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The Relationship between Self-efficacy and Fluid,and Dietary Compliance in Hemodialysis Patients

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THE RELATIONSHIP BETWEEN SELF-EFFICACY AND FLUID AND DIETARY COMPLIANCE IN

HEMODIALYSIS PATIENTS

by

ANSY JOHN

A doctoral project submitted in partial fulfillment
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ABSTRACT

The Relationship between Self-efficacy and Fluid, and Dietary Compliance in Hemodialysis Patients

by

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Patients with end-stage renal disease (ESRD) who receive hemodialysis often fail to follow a prescribed diet and fluid regimen, which undermines the effectiveness of care and leads to unpredictable disease progression and greater likelihood of complications. Non-adherence to dietary and fluid limitations compromises the outcomes of patients receiving hemodialysis. Noncompliance can lead to detrimental long-term outcomes including deterioration of the cardiovascular system, heart failure, hypertension, and pulmonary edema as well as short-term problems such as edema, itching, bone pain, and breathlessness.

Many studies have demonstrated that self-efficacy strategies are associated with improved dietary and fluid compliance among individuals receiving hemodialysis. The benefits of self-efficacy include an emphasis on an individual's control over behavior, continuous and immediate feedback to the client, and a more complete and thorough account of behavior. A self-efficacy strategy has been successfully used in a variety of cases concerning chronically ill patients. The purpose of this project is to determine the relationship between self-efficacy and fluid and dietary compliance in hemodialysis

patients, as well as to identify the possible barriers that prevent patient compliance. A total of 100 eligible ESRD patients who receive routine hemodialysis three times a week participated in this study. The study used a modified version of the "Your Health and Well-Being" questionnaire, which addressed potential barriers to fluid and dietary restrictions as well as specific questions related to self-efficacy. Bivariate correlational analysis showed there is a strong positive correlation between self-efficacy and daily fluid restriction (r=.56) p<.001) and dietary restriction (r= .53) (p<.001) compliance. As predicted, the more self-efficacy the participant reported, the higher the self-reported dietary and fluid restriction compliance. Linear regression analysis was used to analyze the potential barriers predicted for fluid compliance was showed statistical significance (F (2.78) = 9.04, P < .001, R2 = .19). This suggests those who experience a higher degree of thirst were less compliant with fluid restrictions than those who reported not feeling as thirsty. Similarly, the second stepwise linear regression analysis using dietary restrictions as the criterion was also statistically significant (F (1, 80) = 7.21, P <.01, R2 = .08). These findings indicate that those who reported greater feelings of energy reported greater compliance with dietary restrictions. By utilizing the results of this study, clinicians and nurses can adopt multiple strategies to improve patient self-efficacy levels and self-management capacities. This study also provides a better understanding of the barriers that typically prevents dietary and fluid restriction compliance in ESRD patients who are on routine dialysis treatments.

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CHAPTER 1

INTRODUCTION

Chronic renal failure is marked by a progressive and frequently irreversible decline in kidney function. When the majority of normal kidney function is lost (Glomerular Filtration Rate (GFR) <15%), the patient is described as having end stage renal disease (ESRD). They undergo a complex treatment regimen, which often involves dialysis and a wide range of dietary restrictions. Hemodialysis is initiated as routine treatment for end stage renal failure to remove uremic toxins and excess water. Patients typically undergo hemodialysis three times a week for a period of four to six hours and are subject to dietary and fluid restrictions between dialysis treatments in order to minimize unnecessary accumulation of harmful toxins, electrolytes, and fluids (Barnett, Yoong, Pinikahana, & Si-Yen, 2008).

Compliance with treatment regimens can promote the prevention or minimization of complications associated with hemodialysis, and is an important factor contributing both to survival and quality of life (Atreja, Bellam, & Levy, 2005). Compliance may be influenced by a number of factors such as knowledge, health beliefs, self-efficacy, relationships, and satisfaction with treatment and support (Barnett et al., 2008). Noncompliance with a prescribed therapeutic regimen is not well understood. Patient education provided by health care professionals promotes compliance and reduces the occurrence or exacerbation of co-morbid conditions (Atreja et al., 2005). Patients who demonstrate they are noncompliant with prescribed fluid and dietary restrictions and

other treatment regimens are at much greater risk of developing complications such as cardiovascular disease and hypertension. As a result of therapeutic noncompliance, the cost and the complexity of the treatment may rise, thus further increasing the burden on the health care system. The cost burden has been estimated at $150 billion each year in the United States alone (Jin, Sklar, Sen Oh, & Chuen Li, 2008).

Hemodialysis patients who fail to adhere to dietary and fluid regimens can expect greater morbidity and a shorter life expectancy. Chan, Wong, and Chow (2009) reported up to 50% of patients on hemodialysis are noncompliant with their fluid and dietary restrictions. Adherence to fluid restrictions and dietary guidelines, as well as attendance at prescribed hemodialysis appointments, is essential for adequate management of end-stage renal disease. Hence, from both the perspective of achieving desirable clinical and economic outcomes, the negative effect of noncompliance needs to be minimized. However, in order to formulate effective strategies to counter noncompliance, there is a need to systematically review the factors that contribute to noncompliance. An understanding of the predictive value of these factors of noncompliance would also contribute positively to improve self-efficacy and treatment compliance of ESRD patients.

Purpose of the Project

The purpose of this project is to determine the relationship between self- efficacy and fluid and dietary compliance in hemodialysis patients. The secondary purpose of this project is to identify the barriers preventing dietary and fluid restriction compliance in ESRD patients who receive hemodialysis.

Problem Statement. Dialysis patients face an uphill battle regarding their fluid and dietary compliance. Most patients spend twelve or more hours per week in dialysis and must severely modify what they eat and drink. The fluid should be limited to 1,000-1,500 milliliters per day. Standard dietary restrictions call for a maximum of 18 grams of protein per day, 2,000-3,000 milligrams of potassium per day, 800-1,000 milligrams of phosphorus per day, and 2,000 milligrams of sodium per day. According to the Renal Rehabilitation Report (2007), the more complex the treatment regimen, the greater the likelihood of noncompliance. The characteristics of ESRD and dialysis treatment that contribute to difficulties with compliance include:

- lifelong treatment,
- complex treatment regimen,
- difficulty understanding rationale of treatment, and
- short-term consequences of noncompliance may not be obvious (Renal Rehabilitation Report, 2007).

ESRD presents special challenges to patients and families because of the complexity of the treatment plan and the lifestyle changes that are required. Cardiovascular disease is the leading cause of morbidity and mortality in patients undergoing dialysis and can account for up to 50% of deaths (Chan et al., 2009). Hypertension and diabetes is an almost universal feature of ESRD, especially in patients receiving hemodialysis, and can lead to left ventricular enlargement, cardiomyopathy, and subsequent cardiac failure (Foley, Parfrey, Harnett, Kent, Murray, & Barre, 2005). Hypertension in patients receiving hemodialysis maintenance is often due to salt and water overload, which is associated with excessive weight gain, and which contributes to the increase in morbidity

and mortality of these patients (Foley et al., 2005). Despite the possible serious side effects of dietary and fluid noncompliance, hemodialysis patients consistently exhibit poor adherence. An understanding of the physical and psychosocial factors associated with dietary and fluid compliance may aid in improving adherence.

Significance. ESRD is a chronic illness that requires life-long dialysis or kidney transplantation. The problem of noncompliance to treatment regimens remains a challenge for the medical profession and social scientists. Their efforts to explain and improve patient adherence often appears to be ineffective. Although successful interventions have been recorded, interventions fail in the area of diet and fluid restrictions. As a result of the widespread problem of compliance, substantial numbers of patients do not get the maximum benefit of dialysis treatment, resulting in poor health outcomes, lower qualities of life, and increased health care costs. United States Renal Data System (2009) reports:

- In 2007, 111,000 patients started ESRD therapy, and prevalent population increased up to 527,283, out of which 368,544 were dialysis patients.
- The total spending for ESRD care in 2007 was $35.3 billion. Expenditures are expected to double by 2012.
- Almost 30% of all hospital admissions are directly attributable to diet, fluid, and medication noncompliance.
- Poor treatment compliance costs society $150 billion per year.

It is common knowledge that there is a severe shortage of transplantable kidneys in the world. Over 4,000 patients die every year in the U.S. while waiting for a life-saving kidney transplant. A successful renal transplant program requires a substantial financial

investment, and additional expenditures are necessary to sustain improvement after renal transplant. The cost of Medicare to maintain a kidney transplant recipient is approximately $8,550 per year. Also, the number of living donor organs that are available for transplant has progressively declined over the past five years. Some may have to pay out of pocket due to maximum limits in insurance policies. All these factors make it even more important for end-stage renal failure patients to comply with their treatment regimens (Kaufman, 2011).

After the initial adjustment to renal failure, people on dialysis continue to experience many life changes that compromise their quality of life. For example, patients may experience fatigue due to challenging meal planning and fluid restrictions that affect their social and psychological functions. For many patients, social roles and responsibilities may be altered due to problems with travel, impotence, and changes in body image. Such changes are almost certain to have an emotional impact.

The treatment of ESRD is long-term, and patients manage their illness by engaging in self-care strategies regarding dietary and fluid control. Those who have confidence in their ability to maintain self-care exhibit better fluid intake and dietary compliance (Lev & Owen, 2007). Although the physiological and psychological symptoms cannot be completely resolved, interventions are effective in confident individuals who have high self-efficacy. Factors associated with compliance have been reported. For example, Lev and Owen (2007) also demonstrated perceived self-efficacy to resist the urge to drink had a significant positive relationship with adherence to fluid restrictions imposed during hemodialysis.

Project Questions

The following questions were addressed in this capstone:

1. Is there a relationship between self-efficacy and fluid compliance?

2. Is there a relationship between self-efficacy and dietary compliance?

3. What are the barriers to patient adherence to fluid and dietary regimens?

Definition of Terms

For the purpose of this study, the following terms are defined as follows.

- Self-efficacy is defined as a person's belief in his or her ability to succeed in a particular situation (Bandura, 1997).This includes promoting a positive attitude and increasing patient perceptions of behavioral control over adherence to fluid and dietary restrictions in ESRD (Ficham, Kagee, & Moosa, 2008).

- Fluid compliance is defined as patients demonstrating adherence to limited fluid intake, as determined by interdialytic weight gain that is between 3-5% of a patient's estimated dry weight. When applied to ESRD patients, the term "dry weight" means the amount of body mass (weight) without extra fluid.

- Dietary compliance is defined as patients demonstrating adherence to limit dietary sodium, potassium, phosphorus, and calcium to maintain lab values within a healthy range in ESRD (see Table 1 for values). Dietary non-adherence has been assessed by using indirect measures such as patient's self-reports and direct measures such as pre-dialysis serum levels of potassium, phosphate, urea nitrogen, and creatinine, as well as pre-dialysis normalized protein catabolic rate (Kara, Caglar, & Kilick, 2007).

Table 1

Lab Values for Dietary Compliance:

Electrolytes	**Reference Range**
Sodium	135-145 mEq/L
Potassium	3.5- 5.5 mEq/L
Phosphorus	3.5-5.5 mg/dl.
Calcium	8.4-10.2 mg/dl
Blood Urea Nitrogen	9-28 mg/dl
Creatinine	0.8-1.6mg/dl

Policy Implications

Self-efficacy might have important implications for ESRD patients who are on dialysis treatment. The assessment of hemodialysis patients' self-efficacy and their fluid and dietary compliance should be an essential part of nursing practice. Applying self-efficacy training to the clinical practice guidelines is an appropriate strategy to improve knowledge in self-management and to maximize treatment efficacy. Centers for Disease Control and Prevention (CDC) (2011) explain self-assessed health status proved to be a more powerful predictor of mortality and morbidity than many objective measures of health. Focusing on self-efficacy strategy as a national health standard can bridge boundaries between disciplines and social, mental, and medical services. It is hoped interpretation and publication of this data can help identify needs for health policies and legislation, allocate resources based on patient's needs, guide the development of strategic plans, and monitor the effectiveness of ESRD patient treatment outcomes.

Theoretical Framework

The conceptual model for this project was developed from a review of the literature concerning behavioral and psychosocial factors relating to hemodialysis, and builds upon the theory of self-efficacy. There is a growing body of literature suggesting self-efficacy exerts a casual influence on behavior (Bandura, 1997). When providing self-efficacy training for patients with chronic disease, Bandura's (1997) social learning theory is perhaps the most influential for learning and development. The concept of self-efficacy theory lies at the center of Bandura's social learning theory. Bandura defines self-efficacy as a person's confidence in being able to perform self-care successfully to produce a desired outcome.

Bandura's theory emphasizes the role of observational learning, social experience, and reciprocal determinism in the development of personality. Bandura (1997) postulates that a person's attitudes, abilities, and cognitive skills comprise what is known as the self-system. This system plays a major role in how we perceive situations and behave in response to different situations. Self-efficacy plays an essential part in this self-system. Self-efficacy is mediated by a person's beliefs or expectations about his or her capacity to accomplish certain tasks successfully or demonstrate certain behaviors (Tsay, 2003).

Bandura (1997) describes self-efficacy as the belief in one's own ability to execute a specific behavior. He identified four sources of self-efficacy: enactive mastery experience, vicarious experience, verbal expression, and physiological and affective status. Bandura asserts expectations of personal efficacy determine whether or not coping behaviors are initiated, how much effort is expended, and how long the effort is sustained in the face of obstacles and aversive experiences.

This conceptual model is relevant to this project in evaluating the relationship between self-efficacy and fluid and dietary compliance for patients with ESRD. Among the several cognitive–behavioral variables identified, few proved to successfully explain compliance behavior in dialysis patients. (Bandura, 1997). Bandura also demonstrates self-efficacy can have an impact on everything from psychological states to behavior and motivation. In terms of feeling, a low sense of self-efficacy is associated with depression, anxiety, and helplessness. Individuals with low self-efficacy also have low self-esteem and harbor pessimistic thoughts about their accomplishments and personal development. Social learning theory, proposed to explain behaviors in compliance, has been shown to positively affect health outcomes and to improve compliance in ESRD patients (Zrinyi, Juhasz, & Balla, 2005). Thus this theory is relevant to a variety of chronic diseases that require long-term life style modifications.

CHAPTER 2

REVIEW OF RELATED LITERATURE

Non-adherence or noncompliance is a challenging problem for healthcare professionals administering dialysis and can impact multiple aspects of patient care, including medication and treatment regimens as well as dietary and fluid restrictions. Overall, about 50% of patients on hemodialysis do not adhere to at least part of their dialysis regimen (Kammeerer, Garry, Hartigan, Carter, & Erlich, 2007). Because chronic renal failure with the need for dialysis can potentially disrupt the lives of individuals for a long period, many researchers have sought to understand the factors that influence patient adherence to their daily regimens.

Factors Influencing Self-efficacy

Researchers are focused on behavioral, psychosocial, and somatic symptoms of individuals who are able to successfully manage their new lifestyle. The emotional, psychological, and social factors that contribute to noncompliance behaviors are complex. A number of investigators demonstrated self-efficacy is related to the development of health behaviors (Oka & Chaboyer, 2005). Baraz, Parvardeh, Mohammadi, and Broumand (2009) examined self-efficacy and outcome expectations of dialysis patients, and Rambod, Peyravi, Sarban, Rafii and Hosseini (2008) examined factors such as self-efficacy and emotions in fluid and dietary noncompliance, symptomatology, and stress. An initial understanding of the relationship between self-efficacy and behaviors in hemodialysis patients is emerging, but more clarification regarding the relationship of self-efficacy and a variety of other factors, such as fluid and dietary compliance, is necessary. Kugler, Vlamink, Haverich, and Maes (2005) studied

the relationship between self-efficacy and social factors and health behaviors to understand treatment adherence behaviors. The results showed a strong sense of personal efficacy is related to better health with treatment adherence, higher achievement, and more social integration.

Factors associated with compliance have been reported. For example, Rosenbaum and Smire (2006) found patients who were convinced they were able to resist the urge to drink, despite their thirst, were more likely to adhere to fluid restrictions. They also found those with higher self-efficacy had lower mean weekend interdialysis fluid gain and better dietary compliance.

Several researchers demonstrate mental health, anxiety, depression, and psychiatric history influence compliance in hemodialysis patients (Yokoyama, Suzukamo, Holt, Yamazak, & Kawaguchi, 2009). Depression is the most common psychiatric illness in patients with ESRD, and has been associated with an increased risk of death, cardiovascular events, and hospitalization in a large proportion of patients (Yokoyama et al., 2009). Jin et al. (2008) demonstrated the relationship between depression and noncompliance is substantial and significant. Compared with non-depressed patients, the odds were three times greater that depressed ESRD patients were noncompliant with their diet, fluid intake, and medication regimen.

In addition to these psychological factors, social influences were examined. Social control, defined as the ability of others to apply pressure either overtly or covertly to get patients to adhere to norms was also studied (Yokoyama et al., 2009). Researchers demonstrated family and friends can influence an individual's health behavior. Social support is known to influence health behavior practices and was examined in

hemodialysis patients specifically. Support from families and doctors, and perceptions of the medical staff were associated with better reported dietary behaviors in hemodialysis patients (Dowel & Welch, 2006).

Researchers have begun to investigate the relationship between somatic symptoms and health behaviors. Using qualitative methods, Oka and Chaboyer (2005) identified life circumstance and symptoms that make it difficult for individuals with chronic conditions to implement healthy behaviors. They tested a model of health promotion and quality of life in individuals with chronic disabling conditions. They assessed almost eight hundred participants with multiple sclerosis, and found the severity of the illness and its accompanying signs and symptoms interacted with a variety of other factors such as resources and barriers that influence health behaviors negatively.

Self-efficacy and Outcome Expectations

For patients with ESRD, lifelong therapy is necessary and includes restrictions to many daily activities. Long-term survival, the risk of complications, and treatment success depend on a patient's ability to follow the therapeutic regimen. Following diet and fluid restrictions is part of the complex and rigorous treatment. Adherence to the prescribed diet and fluid restrictions is problematic for many patients, and deviation from the prescribed regimen can result in fatal consequences such as deterioration of the cardiovascular system, heart failure, hypertension, and pulmonary edema. Supportive relationships with others may aid in health maintenance by helping to promote healthy behaviors such as adherence to prescribed medical care. Furthermore, considerable evidence suggests perceived social support may be a strong predictor of dietary and fluid adherence among dialysis patients (Ficham et al., 2008).

Poor knowledge and understanding of one's treatment regimen was shown to be an important predictor of non-compliance. Similarly, enhanced patient education (aimed at increasing patient knowledge in areas such as diet and the importance of adherence) was reported to play a role in showing the progression of renal failure and delaying the need to initiate renal dialysis (White, 2006). Patients who suffer from ESRD must be on dialysis for three to five hours, three days a week. However, many fail to follow the strict diet and fluid restrictions required in addition to dialysis; for example, type and quantity of food, and salt and fluid intakes. Researchers found one-third of ESRD patients are noncompliant with fluid restrictions (Ficham et al., 2008). Improved dietary and fluid adherences are likely to result in reduced mortality rates in ESRD patients (Williams & Bond, 2007).

In summary, many ESRD patients have difficulty complying with fluid and dietary restrictions. These patients require major lifestyle changes. A person with an increased perception of self-efficacy is more likely to participate in self-care activities, which increase the patient's adherence to the treatments. Although self-efficacy accounts for positive outcomes in illness, there is not enough research done to assess the correlation between self-efficacy and fluid and dietary compliance in hemodialysis patients. Similarly, little research addresses the barriers to patient adherence to fluid and dietary regimens.

CHAPTER 3

METHODOLOGY

Design

This was a descriptive correlational study using one clinical site and a single group of 100 ESRD patients receiving routine hemodialysis.

Setting and Sample

The study took place in an outpatient hemodialysis clinic in Las Vegas. The unit consists of 20 hemodialysis stations in an open area. Patients are scheduled three days a week for treatment. The potential sample included all patients with ESRD who received regular hemodialysis three times a week for at least a three month period. A total of 100 patients met the criteria and participated in this study.

Inclusion criteria. All eligible participants met the following criteria:

- Able to walk
- Able to prepare meals and eat without assistance
- Least 18 years of age
- Able to read English at approximately the 5^{th} grade level
- Live in a home setting and willing to participate.

Exclusion criteria. Individuals who were recently hospitalized or recently suffered an acute illness were disqualified. Those who had a psychological or cognitive disorder, as well as those unable to perform their self-care activities were also excluded.

Instrumentation

The study used a modified version of the "Your Health and Well-Being" questionnaire, which addresses potential barriers to compliance with fluid and dietary

restrictions as well as other possible barriers to compliance with one's treatment regimen. This instrument was modified to include specific questions related to self-efficacy (see Appendix II, questions 1-18). For example, questions 15 and 16 address the patient's confidence in their ability to follow fluid and dietary restrictions during a 24 hour period. Currently all Medicare recipients on dialysis must complete this questionnaire, which has been assessed for validity and reliability (Cronbach's Alpha= 0.69-0.94) (Centers for Medicare and Medicaid Services, 2008).

Procedure

After Internal Review Board's (IRB) approval was obtained from the University of Nevada – Las Vegas, participant recruitment began. The patients at the dialysis center were approached to participate in the study. The Doctorate of Nursing Practice (DNP) student explained to the potential participants the purpose of the survey, the expectations of the participants regarding their participation, and provided written information. Those who agreed and qualified to participate signed an informed consent and a copy of the consent was given to the participants for their own records. After obtaining informed consent, participants were asked to complete the self-administered questionnaires (i.e., a demographic data sheet and the modified "Your Health and Well-Being" questionnaire).They were told they did not have to participate in this survey and refusal would not compromise their relationship with the clinical site. If they did decide to participate, they were told they did not have to answer questions that made them uncomfortable.

Participants were told there were no anticipated risks, and were reassured their care would not change should they choose not to complete the questionnaire. Additionally,

they were informed they could withdraw from the study at any time simply by returning the unanswered questionnaire. They were told all information would be treated confidentially and neither their names nor personal identification would appear on the questionnaire; instead, a code number was assigned to each participant. Additionally, they were told any publication resulting from this project would be reported in aggregate form only. The DNP student was present to answer questions posed by the participants as they were completing the surveys. As they completed the surveys, they were asked to place them in a manila envelope rather than handing the questionnaires directly to the DNP student. This process continued until the sample size (N=100) was reached.

Data Analysis

Statistical analyses were performed by using the statistical package for social science SPSS (version 19.0). Statistical consultation was sought to assist with all data analysis. The questionnaire captured demographic data such as age, gender, ethnicity, and socio-economic status. Descriptive statistics (means, standard deviation, and frequencies) were used to analyze the demographic characteristics of the study sample. The clinical questionnaire "Your Health and Well-Being" focused on the barriers limiting self-efficacy for compliance with fluid and diet; descriptive statistics also came from this data set. Pearson Product Moment (for interval level data) and Spearman rho (non-interval data) tests were used for all correlational analysis of self-efficacy and fluid and dietary compliance based on the level of data. Linear regression analysis was used to identify the potential barriers predicted for fluid and dietary compliance. Internal consistency reliability testing was also done on the instrument utilizing Cronbach's alpha.

Project Timeline

April 2011

- Project proposal defended
- Revised proposal

May 2011-August 2011

- Application submitted to IRB

September 2011-November 2011

- Obtain IRB approval on September 7, 2011
- Collect data(from 09/12/2011 to 10/21/2011)
- Analyze the data for each research question

January 2012-March 2012

- Develop recommendations for project intervention
- Identify implementation to practice
- Complete capstone paper
- Presented findings to providers and staff at the dialysis center
- Defend capstone project

April 2012

- Submitted final paper to the Graduate College

Resources

The most important resources needed for this study were the use of library materials, which included textbooks, online databases, and literature reviews in relation to the project. The DNP student obtained permission and support to carry out this project from

the administrative faculties and staff of DaVita dialysis center. The DNP student also obtained the consent of Dr. Sayed Qazi, nephrologist and the collaborator of Nevada Nephrology, to assist with this process. There were no financial incentives paid to the participants, nor were there any financial expenses requiring additional funding for this study. The DNP student met the expense of printing the questionnaire.

Marketing Plan/Financial Plan/Budget/Feasibility and Sustainability of the Project

The findings provided a better understanding of barriers preventing patients from making the necessary lifestyle modifications to improve self-efficacy. The DNP student presented the results of the study to the dialysis center care plan committee for their review and new approaches were recommended to the clinical practice guidelines for the care of dialysis patients.

IRB Approval

This study was approved by the Internal Review Board at the University of Nevada Las Vegas on September 7, 2010.

CHAPTER 4

FINDINGS OF THE STUDY

Data Analysis

Descriptive and correlation analyses, utilizing the International Business Machines (IBM) Statistical Package for the Social Sciences (SPSS) version19 soft ware, were used to analyze research questions 1 and 2. All items with dichotomous responses (e.g., yes, no) were dummy coded, with 1 = yes and 0 = no. For all other responses, responses such as “not applicable (N/A),” “Does not apply to me,” “None of the time”, and “ Not at all affected/bothered” were coded as 0 because they represent an absence of a trait or characteristic or the lack of applicability of that item to the participant, and hence should not affect that item’s mean score. All pseudo-continuous variables were measured using a 5-point Likert scale from 1 “Strongly Disagree” to 5 “Strongly Agree”—3 indicated neither agreement nor disagreement to the statement. Self-efficacy was measured using two open-ended questions (items 17 and 18 from the questionnaire) that asked participants to rate their efficacy from 0 “No Efficacy” to 100 “Total Efficacy”.

The third research question was answered using two stepwise linear regression analyses in an effort to ascertain which potential barriers predicted fluid restriction and dietary compliance. Dietary and food restrictions (item 18) and fluid restrictions (item 18) served as the criterion variable separately. Items 1, 2, 13, 14, 20, 21, 22, 23, 24, 26, 27, and 28 served as predictors in the regression analysis (see Appendix 3 for a detailed list of each predictor). All significance values were adjusted using the Bonferroni adjustment for the inflation of familywise Type I error rate (.05/2 = .025). Furthermore, continuous data were tested for univariate normality (skewness and kurtosis) and

screened for outliers. No outliers that would otherwise undermine the trustworthiness of the data were detected. Also, the data approximated a normal distribution.

Results

Descriptive statistics, in the form of frequencies and percentages, were reported for all pertinent demographic variables, such as gender and ethnicity (See Table 2 for details). The age of participants ranged from 33 to 91 years (M = 56.91, SD = 12.91), and the number of years participants reported being on hemodialysis ranged from 3 months to 22 years (M = 3.13, SD = 3.06). Table 3 contains the means, standard deviations, and internal consistency reliability coefficients—Cronbach's alpha—of pertinent composite scores such as self-efficacy and food and fluid restriction compliance. Finally, Table 4 contains the zero-order correlation matrix expressed as Pearson's correlations for these composite variables. As with any correlation coefficient, a negative/inverse correlation indicates that as one variable increases, the other variable decreases. Conversely, a positive correlation indicates that as one variable increases, so too does the other variable. Nevertheless, it is important to distinguish between correlation coefficients and the coefficient of determination, r^2, which expresses the shared variance among the variables and is an index of practical significance or effect size.

The data were analyzed with bivariate correlation analyses to answer questions 1 and 2 of the present study, as expressed by Pearson's Product-Moment Correlation coefficients. With respect to question 1, there is a strong positive correlation between self-efficacy score and daily fluid restriction compliance, r = .56 (p< .001). As expected, the more self-efficacy a participant reported, the higher the self-reported fluid restriction compliance from that participant. The same could be said regarding question 2. There is a

strong positive correlation between self-efficacy score and daily dietary and food restriction compliance, $r = .53$ ($p < .001$). The more self-efficacy a participant reported, the higher the self-reported dietary restriction compliance from that participant.

Table 2

Descriptive Statistics of the Sample

Variable	*N* (%)
Gender	
Male	60 (60%)
Female	40 (40%)
Ethnicity	
African American	19 (19%)
Asian/Pacific Islander	30 (30%)
Hispanic	18 (18%)
White	32 (32%)
Other/Mixed	1 (1%)
Income	
<$10,000	29 (31.2%)
$10,000 - $20,000	37 (39.8%)
$20,001 - $40,000	19 (20.4%)
$40,001 - $60,000	2 (2.2%)
$60,001 - $80,000	4 (4.3%)
>$80,000	2 (2.2%)
Marital Status	
Single	22 (22%)
Married	40 (40%)
Divorced	23 (23%)
Widowed	9 (9%)
Living with a Partner/Companion	6 (6%)
Health Insurance	
Yes	91 (91%)
No	9 (9%)

Note. $N = 100$

Table 3

Means and Standard Deviations of Composite Variables

Variable	*M*	*SD*	α
Self-Efficacy	78.27	12.08	0.80
Fluid Compliance	3.85	0.78	--
Dietary/Food Compliance	3.88	0.75	--
Bothered by Hemodialysis	1.53	0.78	0.85
Compliance Score	4.01	0.63	0.77
Kidney Disease	2.51	0.68	0.65
Bothered by Symptoms	0.64	0.61	0.88

Note. An internal reliability coefficient could not be computed for Fluid Compliance and Dietary/Food Compliance because they were single items.

N = 100

Table 4

Zero-Order Correlation Matrix of Composite Scores

Variable	1	2	3	4	5
1. SE		-.20	.53**	-.16	-.28**
2. BH			-.21*	.40**	.43**
3. DFC				-.21*	-.24*
4. KD					.09
5. BS					

Note. N = 100. Key: SE = Self-Efficacy; BH = Bothered by Hemodialysis; DFC = Dietary Compliance; KD = Kidney Disease; BS = Bothered by Symptoms.

** $p < .01$ * $p < .05$

The coefficient of determination, r^2, represents the shared variance of the two variables, or the shared/overlapping variability between the two variables. The r^2 for these correlations was .31 for self-efficacy and daily fluid restriction compliance, and .28 for self-efficacy and daily dietary and food restriction compliance.

With respect to question 3, the first stepwise linear regression analysis using compliance with fluid restrictions as the criterion was statistically significant, $F_{(2,78)} = 9.04$, $p < .001$, $R^2 = .19$. However, only the feeling of thirst variable, $b = -4.16$ ($CI_{95\%:}$ -6.43, -1.89), and feeling highly energetic, b = 2.71 ($CI_{95\%:}$ .59, 4.83) significantly predicted compliance. This suggests those who experience a higher degree of thirst were less compliant with fluid restrictions than those who reported not feeling as thirsty. In other words, as the degree of thirst increased, the level of compliance with fluid restrictions decreased. Moreover, those who reported feeling highly energetic also reported greater fluid compliance; thus, as reported energy levels increased, the level of compliance increased as well.

The second stepwise linear regression analysis using dietary restrictions as the criterion was also statistically significant, $F_{(1,80)} = 7.21$, $p < .01$, $R^2 = .08$. In this instance, feeling highly energetic, $b = 2.94$ ($CI_{95\%}$: .76, 5.12) significantly predicted dietary restrictions. These findings indicate that those who reported greater feelings of energy also reported greater compliance with dietary restrictions.

CHAPTER 5

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Evaluation and Recommendation

The aim of the current study was to explore how self-efficacy influenced the fluid and dietary compliance behaviors of hemodialysis patients. I have assessed possible correlates of dietary and fluid noncompliance, including quality of life, depression, patient dissatisfaction with dialysis care, and absence of symptoms. Results from the bivariate correlational analysis indicated there is a significant correlation between self-efficacy score and daily fluid as well as dietary restriction compliance. Patients with greater self-efficacy showed more favorable compliance attitudes and behaviors toward fluid and dietary compliance. Rosenbaum and Smire (2006) demonstrated, those with higher self-efficacy had lower interdialytic fluid gain and better dietary compliance.

Analysis of the potential barriers predicted for fluid and dietary compliance showed, those who reported being in social gatherings were less compliant with fluid and dietary restrictions. Similarly, those who reported feeling more energetic and less downhearted or blue showed greater compliance with diet and fluid. Jin et al., (2008) illustrated the relationship between depression and noncompliance is substantial and significant.

Currently DaVita dialysis clinic provides education to improve self-efficacy and patient compliance including verbal and written material to demonstrate the amount of fluid that can be consumed per day and foods that are safe to eat, and also demonstrating that avoiding foods high in sodium, potassium, calcium, and phosphorus is important. The dialysis clinic also provides hands-on training to patients on how to read the food labels and understand the amount of ingredients present in food before purchasing it.

Individually patients are seen by practitioners, dietitians, and nurses to work on the general issues of compliance. Patients are given reinforcement for their commitment to succeed and encouragement for their continued participation. Pre-screening, including compliance history, interviews, and ongoing clearance measures with immediate feedback to the patients are also part of the practice to facilitate patient compliance. Periodic follow-ups with lab work and patients' self-reports are also applied to re-enforce compliance behaviors.

In order to master self-management and improve the patient's self-efficacy, I would recommend a treatment team consensus as a first step. The treatment team would discuss the patient's behavior during his/her care plan review or a Quality Improvement meeting to reach an agreement regarding whether his/her behavior is a problem and whether he/she requires intensive intervention. I would recommend completing a focused history of patients, with emphasis on potential causes of the noncompliant behavior. These causes could include a loss of income, marital discord, illness in the family, or family obligations that conflict with treatment (i.e., babysitting or care giving).

Depression and anxiety are generally accepted to be the most common psychological problems encountered in patients with ESRD (Cukor, Coplan, Brown, Peterson & Kimmel, 2008). If depression, anxiety or other mental illnesses associated with fluid and dietary noncompliance are present, I would encourage the staff to address concerns immediately and provide referrals to appropriate resources as early as possible. A collaborative team approach which includes, a psychiatrist, psychologist, practitioners, nurses, and social workers are needed to diagnose, evaluate risks, initiate and continue treatment to improve and promote the quality of life of the clients.

I would also assess and rule out any potentially significant life-changing events patients are experiencing that might prevent compliance, such as loss of employment or family member or caregiver and help the patient, either through referral for assistance outside the clinic or through staff assistance. I would also assess any physical discomfort such as pain or debilitating condition on a case-by-case basis and take measures to improve those conditions. I would conduct a meeting with the patient and the treatment team to discuss the possible consequences of noncompliant behavior and provide directions to improve compliance. Given patient consent, I would also invite the family or next of kin to discuss the treatment goals in order to improve support for patients.

Psychosocial interventions were recommended in order to facilitate adjustment to changes in the course of the illness and to normalize social gatherings and lifestyle by preventing medical crisis, controlling symptoms, and incorporating dialysis treatment regimens into daily living. Assessment determines the patient's needs, identifies problems, and collects information for a treatment plan, so appropriate support can be rendered. The assessment therefore focuses on the effect of kidney disease on the patient. Useful information includes the patient's lifestyle, patterns of daily living, personality, strengths and interests, normal coping patterns, and major issues raised by the disease. By listening to the patient and the family in the course of discussion, I identified the observable psychosocial interferences consequent to the disease and the needs for assistance. At the same time, information on the expected course and likely outcome of the disease can be provided. Leung (2003) explains, by providing knowledge and clarifying misconceptions, practitioners can encourage patients to accept personal

limitations consequent to the illness and its treatment. Thus a patient is encouraged to perform self-care, achieve better self-efficacy and power to maintain optimum health.

I also recommended providing one-on-one counseling for patients who are at high-risk for noncompliant behavior. I met patients on a weekly basis for follow-up. I attempted various educational techniques, including screening videos, distributing written material, verbal teaching, and conducting seminars designed to improve knowledge of diet and fluid adherence, and subsequently increase patient self-efficacy. I always do periodic evaluation to assess improvement and level of compliance. I encouraged patients to develop evidence-based skills to improve their problem-solving ability, their decision-making skills, their ability to employ resources, and their ability to establish health care provider partnerships in order for patients to take better actions toward compliance behavior (Costantini, 2006). The ESRD patients should develop an action plan where the individual sets achievable health care goals based on his/her perceived problems. The action plan should be reviewed regularly to set relevant objectives that foster favorable health care activities and inhibit undesirable behaviors.

Practitioners can also facilitate self-efficacy strategies by asking individuals to describe what they believe needs to be addressed in order to successfully manage their illness. This concept encompasses three essential components: (1) medical management, which involves adherence to treatment regimens, (2) role management, in which clients seek to maintain or make new lifestyle choices, and (3) emotional management, which involves the development of strategies to cope with feelings that living with a life-threatening and chronic illness induces. Thus, the prescribed interventions can improve treatment by empowering patients to participate in their treatment.

Clinicians and nursing professionals need to focus their care to incorporate self-efficacy strategies. The quantitative research findings in this study provide clinicians and nurses with innovative suggestions designed to enhance patient care, and suggest more research on self-efficacy for individuals diagnosed with ESRD is needed. Incorporating individual values, beliefs, and concerns into the care of patients diagnosed with renal failure represents a paradigmatic shift from the traditional medical model.

To my current knowledge, the current study is among few that have established a direct relationship between self-efficacy and fluid and dietary compliance in hemodialysis patients. Based on findings from the current research, I recommend further study in order to identify successful strategies to increase self-efficacy in fluid and dietary compliance among hemodialysis patients. I also suggest further research to examine how patients would prefer to receive illness related information to determine effective teaching methods that convey important treatment strategies. I would also recommend a comprehensive study designed to identify the barriers to fluid and dietary compliance in order to improve outcomes among ESRD patients.

Implementation to Clinical Practice

This study examined the relationship between self-efficacy and fluid and dietary compliance in hemodialysis patients. The results clearly show the level of self-efficacy reported by the patient corresponds directly with the self-reported fluid and dietary restriction compliance. These findings indicate a need to educate patients adequately about dialysis treatment, mainly emphasizing the importance of adherence to fluid and dietary restrictions and also the risks associated with noncompliance. Educating these patients is essential in order to improve knowledge regarding self-management to

maximize treatment efficacy. Patients with poor compliance undermine the effectiveness of care, resulting in an unpredictable progression of the disease and a greater likelihood of complications such as heart failure, hypertension, and pulmonary edema. The results of this study have important implications for ESRD patients who are on dialysis treatment. The findings suggest the assessment of the self-efficacy of hemodialysis patients concerning fluid and dietary intake compliance should be an essential part of nursing practice.

If depression or anxiety is linked to reduce self-efficacy, a team approach should be employed that includes psychologists, psychiatrists, or social workers who are consulted in order to identify, comprehensively diagnose, and treat these conditions. Cognitive behavioral therapy has been shown to improve symptoms of depression, anxiety, or other emotional and behavioral problems in patients on maintenance dialysis (Kimmel & Peterson, 2006). I will encourage cognitive behavioral therapy, an exercise program, and enhanced monitoring and social support to reduce depressive symptoms. Any substance abuse or alcohol dependence should be identified and evaluated. Integration of psychological treatment or support is encouraged to improve depressive symptoms and support treatment compliance.

Clinicians should consider providing self-efficacy training to improve the confidence of patients on hemodialysis to help control weight gain and follow the recommended dietary regimen between dialysis sessions. Nurses are in a good position to influence the self-efficacy of dialysis patients and can encourage them to adopt self-care strategies by providing a supportive environment in which they can achieve their goals.

Practitioners can also assist patients by setting realistic daily performance goals and providing appropriate anticipatory guidance. They can assess progress, clarify management, and respond to specific questions during consultation sessions. They can also influence a patient's self-efficacy and performance by teaching stress reduction methods to control emotional and physical symptoms and ultimately improve confidence in the patient's ability to adhere to fluid and dietary restrictions.

Promoting self-management improves the health status of patients undergoing hemodialysis (Chen & Wang, 2009). A team approach is imperative in order to achieve successful self-management in patients on hemodialysis, as with other chronic disease treatments. Nurses and clinicians should use multiple strategies based on the self-efficacy theory to improve patient self-efficacy and capacity for self-management. The study findings were presented to the care plan committee at DaVita clinic in hope of encouraging them to include self-efficacy training to the clinical practice guidelines for hemodialysis patients.

Study Limitations

Like most studies, there were a few limitations that have affected this particular study's outcome. One limitation was the descriptive, correlational nature of the study limits information about the topic under investigation. Another limitation resulted from the study's nature as non-experimental, meaning variables were fixed and could not be manipulated. Because of the cross-sectional nature of the study, only information for one point in time was obtained, which does not produce continuous results.

Discussion

The evidence supporting the impact of the factors that affect adherence is somewhat mixed (Krueger, Berger, & Felkey, 2005). Most studies agree that in order to improve a patient's ability to follow treatment regimens, all potential barriers to adherence need to be considered (Kammeerer et al., 2007). The literature also identifies the quality of the treatment relationship as an important determinant of self-efficacy and adherence. Effective treatment relationships are characterized by an atmosphere in which alternative therapeutic means are discussed, and follow-ups are planned (Cvengros, Christensen, & Lawton, 2004). During face -to- face interactive time, the practitioners should be engaged in communication with the patient and should use active listening and talking skills to help increase adherence (Holley & DeVore, 2006). Patients should be active partners with health professionals in their own care, and good communication between the patient and health care provider is essential for effective clinical practice (Sabate, 2003).

Strategies to improve adherence are of little value unless the patient agrees the prescribed regimen is personally worthwhile. This approach attempts to involve patients in their own care by helping them regain a measure of control and achieve an understanding of how their behaviors affect their own health and treatment (White, 2006). Strategies for improving patient adherence should include assessing the patient's preference for control and level of involvement in decision-making (Holley & DeVore, 2006).

To be sure, achieving compliance requires the skills of a professional. Based on the current study, I believe there is no one technique that works consistently every time. Several factors must be in place in order to maximize patient compliance and improve

self-efficacy. First, the health care professionals and the treatment settings must be positive and should inspire hope and trust. A patient should be seen as a partner in the design and implementation of their treatment plan. Treatment plans should be realistic and based on what the patient should and can do.

Also, an adequate profile of the patient should be constructed to determine if there are any underlying psychological, physical, or behavioral problems that might mitigate compliance. If predisposing psychodynamic issues are identified, treatment by trained medical psychologist would be recommended. The dialysis clinics creatively utilize practitioners, social workers, dietitians, medical psychologists or psychiatrists, nursing staff, dialysis technicians, and the patients' collective culture to affect positive treatment outcomes.

Identification of barriers may help clinicians to identify a patient's risk for noncompliance. This is best achieved by asking patients non-judgmentally about compliance behavior. By giving patients permission to discuss their noncompliant behavior, practitioners can help them reach set goals.

Summary

Despite the possible serious side effects of dietary and fluid noncompliance, a large number of hemodialysis patients consistently exhibit poor adherence. An understanding of the physical and psychosocial factors associated with dietary and fluid adherence may aid in improving compliance. It is hoped that by employing strategies to improve self-efficacy, patients will experience an improved attitude and increased motivation to participate positively in their own treatment in order to optimize health, prevent complications, control symptoms, utilize medical recourses, and minimize the intrusion

of the disease into their preferred lifestyles. The introduction of a more structured program for long-term, noncompliant patients may be an effective supplement to less formal initiatives to improve patient outcomes. The results of this study suggest practitioners should be concerned about the attitudes, beliefs, and barriers affecting their patients. Practitioners should also act collaboratively with their patients to design realistic treatment plans that are customized to the patient's individual life circumstances.

APPENDIX 1

Detailed Timeline

April 2011	-Project proposal defense -Revisions to proposal -After the project proposal IRB will be obtained	Capstone proposal was successfully done on April 5, 2011.
May-August 2011	Waiting for UNLV IRB approval	UNLV IRB approval obtained on September 7, 2011.
September-November 2011	- Data will be collected -Analyze the data to answer the research questions.	-Data collection was completed on November 21, 2011. -Data analysis was completed on December 23, 2011.
January-February 2012	-Develop project evaluation and recommendations - Identified Implementation to clinical-practice.	-Project evaluation and recommendation done on January 15, 2012. -Identified - Implementation to clinical practice by January 17, 2012.

	-Develop the complete capstone paper	-Developed complete capstone paper on 02/05/12.
March 2012	-Make revisions and prepare for project – Defense -Present the findings to providers and staffs at the dialysis center -Defend capstone project	-Revisions completed- on 03/12/2012. - Presented the study findings to providers and staff at the dialysis center on 03/13/2012. - Capstone project successfully defended on 03/28/2012.
April 2012	-Submit the final paper to the Graduate College	Final paper submitted to the Graduate College on 04/11/2012.

APPENDIX 2

- Copy of Informed Consent

- Questionnaires (both demographic and clinical)

- IRB Approval Letter

- Approval Letter from DaVita Dialysis Clinic

- Permission Letter from Dr. Syed Qazi, the Medical Director at DaVita Dialysis Clinic.

Health and Self-Efficacy Questionnaire for Hemodialysis Patients

My name is Ansy John and I am a Doctor of Nursing Practice (DNP) student working on my capstone project at the University of Nevada, Las Vegas. I would like to invite you to participate in my capstone project. The purpose of the study is to determine the relationship between self-efficacy and fluid and dietary restrictions. Self-efficacy is define as how confident you feel about accomplishing a particular behavior or requirements; in this case I am looking at how confident you feel you will be able to maintain your fluid and dietary restrictions.

Participants:

IN ORDER TO PROCEED I NEED TO DETERMINE IF YOU QUALIFY TO PARTICIPATE. PLEASE COMPLETE THE QUESTION BELOW CIRCLING THE NUMBERED QUESTION THAT BEST DESCRIBES YOU:

1) I AM 18 YEARS OLD OR OLDER. YES / NO
2) I AM ABLE TO WALK. YES / NO
3) I AM ABLE TO PREPARE MEALS & EAT WITHOUT ASSISTANCE. YES / NO
4) I AM ABLE TO READ ENGLISH AT APPROXIMATELY 5^{TH} GRADE LEVEL. YES / NO.

Procedures:

If you volunteer to participate in this study and meet the inclusion criteria to participate, you will be asked to complete a few demographic questions and the survey below. Your participation is anticipated to take you about 20-30 minutes to complete.

Voluntary Participation:

Your participation in this study is voluntary. You may refuse to participate in this study without jeopardizing your care at this facility. If you decide to participate and a question being asked of you makes you feel uncomfortable in any way you have the option to skip the question without answering it. You are encouraged to ask questions about this study at the beginning or any time during the research study

Benefits of Participation:

There may be no direct benefits to you as a participant in this study. However, we hope to determine possible interventions from this study that may help you to comply with your fluid and dietary restrictions.

Risks of Participation:

There are risks involved in all research studies, but this study may include only minimal risks in that you may come across a question that makes you feel uncomfortable or stressed. If this occurs you may skip the question(s) without jeopardizing your care or relationship with the staff of this facility.

Deemed exempt by the ORI-HS and/or the UNLV IRB. Protocol #1106-3857
Exempt Date: 09-07-11

Cost/Compensation:
There is no financial cost to you for participating in this study. You will not be compensated for your time.

Contact Information:

If you have any questions or concerns about the study, you may contact Dr. Patricia Alpert at patricia.alpert@unlv.edu or 702-895-381(PI and Faculty Capstone Chair). For questions regarding the rights of research subjects, any complaints or comments regarding the manner inwhich the study is being conducted you may contact the UNLV Office of Research Integrity-Human Subjects at 702-895-2794 or toll free at 877-895-2794 or via email at IRB@unlv.edu.

Confidentiality:

All information gathered in this study will be kept completely confidential. No reference will be made in written or oral materials that could link you to this study. All records will be stored in alocked facility in the principal investigator's office (BHS-426) at UNLV for 3 years after completion of the study. After the storage time has expired, the information gathered will be destroyed.

This study has been approved by our University's Institutional Review Board.

BY COMPLETING THIS QUESTIONNAIR YOU ARE GIVING CONSENT TO PARTICIPATE IN THE STUDY.

THANK YOU.

1. **Please indicate your age**

   _____

2. **Please indicate your gender**

   ☐ Male
   ☐ Female

3. **Which ethnic group below do you most closely identify yourself with?**

   ☐ African American or Black non-Hispanic
   ☐ Asian
   ☐ Hispanic
   ☐ White
   Other (please specify)

4. What is your household's approximate total yearly income?

- [ ] < $10,000
- [ ] $10,000 - $20,000
- [ ] $20,001 - $40,000
- [ ] $40,001 - $60,000
- [ ] $60,001 - $80,000
- [ ] more than $80,001

Other (please specify)

5. In the box below, please indicate which medications you are taking. Also indicate how much (mg, 1 tablet, etc) and how often your take them (1 time a day, 2 times per day etc.) for example:
Lasix, 10 mg, 2 times per day
Aspirin, 1 pill, 1 time per day
Metformin, 1000 mg , 2 times per day

6. How many years have you been on hemodialysis?

7. Do you live alone?

- [ ] Yes
- [ ] No

8. Are you responsible for providing home medical care of any kind for a family member?

- [ ] Yes
- [ ] No

9. If you answered 'yes' to the above question, indicating that you are providing home medical care to a family member, please briefly describe the extent of your care activities.

If you answered 'No' to the above question, skip a reply here and move to the next question.

10. Do you drive yourself to your dialysis treatments?

- [ ] Yes
- [ ] No

Other (please specify)

11. What is your marital status?

- [ ] Single (never married)
- [ ] Married
- [ ] Divorced
- [ ] Widowed
- [ ] Living with a partner/companion

Other (please specify)

12. Do you have health insurance?

☐ Yes

☐ No

Other (please specify)

13. Does having hemodialysis treatments place a financial burden on you and/or your family?

☐ Yes

☐ No

Other (please specify)

14. Some people are bothered by the effects of kidney disease on their daily life, while others are not. Please use the scale below to rate how much your kidney disease 'bothers' you related the of the areas listed on the left hand side of the page.

	Not at all bothered	Somewhat bothered	Moderately bothered	Very much bothered	Extremely bothered
Fluid restriction?	◯	◯	◯	◯	◯
Dietary restriction?	◯	◯	◯	◯	◯
Your ability to work around the house?	◯	◯	◯	◯	◯
Your ability to travel?	◯	◯	◯	◯	◯
Being dependent on doctors & other medical staff?	◯	◯	◯	◯	◯
Stress and worries caused by kidney disease?	◯	◯	◯	◯	◯
Your sex life?	◯	◯	◯	◯	◯
Your personal appearance?	◯	◯	◯	◯	◯

15. On the scale below, please estimate the percentage (%) of time - during a 24 hour period - that you currently follow your fluid and dietary restrictions. Your choices range from < 10% through 100%

Mark 'N/A' if this does not apply to you.

	<10%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%	N/A
Fluid restriction	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯
Dietary restriction	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯

Comments:

16. On a scale below, please rate how confident you feel in your ability to comply with the items on the left hand side of the page. These items are dialysis-related self-care activities.

For example:

If you feel confident that you have the ability to always comply with your daily fluid restriction then mark the 'Always can do' circle below. If you only feel confident that you can comply some of the time, then mark 'Sometimes can do'

	Always can do	Often can do	Sometimes can do	Seldom can do	Never can do	Does not apply to me
Comply with your daily fluid restriction	◯	◯	◯	◯	◯	◯
Comply with your daily dietary food restriction	◯	◯	◯	◯	◯	◯
Comply with your daily dietary salt restriction	◯	◯	◯	◯	◯	◯
Comply with your daily medications directions	◯	◯	◯	◯	◯	◯
Comply with your physical activity directions	◯	◯	◯	◯	◯	◯

Comments (if any)

17. In the box below, please write in a number between 0 - 100% indicating your pecent (%) of confidence related to how closely you can follow your FLUID RESTRICTION. There is no correct answer, this is simply about what percent of confidence you feel.

For example:
If you feel very, very confident that you can follow your fluid restriction all of the time, you may want to write in 100%.

If you feel a little less confident about always following your fluid restriction, you may want to write in 80% or maybe 75%.

Write in your number below

18. In the box below, please write in a number between 0 - 100% indicating your pecent (%) of confidence related to how closely you can follow your DIETARY RESTRICTION. There is no correct answer, this is simply about what percent of confidence you feel.

For example:
If you feel very, very confident that you can follow your fluid restriction all of the time, you may want to write in 100%.

If you feel a little less confident about always following your fluid restriction, you may want to write in 80% or maybe 75%.

Write in your number below

19. Please indicate below how you would rate your general health.

- [ ] Excellent
- [ ] Very Good
- [ ] Good
- [ ] Fair
- [ ] Poor

Comments (if any)

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

	Yes, I am limited a lot	Yes, I am limited a little	No, I am not limited at all
Moderate activities, such as moving a table, pushing a vacuum cleaner, bowling, or playing golf.	◯	◯	◯
Climbing several flights of stairs	◯	◯	◯

21. 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 (such as feeling depressed or anxious)

	Yes	No
Accomplished less than you would like	◯	◯
Didn't do work or other activities as carefully as usual	◯	◯

22. During the past 4 weeks, please indicate on the scale below how much did your pain interfere with your normal work activities?

(including both work outside the home and housework)

◯ I have no pain

◯ I have pain, but it does not affect my activities

◯ A little bit

◯ Moderately

◯ Quite a bit

◯ Extremely

23. The next set of question refer to your kidney disease.
Please use the rating scale below related to each of the items on the left hand side of the page.

	Definitely true	Mostly true	Don't know	Mostly false	Definitely false
My kidney disease interferes too much with my life	◯	◯	◯	◯	◯
Too much of my time is spent dealing with my kidney disease	◯	◯	◯	◯	◯
I feel frustrated dealing with my kidney disease	◯	◯	◯	◯	◯
I feel like a burden on my family	◯	◯	◯	◯	◯
I feel like the dialysis will cure my kidney failure and I do not have to follow my fluid and diet restrictions	◯	◯	◯	◯	◯
I feel like I am thirsty always	◯	◯	◯	◯	◯

24. For each item below on the left hand side of the page, please indicate the answer that comes closest to the way you have been feeling in the past 4 weeks.

In other words, put the phase "How much of the time during the past 4 weeks" before each of the items on the left, then choose your response from the scale below.

	All of the time	Most of the time	A good deal of the time	Some of the time	A little of the time	None of the time
have you felt calm and peaceful?	◯	◯	◯	◯	◯	◯
did you have a lot of energy?	◯	◯	◯	◯	◯	◯
have you felt downhearted and blue?	◯	◯	◯	◯	◯	◯

25. During the past 4 weeks, how much of the time has your physical health or emotional problems interfered with your social activities (like visiting with friends, relatives etc)?

- ☐ All of the time
- ☐ Most of the time
- ☐ Some of the time
- ☐ A little of the time
- ☐ None of the time

26. Please answer 'Yes' or 'No' to the following questions.

	Yes	No
Have you ever been diagnosed with depression?	◯	◯
Are you currently taking any anti-depressant medications?	◯	◯

27. Please use the scale below to rate the items on the left-hand side of the page. These items are related to your social activities.

	Not at all affected	Somewhat affected	Moderately affected	Very much affected	Extremely affected
Does a social gathering affect your compliance with diet and fluid intake?	◯	◯	◯	◯	◯
Does dialysis prevent you from attending social gatherings?	◯	◯	◯	◯	◯

28. Please indicate 'Yes' or 'No' to the following 3 questions.

	Yes	No
Do you have a supportive network?	◯	◯
If yes, to the above question, do they understand the importance of your treatment compliance? (leave blank if you answered No to the above question)	◯	◯
Do you prepare your own meals?	◯	◯

29. Please use the scale below to rate to what extent you were 'bothered' by each of the following items on the left, in the past 4 weeks.

	Not at all bothered	Somewhat bothered	Moderately bothered	Very much bothered	Extremely bothered
Soreness in your muscles	◯	◯	◯	◯	◯
Chest pain	◯	◯	◯	◯	◯
Cramps	◯	◯	◯	◯	◯
Itchy skin	◯	◯	◯	◯	◯
Dry skin	◯	◯	◯	◯	◯
Shortness of breath	◯	◯	◯	◯	◯
Faintness or dizziness	◯	◯	◯	◯	◯
Lake of appetite	◯	◯	◯	◯	◯
'Washed out' or drained'	◯	◯	◯	◯	◯
Numbness in your hands or feet	◯	◯	◯	◯	◯
Nausea or upset stomach	◯	◯	◯	◯	◯
Problems with your access	◯	◯	◯	◯	◯

UNLV
UNIVERSITY OF NEVADA LAS VEGAS

Biomedical IRB – Exempt Review
Deemed Exempt

DATE: **September** 7, 2011

TO: **Dr. Patricia Alpert,** Nursing

FROM: Office of Research Integrity – Human Subjects

RE: Notification of review by /John Mercer/Dr. John Mercer, Chair
Protocol Title: The Relationship Between Self-Efficacy and Fluid and Dietary Compliance in Hemodialysis Patients
Protocol # 1106-3857

This memorandum is notification that the project referenced above has been reviewed as indicated in Federal regulatory statutes 45CFR46 and deemed exempt under 45 CFR 46.101(b)2.

PLEASE NOTE:
Upon Approval, the research team is responsible for conducting the research as stated in the exempt application reviewed by the ORI – HS and/or the IRB which shall include using the most recently submitted Informed Consent/Assent Forms (Information Sheet) and recruitment materials. The official versions of these forms are indicated by footer which contains the date exempted.

Any changes to the application may cause this project to require a different level of IRB review. Should any changes need to be made, please submit a **Modification Form**. When the above-referenced project has been completed, please submit a **Continuing Review/Progress Completion report** to notify ORI – HS of its closure.

If you have questions or require any assistance, please contact the Office of Research Integrity - Human Subjects at IRB@unlv.edu or call 895-2794.

Office of Research Integrity – Human Subjects
4505 Maryland Parkway • Box 451047 • Las Vegas, Nevada 89154-1047
(702) 895-2794 • FAX: (702) 895-0805

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Clinical Research
Advancing Kidney Care

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(612) 852-3241 fax

June 15, 2011

Dr. Patricia T. Alpert

Re: Letter of Support – "The Relationship between Self-efficacy and Fluid and Dietary Compliance in Hemodialysis Patients"

Dear Dr. Alpert,

This letter acknowledges support by DaVita Clinical Research (DCR) for the above-referenced study. We look forward to supporting you and your research team on this study that involves 100 patients from DaVita facility Desert Springs Dialysis (#2331).

Once you receive approval from the IRB, our clinical research team will assist you in completing the necessary DaVita paperwork required for research studies in the DaVita facility and obtaining the final approvals.

We look forward to collaborating with you on this project.

Sincerely,

Amy Young
Vice President, Clinical Services
DaVita Clinical Research

NEVADA

NEPHROLOGY

CONSULTANTS

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June 28, 2011

To Whom It May Concern:

This letter is to confirm that I have agreed that from my stand point as the supervising medical physician at DaVita Desert Springs, Ansy John will be able to work on her thesis project "The relationship between self-efficacy and fluid and dietary compliance in hemodialysis patients" at our dialysis center.

Sincerely,

Sayed Z. Qazi, MD

SZQ/jmk

APPENDIX 3

Research question # 3. What are the barriers to patient adherence with fluid and dietary compliance?

These are the possible questions will help us to find the answers

Some of the demographic questions such as:

Q # 1. Age

- Age (young age group seems to have more compliance issues)

Q # 2. Gender

- Male (young male usually having problems with compliance)

Q # 13.

- Does having hemodialysis treatments place a financial burden on you and /or your family?

Q #14. Some people are bothered by the affects of kidney diseases on their life, while others are not. Please use the scale below to rate how much your kidney disease bothers you related the areas listed.

- Fluid restriction
- Dietary restriction
- Being depend on doctors and other medical staff
- Stress and worries caused by kidney disease

Q # 20.

- Does your health now limit you in normal activities around the hose such as moving a table, pushing a vacuum cleaner, and climbing several stairs?

Q # 21. During the past four weeks, have you had any of the following problems with your work or regular activities as a result of any emotional problems (such as feeling depressed or anxious?)

- Accomplished less than you would like
- Didn't do work or other activities as carefully as usual.

Q # 22. During the past 4 weeks, how much did your pain interfere with your normal work activities?

- A little bit
- Moderately
- Quite a bit
- Extremely

Q # 23. Questions refer to kidney disease:

- I feel frustrated dealing with my kidney disease
- I feel like dialysis will cure my kidney failure and I do not have to follow my fluid and diet restrictions
- I feel like I am thirsty always.

Q # 24. Please indicate the answer that comes closest to the way you have been feeling in the past 4 weeks:

- Have you felt calm and peaceful
- Did you have lots of energy
- Have you felt downhearted and blue

Q # 26. Answer 'yes' or 'no' questions

- Have you ever been diagnosed with depression?

- Are you currently taking any anti-depressant medications?

Q # 27. Questions related to social activities:

- Does a social gathering affect your compliance with diet and fluid intake?

Q # 28. Indicate “yes’ or ‘no’ questions

- Do you have a social network?
- Do you prepare your own meals?

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CURRICULUM VITAE

Ansy John

9490 Stone Castle Way

Las Vegas, NV, 89123

Tel: (702) 883-0349

Email: ansyjohn@yahoo.com

SUMMARY OF QUALIFICATIONS

- Qualified, recent board-certified Nurse Practitioner with 3 years of experience in direct patient care.
- Strong clinical skills enhanced natural ability to build rapport with patients and families.
- Committed to practicing medicine using holistic approach. Act as patient advocate as needed.
- Follow evidence-based guidelines blended with clinical experience, personal observation and intuition.
- Ensure quality of care and open lines of communication between all members of the health care team.

CARRIER OBJECTIVE

To work in a position which is responsible and professionally challenging, requiring full use of developed skills and knowledge, enabling me to learn and excel.

LICENSURE/YEAR

Board-Certified Family Nurse Practitioner- May 2009

Registered Nurse, Nevada State Board of Nursing- 1997

Registered Nurse, Karnataka Nursing Council, India- 1990.

ACLS/BLS- Current

EDUCATIONAL QUALIFICATION

2010 –Current: University of Nevada Las Vegas

Las Vegas, Nevada

Doctor of Nursing Practice Program

2007-2009: University of Nevada Las Vegas

Las Vegas, Nevada

Masters in Nursing

Family Nurse Practitioner

2003-2006: University of Nevada Las Vegas

Las Vegas, Nevada

Bachelor of Science- Nursing

1987-1990 KLE Society School of Nursing

Belgaum, Karnataka, India

Diploma in Nursing & Midwifery

1984-1986 Nirmala College Muvattupuzha

Muvattupuzha, Kerala, India

Pre-Degree Course

1981-1984 St. Sebastian's High School

Anicadu, Kerala, India

High School

PROFESSIONAL EXPERIENCE

August 2009- still continues:

Location: Nevada Nephrology Consultants, 2810 West Charleston Blvd, Suit E- 47, Las Vegas, NV, 89102.

Position: - Nurse Practitioner

Job descriptions and responsibilities: - Manages the care of a caseload of patients with acute and chronic kidney diseases. Provides direct primary care to patients, teaches patients and families, coordinates care delivered by other members of the health care team and advocates for patients.

September 2001- June 2009:

Hospital: - University Medical Center, 1800 West Charleston, Las Vegas, Nevada

Position: - Registered Nurse/ Charge Nurse

Location: - Cardiovascular Care Unit/ Coronary Care Unit/ Trauma ICU.

Job descriptions and responsibilities: - Supervised complex technical nursing situations and patient care problem. Patient care requirements was able to determine and delivered care related to patient's age specific needs. Intervened and revised plan of care as needed. Assured implementation of patient care based on identified needs in a systematic and therapeutic manner. Work was collaborated with post- operative, neuro, ortho, and trauma patients and multidisciplinary health professionals.

July 1998- August 2000

Hospital: - Desert Spring Hospitals, East Flamingo Road, Las Vegas, Nevada

Position: - Registered Nurse

Location: - ICU/CCU

Job descriptions and responsibilities: Provided care for adult medical-surgical patients required a high level of care as well as intensive monitoring. Delivered complete care of the assigned patients during the assigned shift by assessment, planning, implementation, evaluation and documentation of care. Care delivered for patients admitted with cardiovascular diseases, patients who had pre and post cath lab procedures such as angiogram, angioplasty, pacemaker insertion and intra aortic balloon pump placement. Able to manage Swan Ganze catheter and arterial line monitoring, cvp monitoring, hemodynamic monitoring and calculations, titration of vaso- active drugs, and care of post coronary artery bypass graft patients.

January 1993- November 1997

Hospital: - Riyadh Central Hospital, Riyadh, Kingdom of Saudi Arabia

Position: - Registered Nurse

Location: - Renal Care Unit.

Job descriptions and responsibilities: - Conducted individualized patient assessment and prioritized the care based on patient's immediate condition or needs of end-stage renal failure patients. Care was also delivered within the timeframe specified by facility's policies, procedures, and protocols.

January 1990- November 1992

Hospital: - K.L.E. Society's Hospital and Research Center, Belgaum, Karnataka, India.

Position: - Registered Nurse

Location: - Intensive Coronary care Unit.

Job descriptions and responsibilities: - Provided care for adult critical care patients requiring a high level of care as well as intensive monitoring. The nursing care was emphasized on assessment, planning, implementation, evaluation and documentation.

SPECIAL SKILLS AND ABILITIES

- Collects and analyzes patient and family data for the purpose of assessment, diagnosis and management.
- Efficiently assembles a focused assessment of physiological, psychological and medical record data.
- Uses critical thinking skills in diagnosing clinical problems and in defining intervention.
- Responds to routine, urgent, and emergent patient problems appropriated by demonstrating effective decision-making, provides follow-up to ensure problem solution.
- Advocates for patient and family needs and wishes with regard to health care.
- Excellent interpersonal communication skills.
- Ability to work collaboratively with all members of the health care delivery team.

AWARDS AND ACHIEVEMENTS

Awarded Honor's in General Nursing and Midwifery by KLE School of Nursing.

PROFESSIONAL MEMBERSHIPS

Member of American Association of Critical Care Nurses.

Excellent References upon Request.