised quality of life (Blake, Codd, & Cassidy, 2000; Lopes, Bragg-Gresham, & Goodkin, 2007).

In its use in chronic kidney disease, HRQOL indicators have proven to have a tight relationship with morbidity and mortality rates (Lopes et al., 2007). In addition, dialysis produces several changes in patient lifestyle, which if left unattended, can decrease HRQOL (Sanchez, Montejo & Llorca, 2006). Several studies have evaluated HRQOL in renal patients on haemodialysis. The results from these studies have shown that deterioration in HRQOL is associated with clinical variables (Odden, Whooley, & Shlipak, 2006), socio-demographic (Barotfi, Molnar, & Almasi, 2006) and dialysis characteristics variables (Jofre, Lopez-Gomez, & Valderrabano, 2000) as well as emotional alterations (Kimmel, 2001). In order to provide integrated care to renal failure patients, it is essential that psychosocial factors that can affect HRQOL be acknowledged, moderating the interference that the disease produces in patient's capacity for adaptive functioning.

Statement of the Problem

Diagnosis of End-stage renal disease (ESRD) creates turmoil that reaches into all aspects of a person's life. The diagnosis precipitates lot of emotions, including fear and anger, despair and hope. Life with kidney failure becomes challenging. Patients' physical health, functional status, personal relationships, social and economic prosperity are greatly affected. These experiences show that the psychosocial environment in which ESRD patient lives might affect the course of the disease and the patient's physical well-

being. Therefore, the chronicity of ESRD and the uncertainties surrounding the course of the disease necessitates ongoing psychosocial assessments (depression, anxiety, and social support) of these patients in Ghana.

Treatment goal of end-stage renal disease in developed nations have evolved over time from mere survival to achievement of a certain level of well-being (Unruh & Hess, 2007). However, haemodialysis, which is the most frequent treatment method for ESRD in Ghana, is time-intensive, expensive, requires fluid and dietary restrictions, which have a detrimental impact on the quality of patients' life and affects individuals' physical and psychological well-being (Gerogianni 2003). Quality of life influences the morbidity and mortality in ESRD patients on dialysis (Kimmel & Patel 2006). Hence, this suggests a need for assessment of patients' perceived quality of life and the identification of psychosocial factors (depression, anxiety, and social support) that can influence quality of life in patients receiving haemodialysis in Ghana.

Finally, ESRD, which is prevalent in Ghana (Badu, 2014), is associated highly with negative psychosocial outcomes in patients being treated with haemodialysis (Kimmel, 2001) needs to be studied using Ghanaian samples to address these negative psychosocial problems (depression, anxiety and poor social support). Regrettably, these psychosocial variables in most dialysis patients in Ghana are not assessed (Ababio, 2013). Moreover, it is not clear how these psychosocial problems related or affect patient's HRQOL. Hence, a study on the correlation between psychosocial factors and quality of life among individuals diagnosed with ESRD is needful to report a better clinical picture.

Purpose of the Study

The study sought to explore the correlation between psychosocial factors and perceived health related quality of life of people diagnosed with ESRD who are receiving dialysis treatment in Kumasi, Ghana. Specifically, the study sought to:

1. Ascertain the relationship between depression and perceived health related quality of life.
2. Ascertain the relationship between anxiety and perceived health related quality of life.
3. Explore the relationship between social support and perceived health related quality of life
4. Identify the relationship between perceived social support and depression.
5. Identify the relationship between perceived social support and anxiety.
6. Identify the relationship between income levels of people and depression.
7. Ascertain the reported prevalence level of depression, anxiety, and perceived social support as well as HRQOL among subjects.

Hypotheses

1. Ho: There is no significant relationship between depression and HRQOL among haemodialysis patients.
H₁: There is a relationship between depression and HRQOL in haemodialysis patients.

2. Ho: There is no significant relationship between anxiety and HRQOL among haemodialysis patients.
H₁: There is a relationship between anxiety and HRQOL in renal patients.
3. Ho: There is no significant relationship between perceived social support and HRQOL among haemodialysis patients.
H₁: There is be a relationship between perceived social support and HRQOL in dialysis patients.
4. Ho: There is no significant relationship between perceived social support and depression in haemodialysis patients.
H₁: There is a relationship between perceived social support and depression in haemodialysis patients.
5. Ho: There is no significant relationship between perceived social support and anxiety among haemodialysis patients.
H₁: There is a relationship between perceived social support and anxiety.
6. Ho: There is no significant relationship between depression and income level of haemodialysis patients.
H₁: There is a relationship between depression and income level of patients.

Research Question

1. What is the reported prevalence of depression, anxiety and perceived social support as well as HRQOL among the study subjects in Kumasi?

Significance of the Study

This study sought to provide the Ministry of Health and other stakeholders in the management of ESRD, like the Ghana Health Service, with a clinical psychosocial factors and quality of life perception. The finding would inform the health practitioners of treatments and referral services when working on individuals with ESRD patients in Ghana.

There is a need for a more holistic care in the management protocols of ESRD in Ghana. As such, the findings of the study would inform both the Ghana Health Service (GHS) and the Ministry of Health (MOH) that the need to include psychosocial care is imperative.

Results from this study would also inform clinical health psychologists in Ghana of the need to offer or attach psychosocial interventions to the holistic management of ESRD. This is needed in the current practice of clinical health psychologist in Ghana, as psychosocial interventions have always been part of the management of ESRD across the globe (Kimmel & Patel, 2006).

The findings of the study would aid patients to seek early psychosocial interventions since it would identify the psychosocial factors affecting haemodialysis patients. Which in turn would enable patients to enjoy longer survival with maximum attainable state of wellbeing.

The results of the study would inform families, friends, and significant others of haemodialysis patients on the psychological problems that accompany the disease and its available treatments. Families and friends will be enlightened on how providing social support can alleviate some of these

psychological turmoil, increase survival and provide a more satisfactory life by increasing the quality of life of these patients.

Lastly, findings from this study will also make recommendations that will be valuable for future researches on the psychosocial factors and quality of life of individuals with ESRD. Again, it would be a valuable enrichment to existing literature since this study will provide additional data on Ghanaian patients with ESRD.

Delimitation of the Study

The study was restricted to individuals from three dialysis centres, all located at the Kumasi Municipal Assembly in the Ashanti region. Patients' with the diagnosis of ESRD were the subjects of the study. Specifically, the study covered only subjects aged 18 years and above and have been receiving haemodialysis treatment over 3 months. Patients who meet the inclusion criteria but had any known history of psychiatric or mental illnesses were not included.

Among the numerous psychosocial factors affecting chronic kidney disease patients, this study focuses only on depression, anxiety, and perceived social support.

Limitations of the Study

The first limitation of the current study was the small sample size of 30. The main cause of the relatively small number of patients lies in the inclusion criteria which was based on the duration of dialysis treatment (3 months and more), this drastically reduced the potential pool of participants. The objective of this criterion was to ensure optimal comprehension of the

psychological tests especially the KDQOL-SF 36 that was used to assess HRQOL. This was to help achieve maximum validity of the results obtained. Another reason for the small sample size was that, out of the proposed three study centres for data collection only two centres agreed for the study to be undertaken at their site. Specifically, Peace and Love hospital regardless of giving an approval letter (Appendix C) upon the review of the research protocol, gave a directive that all ongoing research at their facility were to halt. To minimise this effect, the study used census-sampling technique to capture all respondents who meet the inclusion and exclusion criteria at the two remaining dialysis centres.

The study made use of self-report scales, which has some limitations, in that; scores can be easily exaggerated or minimized by the person completing them. Like all questionnaires, the way the instrument is administered can have an effect on the final score. Notwithstanding this limitation, self-report scales was used as it is cost effective, simple to read, understand and interpret as well as provides information with certain objectivity (Lucas & Baird 2006)

The research design adopted also has some limitations, Fraenkel and Wallen (2000) identified the weakness of the descriptive survey as (1) Difficulty in ensuring the questions to be answered are clear and not misleading. (2) Getting respondents to answer questions thoughtfully and honestly is a setback, and (3) getting a sufficient number of questionnaires completed and so that meaningful analysis can be made. Osuola (2001) in buttressing the points on the weakness of the descriptive research, pointed out that, “designing a quality investigation requires particular attention to two

central factors: appropriate sampling procedures and precision in defining terms in eliciting information” (p. 201). He continued by adding that, while descriptive research is a prerequisite for finding answers to questions, it is not in itself sufficiently comprehensive to provide answers and that it cannot provide cause-and-effect relationships. These shortfalls were minimised by ensuring that instruments are clear, not ambiguous and provided a signed consent form to ensure confidentiality on the responds.

Definition of Key Terms

1. **Chronic Renal Failure. (CRF) or End-stage renal disease (ESRD)**
is a slowly progressive loss of renal function over a period of months or years, in which patients require dialysis or kidney transplants for survival.
2. **Haemodialysis** - It is a method of removing fluid and waste products from the blood when the kidneys are unable to do so because of impaired function, by using the advanced technology of a haemodialysis machine and unit called dialyzer.
3. **HRQOL** - is an evaluation of individual health and functioning in terms of daily activities, including physical, psychological, and social function, and the patient’s general perception of health, mobility, and emotional well-being.

Organisation of the Rest of the Study

Chapter Two centres on relevant literature related to the nature of ESRD, HRQOL, and psychosocial factors. The same chapter describes the conceptual framework and theoretical frameworks for the study. Lastly,

empirical review on the study is provided. Chapter Three describes the research methodology used, thus the research design, the population, sample and sampling procedures for the study, as well as the research instrument, pre-testing procedure, data collection procedure and analysis of data.

Chapter Four presents the research results and discussion of the findings in relation to the reviewed literature. Chapter Five summarizes the study, provides relevant conclusions and recommendations based on research findings.

CHAPTER TWO

LITERATURE REVIEW

Introduction

This chapter present the review of literature relevant to the present study. The nature and treatments of ESRD are explored as well as factors that affect haemodialysis patients. Conceptual and theoretical framework that governs the study as well as empirical review of related studies has been discussed. Lastly, the chapter will provide a summary of the review of literature.

Nature of End Stage Renal Disease

ESRD patients in the world face an incurable, life-threatening, chronic disease. Only few decades ago, an ESRD diagnosis meant near certain death (U.S. Renal Data System [USRDS], 2004). According to Christensen and Ehlers (2002), upon the cessation of renal function, excess fluid, metabolic toxins, and electrolytes rapidly accumulate in blood and bodily tissues. These substances must be removed by alternative means if the ESRD patient is to survive. For most patients, ESRD is the result of a progressive deterioration in kidney function over a period of months or years that is secondary to another chronic medical condition (for example diabetes or hypertension). Diabetic nephropathy is the most common etiological factor, accounting for over one third of new ESRD cases (USRDS, 2004). In Ghana, hypertension and diabetic nephropathy are the most common etiological factors, aside chronic glomerunephritis (33%). With hypertension and diabetes mellitus, accounting for 21.2% and 22.2% respectively of all ESRD cases in Ghana (Amoako, Laryea, Bedu-Addo, Ando & Awuku, 2014).

Treatment of End-Stage Renal Disease

Currently available treatments for ESRD include renal transplantation and several forms of renal dialysis. In general, the choice of a particular ESRD treatment is substantially influenced by nonmedical factors, including patient and provider preferences and judgments about which modality is likely to be associated with the most favourable patient adherence and quality of life (Christensen & Moran, 1998; Davison, 1996). A successful renal transplant is generally thought to hold certain advantages in terms of patient quality of life (Christensen, Holman, Turner, Smith, & Grant, 1991). However, because of a perennial shortage of donor organs and a significant transplant rejection rate, renal dialysis remains the prescribed treatment for the large majority of patients.

The availability of various renal replacement therapies (RRT) has reduced the severity of symptoms and resulted in longer survival of ESRD patients (Hudson, & Johnson, 2004). However, haemodialysis therapy, which is the readily available treatment in Ghana, is time-intensive, expensive, and requires fluid and dietary restrictions (Gerogianni, 2003). Long-term dialysis therapy itself often results in a loss of freedom, dependence on caregivers, disruption of marital, family, and social life, and reduced or loss of financial income (Lin, Lee & Hicks, 2005). Haemodialysis alters the life style of the patient and family and interferes with their lives. The major areas of life affected by ESRD and its treatment includes employment, eating habits, vacation activities, sense of security, self-esteem, social relationships, and the ability to enjoy life (Smeltzer & Bare, 2004). Due to these reasons, the

physical, psychological, socioeconomic, and environmental aspect of life becomes affected, leading to compromised HRQOL (Blake et al, 2000).

Health Related Quality of Life of Haemodialysis Patients

Accumulated data in the recent decade show that HRQOL markedly influences dialysis outcomes. Attention thus needs to be focused not only on how long but also on how well ESRD patients live. Compared with the general population, ESRD patients treated with haemodialysis have significantly impaired HRQOL (Molsted, Aadahl, Schou, & Eidemak 2004).

Evaluation of HRQOL in patients with chronic diseases is becoming very important. HRQOL assessment helps to plan the individual strategy of treatment, to determine the efficacy of medical intervention, and to evaluate the quality of medical care. In comparison with HRQOL of the general population, it provides the opportunity to evaluate the psychological burden of chronic disease, and the effect of specific treatment (Mapes, Bragg-Greshman, & Bommer, 2004). Other studies have shown international differences in HRQOL of ESRD patients treated with haemodialysis (Saran, Bragg-Greshman, & Rayner, 2003).

End-Stage Renal Disease is a life-threatening disease that leads to numerous and severe symptoms and complications. These severe comorbid conditions will have a major impact on the affected patient's HRQOL. Renal replacement therapies (RRT) are able to alleviate, but they are very intrusive and cure neither the disease nor its symptoms (Thomas, Kanso & Sedor, 2008). Patients suffering from ESRD need RRTs to survive, but they also expect to achieve a certain level of wellbeing. In industrialized countries, achieving survival is not enough for a treatment to be considered "successful"

unless it also yields an appreciable gain in HRQOL (Cohen & Germain, 2005). Thus, the results of studies suggest that the quality of life of haemodialysis patients is considerably impaired compared to that of the healthy subjects, especially with respect to the physical, psychological and social relationship domains (DeOreo, 1997). In a previous Dialysis Outcomes and Practice Patterns Study (DOPPS), lower scores in several measures of HRQOL, particularly PCS, were found to be strongly associated with higher risk of death in Japan, Europe, and the United States (Mapes et al, 2003). Other studies have shown that patients on haemodialysis have a poor HRQOL and present with complications such as depression, malnutrition, and inflammation (Soni, Weisbord & Unruh, 2010; Mollaoglu, 2006 and Christensen & Ehlers, 2002). Many of them suffer from impaired cognitive functioning such as memory loss and abnormally low concentration, as well as other unhealthy physical, mental, and social aspects of life that can, and do, affect even the simplest activities of daily life (Walters, Hays & Spritzer, 2002).

On the other hand, many researchers emphasize that an improvement in HRQOL reduces the complications associated with this disease, or at least makes them more tolerable (Mau, Chiu, & Chang, 2008). Therefore, it is useful to determine the level of renal function related to the decreasing point of HRQOL for the adequate intervention to enhance HRQOL. Improving quality of life of the dialysis patient population has evolved as a goal for renal replacement therapy.

Factors Associated with Health Related Quality of Life of ESRD Patients Undergoing Haemodialysis

End-stage renal disease patients undergoing haemodialysis has a considerable impact on the functional status and HRQOL perceived by the patient as it is accompanied by symptoms that affect daily life (Jofre et al., 2000). Over the years, several studies have assessed HRQOL in different ESRD populations. These reports reveal numerous socio-demographic, clinical, and psychosocial factors that are associated with impaired HRQOL.

It has been repeatedly demonstrated, that female patients undergoing haemodialysis consistently report worse HRQOL than men (Rocco, Gassman & Wang, 1997). Women have lower quality of life scores than men (Rebollo, Ortega, & Baltar, 1998). This may be explained by women's multiple domestic tasks and responsibilities that, unlike men, they cannot circumvent (Turner-Musa, Leidner & Simmens, 1999). In addition, one potential explanation may be the more negative disease perception and the increased prevalence of depression in women. Moreno, Lopez-Gomez & Sanz-Guajardo (1996) in their multicentre cross-sectional study, and Sesso, Rodrigues-Neto & Ferraz (2003) in their prospective cohort study, also found that higher socioeconomic level was significantly related to better quality of life. A lower social status, characterised by lower education, worse financial situation, or lack of employment, has also been consistently associated with impaired quality of life (Rocco et al., 1997). This association is important, as vocational and educational rehabilitation could substantially improve HRQOL.

The association of age with HRQOL is quite complex and illustrates the complexity of the quality of life concept. Some studies conducted in

different countries also demonstrated that age was strongly inversely associated with the physical domain scores (Blake et al., 2000). As age increases in the elderly, physical function of the body decreases (Simmons & Abress, 1990; Kimmel, Peterson, & Weihs. 1995). The subjective quality of life for elderly patients, however, varies depending on their expectations and beliefs. This could be good when compared to their younger counterparts (Barotfi et al., 2006).

Several clinical factors are strongly associated with HRQOL in haemodialysis patients. The underlying kidney disease leading to renal failure, the presence, and severity of diabetes (Sorensen, Mathiesen & Watt, 2007), and comorbid conditions in general (Barotfi et al., 2006), and congestive heart failure in particular predict impaired quality of life (Silverberg & Blum, 2005). Walters et al. (2002) assessed HRQOL, depressive symptoms, anaemia, and malnutrition at haemodialysis initiation and found that 56% of the sample group (422) had a haemoglobin levels less than 10g/dl. Chronic inflammation, presence of malnutrition, and different medications' side effects have been reported to predict worse HRQOL (Kalantar-Zadeh & Unruh, 2005). However, it is important to note that the different comorbidity indices are used to measure comorbid burdens and clinical and socio-demographic factors only explains a fraction of HRQOL variability.

Duration of dialysis plays an important role affecting quality of life in dialysis patients. According to Vasilieva (2006), duration of dialysis was a significant independent predictors of the low physical component score (PCS) in haemodialysis patients. Anees, Hameed & Mumtaz (2011) made a similar observation that duration of dialysis had a reverse correlation with quality of

life. In another study, haemodialysis patients with duration less than 8 months had better qualities of life than patients who had dialysis duration of more than 8 months (Mollaoglu, 2004).

Several psychosocial factors have shown to be strongly predictor of HRQOL scores. Mollaoglu (2004) indicated that two third of ESRD patients in Turkey had depression and found an association between depressed mood and HRQOL. The higher depression scores the lower HRQOL scores. She explained that as a direct influence of chronic renal insufficiency on HRQOL. Another study indicated that the mental health was significantly higher for patients treated in the United States than in Europe (Fukuhara, Bito, & Green, 1998).

In another study by Jofre et al., (2000) which reviewed the factors affecting the quality of life of renal failure patients, found that the prevalence of depression is within 70% in the dialysis population using Beck Depression Inventory (BDI). They also indicated that depression has a significant impact on the perception of quality of life. Anxiety is another psychological response to haemodialysis by patients and it is related to the awareness of one's illness and the sense of dependency on the machine. Patients are concerned about the unpredictability of the illness and the disruption of their lives, they are chronically ill and fear dying (Smeltzer, & Bare, 2004).

Anxiety, loss of control, body image and sexual problems, social support, and unemployment are all factors that strongly influence quality of life in haemodialysis patients (Mollaoglu, 2013). The impact of high levels of anxiety or an anxiety diagnosis on outcomes is also unclear (Jadoulle, Hoyois & Jadoul, 2005). Anxiety's negative impact on quality of life (QOL) and

disability across multiple illnesses is known, but its specific effect in ESRD has not been studied. Anxiety has been associated with decreased HRQOL, primarily in the first few months of haemodialysis and in elderly patients (Mollaoglu, 2013).

Patients with ESRD undergo a number of lifestyle, dietary, and fluid restrictions in order to accommodate their illness (Binik et al., 1993). These lifestyle restrictions significantly affect social functioning with patients performing a balancing act to ensure maintenance of vitamin, iron, and protein levels. Such restriction can influence patients' illness beliefs, sense of personal control leading to anxiety and depression, inhibiting coping and adjustment (Christensen & Moran, 1998; Davison, 1996). This study will be limited to psychosocial factors like depression, anxiety, and depression.

Kimmel, Thamer, Richard, and Ray, (1998) investigated the impact of psychosocial factors on behavioural compliance and survival in urban haemodialysis patients. Depression was related to decreased adherence to treatment. Depression is recognised strongly as a common psychological problem in haemodialysis patients. The rate of psychiatric disorders in a population of ESRD patients was considerably higher than in a population with other chronic medical conditions (Kimmel 2002). Chilcot, Wellsted and Farington, (2010) reported that 20%-30% of ESRD patients have significant depressive symptoms compared to the lifetime prevalence of depression in the general population of approximately 16%. Depression can complicate long-term conditions, potentially becoming more resistant to treatment over time (Kimmel, 2001). He further reported that depressed patients are three times as

likely to be noncompliant with treatment recommendations as non-depressed patients are.

Most studies rely exclusively on self-report scales as a broad measure of anxious distress (Martin, Tweed, & Metcalfe, 2004). The impact of high levels of anxiety or an anxiety diagnosis on outcomes is also unclear. Anxiety's negative impact on QOL and disability across multiple illnesses has been demonstrated, but its specific effect in ESRD has not been studied. (Sareen, et al., 2006). According to Cukor et al., (2007) the prevalence of anxiety in dialysis patients is at 19% to 30%. Patients with depression and anxiety, or depression and another psychiatric diagnosis may represent a population at particular risk. Comorbid (so-called “compound”) depression has been associated with more profound physiological abnormalities and treatment resistance (Pollack, 2005).

For patients with chronic diseases, daily activities and social support are of great importance for maintaining a satisfactory QOL. Social support and integration in the community are important factors, which help patients in adjusting to a chronic illness (Coresh et al., 2007). The provision of social support to patients with ESRD is associated with reduction in depressive symptoms, positive perception of their illness and their general satisfaction with life (Kimmel & Patel, 2006; Patel, Peterson & Kimmel, 2005). This is because social support may improve the mood of patients and reduce symptoms of anxiety, concerning the regular transportation to and from the dialysis units and the future of their treatment.

Conceptual Framework

The figure below shows the proposed conceptual framework of the study's hypothesized findings. The figure indicates expected significant relationships between the variables used in this study. Depression, anxiety and social support all will have a significant relationship with HRQOL of individuals diagnosed with ESRD. Social support will again have a significant relationship with both depression and anxiety. It is again expected that individual income level will have significant relationship with depression among ESRD patients

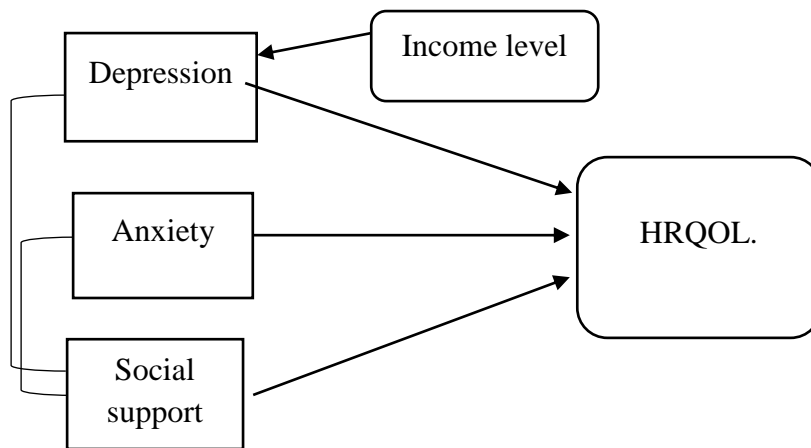


Figure 1: Psychosocial Factors

Theoretical Framework

Bio-psychosocial Model

Anderson and Armstead (1995) advanced the bio-psychosocial model first elaborated by Engel (1977) to encompass many levels that may interact to determine health status. Some of these levels include individual demographic data (age, ethnicity, and gender), physiological measures (body mass index, cardiovascular immunologic and conditioning status), psychological and behavioural parameters (distress, personality factors, health-promoting or damaging habits), and social factors (level of social support, access to health

care, occupational imperatives, residential characteristics and SES). Psychological and social parameters might include feelings, personality factors, and perceptions of distress, illness or well-being, whereas social measures include marital satisfaction, satisfaction with health care, compliance with the dialysis regimen, and level, number, and quality of interactions with dialysis personnel and staff. ESRD patients exist in a complex network encompassing, at the minimum, family, physicians, dialysis staff, clinic personnel, hospitals, and dialysis. Underpinning the biopsychosocial model is the belief that every human is a unique and complex interconnection between the physical, psychological and social aspects of their daily life (Broome & Llewelyn, 1995).

The model shows how ESRD and the associated treatment lead to many major losses. These losses can be associated with physical impairment, lifestyle, life roles and time (Devins, Mann & Mandin, 1990). These losses compound ultimately to the major loss of future aspirations. For example, one patient recently told the researchers that their life had just 'stopped' since the commencement of dialysis. The patient stated that they were of the age where marriage and children were important, plus their career had just begun and all this had been put on hold until a kidney transplant was possible. Consequently, many emotional responses to a chronic illness can be expected such as anger, grief, depression and anxiety (Broome & Llewelyn 1995).

Relational Regulation Theory (RRT)

Relational regulation theory (RRT) was developed by Lakey and Orehek to explain perceived support's link to emotional and affective disturbance in adults and adolescents. The most relevant phenomena are

described by diagnostic criteria for anxiety and mood disorders, as well as self-report measures of anxiety, depression, and general psychological distress. These typically involve high negative affect and, often, low positive affect (Watson, Clark, & Carey, 1988). RRT applies to negative thoughts about the self, world, and future, given that depression and anxiety are strongly linked with such negative thoughts (Dozois & Beck, 2008). RRT also applies to behaviour associated with psychological distress (e.g., crying, support seeking, and drug taking).

Lakey and Orehek relied on the definition of relational from the social relations model (Kenny, Kashy, & Cook, 2006). Relational influences occur when a provider elicits affect, action, or thought in a recipient that is not characteristic of how the recipient typically responds to other providers and is not characteristic of what the provider typically elicits in other recipients.

As applied to affect, relational influences occur when, for example, a specific recipient experiences less sadness in response to a specific provider than is typically experienced with other providers and less sadness than the provider typically elicits in other recipients. With regard to action, a recipient drink more than usual when with a specific provider and more than the provider typically elicits in other recipients. When perceived support and affect are specifically relational, we refer to them as relational perceived support, relational affect (Lakey & Orehek, 2011).

RRT defines relational regulation as desired affect, action, or thought that results from interacting with or thinking about specific other people. Quasi-relational regulation occurs from interacting with or thinking about activities, symbolic people, animals, ideas, or objects. Regulation is relational

insofar as the provider elicits reactions in the recipient beyond how other recipients typically respond to the provider and beyond how the recipient typically responds to other providers. We assume that people have preferred levels of affect, action, and thought for specific contexts and that people are motivated to achieve and maintain those preferred levels. What is desired depends on the person. Providers desired levels of talkativeness might conflict with a recipient's desired levels.

Relational regulation can occur within any period, ranging from seconds to hours to years. At one extreme, one might switch conversation partners within seconds. At another extreme, one might build a career over the course of decades. Relational regulation can be controlled or automatic (Gallo, Keil, McCulloch, Rockstroh & Gollwitzer, 2009). For example, switching careers might require years of planning and preparation, whereas channel surfing might involve little conscious awareness and resource consumption. Social interaction can be launched by a person seeking to regulate him or herself or by a person seeking to regulate another (e.g., when a parent regulates a child). Regulation among people is typically reciprocal in that interaction launched by a recipient will also influence the affect, thought, and actions of the provider, which will in turn influence the recipient.

Key principles of Relational Regulation Theory

Recipients regulate their affect, action, and thought primarily through social interaction. RRT accepts a key feature of attachment theory and the need to belong, hypothesis (Baumeister & Leary, 1995). People need a few ongoing personal relationships to maintain their emotional well-being. Thus, the link between perceived support and mental health primarily reflects social

interaction, although thought alone about providers can influence mental health. RRT and stress buffering theory are similar in focusing on the importance of personal relationships and social interaction for human well-being. However, stress-buffering theory emphasizes enacted support, and as described later, RRT emphasizes ordinary yet affectively consequential social interaction. Their shared focus on social interaction differs from theories that describe the trait-like aspect of perceived support. (Lakey & Cassady, 1990; Sarason, Pierce, & Sarason, 1990; Uchino, 2009). Evidence for this principle is not unique to RRT and is provided by the voluminous research on the link between perceived support and mental health (Brewin, Andrews & Valentine, 2000; Lakey & Cronin, 2008). It is then believed that, among ESRD patients this link between perceived social support, depression and anxiety.

Social interaction primarily regulates affect, action, and thought relationally. Phrased differently, the specific provider who successfully regulates a specific recipient is primarily a matter of personal taste. For example, one provider's stoicism and another provider's emotional expressiveness will be effective for different recipients. Regulation through interacting with activities, symbolic people, animals, ideas, and objects is also largely relational. That is, people differ greatly in their affective, cognitive, and behavioural reactions to different sports, TV characters, dogs, music, and cars. By emphasizing relational influences, RRT is explicitly idiographic at one level. That is, recipients' profiles of reactions to the same providers vary greatly across recipients in a way that is not captured well by the objective characteristics of providers or their actions. Instead, investigators must map each recipient's profile of reactions across providers and other stimuli as

Endler, Hunt (1969) did for situations, and anxiety and Mischel & Shoda (1995) did for situations and childhood behaviour.

Relational regulation occurs primarily through conversation and shared activities that elaborate on recipients' cognitive representations of relationships and quasi relationships. Each recipient has cognitive representations of relationships and quasi relationships (Andersen & Chen, 2002), and these representations are linked to affect and action tendencies (Andersen & Chen, 2002; Bargh & Ferguson, 2000). Conversation partners provide social contexts to support their experience of favourable affect and thought by activating elements of their cognitive representations of relationships and quasi relationships. The provider helps to activate representations by listening, making comments, and asking questions. In shared activities (e.g., watching television), recipients and providers participate together in quasi relationships that elicit similarly favourable affect and thought in both of them. Such affect and thought become linked to recipients' and providers' representations of each other (e.g., "Richard, with whom I watch TV") and provide a basis for later relational regulation in subsequent conversations.

Relational regulation is more effective when reciprocal elaboration occurs. Reciprocal elaboration begins when a provider responds to a recipient's statement with new information consistent with the recipient's relationships and quasi relationships (Lahey & Orehek, 2011).

According to Lahey and Orehek, (2011) perceived support is based primarily on relational regulation of affect through ordinary interactions but sometimes also on enacted support. At initial acquaintance, a recipient infers a

provider's supportiveness from expectancies about whether the provider will help regulate the recipient's affect. These expectancies are based on information about the provider's similarity to the recipient in their relationships and quasi relationships. Preliminary support judgments are revised because of direct experience with the provider. If a provider regulates a recipient's affect well when discussing ordinary events, the recipient will disclose increasingly more personal thoughts and experiences, including upsetting experiences. If affect regulation remains effective when discussing upsetting events, the recipient sees the provider as supportive. The most effective relationships are those that regulate affect in the widest range of circumstances. However, if the provider is not effective in regulating affect for upsetting events, then the provider's supportiveness is revised downward. A provider who is initially judged as unsupportive is avoided, and thus, recipients do not disclose upsetting events. As a result, the recipient's initial judgment of unsupportive is unlikely revised. Ultimately, perceived support is inferred from affect regulation, and affect regulation is derived from social interaction. In this sense, support judgments are secondary to affect, a prediction that differs from appraisal models that predict that supportive appraisals lead to affect (Cohen & Wills, 1985).

Relational regulation is dynamic in that people shift conversations, interaction partners, and activities in an attempt to regulate affect optimally. Surfing TV channels to find symbolic people to regulate affect is a specific instance of this general principle. In addition, the extent to which recipients and providers regulate each other changes over time. This instability results from changes in recipients' and providers' relationships and quasi

relationships. As dyad members change with respect to with whom and what they regulate themselves, the ability of the dyad members to regulate each other will change as well. In dyads lasting decades, there should be many shifts in the effectiveness of relational regulation.

Social support interventions will be more effective if they harness relational regulation. Social support interventions have been less effective than hoped (Helgeson & Gottlieb, 2000 and Hogan, Linden, & Najarian, 2002). This might be because interventions typically have reflected the implicit assumption that many people are objectively supportive. In the typical intervention, new providers were made available to at-risk recipients. Presumably, investigators chose providers whom the investigators thought were supportive. Yet, as described previously, supportiveness primarily reflects relational influences. RRT predicts that social support interventions will be more effective if the interventions focus on relational influences. Interventions designed to harness relational influences would be designed differently than previous interventions. Rather than provide access to objectively supportive providers, relational interventions would match recipients with providers such that supportive relationships emerged. This requires accurately forecasting supportive matches. Cronbach, Gleser, Nanda and Rajaratnam, (1972) multivariate G analyses are useful tools for such forecasting.

The wider the diversity of potential relationships and quasi relationships, that are available to recipients, the greater the likelihood of effective regulation. Conversely, people should be less effective in regulation if there is a restricted range of providers available. This can be seen at the

level of large groups as well. The more freedom a society allows for choosing relationships and quasi relationships, the more effective the people of the society should be in relational regulation. Cities and the Internet convey important advantages in relational regulation because they make available a wider range of providers than do sparsely populated, isolated areas. Yet there will always be recipients who cannot effectively regulate themselves through currently accessible relationships or quasi relationships. Rather than concluding that such failures in regulation reflect trait deficits on the part of recipients, RRT encourages asking the question “Can this person not be regulated, or has he/she not yet found the relationships and quasi relationships that will achieve regulation?” Posing this question encourages continued search for relationships and quasi relationships that might regulate the recipient.

To summarize, RRT attempts to explain main effects between perceived support and mental health by describing how people regulate their affect through ordinary yet affectively consequential conversation and shared activities. Perceived support typically does not cause affect directly but emerges from the types of social interaction that successfully regulate affect. Affect regulation via social interaction is primarily relational in that the people and activities that regulate affect are largely a matter of personal taste. RRT predicts that social support and psychotherapeutic interventions will be more successful if designed to reflect relational influences. Preliminary evidence is consistent with these predictions.

The Health Related Quality of Life Theory

Wilson and Cleary propounded HRQOL theory. According to Wilson and Cleary (1995), HRQOL explains and measures the quality of patient care in an illness situation. QOL is the general attitudes, feelings, or the capacity of individuals to perceive an ultimate contentment in a specific aspect of health. This aspect of health life (physical, mental or social), which is recognised by the individual as highly significant to their well-being, in an illness situation, is threatened by the development of disease or health-related dysfunctions.

In this model, five domains were identified as fluctuating on a continuum. HRQOL's continuum ranges from biological factors and social factors up to psychological complexity of an individual's health life. In addition to these factors, the individual's personal characteristics and environmental factors seem to affect one's placement on the continuum (Wilson, & Cleary, 1997). The model is comprised of five primary levels of patient characteristics including (1) biological-physiological factors, (2) symptom status, (3) functional status, (4) general health perceptions, and (5) overall QOL. In addition, characteristics of the individual as well as the environmental factors are included in the model as nonspecific predictive variables of symptom status, functional status, general health perceptions, and overall quality of life (Ferrans, Zerwic, Wilbur, & Larson, 2005; Wilson & Cleary, 1995). At the time this model was developed, Wilson and Cleary did not believe there was a model that described the relationship between clinical variable and health status measures. They developed this model to bridge this gap.

Prior to the development of this model, the majority of HRQOL studies had a very limited or no theoretical basis (Sousa & Kwok, 2006). Measuring HRQOL without reference to a conceptual model stalled the expansion of HRQOL knowledge for many years. Wilson and Cleary model placed the concepts in a context and guided the development of new understandings about the relationships among them (Fawcett, 1999) and consequently helped health providers to identify and measure appropriate patient outcomes that reflect quality patient care (Sousa & Kwok, 2006).

While the model proposes a linear progression across the five concepts, Wilson and Cleary, (1995) state that the unidirectional arrows between concepts do not imply that there are no reciprocal relationships. Additionally, the unidirectional arrows between nonadjacent levels do not imply the absence of reciprocal relationships between the levels. The arrows, however, do depict the proposed dominant causal associations between concepts (Wilson & Cleary, 1995). Wilson and Cleary, (1995) also suggest that the components of the model exist on a continuum of increasing biological, social, and psychological complexity. At one end of the continuum are biological measures such as serum lipid levels and glycosylated haemoglobin, and at the other are more complex and integrated measures such as physical functioning and general health perceptions. The following sections will describe each construct of the model in detail.

The first construct, biological and physiological factors, focuses on the function of cells, organs, and organ systems. Examples include the following: diagnosis-related laboratory values for ESRD such as glomerular filtration rate (GFR), and physical examination findings such as a systolic and diastolic

blood pressure. The health effects of characteristics that are mainly mediated by changes in cell, organ, or organ system function are included at this level in the model (Wilson & Cleary, 1995).

Wilson and Cleary (1995) define symptom status as “a patient's perception of an abnormal physical, emotional, or cognitive state”, and classified symptoms into (1) physical symptoms, (2) psychological symptoms, and (3) symptoms that are not clearly physical or psychological in origin such as emotional distress, fear, worry, and frustration. The model suggests that biological and physiological factors as well as characteristics of the individual and environment influence symptom status, although the effects of biological and physiological variables on symptom are ambiguous (Wilson & Cleary, 1995).

The next level in the model is functional status, which, similar to symptom status, is an essential point of integration. In this model, functional status characterized the ability of the individual to perform defined tasks and adjust to his/her environment and it can be measured either subjectively or objectively over a given period (Lipkin, 1990; Wilson & Cleary, 1995). While symptom status is a vital determinant of functioning, other aspects of an individual's personal and social environment may also have important effects on functioning. Personal and environmental factors such as perceived self-efficacy, family relationships, and access to health care or medical treatment can influence the individual's functioning status. Physical, social, role, and psychological function are the four domains that are commonly used to assess the functional status. While it is known that these are not the only domains of functioning that may be of interest to patients, health care providers and

researchers, they are the minimum areas of functioning that should be evaluated (Cleary, Greenfield & McNeil, 1991).

The next concept in the Wilson and Cleary, (1995) model is general health perceptions, a subjective self-rating of one's overall general health. According to the model, general health perceptions relates to functional status directly and indirectly relates to symptom status and biological and physiological factors. These associations were supported by several studies (Barsky, Cleary & Klerman, 1992). In addition, the model suggests that the characteristics of the individual and environment influence general health perceptions.

Although the preceding elements of the model affect the general health perceptions, they are different from the other components of the model. Consequently, applying measures of other components, such as of symptom or of functional status, to evaluate general health perceptions is not suitable. General health perceptions are often measured by a single question that asks people to rate their health on a scale ranging from poor to excellent although it can also be measured by a battery of items (Ferrans et al., 2005; Ware & Sherbourne, 1992). For this study, the first item on the KDQOL SF assessed the general health perception.

The final concept in the Wilson and Cleary model is overall quality of life. Overall quality of life refers to how happy and/or content an individual is with his/her life as a whole. Overall quality of life should relate to HRQOL, but is also determined by other salient life circumstance and experiences (Wilson & Cleary, 1995). However, general measures of life satisfaction or happiness are not as strongly related to objective life situations as might be

expected (Diener, 1984). Lower functioning does not relate to lower levels of satisfaction (Patrick, Danis, Southerland, & Hong, 1988). One explanation for this counterintuitive finding is that people change their outlooks and expectations as their circumstances change (Patrick & Erickson, 1993). For this study, Kidney Disease Quality of Life Short Form 36 would be used to measure the overall quality of life.

Characteristics of the individual (for example, values and patient preferences) as well as the environment (for example, social, economic, and psychological support) are recognized as contributing to symptom status, functional status, general health perceptions and overall quality of life (Ferrans et al., 2005; Wilson & Cleary, 1995). In this study, age, marital status, income level, years of formal education, and months since ESRD diagnosis was as proxy variables for characteristics of the individual.

Ferrans et al., (2005) revised the Wilson and Cleary Model to add pathways between (1) characteristics of the individual and (2) characteristics of the environment and biological and physiological factors. Individual characteristics such as genetic make-up are known to influence biological functions such as vulnerability to disease and response to treatments. Environmental characteristics can also influence susceptibility to disease or disease severity. In ESRD, for example, limited financial resources or access to shopping could influence dietary intake and a number of lifestyle, and fluid restrictions significantly influence social functioning with patients performing a balancing act to ensure maintenance of vitamin, iron, and protein levels. Ferrans et al., (2005) also suggested that there are interactions between characteristics of the individual and the environment although these were not

shown in her illustration of the model. Knowledge from the emerging field of genomics has demonstrated these interactions in a number of diseases (Guttmacher & Collins, 2002). These relationships are also plausible in ESRD.

Empirical Studies

Depression, Anxiety, and Social support in End-stage renal disease

In a study to assess the psychiatric complications of haemodialysis at a kidney disease, centre in Nigeria. The mental state of 20 consecutive haemodialysis patients investigated was assessed using the 30-item General Health Questionnaire, Present State Examination, and clinical evaluation using the Diagnostic and Statistical Manual, revised third edition (DSM-III-R). Findings were compared with those of orthopaedic patients and apparently healthy controls. A standard interview was used in eliciting socio-demographic data from the subjects. A significantly higher prevalence of psychiatric disorders was identified in haemodialysis patients (55%) than in orthopaedic patients (20%) and apparently healthy controls (0%). The psychiatric disorders encountered in this haemodialysis population included major depressive episode (35%) and generalized anxiety disorder (20%). The study concludes that health personnel need to be concerned with the psychiatric problems of haemodialysis patients (Aghanwa & Morakinyo, 2006).

On psychological problems of the patients on haemodialysis and their treatment. Norman (2007) conducted a study in Brooklyn; N. Y. 80 patients were selected randomly. Results showed that patients treated by maintenance haemodialysis are subjected to many stresses. As a result, many of these patients have psychological problems. Depression was the most common

psychological complication seen in them. This is reflected in a high suicide rate in these patients. Other psychological problems seen in these patients are anxiety, sexual dysfunctions, problems connected with difficulties in rehabilitation, the problem of the ‘uncooperative’ patients, and psychosis. Vigilant attention is required so that diagnosis may be made early and treatment started soon thereafter. Important methods of treatment are supportive psychotherapy, behavioural techniques for sexual dysfunctions, and the use of psychologically active drugs (Norman, 2007).

A cross sectional study was conducted on “Depression in Haemodialysis Patients” to measure the frequency of depression and its risk factors in patients undergoing haemodialysis. Eighty-nine patients were enrolled fifty-two (58.4%) were male and seventy-seven (86.5%) were married major causes of renal failure were diabetes, hypertension and chronic glomerulonephritis. Duration of dialysis was from 03 to 49 months, severity of depression was categorised in to mild, moderated, and severe based on Beck Depression Inventory – II score. Majority of the patients 50 (56.1%) were moderately to severely depressed and there was no gender difference in the prevalence of disease. Majority of patients undergoing Haemodialysis were depressed. Major risk factors for depression were marital status, illiteracy, number of children, socioeconomic factors (Anees, Barke Masood, Mumtaz & Kausar, 2008).

A cross sectional study was conducted on emotion regulation, affect, psychosocial functioning and wellbeing among 106 haemodialysis patients undergoing renal replacement therapy and 94 friends or relatives in U.K The results showed that greater use of reappraisal was associated with lower levels

of anxiety and greater acceptance of disease. It was also associated with more experience and expression of positive emotions and less experience and expression of negative emotion. Suppression was associated with less positive emotional expression greater levels of depression and somatization and greater dissatisfaction with the time spent dealing with their kidney disease). Suppression also was associated with less emotional coping and greater dissatisfaction with the support received from other people. The study concluded that emotion regulation strategy used by a haemodialysis patient has important implications for well-being and disease management (Gillanders, Wild, Deighanc, & Gillanders 2008).

Patients being giving the news that they need to be on dialysis is a prototype of giving bad news as the diagnosis of cancer. Arnold and Liao (2006) did a study with haemodialysis patients at the Kole-Bu Teaching Hospital in Accra, Ghana and they reported that from 10 weeks' clinical experience, they observed that patients have psychological and physical problems. These problems affect their physical and mental health as well as their quality of life, and their general well-being. Most patients entered the dialysis unit in depressive moods. During the process of dialysis, some even covered their faces with bed sheets to avoid the sight of their own blood flowing through the tubes; hence, indicating some kind of psychological turmoil going on within the patients' minds. In some instances, patients collapsed during the procedure

Alvarez-Ude et al., (2001) conducted a study on physical symptoms and emotional disorders in patients on a periodic haemodialysis programme. The objective was to establish the frequency and severity of somatic

symptoms and emotional distress (anxiety and depression) among chronic haemodialysis patients and to study the relationship as well as their influence on perceived health status. The patients answered the following questionnaire 1) Physical symptoms 2) A measure of anxiety and 3) A measure of depression. The findings showed the most frequent and severe symptoms were tiredness, itching, thirst, bone, and joint pain and sleep disturbance. The severity of symptoms positively associated with female sex and presence of clinically relevant degree of anxiety / depression. Their study then concluded that somatic symptoms are common among patients on chronic haemodialysis and they appear to be associated with emotional distress that influences significantly the perceived health status.

In Ghana, Achempim-Ansong & Donkor, (2012) explored the psychosocial and physical experiences of haemodialysis patients, conducted a qualitative study. The study was conducted in one medical unit of a teaching hospital in Accra, Ghana. A sample of 10 female and male end-stage renal disease patients, undergoing haemodialysis, were recruited. The study reported that from the experiences narrated by the participants, four main themes emerged, which were divided into sub-themes. These included psychological experiences (anxiety, depression, anger, worrying, and fear of death); social experiences (intentional isolation, inability to attend social functions, and effect of dialysis on marriage); economic encounters (difficulty in financing the treatment, loss of income, lowered productivity); and physical experiences (problems with sleeping, with fluid and diet restrictions, and with accessing the treatment site).

Several studies have shown an association between survival and perception of social support in ESRD patients of different ethnic background (Achempim-Ansong & Donkor, 2012; Gerogianni & Babatsikou, 2014a and Gerogianni & Babatsikou, 2014b). High levels of social support have been associated with increased utilization of medical services (Kimmel, Peterson, Weihs, Simmens, Alleyne & Cruz, 1998). Support from family and caregivers correlated with a composite compliance measure in haemodialysis patients in an urban population. Moreover, several studies have suggested that perception of social support was associated with increased compliance (Kimmel et al, 1998).

Mollaoglu (2006) conducted a study on perceived social support, anxiety and self-care among patients receiving haemodialysis. A descriptive–correlational study design was used to analyse the baseline data of a group of haemodialysis patients (n=140). The results revealed that social support and anxiety were significant predictors of self-care after controlling for the effect of time on dialysis. Results indicated that patients who perceived higher levels of social support and lower levels of anxiety were more likely to have higher level of self-care.

Health Related Quality of Life in End Stage Renal Disease

Sathvik, Prathasarathi, Narahari, & Gurudev, (2008), conducted a study to assess the quality of life in haemodialysis patients. Patients were recruited from dialysis centres of J.S.S Medical college Hospital and Basappa Memorial Hospital, Mysore. The sample size was 90. The result of this study suggests that quality of life of Haemodialysis patients is considerably impaired compared to that of the healthy subjects, especially with respect to the

physical, psychological and social relationship domains (Sathvik, Prathasarathi, Narahari, & Gurudev, 2008).

A study was conducted on QOL of chronic renal failure patient undergoing haemodialysis in the dialysis centre of two hospitals of Kottayam, Kerala by using the SF 36 quality of life scoring system. The study reveals that 95% of the samples had only satisfactory QOL (Anju & Anju, 2007).

Another study by Silveira, et al., (2010), evaluated the QOL of the chronic kidney disease on haemodialysis in public Brazilian hospital. Data was collected by using the SF 36 questionnaire on the 50 patients. The study reveals that the most affected domain was the role limitation due to physical health, suggesting that chronic disease with prolongs treatment has a negative influence on these domain (Silveira et al., 2010).

A cross sectional study was conducted by Pakpour et al., (2010) to evaluate the health related quality of life in a 225 sample of Iranian patient undergoing maintenance haemodialysis, convenience sampling methods was used, data are collected by using short form 36 questionnaire and analysis was done by using logistic regression analysis. The study affirms that the fact that patient undergoing haemodialysis suffers from poor health related quality of life (Pakpour et al., 2010).

A cross sectional study was conducted by Sathvik et al, (2008) in Mysore to compare the quality of life of haemodialysis patients with quality of life of general population renal transplant patients and patients with chronic Asthma. Haemodialysis patients who had completed 3 months of maintenance haemodialysis were enrolled for the study and sample size constituted was 75 patients. Instruments used were WHO QOL-BREF, consisting of 24 facets,

which was administered to the patients. Results revealed that the quality of life of Haemodialysis patients was significantly impaired ($p < 0.05$) in comparison to healthy individual particularly in respect to physical, psychological and social relationship domains. In comparison to the QOL of renal transplant patients, the QOL of haemodialysis patients was significantly lower in all the four domains. Only in environmental domain was the QOL of haemodialysis patients found significantly lower ($p < 0.05$) than asthma patients. Female patients on haemodialysis showed significantly lower quality of life than male patients were in psychological and environmental dimensions. Positive association between higher education and psychological functioning and environmental dimensions (Sathvik et al, 2008).

Correlations between Depression, Anxiety, Social Support, and HRQOL in Renal Failure Patients

Perales-Montilla, Garcia-leon, and Del-Paso, (2012), conducted a research on psychological predictor of QOL of chronic renal failure patients undergoing haemodialysis in Brazil. The study was done to assess HRQOL of chronic renal failure patients undergoing dialysis replacement therapy, and to evaluate the predictive power of psychosocial variables (social support, self-efficacy, optimistic outlook, depression, anxiety and coping strategies) on the different levels of HRQOL. Per their results, it was evident that patients showed lower levels of HRQOL than the reference values for the instrument. Depression was the main predictor of HRQOL, associated negatively with all of its components. The degree of concern and the use of passive coping strategies for stress such as helplessness-hopelessness and fatalism are also associated with lower levels of HRQOL. By contrast, self-efficacy, optimism,

social support, and fighting spirit were associated with higher levels of HRQOL.

Soni, Weisbord and Unruh (2010), reviewed evidence on HRQOL, its correlates and proposed intervention strategies to improve HRQOL in chronic renal failure (CRF). They reported that a growing body of literature indicates that various co-morbid conditions related to chronic renal failure play a substantial role in the impaired HRQOL in CRF. Hypertension, both a cause and complication of CRF, negatively affects HRQOL due to associated co-morbidities, side effects from anti-hypertensive medications and awareness of the diagnosis. Anaemia has been associated with HRQOL, but concerns about the safety of erythropoietin-stimulating agents (ESA) have led to more conservative anaemia treatment. Frailty, symptom burden, and depression are also major contributory factors to HRQOL in CRF. In summary, the authors reported that certain determinants of HRQOL in CRF, namely anaemia and depression are treatable. Early identification and correction may improve overall well-being of patients. Clinical trials are required to demonstrate whether treatment interventions benefit HRQOL in this high-risk population. Furthermore, whether integration of HRQOL assessment into routine clinical practice will improve HRQOL outcomes remains to be determined.

Abdel-Kader et al., (2009) conducted a study on 151 patients who were undergoing peritoneal dialysis or haemodialysis or had stages 4 through 5 CKD. The study assessed differences in domains nominated by patients with CKD. They also examined the strength of association between (1) multidimensional health-related quality-of-life measures and IQOL and (2) psychosocial factors and IQOL. The study results showed that patients with

CKD nominated many domains on the HRQOL, but family and health were the most common for all groups. Kidney disease was listed more frequently by peritoneal dialysis compared with haemodialysis patients or patients with CKD (31 *versus* 14 *versus* 5%, respectively). There were no significant differences in quality of life scores between subgroups. Quality of life scores correlated with mental well-being and inversely correlated with chronic stress and depression. The authors concluded by stating that patients with advanced CKD demonstrate compromised quality-of-life scores comparable to dialysis patients. IQOL measures provide unique information that may help guide interventions that are better tailored to address patients' concerns about their well-being. These findings also suggest that renal clinics should have staff available to address psychosocial aspects of patient well-being.

Kao et al., (2009) investigated on the association between economic, social, psychological factors and health related quality of life of chronic haemodialysis patients in Northern Taiwan. Cross section study design was used. End-stage renal disease patients who had received maintenance haemodialysis for more than 2 months at 14 centres in northern Taiwan were invited to participate. Multivariable linear regression analyses were performed. Eight hundred sixty-one patients (373 males mean age 59.4 ± 13.2 years) completed the study. Higher monthly income was positively associated with role emotional and mental health ($P < 0.05$), and so was increased frequency of social activities with social functioning ($P < 0.05$). The more worries, the stronger the inverse association with social functioning ($P < 0.05$) and mental health ($P < 0.01$). Higher depression scores were associated with lower scores of all Short-Form 36 dimensions ($P < 0.01$). Higher monthly income and

increased social activities are associated with better HRQOL, whereas more worries and higher depression scores are associated with worse HRQOL of haemodialysis patients. Per their multivariable regression analyses in their study, social support was not significantly associated with HRQOL.

Mollaoglu, (2006) reviewed perceived social support, anxiety, and self-care among patients receiving haemodialysis. Per their findings, the intercorrelations among the variables of the responses to the study were presented. All variables were highly significantly correlated with each other ($p < 0.001$). Social support is negatively correlated with anxiety ($r = 0.62$, $p < 0.001$), while self-care was significantly negatively correlated with anxiety ($r = 0.58$, $p < 0.001$) and positively correlated with social support ($r = 0.67$, $p < 0.001$). The results indicate that patients who perceived higher levels of social support and lower levels of anxiety were more likely to have a higher level of self-care agency. In their study, a significant correlation was found between social support and anxiety, indicating that the higher the level of social support, the lower the patient's anxiety scores.

As is the case with other clinical populations, various indices of the quantity and perceived quality of social support have been associated with a more favourable psychological adjustment among ESRD patients. Christensen and Ehlers, (2002), in their review of psychological factors in end-stage renal disease, indicated that a supportive family environment has been identified as a particularly important source of social support for chronically ill individuals. The article reported that severely ill patients perceiving a low supportive family environment (that is, less cohesion and expressiveness and greater

conflict) displayed significantly higher levels of depression and anxiety than patients who perceived a high supportive family environment.

Epidemiologic data show that patients with chronic kidney disease, including those receiving haemodialysis, have a 3-fold higher risk of depression compared to the general population. In both the general and haemodialysis populations, depression has been associated with adverse outcomes including higher risk of hospitalization and mortality. Rhee et al., (2016) in their study sought to examine the association between depressions with HRQOL (HRQOL). They examined correlations between Beck Depression Inventory (BDI) score and each of the eight scales of the Short-Form 36 (SF-36) HRQOL survey. Correlations were estimated using unadjusted and case-mix adjusted Spearman correlation (latter correlations adjusted for age, sex, race, ethnicity, and diabetes). In unadjusted and adjusted analyses, BDI score demonstrated the strongest correlations with energy/fatigue, emotional well-being, and social functioning. In haemodialysis patients, BDI score demonstrated strong, inverse correlations with each of the SF-36 scales, in particular energy/fatigue, emotional well-being, and social functioning. These data suggest that more severe depression is associated with worse HRQOL in this population.

Mollaoglu, (2013), again reviewed the psychosocial correlates of HRQOL of haemodialysis patients and affirmed that anxiety's negative impact on quality of life (QOL) and disability across multiple illnesses has been demonstrated, but its specific effect in ESRD has not been studied. Per their study findings, anxiety was associated with decreased HRQOL, primarily in the first few months of haemodialysis and in elderly patients.

According to Jofre et al., (2000), ESRD patients undergoing haemodialysis (HD) has a considerable impact on the functional status and HRQOL perceived by the patient as it is accompanied by symptoms that affect daily life. In their study where they reviewed the factors affecting the quality of life of renal failure patients, they found that the prevalence of depression is within 70% in the dialysis population using Beck Depression Inventory (BDI), they also indicated that depression has a significant impact on the perception of health related quality of life.

Cukor, et al (2007) reviewed psychosocial aspects of chronic kidney disease. In their study found the prevalence of a current depressive disorder in haemodialysis patients is at 20% to 30% if all depressive disorders are included, while anxiety prevalence is also at 19% to 30%. Per their review, anxiety was associated with decreased HRQOL, primarily in the first few months of haemodialysis and elderly patients.

Mollaoglu (2004), indicated that two third of ESRD patients in Turkey had depression and found an association between depressed mood and HRQOL. The higher depression scores the lower HRQOL scores. She explained that as a direct influence of chronic renal insufficiency on HRQOL.

According to Kimmel & Patel (2006) and Patel, Peterson & Kimmel (2005) the provision of social support to patients with ESRD is associated with reduction in depressive symptoms, positive perception of their illness and their general satisfaction with life. This is because social support may improve the mood of patients and reduce symptoms of anxiety, concerning the regular transportation to and from the dialysis units and the future of their treatment. Their report showed that an increase in perceived social support among end-

stage renal disease patients is associated with a low or reduction of depressive symptoms, patient general satisfaction of life and their positive perception of their illness.

Cukor et al, (2008), reviewed anxiety disorders in adults treated by haemodialysis. The aim of the study was to evaluate psychosocial impact of anxiety disorders on patients with ESRD; they sought to identify the rates of these disorders in a sample of patients receiving haemodialysis at a single centre. They also examined the relationship between anxiety diagnosis and perceptions of QOL and health status. From their study, they concluded that, a substantial proportion of participating patients met criteria for an anxiety disorder. The study also reported that the presence of an anxiety disorders was associated with an overall perceived lower quality of life.

Weisbord, Fried, Arnold, Fine & Levenson, (2005), investigated the prevalence, severity and importance of physical and emotional symptoms in chronic haemodialysis patients. Their study sought to assess symptoms and their relationship to quality of life and depression. The study results indicated that overall symptom burden and severity were correlated directly with impaired quality of life. In addition, depression, physical and emotional symptoms are prevalent, severe, and are correlated directly with impaired quality of life.

Lastly, Guzman and Nicassio (2003) examined negative and positive illness schemas by use of a 3-part scoring system that evaluated patients' perceptions of illness and their relation with disease severity and level of social support as predictors of depression in 109 patients with ESRD. They found that a negative perception of health was associated with depression,

whereas a positive perception of health was negatively associated with depression. Greater disease severity was related to poorer perception of illness. Disease severity, however, independently it was not predictive of depression. Social support was associated with positive illness-schema scores, and lower levels of social support were associated with increased levels of depression. Furthermore, a statistically significant association between social support and depression was found which was unrelated to illness schema. Low levels of social support, therefore, could be viewed as a risk factor for depression and a target for early intervention by clinicians.

Summary of Related Literature

This study is necessary based on the following research gaps identified in literature that must be filled. The prevalence of depression and anxiety have been reported in other studies in Europe and the Americas (Christensen & Ehlers 2002; Aghanwa & Morakinyo 2006; Norman, 2007; Gillanders et al., 2008) which found that there is a high prevalent rate of depression and anxiety in ESRD population. However, in Ghana, there is no data on the prevalence of depression and anxiety among ESRD patients undergoing haemodialysis.

Generally, most studies reviewed before this thesis worked on psychosocial aspects or HRQOL. (Achempim-Ansong & Donkor, 2012; Kimmel et al, 1998; Kimmel, 2001; Mollaoglu, 2006) or the quality of life (Sathvik et al, 2008; Pakpour et al., 2010) among individual diagnosed with ESRD without looking at the linkage between both concepts. A good number of studies looked at this linkage (Perales, et al., 2012; Soni, Weisbord, & Unruh, 2010; Cukor et al, 2007; Patel, Peterson & Kimmel & Peterson, 2005). However, none of these studies was conducted on a sub-Saharan Africa. Thus,

a critical look at the interaction effect of these two variables in ESRD with a Ghanaian sample was examined critically in this study.

Before this study, anxiety disorders and perceived social support, compared to depression, had received little clinical attention among individuals diagnosed with ESRD (Cukor et al., 2007). Thus, this study will seek to bridge the knowledge gap between the prevalence of depression and that of anxiety disorder among individuals diagnosed with ESRD. In addition, a clinical picture of how these individuals perceived social support available to them would be identified.

Generally, studies reviewed before this study did not assess the relationship between social support and other psychological parameters like depression and anxiety disorders. Thus, this study critically examined the interaction effects between social support, depression and anxiety as well as HRQOL among ESRD patients.

The present study also explored the relationship between income levels and depression among haemodialysis patients in Kumasi, Ghana. Very few studies on haemodialysis patients explored the linkage between income level and depression. This linkage was deemed necessary to explore because in Ghana, haemodialysis treatment is time intensive, intrusive and affects all aspects of an individual as well as its very costly and looking at the economic hardship that had befallen majority of citizens. It was presumed that majority who could afford would have their financial resources compromised and thereby might lead to patients exhibiting some depressive symptoms.

Finally, this study serves as a bridge to link other researches globally with that of Ghanaian samples. Hence, this offers a data on Ghanaian samples and serves as a beginning point for other future researches.

CHAPTER THREE

METHODOLOGY

This chapter discusses the methodology adopted in carrying out the study. The methods and approaches as described in this chapter are under eight sub-sections. These are the Research Design, Population, Sample and Sampling Procedure and Research Instruments, as well as, Pre-Testing Procedure, Data Collection Procedures and Data Analyses.

Research Design

The study was a descriptive correlational survey. A descriptive study is one in which information is collected without changing the environment (nothing is manipulated). Leedy and Omrod (2010) define a descriptive study as any study that is not truly experimental. In human research, descriptive studies can provide information about the naturally occurring health status, behaviour, attitudes, or other characteristics of a particular group. This would enable the researcher to collect information on the psychosocial factors and HRQOL among renal disease patients receiving haemodialysis treatment. Descriptive survey design seeks to explore and describe events as they are. The researcher wanted to know whether there was a correlation between psychosocial factors and HRQOL among haemodialysis patients from dialysis centres at Komfo Anokye Teaching Hospital and Naghe Clinic. Therefore, the design was appropriate to elicit information from the haemodialysis patients. The descriptive research design was deemed best for the study because, according to Cohen, Morrison and Manion (2004), in descriptive survey design, researchers gather data at a particular point in time with the intention of describing the nature of existing conditions or identifying standards against

which existing conditions can be compared. In addition, the descriptive survey helps deal, essentially, with questions concerning what exists with respect to variables or prevailing conditions in a situation (Ary, Jacobs & Razavich, 1990). As recommended by Leedy and Omrod (2010), this method is suitable for purposes of making generalisations from a sample to a population so that inferences could be made about the characteristics, opinions, attitudes and experiences of the population. Descriptive survey design provides a more accurate and meaningful picture of event and seeks to explain people's perception and behaviour based on data gathered at a particular time (Frankel & Wallen, 1993). This according to Frankel & Wallen would allow for in-depth follow up questions and items that are unclear to be explained.

Irrespective of the strengths of the descriptive surveys mentioned above, Fraenkel and Wallen (2000) identified the weakness of the descriptive survey. (1) Difficulty in ensuring the questions to be answered are clear and not misleading, (2) getting respondents to answer questions thoughtfully and honestly is a setback, and (3) getting a sufficient number of questionnaires completed and so that meaningful analysis can be made is also a setback. Osuola (2001) in buttressing the points on the weakness of the descriptive research, pointed out that, "designing a quality investigation requires particular attention to two central factors: appropriate sampling procedures and precision in defining terms in eliciting information" (p. 201). He continued by adding that, while descriptive research is a prerequisite for finding answers to questions, it is not in itself sufficiently comprehensive to provide answers and that it cannot also provide cause-and-effect relationships. These shortfalls were minimised by ensuring that instruments are clear, not

ambiguous and provided a signed consent form to ensure confidentiality on the responds.

Population

Population refers to the large general group of many cases from which a researcher draws a sample and which is usually stated in theoretical terms (Neuman, 2003). According to Burns and Grove, (2003) population is the target group about which a research is interested in gaining information and drawing conclusions. It is a group of individuals who have one or more characteristics in common that are of interest to the researcher. In this study, the targeted population was the set of all haemodialysis patients in Kumasi Municipal Assembly (KMA). There are only three dialysis centres in the Kumasi Municipal Assembly operating at Komfo Anokye Teaching Hospital (KATH), Peace & Love Clinic and Naghe Clinic. Initially all three dialysis centres were contacted but only KATH and Naghe Clinic permitted the study to take place at their centres. It should be known that Peace and Love Clinic, after a review of the research protocol gave an ethical clearance for the study (see Appendix C) but later on called on all ongoing research to be seized for reasons not known to the researcher.

This population was chosen because it covered individuals with various socioeconomic characteristics across Ghana. The participants were English speaking and came from a variety of race, ethnicity, cultural and socio-economic backgrounds within the country. This was possible because one of the two hospitals is a referral hospital (Komfo Anokye Teaching Hospital). The Komfo Anokye Teaching hospital in Kumasi, Ashanti Region, Ghana is the second-largest hospital in Ghana and only tertiary health

institution in the Ashanti region. It remains the referral hospital for the Ashanti and Brong Ahafo Region and other neighbouring regions, as such receives patients from across the country.

Sample and Sampling Procedure

A sample denotes a small and representative proportion of the population. Sampling enables the research to study a relatively small number of units in a place of the target population and to obtain data that is representative of the whole population (Burns & Grove, 2003). Sampling involves the process of selecting a portion of the population to represent the entire population.

The researcher used purposive and census sampling method. According to Fraenkel and Wallen (2000), in purposive sampling the researcher sample whoever is available, but uses their judgement to select a sample that they believe in and based on prior information that needed data will be obtained. In support of this, Creswell (2005) states that in purposive sampling the research intentionally selects individuals and sites to learn or understand the central phenomenon.

Purposive sampling, which is a non-probability sampling technique, was used to select respondents, specifically, respondents were haemodialysis patient, aged 18 years and above and able to read and understand English or Twi language. Finally, all respondents had been on haemodialysis treatment for more than three months. Respondents who had any known psychiatric or mental illness were excluded. This is due to the specialized nature of the study and the selective nature of samples to suit the study.

Census sampling was used to select the sample size. Census survey involves the use of all members of any group or population of interest. Cooper and Schnidler (2000) stated that a “census is feasible when the population is small” (p. 164). For the current study, every patient of the group who met the criterion was approached to provide appropriate response to help test the research hypotheses. Again, all members were contacted in order to decrease the chances of non-response case effects on the test outcomes.

Research Instruments

The researcher adapted the following pre-existing self-reported scales for data collection.

1. Hospital Anxiety and Depression Scale. (HADS) was used to assess anxiety and depression among subjects
2. Multidimensional Scale of Perceived Social Support (MSPSS) was used to assess perceived social support
3. Kidney Disease Quality of Life Short Form 36 was used to assess HRQOL among subjects.
4. A seven-item questionnaire was developed to gather demographic data.

Hospital Anxiety and Depression Scale

The Hospital Anxiety and Depression Scale (HADS) was devised over 30 years ago by Zigmond and Snaith (Zigmond & Snaith, 1983) to measure anxiety and depression in a general medical population of patients. It has become a popular tool, for clinical practice and research: a Pubmed search returned 1961 papers.

The beauty of HADS score is its simplicity, speed and ease of use. It assesses both anxiety and depression, which commonly coexist (McManus, Meltzer, Brugha, Bebbington & Jenkins, 2007). According to Stern (2014) Anxiety is poorly recognised by clinicians, so should be actively sought. Anxiety often precedes depression in response to stressors, and identifying the employee with high or rising anxiety before depression allows occupational health practitioners to advise on early intervention measures while the employee is still at work and potentially avoid sickness absence. This would be missed using a depression only questionnaire such as the Patient Health Questionnaire (PHQ9). HADS focuses on non-physical symptoms so that it can be used to diagnose depression in people with significant physical ill-health. Any overlap, for instance impaired concentration secondary to pain rather than depression, and is usually easy to separate on an individual basis. HADS does not include all of the diagnostic criteria of depression (Diagnostic and Statistical Manual of Mental Disorders, Fourth/Fifth Edition (DSM IV/V)) or all those required by the Health and Work Development Unit (HWDU) National Depression and Long Term Sickness Absence Screening Audit (Stern, 2014). It comprises seven questions for anxiety and seven questions for depressions, and takes 2-5min to complete. Although the anxiety and depression questions are interspersed within the questionnaire, it is vital these are scored separately. To prevent 'noise' from somatic disorders on the scores, all symptoms of anxiety or depression relating also to physical disorder, such as dizziness, headaches, insomnia, anergia and fatigue, were excluded. Symptoms relating to serious mental disorders were also excluded, since such symptoms were less common in patients attending a non-psychiatric hospital

clinic. Zigmond and Snaith, (1983) also intended to “define carefully and distinguish between the concepts of anxiety and depression.” Cronbach’s alpha for HADS-A varied from .68 to .93 (mean .83) and for HADS-D from .67 to .90 (mean .82) (Bjelland, Dahl, Haug & Neckelmann, 2002; Snaith, 2003). This instrument has two subscales: depression subscale and anxiety subscale.

Multidimensional Scale of Perceived Social Support

Zimet, Dahlem, Zimet, and Farley developed multidimensional scale of perceived social support scale in 1998. The Multidimensional scale of perceived social support (MSPSS) is a brief research tool designed to measure perceptions of support from three sources: Family, Friends, and Significant other. The scale comprised 12 items, with four items for each subscale. The items of this instrument is on a Likert scale, ranging from 1 (very strongly disagree) to 7 (very strongly agree), then participants are asked to indicate how they feel about each statement concerning their social support. Such statements include the following, “my family tries to help me, and I can count on my friends when things go wrong”. The MSPSS has demonstrated a strong psychometric properties, coefficient alpha for scales were reported as follows; total score (0.88), family (0.87), friends (0.85) and significant other (0.91). Test-retest reliability of the total score was 0.85.

Kidney Disease Quality of Life Short Form

Hays et al., (1997) developed the Kidney Disease Quality of Life short form (KDQOL-SF). the Kidney Disease Quality of Life short form (KDQOL-SF) is a kidney disease-specific measure of HRQOL. The first version contained the Medical Outcomes Study (MOS SF 36) as a generic chronic disease core, and

added items relevant to patients with kidney disease, such as symptoms, burden of illness, social interaction, staff encouragement and patient satisfaction (Hays et al., 1997). It includes both a generic health status component and a series of kidney disease-targeted quality of life domains. Thus, the tool allows assessment of patient's perceived health status as well as concerns about the disease and health condition. It thus reflects the "subjective health status" suggested by Leplège and Hunt (1997) who have emphasized the importance and legitimacy of patient's perception of outcomes, which should be considered as valid as that of the clinician. It uses the SF-12 (a shorter version of the SF-36) and 24 kidney disease specific questions. The KDQOL SF-36 has five subscales: physical component summary (PCS) and mental component summary (MCS) subscale (question 1-12), include items about general health, activity limits, ability to accomplish desired tasks, depression and anxiety, energy level, and social activities. Burden of kidney disease subscale (question 13-16), includes items about how much kidney disease interferes with daily life, takes up time, causes frustration, or makes the respondent feel like a burden. Symptoms and problems subscale, includes items about how bothered a respondent feels by sore muscles, chest pain, cramps, itchy or dry skin, shortness of breath, faintness/dizziness, lack of appetite, feeling washed out or drained, numbness in the hands or feet, nausea, or problems with dialysis access. Lastly, effects of kidney disease on daily life subscale which includes items about how bothered the respondent feels by fluid limits, diet restrictions, ability to work around the house or travel, feeling dependent on doctors and other medical staff, stress or worries, sex life, and personal appearance. It has strong reliability of Cronbach's alpha of 0.82.

These three self-reported scales were combined to give the research a rich variety of data since each scale collected data on different variables in the research study. In addition, self-reported scales were used because they are cost-wise, simple to read, understand and score as well as easy interpretation. Lastly, it provides information with certain objectivity.

Pre-Testing Procedure

Pretesting of the adapted scales was conducted at Cape Coast Teaching Hospital to ascertain the reliability and validity of the adapted scales. Specific changes made were with the wording of the instruments. Reliability of the scales was established by computing the Cronbach's Alpha Formula. The reliability was tested scale by scale to ascertain the internal consistency of the items. In Cronbach's Alpha model when a tested scale yields consistent results, the scale or inventory is reliable.

The result of the pretesting of the scales is presented as follows, HADS (0.71), MSPSS (0.89) and KDQOL SF-36 (0.71). Hence, the scales were deemed reliable as a reliability of 0.7 is ideal for an instrument to be used (Cook & Beckman, 2006). The adapted scales were therefore deemed reliable and valid to be used for this study. The scales were pretested to enable the researcher to sharpen the instruments by way of rewording and restructuring the items; this was in line with Oppenheim's (1992) statement that pretesting helps to discover possible weaknesses, ambiguity and problems with the instrument, so that they can be corrected before actual data collection.

An introductory letter was taken from the Department of Educational Foundations (see Appendix F) to enable the researcher get the needed assistance and cooperation from the head of dialysis centre of Cape Coast

Teaching Hospital. Cape Coast Teaching Hospital was used for pretesting because as the two dialysis centres used in the study it is a tertiary referral centre thereby get a variety of race, ethnicity, cultural and socio-economic backgrounds within the country

Respondents were briefed on the purpose of the study. Each respondent gave a signed consent form and received a patient participation leaflet (see Appendix B). Five respondents participated in the pretesting.

Data Collection Procedure

Before, the actual data collection, the researcher sent an introductory letter from the Department of Educational Foundations (see Appendix F) to the heads of dialysis units. Then the researcher sought after an ethical clearance from both the Institutional Review Board in the University of Cape Coast (see Appendix E). Another one from the Committee on Human Research Publication and Ethics (CHRPE) of Kwame Nkrumah University of Science and Technology & Komfo Anokye Teaching Hospital (see Appendix D) The ethical clearance spelt out the purpose of the study, the need for individual participation, anonymity as well as confidentiality of respondent's responses. After that the necessary contact with the head of the two-dialysis centres was established, permission was sought for the administration of instrument. Upon approval of the study protocol and ethical clearance by the heads of the dialysis units, respondents were recruited from the two-dialysis departments located in Kumasi (Komfo Anokye Teaching hospital, & Naghe Clinic).

The researcher administered the scales personally and this enabled the researcher to explain the purposes of the study and establish rapport with

respondents. Distributions of scales were done with the assistance of some of the dialysis staff. An informed consent and a participation leaflet, explaining the purpose of the study and assurance of confidentiality and anonymity to respondents, preceded the scales. Respondents were met individually with each session lasting 45 minutes. The data collection process started May 2016 and ended on June 2016, thus spanning a period of one month. The return rate was 96.7%.

Data Analyses

Generally, the data gathered for the study was analysed statistically. The main statistical tool that was used to support the data analysis was Statistical Package for the Social Sciences (SPSS) version 20 for window (IBM Corporation, 2011) version 20.0. This was because it offers a full range of descriptive and inferential statistical methods, good editing, and labelling facilities as well as ability to produce output in both table formats and summary form. It is also capable in handling missing data with ease. The scales were first edited, coded and scored. Serial numbers were given to each scale for easy identification. The editing procedure was to check whether respondents had followed directions correctly, and whether all items had been responded to. The self-constructed questionnaire was on demographic data of the respondents. These responses were analysed using frequency and percentage tables.

For the Hospital Anxiety and Depression Scale (HADS) the scores for range from 0 to 21. With a score between 0-7 indicating a normal severity; a score of 8-10 indicates a borderline abnormal (borderline case) and lastly a score ranging from 11-21 indicates abnormal (case). For MSPSS when scoring

the researcher, calculate the mean scores for the total scale. Furthermore, in using the scale response descriptors as a guide any mean ranging from 1 to 2.9 could be considered low support; a score of 3 to 5 could be considered moderate support; a score from 5.1 to 7 could be considered high support.

For the Kidney Disease Quality of Life SF-36 (KDQOL S) the raw data obtained from the respondents was first transformed to pre-coded numeric value of a 0-100 possible range, with higher transformed scores always reflecting better quality of life. In the final step in the scoring process, items in the same scale were average together to create the scale score. Scores were also mean according to summary scores: physical component summary & mental component summary (PCS & MCS), burden of kidney disease (BKD), symptoms and problem list (SYMP & PRO), and effects of kidney disease (EFKD). The present study used a KDQOL online scoring programme by Programmed by Stephen Z. Fadem, M.D., FACP, FASN, CACCLUS®.

Hypothesis 1 to 6 was tested using Pearson product moment correlation. Pearson correlation as a parametric test tool was used because the variables met the assumptions required for parametric test and the study used census and thereby sampling all members who met the inclusion and exclusion criteria and as such, the sample fairly represented the general population. An alpha significance level of 0.05 was used for all statistical test.

Research question one was answered using frequencies, percentages and means as well as standard deviation.

CHAPTER FOUR

RESULTS AND DISCUSSION

In this chapter, the results of the research have been presented and interpreted. The aim of this study was to discover whether there are correlations between psychosocial factors and HRQOL among haemodialysis patients in Kumasi, Ghana. Specifically, the researcher sought to test the six hypothesis presented at chapter one (see p. 8)

Demographic Data

This part presents and discusses the preliminary data, which consist of the background information of the participants. These include the gender, age range, marital status, dialysis duration, complications and income level.

Table 1: *Gender Distribution of Respondents*

	Number of Respondents	Percentage (%)
Male	18	60
Female	12	40
Total	30	100

Source: Field Survey Amoako (2016)

Table 1 shows the gender distribution of the sampled population. Out of the 30 respondents, 18 (60%) are males and 12 (40%) are females. The study therefore revealed that the majority of haemodialysis patients in Kumasi were males.

Table 2: *Age range distribution of respondents*

Age Groups	Frequency	Percentage
20-30 years	5	16.7
31-40 years	4	13.3
41-50 years	6	20.0
51-60 years	7	23.3
61 and above	8	26.7
Total	30	100

Source: Field Survey, Amoako (2016)

Table 2 shows the age range distribution among the sampled population. Out of the 30 respondents, 5 (16.7%) are in the age range of 20-30 years. Seven (23.3%) respondents were within 51-60 years' age range. Eight (26.7%) respondents were within 61 years and above.

Table 3: *Marital status of Respondents*

	Frequency (F)	Percentage (%)
Single	2	6.7
Married	22	73.3
Divorced	1	3.3
Separated	2	6.7
Widowed	3	10.0
Total	21	100

Source: Field Survey, Amoako (2016)

Table 3 shows the marital status of the respondents. Most of the respondents 22 (73.3%) were married whiles 3 (10.0%) are widowed. 2 (6.7)

are single with another 2 (6.7%) are separated. Lastly, one (3.3%) is divorced. The study results therefore indicate that the majority of the haemodialysis patients in Kumasi were married while a few of the patients were either single, divorced, widowed or separated.

Table 4: *Duration of Dialysis*

	Frequency (F)	Percentage (%)
3-6 months	12	40.0
7-12 months	9	30.0
1-2 years	5	16.7
Above 2 years	4	13.3
Total	30	100

Source: Field Survey, Amoako (2016).

Table 4 shows the durations of the dialysis treatment. The majority of the respondents, 12 (40.0%) had been on haemodialysis treatment between 3-6 months, while 9 (30.0%) respondents had been on dialysis for between 7 -12 months. Four (13.3%) respondents having been on treatment for more than 2 years. The results again revealed that the majority of the respondents had only be on the haemodialysis treatment for only 3-6 months. Table 4 showed that the number of patients decreases, as the duration gets longer and can be an indication that that a few people are able to sustain this kind of treatment for a long time. Ababio, 2013 noted that ESRD patients in Ghana faces economic challenges, such as loss of income, lowered productivity, dependence on other people and difficulties to pay for the dialysis treatment and for expensive medications.

Table 5: *Comorbid conditions*

Causes & Comorbid conditions (%)	Frequency	Percentage
Don't know	2	6.7
Hypertension	14	46.7
Hypertension and Diabetes	14	46.7
Total	30	100

Source: Field Survey, Amoako (2016).

Table 5 shows the distribution of the causes and comorbidities of the chronic kidney disease. The table shows that 14 (46.7%) had hypertension, while another 14 (46.7%) respondents had both hypertension and diabetes. The implication of these results is that individual with hypertension or hypertension and diabetes combined may be at greater risk of getting renal failure or ESRD. United States Renal Data System (2010) confirms this assertion by noting that in the vast majority of cases of ESRD, it is associated with other medical conditions, such as diabetes and hypertension. Osafo, Mate-Kole, Affram and Adu, (2011) reported that ESRD is common in hypertensive patients in Ghana, with a prevalence of 46.9%.

Table 6: *Employment Status of Respondents*

Employment status	Frequency (F)	Percentage (%)
Part time	6	20.0
Unemployed, laid off	6	20.0
Retired	9	30.0
Disabled	9	30.0
Total	30	100

Source: Field Survey, Amoako (2016)

Table 6 shows the employment status of participants. Out of 30 participants, 9 (30.0%) were retired, while another 9 (30.0%) respondents were disabled. Six (20.0%) respondents were working part time. This data revealed that none of the haemodialysis patients was working full time. Furthermore, nine (30.0%) of them were disabled as the result of the ESRD.

Gerogianni, (2003) noted that haemodialysis treatment is time-intensive. Lin et al., (2005) also reported that long term haemodialysis often results in a loss of freedom while Smeltzer and Bare, (2004) reported that haemodialysis alters the life style of patients with employment being a major area being affected. The current study also shows that ESRD is likely to affect the employment status of the patients, which can eventually lead to reduced, or loss of financial income as reported by Lin et al., (2005).

Table 7: *Income Levels*

Income level	Frequency	Percentage (%)
Less than GH 600	15	50.0
GH 600-1200	7	23.3
GH 1300-2000	6	20.0
GH 2100-4000	1	3.3
GH 4100-7000	1	3.3
Total	30	100

Source: Field Survey, Amoako (2016)

Table 7 shows the income level of the respondents. The majority of the respondents, 15 (50.0%) are receiving less than GH 600 as monthly income. Whiles 7 (23.3%) respondents are getting between GH 600-GH 1200. Only two (6.6%) of the respondents were receiving between GH 2100- GH 7000 as their monthly incomes.

The current study shows that majority of the respondents were receiving less than GH 600 cedis and as such, majority of the respondents will be worried about the cost of the treatment, as the average cost per a haemodialysis session is around GH 350 cedis of which patients are to get at least two sessions in a week. This would mean that in a month a haemodialysis patient would have spent GH 2800 cedis on haemodialysis treatment alone. Comparing the average monthly costs of dialysis, majority of respondents (93.3%) have financial resources that are woefully inadequate. Affirming the report by Mate-Kole, (2007) that the high cost of haemodialysis in the Ghana places it beyond the reach of many, except the very rich, and those working with reputable companies who belong to prepaid medical aid schemes.

Research Question One

The only research question was to investigate the prevalence of depression, anxiety, social support and health related quality of life. The result is presented in Table 8.

Table 8: *Descriptive Data on Depression, Anxiety and Social Support*

Variables	Frequency	Percentage (%)
Depression		
Normal	2	6.7
Borderline (moderate)	4	13.3
Abnormal (severe)	24	80.0
Anxiety		
Normal	19	63.3
Borderline (moderate)	5	16.7
Abnormal (severe)	6	20.0
Social support		
Low.	6	20.0
Moderate	16	53.3
High	8	26.7

Source: Field Survey, Amoako (2016)

Table 8 shows the reported prevalence of depression, anxiety and social support among the study subjects. The table reveals that 24 (80.0%) out of 30 respondents meeting the recommended threshold (score ≥ 11) for a diagnosis of abnormal case or severely depressed on the HADS, 4 (13.3%) were borderline abnormal or moderately depressed and only two (6.7%) of the respondents were in the normal range on the depression scale. Anxiety had 19

(63.3%) out of the 30 respondents being in the normal range on the anxiety scale and 6 (20.0%) respondents meeting the recommended threshold (score \geq 11) for a diagnosis of a severe anxiety. On perceived social support 6 (20.0%) of the respondents were lowly satisfied with their social support in life, 16 (53.3%) respondents were moderately satisfied with their social support, while, eight (26.7) of the respondents perceived a higher social support.

This result indicates that the majority of the respondent 24 (80.0%) are severely depressed. For anxiety, only 20.0% of the respondents had severe anxiety. On social support majority of the respondents reported that they were somewhat satisfied with the social support in life

Table 9: *Reported prevalence of Health related quality of life*

Quality of life	Mean	Std Deviation
Overall score	44.85	14.54
PCS & MCS	26.73	17.82
BKD	19.16	17.82
SYMP & PRO	73.97	14.54
EFKD	41.25	21.95

Source: Field Survey, Amoako (2016)

Note: PCS & MCS= *physical component summary & mental component summary subscale*, BKD= *burden of kidney disease subscale*, SYMP & PRO= *symptoms and problems subscale*. EFKD= *effects of kidney disease subscale*. QOL total= *overall quality of life*.

Table 9 presents the mean scores for the HRQOL domains. Overall quality of life score was (M=44.85, SD=14.54) demonstrating a low or poor score on quality of life. The scores for the physical component summary and

mental component summary subscale (PCS & MCS), burden of kidney disease subscale (BKD), symptoms and problem list subscale (SYMP & PRO) and effects of kidney disease subscale (EFKD) were (M=26.73, SD=17.82) (M=19.16 SD=17.82), (M=73.97, SD=14.54), and (M=41.25, SD=21.95) respectively.

Hypothesis One

Hypothesis 1 was to explore whether participants’ depression score will have an association with their perceived HRQOL (see p. 8). Table 10 shows the results of the testing of this hypothesis

Table 10: *Pearson Correlation Matrix of Depression and HRQOL*

	QOL total	PCS & MCS	BKD	SYMP & PRO	EFKD
Depression	-.77*	-.73*	-.84*	-.43*	-.63*

* $p < 0.05$ (2-tailed)

Note: PCS & MCS= *physical component summary & mental component summary subscale*, BKD= *burden of kidney disease subscale*, SYMP & PRO= *symptoms and problems subscale*. EFKD= *effects of kidney disease subscale*. QOL total= *overall quality of life*.

A two-tailed hypothesis that there is a relationship between quality of life and depression was statistically tested using Pearson correlation moment. As shown in Table 10, the test revealed that there was a highly statistically significant negative correlation between the total score of quality of life and depression score. ($r = -0.77$; $n=30$; $p < 0.05$). The findings again revealed a negative correlation with all four subscale of the KDQOL-36. Physical component summary and mental component summary subscale (PCS & MCS) ($r = -0.73$; $n=30$; $p < 0.05$); burden of kidney disease subscale (BKD) ($r = -.84$;

n=30; $p < 0.05$); symptoms and problem subscale (SYMP & PRO) ($r = -0.43$; n=30; $p < 0.05$) and effects of kidney disease on daily life subscale (EFKD) ($r = -0.63$; n=30; $p < 0.05$). The results revealed that among haemodialysis patients, as the higher depression scores the lower the health related quality of life scores. The strongest correlation among the health related quality of life subscales was with the burden of kidney disease subscale ($r = -0.84$). The items under this subscale includes items about how much kidney disease interferes with daily life, takes up time, causes frustration, or makes the respondent feel like a burden. These findings reveal that the researcher should reject the null hypothesis, which states that there is no significant correlation between depression and HRQOL among haemodialysis patients. The alternate hypothesis that states there is a statistical significant correlation between depression and HRQOL. Specifically, the correlation was a negative correlation.

Hence, the alternate hypothesis that there is a significant association between depression levels and perceived quality of life in end-stage renal disease patients receiving haemodialysis was supported by the data.

Hypothesis Two

Hypothesis 2 was to explore whether participants anxiety score will have an association with their perceived HRQOL (see p. 8). Table 11 shows the results of the testing of this hypothesis.

Table 11: *Pearson Correlation Matrix of Anxiety and HRQOL*

	Total QOL.	PCS & MCS	BKD	SYMP & PRO	EFKD
Anxiety	-.51*	-.33	-.32	-.49*	-.48*

* $p < 0.05$ (2-tailed)

Note: PCS & MCS= *physical component summary & mental component summary subscale*, BKD= *burden of kidney disease subscale*, SYMP & PRO= *symptoms and problems subscale*. EFKD= *effects of kidney disease subscale*. QOL total= *overall quality of life*.

As shown in Table 11, the test revealed that there was a statistically significant negative correlation between the overall score of quality of life and anxiety score ($r = -0.51$; $n=30$; $p < 0.01$). This result revealed that among haemodialysis patients, the higher anxiety scores the lower the overall health related quality of life score. Among the subscales the test reported of negative correlation between anxiety and symptoms and problem list subscale and effects of kidney disease subscale ($r = -0.49$; $p < 0.01$, and $r = -0.48$; $p < 0.01$). Hence, our hypothesis that there is a significant association between anxiety levels and perceived quality of life in end-stage renal disease patients receiving haemodialysis was supported by the data.

This result indicates that the null hypothesis should be rejected since the p value < 0.05 (indicating the probability of the null hypothesis being correct is 0.05). The alternate hypothesis, which stated that there is a significant relationship, was accepted.

Hypothesis Three

Hypothesis 3 states that there is a significant correlation between perceived social support and perceived health related quality of life among ESRD patients being treated with haemodialysis. This hypothesis was to explore whether participants perceived social support score would have an association with their perceived HRQOL (see p.8). Table 12 shows the results of the testing of this hypothesis.

Table 12: *Pearson Correlation Matrix of Social Support and HRQOL*

	Total QOL.	PCS & MCS	BKD	SYMP & PRO	EFKD
Social support	.26	.24	.32	.13	.26

Note: PCS & MCS= *physical component summary & mental component summary subscale*, BKD= *burden of kidney disease subscale*, SYMP & PRO= *symptoms and problems subscale*. EFKD= *effects of kidney disease subscale*. QOL total= *overall quality of life*.

The results in Table 12, shows that there was no statistically significant correlation between the total score of quality of life and perceived social support score ($r=0.26$; $n=30$). Unfortunately, no significant correlation was found in the subscales of the health related quality of life. Hence, our hypothesis that there is a significant association between perceived social support and perceived quality of life in end-stage renal disease patients receiving haemodialysis was not supported by the data. Therefore, the null

hypothesis, which states that there is no significant correlation between perceived social support and HRQOL, was accepted.

This result indicated that social support does not have direct correlation with patient's HRQOL. Per this result, respondents who had a better social support were not that different from those who had a poor social support on HRQOL among these haemodialysis patients.

Hypothesis Four

Hypothesis four states, there is a significant correlation between depression score and perceived social support among ESRD patients treated with haemodialysis (see p.8). This hypothesis was to explore whether participants perceived social support score would have an association with their depression scores. Table 13 shows the results of the testing of this hypothesis.

Table 13: *Pearson Correlation Matrix of Depression and Social Support*

	Depression.
Social support	-.41*

* $p < 0.05$ (2-tailed).

The results in Table 13 shows that there is a statistically significant negative or inverse correlation between depression and perceived social support score ($r = -0.41$; $n = 30$; $p < 0.05$). The results indicated that respondents who scored higher on perceived social support are more likely to have a lower score on depression. Hence, the hypothesis that there is a significant association

between perceived social support and depression levels in End-stage renal disease patients receiving haemodialysis was supported by the results.

This result indicates that the null hypothesis should be rejected since the p value was less than 0.05 (indicating the probability of the null hypothesis being correct is 0.05). The alternate hypothesis, which stated that there is a significant relationship, was then accepted. This result indicates that respondents who had better social support were likely to score low or report low depressive symptoms.

Hypothesis Five

Hypothesis five states that a significant correlation exists between perceived social support and anxiety score of end-stage renal disease patients treated with haemodialysis (see p. 8). This hypothesis was to explore whether participants perceived social support score would have an association with their anxiety score. Table 14 shows the results of the testing of this hypothesis

Table 14: *Pearson Correlation Matrix of Anxiety and Social Support*

	Anxiety.
Social support	-.59*

* $p < 0.05$ (2-tailed)

Table 14, shows that there was a statistically significant negative correlation between anxiety levels and perceived social support score ($r = -0.59$; $n = 30$; $p < 0.05$). These results indicated that higher perceived social support the lower anxiety score among the patients. Hence, the hypothesis that there is a significant association between perceived social support and anxiety levels

in end-stage renal disease patients receiving haemodialysis was supported by the data.

This result indicates that the null hypothesis should be rejected since the p value was less than 0.05 (indicating the probability of the null hypothesis being correct is 0.05) and the alternate hypothesis, which stated that there is a significant relationship should be then accepted. The implications of this findings is that, haemodialysis patients who perceived a better social support were less likely to have anxiety symptoms or score low on the anxiety score

Hypothesis Six

Hypothesis six states that there is a relationship between depression and income level of patients (see p. 8). This hypothesis was to explore whether participants depression score would have an association with their income levels. Table 15 shows the results of the testing of this hypothesis

Table 15: *Pearson Correlation Matrix of income level and depression*

	Income level.
Depression.	-0.41*

* $p < 0.05$ (2-tailed)

Table 15 shows the correlation between income level and depression. The results clearly show that there is significant correlation between income levels and depression. The test revealed that there is a negative correlation between the income levels of patients and their depression score ($r = -0.41$, $n = 30$; $p < 0.05$), indicating that higher income levels is associated with a decreased depression among patients undergoing haemodialysis in Ghana.

This result supported the hypothesis that depression has an association with patient's income

This result indicates that the null hypothesis should be rejected since the p value < 0.05 (indicating the probability of the null hypothesis being correct is 0.05) and the alternate hypothesis, which stated that there is a significant relationship should be then accepted. These results can be explained as respondents who had higher income levels were better off than their counterparts that had low income in terms depression level or depressive symptoms.

Discussion

In this section, the findings are discussed in relation to:

1. Relationship between depression and HRQOL among haemodialysis patients.
2. Relationship between anxiety and HRQOL among haemodialysis patients.
3. Relationship between social support and HRQOL among haemodialysis patients.
4. Relationship between perceived social support and depression among haemodialysis patients.
5. Relationship between perceived social support and anxiety among haemodialysis patients.
6. Relationship between income levels and depression among haemodialysis patients.
7. The reported prevalence of depression, anxiety and social support as well as HRQOL among study subjects.

Relationship between Depression and Health Related Quality of Life

The first hypothesis was formulated to ascertain whether there is a correlation between depression and HRQOL among haemodialysis patients in Kumasi, Ghana. The findings revealed that there is a negative correlation between depression and HRQOL. Indicating that ESRD patients who are severely depressed are more likely to have a poor or compromised HRQOL while, ESRD patients who were not severely depressed or had low scores on the depression scale are less likely to have a poor or compromised HRQOL. Thus demonstrating, depression produces significant impediments in daily activities, producing lower productivity than desired and increased interference of bodily pain in normal tasks, as well as a more negative appraisal of current health and future prospects.

This result is consistent with studies like that of Mollaoglu (2004) which indicated that two thirds of ESRD patients in Turkey had depression and found an association between depressed mood and HRQOL. In that study the higher depression scores the lower HRQOL scores. Kao et al, (2009) also reported similar results when he concluded that higher depression scores are associated with worse HRQOL of haemodialysis patients.

The results were again consistent with another study by Perales-Montilla, García León, and Reyes del Paso, (2012), where they investigated the psychological predictors of quality of life of chronic renal failure patients undergoing haemodialysis in Brazil. Similar, to the results of this study depression was reported of having a negative association between health related quality of life and its components. These findings are again supported

by the work of Jofre et al., (2000), which concluded that depression has a negative impact of perceived health related quality of life.

The study correlates with the work of Rhee et al., (2006), who examined correlations between Beck Depression Inventory (BDI) score and each of the 8 scales of the Short- Form 36 (SF-36) HRQOL survey. Per their results BDI score (depression) demonstrated strong, inverse correlations with each of the SF-36 scale (HRQOL), in particular energy/fatigue, emotional well-being, and social functioning. These data suggest that more severe depression is associated with worse HRQOL in this population.

Relationship between Anxiety and Health Related Quality of Life

Another hypothesis was formulated to ascertain whether there is a correlation between anxiety and HRQOL among haemodialysis patients in Kumasi, Ghana. The results of this hypothesis testing revealed that there is a negative correlation between anxiety and HRQOL among haemodialysis patients in Kumasi, Ghana. This indicates that ESRD patients who have severe anxiety or high scores on the anxiety scale are more likely to have a poor HRQOL whiles, ESRD patients with low scores of anxiety are more likely to have an improved HRQOL. Thus demonstrating, anxiety like depression produces significant impediments in daily activities, producing lower productivity than desired and increased interference of bodily pain in normal tasks, as well as a more negative appraisal of current health and future prospects

This result is consistent with studies as Mollaoglu (2013), where anxiety was seen to be associated with decreased health related quality of life score. Similarly, in Cukor, Cohen, Peterson and Kimmel (2007) review of

psychosocial aspects of chronic kidney disease, it was reported that anxiety has negative correlation with quality of life in chronic kidney disease patients.

This study result is again consistent with the study by Cukor et al., (2008). Their study evaluated the psychosocial impact of anxiety disorders on patients with ESRD, and identified the rates of these disorders in a sample of patients receiving haemodialysis at a single centre. They also examined the relationship between anxiety diagnosis and perceptions of quality of life and health status. From their study, it was reported that the presence of an anxiety disorder was associated with an overall perceived lower quality of life.

Relationship between Social Support and Health Related Quality of Life

A hypothesis was formulated to ascertain whether there is a correlation between perceived social support and HRQOL among haemodialysis patients in Kumasi, Ghana. The result of the study revealed that there was no relationship or correlation between perceived social support and HRQOL. Demonstrating that ESRD patients' perception of social support is not linked with their HRQOL.

The results of this study was not consistent with majority of studies reviewed in this study on social support and health related quality of life (Perales-Montilla, et al., 2012; Kimmel & Peterson 2005; and Patel, et al., 2005.) which suggested that better perceived social support was associated with higher perceived health related quality of life.

However, this result is consistent with Kao, et al., (2009) study of evaluating the association between economic, social, psychological factors and health related quality of life of chronic haemodialysis patients in Northern

Taiwan. Per their multivariable regression analyses in their study, social support was not significantly associated with HRQOL.

The difference between this study results and that of the previous studies that suggested a significant association between social support and health related quality of life might be because 80.0% of the respondents of the current study reported between medium to high social support. Further test of difference (ANOVA) reported of no significant difference between social support and HRQOL ($f(2) = 1.54$, $p\text{-value} = 0.23$), that is, the difference in HRQOL scores between patients social support scores was not distinct and could not be demonstrated clearly.

Relationship between Social Support and Depression

A hypothesis was formulated to ascertain whether there is a correlation between perceived social support and depression among haemodialysis patients in Kumasi, Ghana. The findings of this study revealed that there is a negative correlation or relationship between perceived social support and depression. Indicating that ESRD patients with high social support from friends, family and significant others were less depressed or had lower depressive symptoms whiles, ESRD patients with low levels of social support from friends, family and significant others are more likely to be severely depressed or have increased depressive symptoms. This accentuates literatures that avow that the provision of social support to patients with end-stage renal disease is associated with reduction in depressive symptoms, positive perception of their illness and their general satisfaction with life (Gerogianni & Babatsikou, 2014a)

The study result is consistent with Patel et al., (2005), which concluded that the provision of social support to patients with end-stage renal disease is associated with reduction in depressive symptoms, positive perception of their illness and their general satisfaction with life.

The current study finding is similarly to that of Kimmel and Patel, (2006). According to that study, an increase in perceived social support among end-stage renal disease patients is associated with a low or reduction of depressive symptoms, patient general satisfaction of life and their positive perception of their illness. This result is once again consistent with Guzman and Nicassio (2003), which reported that lower levels of social support were associated with increased levels of depression.

Relationship between Anxiety Levels and Perceived Social Support

A hypothesis was formulated to ascertain whether there is a correlation between anxiety level and perceived social support among haemodialysis patients. The results of the study indicated that there is a negative correlation between anxiety levels and perceived social support. This finding indicates that ESRD patients with a more supportive environment are more likely to display low levels of anxiety whiles, ESRD patients with low levels of perceived social support are more likely to have high levels of anxiety.

This result is consistent with Mollaoglu, (2006) study that reviewed perceived social support, anxiety, and self-care among patients receiving haemodialysis. In their study all variables were highly significantly correlated with each other ($p < 0.001$). Social support is negatively correlated with anxiety ($r = -0.62$, $p < 0.001$), while self-care was significantly negatively correlated with anxiety ($r = -0.58$, $p < 0.001$) and positively correlated with social support

($r = 0.67$, $p < 0.001$). In that study, the results therefore indicated a significant correlation was found between social support and anxiety, indicating that the higher the level of social support, the lower the patient's anxiety scores.

The current study was in agreement with that of Christensen and Ehlers, (2002), which investigated psychological factors in ESRD. Their study reported that there is an inverse association between social support and anxiety. Their study concluded that patients perceiving a poor supportive family environment (i.e., less cohesion and expressiveness and greater conflict) displayed significantly higher levels of depression and anxiety than patients with a more supportive family environment did.

Consequently, patients' involvement in supporting networks, rehabilitation activities and participation in programs of physical activity or educational programs can help them to create new supportive relationships, achieve social recognition and appreciation and prevent social isolation as well as reducing the levels of depression and anxiety.

Relationship between Income Levels and Depression

The last hypothesis was formulated to ascertain whether there is a correlation between income level and depression among haemodialysis patients. The results of the study indicated that there is a negative correlation between income levels and depression among respondents. This finding indicates that ESRD patients who had high income levels displayed low levels of depression whiles ESRD patients with low income levels displayed high levels of depressive symptoms. It can therefore be presume that patients who have higher income levels were less likely to be severely depressed. This is so because of the high cost of the haemodialysis treatment in Ghana. Patients on

the average pay between GH 350-GH 500 cedis per week. This amount is usually out of the reach of many patients as most of them are unemployed, retired, disabled or laid off because of the ESRD and its treatment modality.

The current study was in line with that of Lee et al., (2013), which investigated the association depression and anxiety with HRQOL in patients with chronic kidney disease. Per their study, the prevalence of depression was 47.1% and anxiety 27.6%. Depression correlated with age, employment, income levels, education, comorbidity index, haemoglobin level and anxiety score.

Reported Prevalence of Depression, Anxiety, Social Support and HRQOL among Study Subjects

Table 8 and 9 presented the prevalence of depression, anxiety, social support and HRQOL among the respondents. The results of the study indicated that the majority of the respondents, 24 (80.0%) met the criteria for a diagnosis of severe depression while only 6 (20.0%) respondents could be said to meet the criteria for severe anxiety. Indicating that in Ghana, haemodialysis patients also go through physical and psychological turmoil as documented in other studies reviewed in this paper. Among psychosocial factors evaluated in this study, the highest impairment was seen in depression. Based on the results, there appears to be a substantial impairment in depression. Per the study results 80% of the patients had a higher (abnormal case) score on the depression subscale of the hospital anxiety and depression scale (HADS). Indicating generally, end-stage renal disease patients receiving haemodialysis in our study were severely depressed. The results from our study are comparable to those from other studies that have used the HADS

scale in patients with chronic renal failure (Perales-Montilla, García-León, and Reyes del-Paso, 2012)

Albeit previous studies documenting high prevalence of depression in this population, it should be noted that the present study prevalence (80%) for severe depression is among the highest rates so far. The reason for this high prevalence in this population could be linked to the socio-economic hardship that has befallen the whole country coupled with high cost of the haemodialysis treatment in the country (Ababio, 2013). This is because of the reported negative correlation between income levels and depression in the current study. Which only meant that respondents who had high-income levels were more likely to be less depressed while those respondents with low-income level were more likely to be more severely depressed.

The current study was therefore consistent with that of Jofre et al., (2000) which investigated the factors affecting the quality of life of renal failure patients. They found that the prevalence of depression is within 70.0% in the dialysis population using Beck Depression Inventory (BDI); they also indicated that depression has a significant impact on the perception of quality of life. The current study then is consistent with that of Cukor et al., (2007) which also reported prevalence of anxiety in dialysis patients is at 19.0% to 30.0%.

The findings also indicated that among the study subject's majority were somewhat satisfied with their social support with 16 (53.3%) indicating that they are moderately satisfied with their social support from family, friends and significant others.

Findings of the current study show that HRQOL among respondents were generally poor. The means score (M=44.85) for overall quality of life indicating a low score because the score ranges from 0 to 100 with higher scores reflecting a better quality of life ESRD patients. This reflects the psychological impact that this disease has in daily activities of individuals undergoing haemodialysis in Ghana. The worst HRQOL subscale score was for PCS & MCS (M=26.73), which implies that the patients on haemodialysis had a negative general health and were limited to in their daily activity, ability to accomplish desired task, energy level, and social activities. This finding is a cause for worry as according to The Dialysis Outcomes and Practice Patterns Study (DOPPS) Patients whose PCS scores were in the lowest quintile had a 56% higher risk of hospital stays and a 93% higher risk of death than those in the highest quintile. Mapes, et al., (2003) concluded that low PCS and MCS scores were as powerful an independent predictor of hospitalization and death.

Indicating, that the study sample as a group had a higher risk of death and hospitalization. However, on symptoms and problem subscale of KDQOL SF, which targets how bothered patients are with symptoms like sore muscles, chest pains, faintness, the patients reported of higher score on this subscale. Therefore, end-stage renal disease patients undergoing haemodialysis in Kumasi, has a considerable impact on the functional status and health-related quality of life perceived by the patient as it is accompanied by symptoms that affect daily life. This finding was consistent with that of previous studies that reported of poor HRQOL among haemodialysis patients (Perales-Montilla et al., 2012; Sathvik et al., 2008; Silveira et al., 2010 and Pakpour et al., 2010).

Hence, the study results indicate that attention needs to be focused not only on how long but also on how well ESRD patients live as ESRD patients treated with haemodialysis have significantly impaired health related quality of life (Molsted, Aadahl, Schou, & Eidemak, 2004).

Summary

In this chapter, the results of the analyses were discussed by considering each hypothesis. The relationships between pairs of variables studied were interpreted and discussed. These relationships ranged from significant to non-significant ones. Among the psychosocial factors, only depression and anxiety were found to have a very strong relationship with the dependent variable, perceived health related quality of life (HRQOL).

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Summary of the Study

The study was descriptive in nature and used a correlational survey to explore the correlation between psychosocial factors and HRQOL among haemodialysis patients in Kumasi, Ghana. Principally, the study focused on depression, anxiety and perceived social support as well as the relationship it has with HRQOL, the relationship between depression, anxiety and perceived social support and lastly the relationship between income levels and HRQOL among haemodialysis patients.

The study was conducted in the Kumasi Municipal Assembly of Ashanti region of Ghana. The study used purposive sampling was used to get respondents. The researcher was interested in respondents who were aged 18 years and above, understood Twi or English language and had been on haemodialysis treatment for at least three months. The researcher was not interested in respondents with known psychiatry conditions, dementia or ongoing psychosis as this will impair their cognitive function and hence responses provided may not be reliable. All respondents who had the characteristics that the researcher deemed it needful were contacted. The sample for the study comprised 30 haemodialysis patients.

Summary of Key Findings

The hypotheses formulated in this study focused on whether there are significant relationships among the variables; depression level, anxiety level, perceived social support, and perceived health related quality of life. The broad concern this study sought to address was whether there was a correlation

between psychosocial factors and HRQOL among end-stage renal disease patients receiving haemodialysis treatment in Ghana. The following are the main findings drawn from the data analysis.

1. The study established that depression had a statistically significant relationship with overall health related quality of life and its domains. Depression had a strong inverse correlation with health related quality of life.
2. The results indicated that depression showed a statistically significant relationship with health related quality of life. This relationship could be describe as negative and somewhat strong given the correlation coefficient reported. Indicating the higher level of depression, the poorer health related quality of life among participants.
3. The study also found out that the relationship between perceived social support and health related quality of life was not significant. Indicating perceived social support has no association with health related quality of life of individuals receiving haemodialysis treatment.
4. The study established a statistically significant relationship between depression and social support among individuals receiving haemodialysis treatment. Depression had an inverse or negative relationship with perceived social support. Indicating, increased in perceived social support is associated with a decrease in depression levels.
5. The study indicated that there is a statistically significant relationship between social support and anxiety levels among participants. The

relationship was an inverse or negative one, indicating that as perceived social support increases then anxiety levels decreases.

6. The study once again indicated that there is a statistically significant relationship between income levels and depression states among participants. Participants income level was negatively associated with depression states among haemodialysis patients
7. The study reported of the prevalence rate or level of depression, anxiety, perceived social support and health related quality of life among the respondents. Eighty percent of respondents met the recommended threshold (score ≥ 11) for a diagnosis of abnormal case or said to be severely depressed. Only 20% of the respondents meet the threshold (score ≥ 11) for a diagnosis of abnormal case of anxiety. On perceived social support majority, 53.3% of the respondents reported of moderate levels of social support. Health related quality of life among the current study respondents was generally poor or compromised (M=44.85, SD=14.54).

Conclusions

End stage renal disease is one of the devastating chronic disorders, which pose several public health issues affecting an increasing number of people in Ghana (Mate-Kole, 2007 and Ababio, 2013). Haemodialysis is a life sustaining treatment for patients with ESRD; however, this treatment modality has been noted to have a detrimental effect on patients' mental status (Gerogianni 2003). Progressively, depression is being recognised as a substantial comorbid illness in these patients. Anxiety and impaired HRQOL are also significant psychological symptoms and are interrelated.

The findings from the current study indicates that living with a chronic illness such as ESRD can greatly compromise the perception that patients hold relating to what gives their lives quality and to what they attribute meaning in their lives. It is clear that from those who participated in this study that ESRD undermines every area of the patient's life.

The study has been valuable in illustrating the ways in which HRQOL correlates with psychosocial factors like depression and anxiety. It has added to existing data, on HRQOL, depression, anxiety and perceived social support in ESRD. However, a major limitation of this study is the small sample size and caution should be applied in generalising the present findings to all people with ESRD receiving haemodialysis treatment.

Given the range and extent to which depression is linked with income levels and social support of the respondents in this study. A recommended health and social care response would have to provide health psychology support within hospitals and renal units by providing patient centred care and supporting patients to manage their condition and achieve the best quality of life by decreasing depressive symptoms. Furthermore, haemodialysis treatment should be made affordable to all ESRD patients to aide reduce depressive symptoms.

Findings from this study have created an evidence base upon which future health psychology services can be built within leading hospitals which provides haemodialysis treatment. Thus, to improve treatment outcome and patient QOL, an all-inclusive management plan that included pharmacological and psychosocial interventions is essential.

Recommendations

The following recommendations were made with the expectation that they could help improve upon the health related quality of life and negative psychosocial experiences among ESRD who are receiving haemodialysis treatment in Kumasi.

Health psychology services should be provided at the dialysis units to counsel patients and their families adequately before dialysis treatment commences. Thus, it is important to develop systematic approaches to screening patients for mental illness, and then planning treatment strategies. Therefore, initial and on-going psychosocial assessment of dialysis patients should be done.

At this point, it is worth mentioning the close cooperation of the members of the multidisciplinary treatment team (nutritionists, psychologists, nephrologist, and machine technicians) should be seen in providing services within the dialysis centers.

Patients and their families should be adequately counselled before dialysis commence. Families, friends and significant others of ESRD patients should be made to know how important their support will go a long way in helping patients achieve better quality of life or health outcome.

Based on the research findings where 93.3% of the respondents' monthly income was woefully inadequate to bare the average cost of dialysis in a month, it is therefore recommended that dialysis treatment should be made affordable to all people in Ghana to improve emotional wellbeing of patients already on the treatment and also prospective patient's access to these services. The National Health Insurance Scheme should cover some aspects of

the dialysis treatment. Investigations should be conducted into the possibility of providing peritoneal or home based dialysis services in addition to haemodialysis.

Based on the study, it is recommended that there should be a promotion of health programmes towards patients suffering from end-stage renal disease that enhances their confidence and ability to self-care and focus more often on mental health issues afflicting them (depression, anxiety and suicide ideation).

Suggestions for Future Research

1. Further multicentre and prospective studies are necessary to better understand the relationship between psychological factors and health related quality of life among haemodialysis patients.
2. A longitudinal study will be best in the position to capture real picture of quality of life of ESRD patients undergoing haemodialysis since the course of the disease is an ongoing one. As longitudinal studies are more comprehensive, provide more statistical power, and allow the assessment of the contribution of change and stability to be quantified.
3. Future studies should include biomedical variables like hemoglobin, creatinine and look at the relationship between these variables and HRQOL.
4. Future studies should make use of qualitative methods in assessing HRQOL among ESDR patients, as they are more comprehensive and free from biases that come with using self-reported questions or quantitative methods.

5. Future research should also target a larger sample size to make the results a fair representation of the entire population and make it easy to be generalized to a greater population.

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APPENDIX. A
UNIVERSITY OF CAPE COAST
COLLEGE OF EDUCATIONAL STUDIES
DEPARTMENT OF EDUCATIONAL FOUNDATIONS
QUESTIONNAIRE FOR PARTICIPANTS

Dear Respondent,

This questionnaire has been designed to explore psychosocial factors and perceived health related quality of life among individuals with ESRD (ESRD) receiving haemodialysis treatment in Ghana. I, the researcher am a final year MPhil. Clinical Health Psychology student of the Department of Educational Foundations of the University of Cape Coast. Please do not write your name or identify yourself in any other ways. Any information that you provide will be strictly confidential and used for academic purposes only. You will contribute immensely towards this research if you respond to the items as frankly as possible. Your time is very much appreciated.

PLEASE KINDLY TICK THE RESPONSE THAT YOU THINK IS APPROPRIATE

SECTION A: DEMOGRAPHIC DATA

1. Gender: Male [] Female []
2. Age: 18-24 [] 25-30 [] 31-40 [] 41-50 [] 51-60 []
above 60 []
3. Marital status: Single [] Married [] Divorce []
Separated []
4. How long have you been on dialysis treatment?

5. What caused your kidney disease? Don't know [] Hypertension []
Diabetes [] HIV associated [] Chronic Glumerolonephites []
Others.....
6. During the last 30 days were you: Working full time [] Working
part time [] Unemployed, laid off, or looking for work [] Retired []
Disabled [] In school [] Keeping house [] None of the above []
7. What was your total monthly household income (from all sources)
(please remember your answers are confidential: Less than GH¢600 []
GH¢600-GH¢1200 [] GH¢1200-GH¢2000 [] GH¢2000- GH¢4000
[] GH¢4000- GH¢7000 [] More than GH¢ 7000 [].

Hospital Anxiety and Depression Scale (HADS)

Tick the box beside the reply that is closest to how you have been feeling in the past week. Do not take too long over you replies: your immediate is best

D	A		D	A	
		I feel tense or 'wound up':			I feel as if I am slowed down:
	3	Most of the time	3		Nearly all the time
	2	A lot of the time	2		Very often
	1	From time to time, occasionally	1		Sometimes
	0	Not at all	0		Not at all
		I still enjoy the things I used to			I get a sort of frightened feeling
0		Definitely as much	0		Not at all
1		Not quite so much	1		Occasionally
2		Only a little	2		Quite Often
3		Hardly at all	3		Very Often
		I get a sort of frightened feeling as if something awful is about to			I have lost interest in my appearance:
	3	Very definitely and quite badly	3		Definitely
	2	Yes, but not too badly	2		I don't take as much care as I
	1	A little, but it doesn't worry me	1		I may not take quite as much care
	0	Not at all	0		I take just as much care as ever
		I can laugh and see the funny side			I feel restless as I have to be on
0		As much as I always could	3		Very much indeed
1		Not quite so much now	2		Quite a lot
2		Definitely not so much now	1		Not very much
3		Not at all	0		Not at all
		Worrying thoughts go through my			I look forward with enjoyment to
	3	A great deal of the time	0		As much as I ever did
	2	A lot of the time	1		Rather less than I used to
	1	From time to time, but not too often	2		Definitely less than I used to
	0	Only occasionally	3		Hardly at all
		I feel cheerful:			I get sudden feelings of panic:
3		Not at all	3		Very often indeed
2		Not often	2		Quite often
1		Sometimes	1		Not very often
0		Most of the time	0		Not at all
		I can sit at ease and feel relaxed:			I can enjoy a good book or radio
0		Definitely	0		Often
1		Usually	1		Sometimes
2		Not Often	2		Not often
3		Not at all	3		Very seldom

Multidimensional Scale of Perceived Social Support

Instructions: We are interested in how you feel about the following statements.

Read each statement carefully. Indicate how you feel about each statement.

Circle the “1” if you **Very Strongly Disagree (VSD)**

Circle the “2” if you **Strongly Disagree (SD)**

Circle the “3” if you **Mildly Disagree (MD)**

Circle the “4” if you are **Neutral (N)**

Circle the “5” if you **Mildly Agree (MA)**

Circle the “6” if you **Strongly Agree (SA)**

Circle the “7” if you **Very Strongly Agree (VSA)**

	VSD	SD	MD	N	MA	SA	VSA	
1. There is a special person who is around when I am in need.	1	2	3	4	5	6	7	SO
2. There is a special person with whom I can share my joys and sorrows.	1	2	3	4	5	6	7	SO
3. My family really tries to help me.	1	2	3	4	5	6	7	Fam
4. I get the emotional help and support I need from my family.	1	2	3	4	5	6	7	Fam
5. I have a special person who is a real source of comfort to me.	1	2	3	4	5	6	7	SO
6. My friends really try to help	1	2	3	4	5	6	7	Fri

me.								
7. I can count on my friends when things go wrong	1	2	3	4	5	6	7	Fri
8. I can talk about my problems with my family.	1	2	3	4	5	6	7	Fam
9. I have friends with whom I can share my joys and sorrows.	1	2	3	4	5	6	7	Fri
10. There is a special person in my life who care about my feelings.	1	2	3	4	5	6	7	SO
11. My family is willing to help me make decisions.	1	2	3	4	5	6	7	Fam
12. I can talk about my problems with my friends	1	2	3	4	5	6	7	Fri

The items tended to divide into factor groups relating to the source of the social support, namely family (Fam), friends (Fri) or significant other (SO)

Kidney Disease and Quality of Life (KDQOL™-36)

This survey asks for your views about your health. This information will help keep track of how you feel and how well you are able to do your usual activities.

Your health

1. In general, would say your health is:

- Excellent1
- Very good.....2
- Good3
- Fair4
- Poor5

The following items are about activities you might do during a typical day. Does your health now limit you in these activities? If so, how much?

(Circle one on each line)

	Yes, limited a lot	Yes, limited a little	No, not limited at all
2. Moderate activities, such as moving tables, cleaning your room.	1	2	3
3. Climbing several flights of stairs	1	2	3

During the past 4 weeks, have you had any of the following problems with your work or other regular activities as a result of your physical health?

Circle one number each line

	Yes	No
4. Accomplished less than you would have liked?	1	2
5. Were limited in the kind of work or other activities.....	1	2

During the past 4 weeks, have you had any of the following problems with your work or other regular daily activities as a result of any emotional problems (depressed or anxious?)

(Circle one number each line

	Yes	No
6. Accomplished less than you would like.....	1	2
7. Didn't do work or other activities as carefully as usual?...	1	2

8. During the past 4 weeks, how much did pain interfere with your normal work.(including both work outside the home and housework)

Not at all	1
Slightly	2
Moderately	3
Quite a bit	4
Extremely	5

These questions are about how you feel and how things have been with you during the past 4 weeks. For each question, please give the one answer that comes closest to the way you have been feeling.

How much of the time during the past 4 weeks.

(Circle one number on each line)

	all of the time	Most of the time	A good bit of the time	Some of the time	A little of the time	None of the time
1. Have you felt calm and peaceful?	1	2	3	4	5	6
2. Did you have a lot of energy	1	2	3	4	5	6
3. Have you felt downhearted and sad	1	2	3	4	5	6

4. During the past 4 weeks, how much of the time have your physical health or emotional problems interfered with your social activities (like visiting with friends relatives, church, weddings and funerals. etc)

(Circle one number)

- All of the time..... 1
- Most of the time 2
- Some of the time 3
- A little of the time 4
- None of the time..... 5

Your Kidney Disease.

How TRUE or FALSE is each of the following statement for you?

(Circle one number on each line)

	Definitely true	Mostly true	Don't know	Mostly false	Definitely false
5. My kidney disease interferes too much with my life	1	2	3	4	5
6. Too much of my time is spent dealing with my kidney disease	1	2	3	4	5
7. I feel frustrated	1	2	3	4	5

dealing with my kidney disease					
8. I feel like a burden on my family	1	2	3	4	5

During the past 4 weeks, to what extent were you bothered by each of the following?

(Circle one number on each line).

	Not at all bothered	Somewhat bothered	Moderately bothered	Very much bothered	Extremely bothered
9. Soreness in your muscles?	1	2	3	4	5
10. Chest pains?	1	2	3	4	5
11. Cramps	1	2	3	4	5
12. Itchy skin	1	2	3	4	5
13. Dry skin?	1	2	3	4	5
14. Shortness of breath?	1	2	3	4	5
15. Faintness or dizziness	1	2	3	4	5

16. Lack of appetite	1	2	3	4	5
17. Washed out or drained?	1	2	3	4	5
18. Numbness in the hands or feet?	1	2	3	4	5
19. Nausea or upset stomach	1	2	3	4	5
20. Problems with your access site	1	2	3	4	5

EFFECTS OF KIDNEY DISEASE ON YOUR LIFE

Some people are bothered by the effects of kidney disease on their daily life, while others are not. How much does kidney disease bother you in each of the following areas?

(Circle one number on each line)

	Not at all bothered	Somewh at bothered	Moderately bothered	Very much bothered	Extremely bothered
21. Fluid restriction?	1	2	3	4	5
22. Dietary restriction?	1	2	3	4	5
23. Your ability to work around the house?	1	2	3	4	5
24. Your ability to travel?	1	2	3	4	5
25. Being dependent on doctors and other medical staff?	1	2	3	4	5
26. Stress or worries	1	2	3	4	5

caused by kidney disease					
27. Your sex life?	1	2	3	4	5
28. Your personal appearance?	1	2	3	4	5

Thank you for completing these questions.

APPENDIX B

Participant Information Leaflet and Consent Form

This leaflet must be given to all prospective participants to enable them know enough about the research before deciding to or not to participate

Title of Research: Correlation between psychosocial factors and health related quality of life among End stage renal disease patients receiving haemodialysis in Ghana: A study in Kumasi.

Name(s) and affiliation(s) of researcher(s):

This study is being conducted by Mr. Thomas N. Amoako of the University of Cape Coast.

Background (Please explain simply and briefly what the study is about):

The study is about the incidence and correlation of psychosocial factors (depression, anxiety and perceived social support and perceived health related quality of life among patients with End stage renal disease receiving haemodialysis treatment in Ghana.

Purpose(s) of research: The study seeks to explore the correlation between these psychosocial factors and perceived health related quality of life of people diagnosed with End stage renal disease who are receiving dialysis treatment in Kumasi.

Procedure of the research, what shall be required of each participant and approximate total number of participants that would be involved in the

research: All patients who meet the inclusion criteria, and are being treated within the study area are invited to participate. Once you have accepted to partake, the research objectives will be explained and a signed informed consent will be obtained. The researcher and some of the trained nurses at the

dialysis centre (who have been brief on the questionnaire and the study) will be around to answer the questions of participants.

Please do not write your name or identify yourself in any other ways. Any information that you provide will be strictly confidential and will be used for academic purposes only. You will contribute immensely towards this research if you respond to the items as frankly as possible. You only to provide response that is closest to how you have been feeling in past week for questions on depression and anxiety and your views about your health in the past month. Don't take too long over you replies: your immediate is best.

In total, we expect to recruit 30 participants into this study.

Risk(s): The only risk will be inconvenience to the participants

Benefit(s): The information you provide will tell us how you feel about your care and further understanding about the effects of medical care on the health of patients. This information will help to evaluate the care delivered.

Confidentiality: All information collected in this study will be given code numbers. No name will be recorded. Data collected cannot be linked to you in anyway. No name or identifier will be used in any publication or reports from this study

Voluntariness: Taking part in this study should be out of your own free will. You are not under obligation to. Research is entirely voluntary

Alternatives to participation: If you choose not to participate, this will not affect your treatment in this hospital/institution in any way

Withdrawal from the research: You may choose to withdraw from the research at any time without having to explain yourself. You may also choose not to answer any question you find uncomfortable or private.

Consequence of Withdrawal: There will be no consequence, loss of benefit or care to you if you choose to withdraw from the study. Please note however, that some of the information that may have been obtained from you without identifiers (name etc), before you chose to withdraw, may have been modified or used in analysis reports and publications. These cannot be removed anymore. We do promise to make good faith effort to comply with your wishes as much as practicable

Costs/Compensation: For your time/inconvenience, we will compensate you with GH¢2.00 to show our appreciation for your participation).

Contacts: If you have any question concerning this study, please do not hesitate to contact Mr. Amoako on 0243038275.

Further, if you have any concern about the conduct of this study, your welfare or your rights as a research participant, you may contact:

The Office of the Chairman

Committee on Human Research and Publication Ethics

Kumasi

Tel: 03220 63248 or 020 5453785

CONSENT FORM

Statement of person obtaining informed consent:

I have fully explained this research to _____
and have given sufficient information about the study, including that on
procedures, risks and benefits, to enable the prospective participant make an
informed decision to or not to participate.

DATE: _____ NAME: _____

Statement of person giving consent:

I have read the information on this study/research or have had it translated into
a language I understand. I have also talked it over with the interviewer to my
satisfaction.

I understand that my participation is voluntary (not compulsory).

I know enough about the purpose, methods, risks and benefits of the research
study to decide that I want to take part in it.

I understand that I may freely stop being part of this study at any time without
having to explain myself.

I have received a copy of this information leaflet and consent form to keep for
myself.

NAME: _____

DATE: _____ SIGNATURE/THUMB PRINT: _____

Statement of person witnessing consent (Process for Non-Literate Participants):

I _____(Name of Witness) certify that information given to _____ (Name of Participant), in the local language, is a true reflection of what I have read from the study Participant Information Leaflet, attached.

WITNESS' SIGNATURE (maintain if participant is non-literate): _____

MOTHER'S SIGNATURE (maintain if participant is under 18 years): _____

MOTHER'S NAME: _____

FATHER'S SIGNATURE (maintain if participant is under 18 years): _____

FATHER'S NAME: _____

APPENDIX C

PEACE AND LOVE HOSPITAL

Tel: +233-244-145-064
Email: peaceandlove2002@gmail.com
URL: www.breastcareghana.com



Breast Care International Ave
Plt 1, Blk C, Oduom-Kumasi
PO Box X374
FNT, Kumasi, Ghana

Our Ref: TA001/PLH

Your Ref:

Date: February 11, 2016

Mr. Thomas Amoako Nti
Department of Educational Foundation
University of Cape Coast
tomasnti90@gmail.com

Dear Thomas,

Letter of Approval

Study Title: Correlation between psychosocial factors and health-related quality of life among end stage renal disease patients receiving hemodialysis: a study in Kumasi

Proposed Study Site: Peace and Love Hospital, Oduom-Kumasi

Sponsoring Institution: University of Cape Coast, Cape Coast

Your submission to the Peace and Love Hospital (PLH) and Breast Care International (BCI) Ethical and Protocol Review Committee (EPRC) on the above named study based on the following documentation:

- Research protocol
- Participant Information Sheet
- Informed Consent Form
- Researcher's Institutional Support letter

The committee considered the ethical value of your submission and approved the protocol, therefore; you can start your study as planned. This approval is for a specific period of time between February 15, 2016 and September 15, 2016. However, the committee has the right to suspend or revoke this ethical approval at anytime if it is found that your study contravenes the approved protocol.

Please note that data gathered for this study should be used for the approved purposes only and permission should be sought from the committee if there is any need to make amendment to the protocol.

A final report on your study should be sent to the committee at the close of your study and any publication that may arise from it.

We wish you all the best in your study.

Sincerely Yours,

Beatrice W Addai, MD, PhD
For Chairperson

APPENDIX D



KWAME NKURUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY
COLLEGE OF HEALTH SCIENCES



SCHOOL OF MEDICAL SCIENCES / KOMFO ANOKYE TEACHING HOSPITAL
COMMITTEE ON HUMAN RESEARCH, PUBLICATION AND ETHICS

Ref: CHRPE/RC/83/16

9th May, 2016.

Mr. Amoako Nti Thomas
Department of
Educational Foundations
University of Cape Coast
CAPE COAST.

Dear Sir,

ETHICS REVIEW COMMENTS – CONDITIONAL APPROVAL

Protocol Title: "Correlation Between Psychosocial Factors and Health Related Quality of Life among End Stage Renal Disease Patients Receiving Haemodialysis in Ghana: A Study in Kumasi."

Following an expedited review, your protocol was given a conditional approval subject to you addressing the following concerns/queries:

On the Participant Information Leaflet (PIL):

Procedures of the research should be written in a direct conversational form with participants.

Kindly make the necessary amendments and submit one copy each of all required documents to the CHRPE (Room 7 Block J, School of Medical Sciences, KNUST), along with a letter explaining the changes you have made to each document. The date and reference number of this letter should be quoted in your letter.

Thank you Sir, for your application.

Yours faithfully,

Osomfuor Prof. Sir J. W. Acheampong MD, FWACP
Chairman

APPENDIX E

UNIVERSITY OF CAPE COAST
COLLEGE OF EDUCATION STUDIES
ETHICAL REVIEW BOARD



UNIVERSITY POST OFFICE
CAPE COAST, GHANA

Our Ref: CES-ERB/CR/NO1 2/004

Your Ref:

Date: 01.03.2016

Chairman, CES-ERB
Prof. J. A. Omotosho
jomotosho@ucc.edu.gh
0243784739

Dear Sir/Madam,

**ETHICAL REQUIREMENTS CLEARANCE FOR RESEARCH
STUDY**

Vice-Chairman, CES-ERB
Prof. K. Edjah
kedjah@ucc.edu.gh
0244742357

The bearer, Thomas Nti Amoako Reg. No. ED.C.H.P.14/1002 is an M.Phil /Ph.D student in the Department of EDUCATIONAL FOUNDATIONS, College of Education Studies, University of Cape Coast, Cape Coast, Ghana. He/She wishes to undertake a research study on the topic CORRELATIONS BETWEEN PSYCHOSOCIAL FACTORS AND HEALTH-RELATED QUALITY OF LIFE AMONG HAEMODIALYSIS PATIENT IN KUMASI, GHANA

Secretary, CES-ERB
Dr. (Mrs.) L. D. Forde
lforde@ucc.edu.gh
0244786680

The Ethical Review Board (ERB) of the College of Education Studies (CES) has assessed the proposal submitted by the bearer. The said proposal satisfies the College's ethical requirements for the conduct of the study.

In view of the above, the researcher has been cleared and given approval to commence his/her study. The ERB would be grateful if you would give him/her the necessary assistance that may be needed to facilitate the conduct of the said research.

Thank you.
Yours sincerely,

Dr. (Mrs.) Linda Dzama Forde
(Secretary, CES-ERB)

APPENDIX F

UNIVERSITY OF CAPE COAST
COLLEGE OF EDUCATION STUDIES
DEPARTMENT OF EDUCATIONAL FOUNDATIONS

Telephone: 233-3321-32440 4 & 324803
Fax: 01321-36037
Tel: 01321-30184
Telex: 2552 UCC GH
E-mail: education@ucc.edu.gh



UNIVERSITY POST OFFICE
CAPE COAST, GHANA

Our Ref.

Your Ref.

10th December, 2015

Dear Sir,

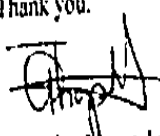
TO WHOM IT MAY CONCERN

LETTER OF INTRODUCTION: MR. THOMAS AMOAKO NTI

The bearer of this letter Mr. Thomas Amoako Nti is an M.Phil Clinical Health Psychology student at the Department of Educational Foundations. He is at the Theses writing stage writing on the topic: *Correlation between psychological factors and health related quality of life among end stage renal disease patients in Ghana: A study in Kumasi*. He intends to do a pilot study for his research at Cape Coast Regional Hospital.

We are by this letter kindly asking that he is given the necessary assistant. All information retrieved would be treated confidentially.

Thank you.


(Georgina Nyantakyiwaa Thompson)
PAA
For: Head