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## The effects of depression on treatment compliance among dialysis patients

Amber Lynn Mote

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THE EFFECTS OF DEPRESSION ON TREATMENT  
COMPLIANCE AMONG DIALYSIS PATIENTS

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A Project  
Presented to the  
Faculty of  
California State University,  
San Bernardino

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In Partial Fulfillment  
of the Requirements for the Degree  
Master of Social Work

---

by  
Amber Lynn Mote  
Maria Elena Salazar

June 2009

THE EFFECTS OF DEPRESSION ON TREATMENT  
COMPLIANCE AMONG DIALYSIS PATIENTS

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Amber Lynn Mote


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## ABSTRACT

End stage renal disease (ESRD) affects many people who live in the United States. It is vital that ESRD patients receive dialysis treatment in order to survive. For this research noncompliance was measured by missing one or more hemodialysis treatments. Dialysis treatments take several hours and can affect the patient's entire lifestyle. Because of the hours needed to receive treatment many clients may be depressed due to having to change their lifestyles.

Lifestyle changes can be difficult, which can lead to noncompliance with dialysis treatments. This study analyzed if depression affects treatment compliance in dialysis patients. No significant correlation was found between depression and missed treatments in this research. On the other hand, a significant association was found between older hemodialysis patients and missed treatments. Also, significant relationships were found when depression was correlated with locus of control, suicidal ideation and social support.

Additional research can focus on exploring depression and noncompliance in peritoneal as well as hemodialysis patients. Interventions to assist

hemodialysis patients who are depressed or noncompliant can be helpful. Additional research can assess possible interventions to assist ESRD patients instead of just assessing for depression and referring out to other agencies in the community.

## ACKNOWLEDGMENTS

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We are grateful for the assistance of Rosemarie Saldivar, Rachel Estrada, the DaVita Dialysis center staff, as well as the participants in their cooperation and support.

## DEDICATION

I would like to thank my family for their continual love, patients and support throughout my college education.

To my friends and classmates in both the bachelors and master program, who did not allow me to give up when times were tough.

A special thanks to my boyfriend, who provided words of encouragement and support throughout the program.

To everyone previously mentioned, a big special THANK YOU! Without all of your support, I wouldn't be where I'm at today.

Rest in peace Chris, I will never forget the times we shared and how supportive and understanding you were. I love you.

I am grateful for my family who encouraged me to continue my education and supported me in every way.

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## CHAPTER ONE

### INTRODUCTION

In this chapter the different dialysis treatment regimens for patients with end-stage renal disease (ESRD) are discussed. Demographics are also discussed in the problem statement. This chapter addresses the problem statement, the purpose of the study, and the significance of the project for social work.

#### Problem Statement

Compliance in patients with end stage renal disease (ESRD) is crucial. The decision to be noncompliant with treatment can cause serious health problems and even death. An important risk factor among patients with ESRD is depression. Having severe symptoms of depression can contribute to death among dialysis patients (Gençöz & Astan, 2006). Social workers need to be concerned with ESRD patients who are or may be depressed because depression is related to suicide (Zastrow & Kirst-Ashman, 2007). Being severely depressed can cause some ESRD patients to withdrawal from dialysis treatment resulting in death.

Individuals who have ESRD have an option to receive a transplant, accept dialysis treatment or deny treatment and inevitably pass away. ESRD is a kidney disease where the kidneys are unable to clean the body's toxins and waste from the blood (DaVita, 2004a). Two of the dialysis treatments for ESRD are hemodialysis and peritoneal dialysis. Hemodialysis is when waste and extra fluid are taken from blood which travels into a tube and through a machine that filters the blood and replaces the filtered blood back into the body (DaVita, 2004b). Peritoneal dialysis is when a catheter is placed in the abdominal cavity and a cleaning fluid, dialysate, is placed in the patient's abdomen. "The dialysate pulls the waste and extra fluid from the patient's blood into the peritoneal cavity" (DaVita, para. 3, 2008). The dialysate stays in the abdomen for a certain amount of time and then is drained and replaced with new dialysate (DaVita, 2008). Peritoneal dialysis is commonly used at home and there are different options which include "conventional home hemodialysis and nocturnal home hemodialysis" (DaVita, 2007, para. 7-10). According to DaVita (2007), conventional peritoneal dialysis is completed three times per week for three to four hours at a time. Short daily

home dialysis is completed five to six times per week for a few hours every occasion. Nocturnal home dialysis is completed every other night or up to six nights per week for six to eight hours a session, while the patient sleeps. For the purpose of this research we will focus on outpatient dialysis treatment only.

Social workers should be concerned about ESRD because so many people are receiving treatment and are depressed. The dialysis treatment agencies should also be concerned that their patients may be depressed. Social workers should also be aware of depression in dialysis patients and assess them regularly. According to the National Kidney Foundation and the U.S. Renal Data System Annual Data Report (NKF, 2005), over 485,000 Americans receive treatment for ESRD, approximately 341,000 receive dialysis and approximately 140,000 have a kidney transplant. An average of 90,000 new cases of ESRD has been diagnosed in the last five years (National Kidney Foundation, 2005). National Kidney Foundation (2005) reports that more men (55.8%) than women (44.2%) have ESRD and the highest incidence of ESDR in age, ranges from 45 to 64 years old. It appears that race may play a role in who is more likely to have ESRD. According to the

National Kidney Foundation (2005), white Americans make up 61% of ESRD patients followed by Black (31.7%), Hispanic (14.0%), Asian/Pacific Islander (4.5%), other/unknown (1.5%) and Native Americans (1.3%). It is important to learn how ESRD and depression correlate because having ESRD can be very depressing due to having to work around long hours of treatment several days a week for the rest of their life. Support groups may be helpful for individuals with ESRD and depression (if assessed).

A policy within the dialysis centers that can constrain dialysis treatment to patients is Medi-Cal. Once people are diagnosed with ESRD they are eligible to receive Medi-Cal regardless of their status in this country, income level or other medical conditions. Another policy that constrains treatment in dialysis patients is enrolling them in the kidney transplant program. All dialysis patients are encouraged to enroll in the program but not everyone qualifies. The social worker is the first step in becoming approved for a transplant. The social worker provides a psychosocial assessment and can deny or approve eligibility for a kidney transplant.

## Purpose of the Study

The purpose of the study is to improve treatment methods and assist in providing the best quality of life to dialysis patients. Coping with health problems in any stage of an individual's life is very difficult. Being able to understand the causes of depression among dialysis patients, would enable the agency and the professionals assisting with treatment, in providing better resources and coping mechanisms to patients in dialysis. This is a quantitative study that measures depression as our independent variable and treatment compliance as our dependent variable. For the purpose of this study, treatment compliance is defined as receiving dialysis in an outpatient setting without missing any treatments.

## Significance of the Project for Social Work

The findings of this study are important for the social work profession because social workers may need to develop additional support for dialysis patients. Additional support groups may need to be developed around the country. In addition, social workers may be involved in family communication and education about the patient's

depression. Social workers may need to encourage family members to be supportive and communicate better if communication is broken between members. Educating family members and friends about the process and how straining it can be is helpful for family or friends to be more supportive. As professionals, providing a better quality of life for patients on dialysis would enrich the patient's life and increase their desire to comply with treatment and continue to have a normal fulfilling life.

The generalist intervention model (GIM) consists of six problem solving steps, which are: engagement, assessment, planning, implementation, evaluation and termination. The GIM enables social workers to provide assistance in different aspects of a person's life, at the Micro, Mezzo and Macro level (Kirst-Ashman & Hull, 2006). This study focuses on the planning stage of the GIM model. Step two, the assessment, is a base for the planning and the intervention process, which tells us how to provide adequate services to dialysis patients (Kirst-Ashman & Hull, 2006, p. 33). In the planning stage of the GIM, social workers need to prepare interventions for ESRD patients and depression. Depression may affect the frequency of dialysis treatments received. A

suggestion would be to have patients attend support and psycho-educational groups. Another suggestion would be for the patients to have individual sessions (counseling) with a social worker. If patients were less depressed or not depressed at all their chances of withdrawing from dialysis treatment would probably be much lower.

The following study explored the effects of depression on treatment compliance in dialysis patients.



## CHAPTER TWO

### LITERATURE REVIEW

#### Introduction

This chapter presents a review of the literature on topics that relate to depression and compliance in dialysis treatment. The following topics are discussed on how they relate to dialysis compliance and depression: locus of control, suicidal ideation, social support, and demographics. Cognitive behavioral theory and helplessness and hopelessness theories are discussed.

#### Theories Guiding Conceptualization

Piaget's cognitive theory states that individuals develop mental schemata are constructed from past experiences (Hutchison, 2003). In order to change cognitions of End-Stage Renal Disease (ESRD) patients, professionals also need to assist in changing ESRD patients' behaviors. Therefore cognitive behavioral theory is a concept that would assist dialysis patients who are depressed to change their negative perceptions of their lives to positive ones. Being diagnosed with ESRD is a life changing situation that has strict treatment regimens that are not easy to follow; especially since

people are accustomed to doing things a certain way for most of their lives and when they are diagnosed things change drastically. Changing individuals' states of mind may contribute to the way they behave and carry out their daily activities. Patients may need to learn that being in dialysis is a very big change but it is feasible. It is a state of mind that when changed in a positive way will increase the patients' self-esteem and may increase dialysis treatment compliance in patients with ESRD.

Other theories about depression include hopelessness and helplessness. According to Devins, Binik, Hollomby, Barre, and Guttman (1981), helplessness is "the perceived loss of control over a number of important life dimensions" and hopelessness is "that ESRD is irreversible except for the limited availability of transplants" (p. 532). ESRD patients may become discouraged and feel hopeless and helpless in their struggle with their medical condition. Patients who feel they have little to no control may end up being depressed. Devins et al. (1981) found that "lower levels of perceived control were associated with greater depression" (p. 540). When ESRD patients feel hopeless and helpless they tend to not comply to treatment 100%

because they may feel that life is not worth living or they may also be depressed which is linked to helplessness and hopelessness.

### Depression

A common psychological problem in clients with ESRD is depression (Devins et al., 1981; Finkelstein & Finkelstein, 2000; Wuerth, Finkelstein, Kliger, & Finkesitein, 2003; Tyrrell, Paturel, Cadec, Capezzali, & Poussin, 2005; Micozkadioglu, Micozkadioglu, Zumrutda, Erden, Ozdemir, Sezer, et al., 2006; and Gençöz & Astan, 2006). Depression is an ongoing psychological issue that many, if not all, ESRD clients experience. Elal and Krespi (1999) found that 75% of ESRD clients are depressed, either clinically or moderately. However, Wuerth et al. (2003) found that 20-30% of dialysis clients have symptoms of depression therefore affecting the quality of life in patients. McDade-Montez, Christensen, Cvengros, and Lawton (2006) found that "patient depression significantly predicted the subsequent decision to terminate life-sustaining dialysis" (p. 202). Devins et al. (1981) found that older clients who had several transplant failures and were in

poor general health were more likely to be depressed. Individuals who feel depressed may feel helpless and hopeless about their illness. One way to alleviate depression in ESRD clients is to use cognitive behavioral therapy to educate them on how to change their negative perception into a positive perception resulting in behaving in a positive way. Elal and Krespi (1999) found that low social support levels and depression "correlate with decreased adherence to medical advice and survival" (p. 24-25).

#### Treatment Compliance

ESRD clients who are depressed tend to be noncompliant of their dialysis treatment (Tyrrell et al., 2005). Patients who are on haemodialysis have various treatment regimens that they have to comply with. One is that the patient has to be present at every scheduled appointment and staying for the entire dialysis treatment. Second, dietary and fluid restrictions must also be followed along with medication (Hailey, & Moss, 2000). According to Kutner (2001), "50% of HD [haemodialysis] patients are believed to be noncompliant with some part of their regimen" (p 324).

In a study done where treatment compliance was measured by missed treatments, it was noted that treatment compliance tends to be a major problem in the USA, when compared to other parts of the world such as Japan or Sweden. It was noted that 35% of 415 US patients did not attend at least one treatment in the last six months, compared to other countries where missed treatments were rare (Hailey & Moss, 2000).

However, clients who feel they have control over their condition may feel less depressed and comply with their dialysis treatment more often. In addition, clients who feel they have little to no social support tend to be more depressed, resulting in less than 100% compliance to dialysis treatment (Gençöz & Astan, 2006).

According to Gençöz and Astan (2006) a correlation exists between hemodialysis patients' perception of negative effects of ESRD and their lack of compliance to treatment. Patients who are likely to be noncompliant in treatment were more affected by the effects of ESRD in their daily routine and report having less control over their future health.

## Locus of Control

Articles have been identified that address depression as it relates to locus of control in ESRD clients. According to several studies, there is a correlation between depression and whether the ESRD clients feel that they have control, either externally or internally (Devins et al., 1981; Christensen, Turner, Smith, Holman Jr., & Gregory, 1991; and Elal & Krespi, 1999). According to Gençöz and Astan (2006), people with internal coping mechanisms appeared to have more social support than people with external locus of control. People with external locus of control appear to have more symptoms of depression and perceive to have little social support. Elal and Krespi (1999) state that clients who focus on positive aspects of their lives and feel that they do have control over their ESRD illness are healthier psychologically. Several stresses relate to treatment noncompliance and stress due to having less control over their medical condition. These stresses are: doubt about survival, dependency on a machine to stay alive, strict fluid and diet restrictions and restricted mobility (Devins et al., 1981 and Binik, 1983).

## Suicidal Ideation

According to Christensen et al. (1991), clients who are depressed are more suicidal and may have an early death due to complications with ESRD. In agreement with Christensen et al. (1991), Gençöz and Astan (2006) find that ESRD clients who are severely depressed have a greater mortality. Some clients may become so depressed that they want to stop dialysis but may be unaware of the consequences of ending treatment (Tyrrell et al., 2005). Due to not understanding the consequences of treatment noncompliance, ESRD clients have a greater rate of suicide than the general population (Christensen et al., 1991; McDade-Montez et al., 2006). McDade-Montez et al. (2006) state that there is a higher risk of older ESRD clients terminating their treatment.

Suicidal ideation and mortality go hand-in-hand with depression and treatment compliance with dialysis. According to Tossani, Cassano, and Fava (2005), clients who suffer from major depressive disorder are at a lifetime risk of suicide, which is estimated at 7% for males and 1% for females. In addition, young men account for approximately 40% of all suicides.

## Social Support

Social support for ESRD clients is vital for them to adjust to dialysis due to possibly changing their whole life to work around their dialysis treatment. Social support has demonstrated to be a positive factor in clients with ESRD. Clients with more social support decrease the chance of developing symptoms of depression. This is only true to clients with external locus of control. Those with internal locus of control do not require as much social support when encountered with negative life events. In addition depression has been highest among patients having external locus of control who have little social support (Gençöz & Astan, 2006). According to Elal and Krespi (1999), depression and social support have been negatively correlated (p 24). Social support is also related to compliance with treatment in ESRD clients.

Elal and Krespi (1999), and Gençöz and Astan, (2006) also found that ESRD clients who are depressed may have trouble complying with treatment (dialysis, diet, fluid restriction) which may cause an early death. Sherwood (1983) explains that family members may have trouble being supportive of the dialysis client due to the



psychological, economic and social impact that this illness causes the family. Dialysis clients were more likely to be noncompliant with treatment if they felt their family members were not available to help them. Sherwood (1983) also found that noncompliant clients "project responsibility for their noncompliant behavior onto other people" (p. 65). In regards to social support, quality appears to be more important than quantity (Elal & Krespi, 1999). Clients who perceive to have few but very close friends and or family may have better social support than clients who have several friends and or family who are less supportive (Gençöz & Astan, 2006).

#### Demographics

In one study completed by Elal and Krespi (1999), certain demographic variables were related to depression in ESRD clients. According to Elal and Krespi (1999), "Clinically depressed patients had a lower educational level...and lower family income...and were more likely to be unemployed" (p 27). These demographics are imperative for social workers and professionals to understand in that ESRD clients, due to their education level, may not fully understand their diagnosis and the crucial aspect

of following their treatment. Sherwood (1983), found that fifty-two percent of dialysis patients he studied did not complete high school, where as only two percent were college graduates. He also found that the majority (forty-nine percent) had an income of \$6,000 or less and most reported that their income had decreased after being diagnosed. McDade-Montez et al. (2006) report that white patient's withdrawal from treatment significantly more than Asian American and African American clients. On the other hand, Micozkadioglu et al. (2006) found that marital, economic, educational and occupational status are not a main factor in the development of depression on ESRD patients.

#### Summary

This chapter presented a review of the literature about depression and compliance in dialysis treatment. Some ESRD patients do not comply with their treatment regimen for various reasons. Some of these reasons include depression, not having a locus of control, not having enough social support and feeling suicidal. These patients are at risk and need to be assessed. Professionals need to be aware of these statistics and

treat ESRD patients accordingly. Theories that may help professionals assist ESRD patients include cognitive behavioral, helplessness and hopelessness.

## CHAPTER THREE

### METHODS

#### Introduction

This chapter discusses in detail the study design which includes sampling, data collection and instruments, procedure on how data was collected, protection of human subjects, and data analysis.

#### Study Design

The purpose of this study is to evaluate the effects of depression on treatment compliance among dialysis patients. Previous studies have concluded that a common psychological problem in patients with End-Stage Renal Disease (ESRD) is depression. Good social support, locus of control, depression and suicide are said to be factors that contribute to treatment compliance in dialysis patients.

There are two types of treatment methods for dialysis patients. One is out-patient hemodialysis treatment, which is done at a facility for three to four hours, three times a week, and the other treatment method is peritoneal dialysis which is typically completed at the patient's home. For the purpose of this research,

only hemodialysis patients were interviewed and collected at one hemodialysis out-patient clinic. For this study, treatment compliance is defined as receiving dialysis without missing any treatments.

Based on current research we hypothesized that patients who suffer from symptoms of depression are less likely to be compliant with their treatment regimen.

### Sampling

Data was collected from hemodialysis patients who received treatment at the Ontario, California DaVita Dialysis center in San Bernardino County. DaVita, Inc. is one of the largest companies in the United States that provides dialysis treatment for individuals with ESRD. The sample consisted of 74 hemodialysis patients. Criteria for gathering participants consisted of: patients being either male or female, 18 years old and older with at least six months in treatment who speak English or Spanish and have various ethnic backgrounds.

### Data Collection and Instruments

This was a quantitative study that measured: social support, locus of control, suicidal ideation, treatment compliance and depression. These variables were measured

as independent variables, whereas compliance in treatment was measured as the dependent variable. Demographic information was collected such as age, gender, income, ethnicity and education level completed.

Several scales were identified as a possible instrument for this study, such as the Beck's Depression Inventory (BDI), along with the Hopkins depression scale. Both of these scales are effective instruments to address depression but neither one of them addressed social support, or locus of control. A survey was created based on criteria of the *Diagnostic and Statistical Manual of Mental Disorders*, fourth edition, text revision (DSM-IV-TR). The survey consists of 14 questions which measured demographics, social support, locus of control, suicidal ideation, compliance and depression. Social support, locus of control, suicidal ideation and depression variables were measured using a Likert-scale, ranging from 1 = never, 2 = sometimes, 3 = often, 4 = always.

#### Procedures

Two researchers collected data from patients who attend the DaVita dialysis out-patient clinic. The

researchers interviewed patients to make sure they met the sampling criteria. Surveys were administered based on a convenient sample of clinic patients who attended any shift. For example, shifts include 5am, 9am, 12pm, 3pm, and nocturnal (7pm). Data was collected during March 2009.

#### Protection of Human Subjects

An informed consent and debriefing statement was provided to all participants. In order to protect confidentiality, participants were not asked to give their name. The researchers are the only two people who have access to any information given on the surveys. Data collected was stored in a lock box in the researcher's home. As soon as this data was analyzed it was destroyed. See appendix B for informed consent and appendix C for a debriefing statement.

#### Data Analysis

The quantitative data analysis procedure included entering data into the Statistical Package for the Social Sciences (SPSS) program and running results. The concepts, constructs and variables in this research included: demographics (gender, age, ethnicity, education

level completed, and income), non-compliance with dialysis treatment, social support, depression, locus of control, and suicidal ideation. The researchers used descriptive statistics for all variables to better understand the data. The mean, median and mode of depression and non-compliance were identified. Inferential statistics were used to examine if depression in dialysis patients affects treatment compliance and whether this finding exists in the larger population of dialysis patients.

The researchers used correlation to see if there was an association between depression, social support, locus of control, suicidal ideation and non-compliance to treatment.

### Summary

The purpose of this study is to evaluate the effects of depression on treatment compliance among dialysis patients. Participation was voluntary using a sample of dialysis patients who met the sampling criteria. This quantitative study measures: social support, locus of control, suicidal ideation, treatment compliance and depression and their association with treatment



compliance. Demographics were also identified and compared. Surveys were administered at the Ontario DaVita clinic. Any and all data are kept strictly confidential to only the two researchers involved in this study. Several statistical analyses were run using the SPSS program.

## CHAPTER FOUR

### RESULTS

#### Introduction

In this chapter we discuss our data analyses, including linear regression and bivariate analysis. We also used descriptives, frequencies and cross-tabs to help describe our sample.

#### Findings

Our sample consisted of 74 participants. The participants consisted of 46 males and 28 females, ranging from ages 20 to 86, with a mean age of 54.07. The ethnicities of the participants included: Caucasian 14.9%, Hispanic 35.1%, African American 12.2%, Asian 1.4% and other 36.5%. The participant's educational backgrounds included: Elementary level or below 17.6%, Junior High School 5.4%, High School 37.8%, some college 34.3%, undergraduate degree 10.8% and postgraduate degree 4.1%. The income of the participants ranged from \$0 to \$85,000 per year, with a mean of \$22,225.89. (See appendix D for demographics table). Participants have been involved in hemodialysis treatment ranging from 1 to 22 years with a mean of 3.76 years in treatment.

Participants have missed hemodialysis treatments ranging from 0 to 18 times, with a mean of less than one time (.88).

For the purpose of this research our research question is: Does depression effect treatment compliance in dialysis patients? Correlations among depression and other variables such as, gender, age, ethnicity, educational level completed, income, years in dialysis treatment, and missed dialysis treatments, were analyzed using Pearson correlation. Of these variables, none were found to be significant with depression and compliance to dialysis treatment. Other correlations that were not significant when compared with depression include: age ( $p = .076$ ), ethnicity ( $p = .477$ ), education level ( $p = .114$ ), and missed treatments ( $p = .582$ ).

However, there was a significant positive relationship between age and missed treatments ( $p = .014$ ). Older participants missed more hemodialysis treatments when compared to the younger participants. Other associations that were not significant when compared with missed treatments include: gender ( $p = .536$ ), education level ( $p = .380$ ), and income

( $p = .628$ ). No significant association was found between depression and missed treatments ( $p = .324$ ).

Statistics were also run to compare depression with locus of control, suicidal ideation and social support. When depression was compared to locus of control there was a significant relationship ( $p = .000$ ). When depression and suicidal ideation was compared a significant association was found ( $p = .001$ ). When comparing depression and social support there was a significant correlation ( $p = .000$ ).

#### Summary

The sample consisted of 74 participants. The participants consisted of 46 males and 28 females, with a mean age of 54.07. Participants had a wide range of ethnicities and income. Participants' average educational level was High School. All participants were involved in hemodialysis treatment due to their End-Stage Renal Disease diagnosis. The mean duration of receiving hemodialysis treatment was 3.76 years.

Gender, age, ethnicity, educational level, income, years in dialysis treatment and missed dialysis treatment were compared to depression and compliance with no

statistical significance found. However, there was a significant positive relationship between age and missed treatments ( $p = .014$ ).

## CHAPTER FIVE

### DISCUSSION

#### Introduction

This chapter presents a discussion of our findings, limitations, recommendations for social work practice, policy and research.

#### Discussion

The objective of the present study was to explore if depression effects treatment compliance in dialysis patients. Depression was measured based on criteria of the *Diagnostic and Statistical Manual of Mental Disorders*, fourth edition, text revision (DSM-IV-TR). The survey consists of 14 questions which measured demographics, social support, locus of control, suicidal ideation, treatment compliance and depression. Patients who missed one or more hemodialysis treatments were considered to be noncompliant in this study.

We hypothesized that patients who suffer from symptoms of depression are less likely to be compliant with their dialysis treatment. The findings were inconsistent with the work of Kutner (2001).

No significant relationship was found between missed treatments and depression due to our limited assumption that one missed hemodialysis treatment defines noncompliance. Another non-significant relationship was found between age and depression. This finding could be due to depression affecting anyone, no matter their age, who has been diagnosed with ESRD. Yet another non-significant correlation was found between ethnicity and depression. This result is consistent with Drayer et al. (2006). Lastly, education level when compared to depression was non-significant. This finding is consistent with Elal and Krespi (1999) and Micozkadioglu et al. (2006).

However, there was a significant positive relationship between age and missed treatments. Our data analysis found that older dialysis patients missed more dialysis treatments than younger patients. This finding could be due to older clients' feeling that missing one treatment will not really affect them. It could also mean that younger patients are more afraid to miss treatments, especially if they have just been diagnosed with ESRD. Our findings differ from other literature. According to Boyer, Friend, Chlouverakis, and Kaloyanides (1990),

younger patients miss more treatments than older patients. Education level and missed treatments, as well as income and missed treatments were found to be non-significant. The findings of education and noncompliance were comparable to those of Hailey and Moss (2000).

Statistics were run to compare dialysis noncompliance with locus of control, suicidal ideation and social support. No significant relationship was found between noncompliance and locus of control ( $p = .317$ ). There was no significant correlation between dialysis noncompliance and suicidal ideation ( $p = .652$ ). When comparing dialysis noncompliance with social support there was no significant relationship ( $p = .364$ ).

Statistics were also run to compare depression with locus of control, suicidal ideation and social support. When depression was compared to locus of control there was a significant relationship ( $p = .000$ ). This is possibly showing that when ESRD patients feel they have control in their lives they are less depressed. However, if they feel they have no or very little control they may be more depressed. This finding is consistent with Devins et al., (1981); Christensen, Turner, Smith, Holman Jr.,



Gregory, (1991); and Elal and Krespi, (1999). When depression and suicidal ideation was compared a significant association was found ( $p = .001$ ). Individuals who are depressed may possess suicidal ideations due to their psychological condition. Also, individuals who have suicidal ideations tend to be more depressed. This finding is consistent with the literature of Christensen et al. (1991) and McDade-Montez et al. (2006). When comparing depression and social support there was a significant correlation ( $p = .000$ ). Individuals who feel they have support from their friends and family tend to be less depressed.

#### Limitations

There are some limitations in this study. One limitation is that we did not address additional reasons why patients missed one or more treatments. For example, transportation, hospitalization, family/friend support, etc. This is a limitation because we cannot assume that just because a patient has missed one or more treatments that they are depressed.

Another limitation is that we defined noncompliance as patients who missed one or more hemodialysis

treatments. However, missing one or more dialysis treatments does not necessarily mean that the patient is noncompliant or depressed. For example, a patient who missed only one dialysis treatment could have not had transportation to the clinic at their scheduled time; therefore, it was not because the hemodialysis patient was depressed. Noncompliance can be defined as patients not following their diet regimen, exercise, taking their medications as prescribed and keeping up to date with their co-morbid medical conditions.

Yet another limitation is that we did not survey peritoneal dialysis, commonly used at home, due to time restrictions and lack of facilities that provide the services. As a result of time restrictions and a low return mailing rate, we did not mail the surveys to peritoneal patients. Peritoneal patients were excluded from this sample.

#### Recommendations for Social Work Practice, Policy and Research

Certain recommendations for social work practice are discussed. For example, being able to determine if depression contributes to noncompliance in treatment in dialysis patients will enable individuals as well as

families to find ways to interact and take control of their lives again. Because of the large amount of Individuals receiving dialysis and social workers in charge of case management of these patients, it is crucial to assess for depression and provide services accordingly. Social workers can also conduct group therapy with ESRD dialysis patients who are depressed. In addition, social workers can assist older ESRD patients using psychoeducation about the importance of complying with dialysis treatments. Because locus of control, suicidal ideation and social support were all found to have a significant correlation with depression, social workers need to be of assistance to ESRD patients. Patients who are depressed and feel they have little or no control in their situation can be assisted by a social worker who can utilize psychoeducation and cognitive-behavioral therapy in a group setting. Social workers can also support ESRD patients who are depressed and have suicidal ideations by acknowledging the patient's feelings and encouraging them to work toward their personal goals. A social worker can assist ESRD patients who feel they have little or no social support by encouraging them to meet more people (social support)

and possible facilitating a group to encourage communication between dialysis patients. It is vital for social workers to help ESRD patients as well as following policies that can affect the patients.

Some policies that affect ESRD patients are Medi-Cal and kidney transplants. One criterion to receive Medi-Cal benefits includes individuals who are diagnosed with ESRD. Patients are able to apply for Medi-Cal and cannot be turned down if they have a diagnosis of ESRD, even if the patient is in the country illegally. Another policy that affects ESRD patients is deciding if a kidney transplant is an option. All ESRD patients are placed on a kidney transplant list when they are first diagnosed with ESRD. Because it can take several years to receive a kidney transplant, it is important that every individual has that option open to them. The social worker in the dialysis clinic is the professional who completes a biopsychosocial of the patient and recommends whether each client is appropriate for a kidney transplant.

Recommendations for additional research include exploring depression and noncompliance in peritoneal as well as hemodialysis patients. This recommendation is supported by Kutner et al. (2002) who states that little

research has been done on peritoneal dialysis and noncompliance due to its limited accessibility but notes that is an important population to assess. Another research recommendation is finding interventions that address depression and noncompliance, for example providing services at patients' treatment location, instead of just assessing for depression and referring out to other agencies in the community.

### Conclusions

End stage renal disease affects hundreds of thousands of Americans throughout the United States. Compliance in patients with ESRD is crucial because serious health problems and even death can occur. For this research compliance was measured by missing one or more hemodialysis treatments.

This study analyzed if depression affects treatment compliance in dialysis patients. No significant correlation was found between depression and missed treatments. However, a significant association was found between older hemodialysis patients and missed treatments. In addition, significant relationships were

found when depression was correlated with locus of control, suicidal ideation and social support.

Recommendations for additional research include exploring depression and noncompliance in peritoneal as well as hemodialysis patients. Social workers can provide interventions that address depression and noncompliance, instead of just assessing for depression and referring out to other agencies in the community.

APPENDIX A  
QUESTIONNAIRE

## The Effects of Depression on Compliance with Dialysis Treatment

1. Gender:    Female    Male
2. Age: \_\_\_\_\_
3. Ethnicity:
  - Caucasian
  - Hispanic
  - African American
  - Asian
  - Other
4. Education Level completed:
  - Elementary or below
  - Junior High
  - High School
  - Some College
  - Undergraduate degree
  - Postgraduate degree
5. Income: \_\_\_\_\_ /yr
6. When did you start dialysis treatment? \_\_\_\_\_
7. How many dialysis treatments have you missed in the last year? \_\_\_\_\_

Questions	Never	Sometimes	Often	Always
Do you find yourself crying easily most of the time?				
Do you normally have difficulty falling asleep or staying asleep?				
Do you feel sad most of the time?				
Do you feel hopeless about the future most of the time?				
Do you feel your family/friends are supportive most of the time?				
Do you feel you are in control of your health most of the time?				
Do you experience thoughts of wanting to end your life most of the time?				



### Cuestionario:

#### Los efectos de la depresión en el Cumplimiento de tratamiento de diálisis

1. Feminina o Masculino
2. Edad: \_\_\_\_\_
3. Etnicidad: \_\_\_\_\_
4. Nivel de educacion:
  - Primaria o mas bajo
  - Escuela Secundaria
  - Preparatoria
  - Algun tiempo en Colegio
  - Licenciatura
  - Grado de postgrado
5. Ingreso anual: \_\_\_\_\_
6. Cuando empeso su tratamiendo de diálisis? \_\_\_\_\_
7. Cuantos tratamientos a perdido en el ultimo año? \_\_\_\_\_

Preguntas	Nunca	Haveces	Seguido	Siempre
¿Se encuentra llorando fácilmente la mayor parte del tiempo?				
¿Usted normalmente tienen dificultades para dormirse o permanecer dormido?				
¿Usted se siente triste la mayoría del tiempo?				
¿Se siente sin esperanza sobre el futuro la mayor parte del tiempo?				
Siente que su familia o amigos lo apollan la mayoría del tiempo?				
Siente que esta en control de su salud la mayoría del tiempo?				
A tenido pensamientos de quitarse la vida la mayoría del tiempo?				

APPENDIX B  
INFORMED CONSENT

## INFORMED CONSENT

The study in which you are being asked to participate is designed to explore the effects of depression on compliance with dialysis treatment. This study is being conducted by Amber Mote and Maria Elena Salazar under the supervision of Dr. Vang, Assistant Professor of Social Work. This study has been approved by the Department of Social Work Subcommittee of the Institutional Review Board, California State University, San Bernardino.

In this study you will be asked to respond to several questions regarding the effects of depression on compliance with dialysis treatment. The following survey should take about ten to fifteen minutes to complete. All of your responses will be held in the strictest of confidence by the researchers. Your name will not be reported with your responses. All the data will be reported in group form only. You may receive the group results of this study upon completion after September 2009, at the Pfau Library, California State University, San Bernardino.

Your participation in this study is totally voluntary. You are free not to answer any questions and withdraw at any time during this study without penalty. When you have completed the survey you will receive a debriefing statement describing the study in more detail. In order to ensure validity of the study, we ask that you not discuss this study with other participants.

Some anticipated benefits include participants being more aware, gaining knowledge and having a better understanding of the effects of depression and dialysis treatment compliance. Foreseeable risks or discomforts to the subject are minimal. Participants may have negative emotions about the survey; however, the benefits of this study outweigh the risks.

If you have any questions or concerns about this study, please feel free to contact me, Dr. Pa Der Vang at (909) 537-3775.

By placing a check mark in the box below, I acknowledge that I have been informed of, and that I understand, the nature and purpose of this study, and I freely consent to participate. I also acknowledge that I am at least 18 years of age.

I have read, understood, and agreed to participate in this study.

Today's Date: \_\_\_\_\_

## INFORMED CONSENT

Este estudio en cual le hemos pedido que participe esta diseñado para explorar los efectos de depresión en el cumplimiento de su tratamiento de diláisis. Este estudio estará bajo el encargo de Amber Mote y Maria Elena Salazar y bajo la supervisión de la Dr. Vang, Profesora del departamento de trabajo social. Este estudio ha sido aprobado por el Department of Social Work Subcommittee of the Institutional Review Board, California State University, San Bernardino.

En este estudio, le estaremos haciendo varias preguntas sobre los efectos de depresión en su tratamiento de diláisis. El siguiente cuestionario le tomará aproximadamente diez a quince minutos para completar. Todas sus respuestas serán mantenidas en confidencia de las investigadores. Todos los datos serán evaluados en forma de grupo solamente y no individualmente. Usted podrá recibir los resultados de este estudio cuando sea terminado después de Septiembre del 2009 en la librería Pfau, de la Universidad del estado de California, de San Bernardino.

Su participación en este estudio es totalmente voluntaria. Usted puede decidir no contestar las preguntas y retirarse en cualquier momento sin ninguna penalidad. Cuando termine su cuestionario recibirá un interrogatorio de la declaración describiendo este estudio en detalle. Para asegurar la validez de este estudio, le pedimos que no comente de este estudio con otros participantes.

Algunos beneficios de participar en este estudio serán estar más informados y tener un mejor entendimiento de los efectos de depresión y de seguir su tratamiento de diálisis. Riesgos o incomodidad serán mínimo para los participantes. Los participantes pueden tener emociones negativas sobre el cuestionario, pero los beneficios sobrepasan los riesgos.

Si usted tien alguna pregunta sobre este estudio, por favor no dude en contactar a la Dr. Pa Der Vang al (909) 537-3775.

Colocando una marca de verificación en la caja de abajo, estoy afirmando que me an informado y que he entendido la naturaleza y proposito de este estudio. Doy mi consentimiento a participar y confirmo que soy mayor de 18 anos de edad.

He Leido, comprendido y aceptado a participar en este estudio.

Fecha de Hoy: \_\_\_\_\_

APPENDIX C  
DEBRIEFING STATEMENT

## **DEBRIEFING STATEMENT**

The study you have just completed was designed to investigate the effects of depression on compliance with dialysis treatment. The survey studied how depression can effect dialysis treatment compliance, including locus of control, suicidal ideation, social support and demographics. The researchers are particularly interested in studying the effects of depression on compliance with dialysis treatment.

Thank you for your participation and for not discussing the contents of the survey with other participants. If you have any questions about the study, please feel free to contact Dr. Pa Der Vang at (909) 537-3775. If you would like to obtain a copy of the group results of this study, please contact Professor Dr. Pa Der Vang at (909) 537-3775 at the end of spring quarter of 2009.

Again, thank you for your participation.

### **Interrogatorio de la declaración**

El cuestionario que usted a completado esta diseñado para investigar los efectos de depression en el cumplimiento de su tratamiento de diálisis. El cuestionario investiga como la depression puede afectar su tratamiento incluyendo locus de control, idiación suicida, el apoyo social y la demografía. Las investigadoras estan especialmente interesadas en estudiar los efectos de depression en el cumplimiento de tratamiento de diálisis.

Gracias por su participacion y por no discutir el contenido del cuestionario con otros participantes. Si tiene cualquier pregunta no dude en contactar a la Dr. Pa Der Vang al (909) 537-3775. Si le gustaria recibir una copia de los resultados de este studio porfavor contacte a la Dr. Pa Der Vang.

Una vez más, gracias por tu participación.

APPENDIX D  
DEMOGRAPHIC TABLE



Table 1. Demographic Table

Gender	n=
Male	46
Female	28
Age	n=
21 - 30	7
31 - 40	8
41 - 50	12
51 - 60	16
61 - 70	23
71 - 80+	8
Ethnicity	n=
Caucasian	11
Hispanic	26
African American	9
Asian	1
Other	27
Education Level	n=
Elementary or below	13
Junior High	4
High School	28
Some college	18
Undergraduate degree	8
Postgraduate degree	3
Income	n=
\$0 - \$10,000	22
10,001 – 20,000	27
20,001 – 30,000	8
30,001 – 40,000	7
40,001 – 50,000	2
50,001 – 60,000	5
60,001 – 70,000	1
70,001 – 80,000	1
80,001+	1

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## ASSIGNED RESPONSIBILITIES PAGE

This was a two-person project where authors collaborated throughout. However, for each phase of the project, certain authors took primary responsibility. These responsibilities were assigned in the manner listed below.

1. Data Collection:

Assigned Leader: Maria Elena Salazar

Assisted By: Amber Mote

2. Data Entry and Analysis:

Team Effort: Amber Mote & Maria Elena Salazar

3. Writing Report and Presentation of Findings:

a. Introduction and Literature

Team Effort: Amber Mote & Maria Elena Salazar

b. Methods

Team Effort: Amber Mote & Maria Elena Salazar

c. Results

Team Effort: Amber Mote & Maria Elena Salazar

d. Discussion

Team Effort: Amber Mote & Maria Elena Salazar