

## **CHAPTER 3**

### **RESEARCH METHODOLOGY**

#### **Design of the Study**

A descriptive correlational design was used in this study to describe coping strategies and quality of life of hemodialysis patients and their spouses, and also to trace the relationships between these variables to provide a deeper insight into this phenomenon.

#### **Population and Setting**

The target population in this study was couples of patients with chronic renal failure undergoing hemodialysis and their spouses. There are eight hemodialysis units in Bandung City, West Java Province of Indonesia. Three hemodialysis units from three different hospitals were purposively chosen as the research setting, based on the following conditions:

1. The first hospital was the biggest government hospital, a teaching hospital, and a top referral hospital in West Java Province. However, the number of hemodialysis patients was limited in the hospital, and to meet the minimum sample size required for this study, the researcher needed to extend recruiting the sample to other hemodialysis units.
2. The second and third hospitals provided the additional couples to meet the required minimum sample size for the study. Their location was also considered and accepted, as they are in close proximity to the larger teaching hospital.

3. These three hospitals are a clinical practice field for nursing students, medical students, and other health care professionals in Bandung.

At the time of this study, the hemodialysis unit of Hasan Sadikin Hospital provided hemodialysis treatment to approximately 60 patients weekly with a 10-bed capacity. The hemodialysis units of Muhammadiyah and Al Islam Hospitals were smaller than the hemodialysis unit of Hasan Sadikin Hospital. Both hospitals had a 5-bed capacity providing hemodialysis service to approximately 30 patients a week, with two working -shifts for each hospital. Those patients who received hemodialysis were examined by a nephrologist before receiving regular hemodialysis. During hemodialysis, those patients were assisted by nurses, under the supervision of a trained physician.

## **Sample**

### **1. Sample Size**

The estimated number of subjects recruited for this study was determined by power analysis. In quantitative studies for testing the significance of a bivariate linear relationship, power analysis is useful to ascertain the significance of the study findings. The necessary sample size was estimated at a level of significance ( $\alpha$ ) of .05, a power of test ( $1-\beta$ ) of .80, and an estimated effect size ( $\gamma$ ) of .30, which was categorized as a medium effect. Alpha of .05 was the accepted minimum level of significance; 1-beta .80 was the accepted minimum power of the test, and a gamma of .30 was the medium estimated effect size that is usually found in nursing studies. The effect size could also be estimated based on previous related studies (Polit & Hungler, 1999). Analyzing results from previous studies that examined the relationships between coping style and quality, the estimated effect size in this study saturated to state at medium level of .30

(Lok, 1996; Meifen, 1997). To examine the relationships between two variables using the Pearson correlation coefficient needs a sample size of 88 subjects (Polit & Hungler, 1999). The number of subjects involved in this study was 91 patients and 91 spouses, which satisfied the minimum required sample size as determined by using power analysis to examine the relationships between coping and quality of life.

## **2. Recruiting Criteria**

Subjects who met the eligibility criteria were recruited for this study. The criteria were as follows:

### **Patients' inclusion criteria:**

- 1) Aged 17 years or older, which is, according to Indonesian law, the age when one is considered an adult.
- 2) Married and living with their spouses in the same household
- 3) Able to communicate and read Indonesian language
- 4) Having received hemodialysis for not less than one month, to avoid data collection during the 'honeymoon period', which occurs 1 to 3 weeks after the start of dialysis. During this period the patient shows a marked improvement, a relative increase in optimism and a relative lack of the perceptions of limitation associated with the treatment (Reichman & Levy, 1972).

### **Spouses' inclusion criteria**

- 1) Age 17 years or older, being either a husband or wife of the patient.
- 2) Living with the patient and having taken care of the patient for at least one month to ensure that she/he knows well the situation in the family regarding the patient's condition.

2) Able to communicate and read Indonesian language

### **3. Sampling Design**

Subjects in this study were recruited using purposive sampling from three hemodialysis units of three hospitals in Bandung, West Java Province of Indonesia.

#### **Instrumentation**

The instrument for data collection in this study was comprised of two sets of questionnaires, one for the patients and another for the spouses. Each set was composed of three parts: the Demographic Data and Health Information Form (DDHIF), the Jalowiec Coping Scale (JCS), and the World Health Organization Quality of Life-BREF (WHOQoL-BREF). The instrument was designed for self-administration. The patients and spouses were asked to complete the questionnaires by themselves. The questionnaire could be taken back home and returned to the researcher at the following hemodialysis visit.

##### **(1) Demographic Data and Health Information Form (DDHIF)**

Demographic Data and Health Information Form was used to collect personal information on the subjects. It included age, gender, religion, educational level, occupation, level of income, way of treatment payment, family relationships, and present health information.

##### **(2) Jalowiec Coping Scale (JCS)**

The original Jalowiec Coping Scale is a 40-item self-reporting instrument developed in 1979 by a registered nurse doctoral student at the University of Illinois, Chicago Medical Center. It was developed based on the Lazarus & Folkman theory of

stress, appraisal, and coping (Jalowiec & Powers, 1981). This instrument assesses either general coping behavior or situation-specific coping. The JCS yields 15 problem-oriented (P) and 25 affective-oriented (A) coping strategies. Subjects were asked to rate each item on a 5-point scale (1=never: 5=almost always). The total coping score had a range from 40 to 200, the affective-oriented coping strategies had a range from 25 to 125, and the problem oriented score had a range from 15 to 75. Higher scores denoted more often used coping strategies.

The JCS has been assessed various times for stability and homogeneity reliability. Test-retest reliability has been checked by several nurse researchers. Jalowiec et al. (as cited in Wegmann, 1997) reported the reliability coefficient of the total scale was 0.79; 0.85 for the problem-oriented coping sub-scale and 0.85 for the affective-oriented coping sub-scale. The homogeneity or internal consistency reliability of this instrument was determined by Cronbach's coefficient alpha. Data were collected from 141 subjects, as reported by Jalowiec and Powers (as cited in Wegmann, 1997)). A coefficient alpha of 0.85 was obtained, which indicates an overall homogeneity of the content of this scale. Construct validity of the JCS was tested by a panel from the Midwest Nursing Research Society who were familiar with the stress and coping literature and a high percentage of agreement was found (Jalowiec, 1981).

### **(3) World Health Organization Quality of Life-BREF (WHOQoL-BREF)**

The 26 items of the WHOQoL-BREF instrument is comprised of 2 items to assess the overall quality of life and general health, 7 items on physical health, 6 items on psychological health, 3 items on social relationships, and 8 items on the environmental dimension. All items in the WHOQoL-BREF are rated on a 5-point scale. Four types of scales were used to assess intensity, capacity, frequency and evaluation. The items

scores were scaled in a positive direction, with a higher score denoting a higher QoL. The negatively-worded items were reverse-scored before calculating the total score. The possible total WHOQoL-BREF ranged from 26 to 130. The corresponding items in each dimension of the WHOQoL-BREF instrument are presented in Appendix D.

The psychometric properties of the WHOQoL-BREF have been investigated internationally (Nelson & Lotfy, 1999). Using data from 23 countries (n=11,830), respondents were sampled from the general population and from primary care settings serving patients with physical and/or mental disorders. On the basis of the global data, all domains demonstrated good internal consistency, with Cronbach's alphas of 0.82, 0.81, 0.68 and 0.80 for domains 1,2,3 and 4 respectively. The lower value for domain 3 might be attributed to the smaller number of constituent items. These and other global analyses have indicated that the WHOQoL-BREF has good psychometric properties (Nelson and Lotfy, 1999).

### **1. Validity and Reliability of the Instrument**

Although the original JCS and WHOQoL-BREF instrument have been assessed for validity and reliability, use in different cultures and settings of populations requires reassessment of both validity and reliability. For this study, the original instrument was translated into the Indonesian language by using a back translation technique, and the Indonesian version of the instrument was tested for both validity and reliability.

First, a panel of three Indonesian instrument evaluators was asked to assess the content validity of the instrument. These evaluators comprised one faculty member from the Faculty of Nursing, University of Indonesia, one faculty member from the Faculty of Medicine, Padjadjaran University, and one senior nephrology nurse from Mrs. Habibie

Hospital for kidney patients, in Bandung Indonesia. Each item was evaluated for its degree of relevance with its related construct as well as the cultural background of the target subject. A scale of 1 to 4, with 1 meaning not relevant and 4 meaning very relevant was applied to determine the degree of relevance. The final rating by the evaluators was 88% for the JCS instrument and 93% for the WHO-Bref Qol instrument, which is considered as good content validity (Polit & Hungler, 1999). Four items (number 7, 8, 9, and 31) of the JCS were modified based on suggestions of the evaluators. "Chewing gum" (no 7 of the JCS) was dropped because it was uncommon for Indonesian people. "Drinking alcoholic beverages" (no 8 of the JCS) was considered for exclusion if the subjects were Muslim, however the researcher preferred to keep this item because this study addressed subjects regardless of their religion. "Taking drugs" (no 9 of the JCS) was modified by adding an explanation and giving an example in order to be understood by the subjects. Most Indonesian people are not familiar with the terms "Meditate; use yoga, biofeedback, or 'mind over matter'" (no 31 of the JCS), therefore these terms were substituted with other terms more familiar to Indonesian people which had an equal meaning to the original phrase. For instance, the term "dzikir" in Islamic teaching is equal to 'meditation' (Tariq, 2000). An evaluator suggested using the term 'relaxation' rather than 'yoga and biofeedback'. This suggestion was accepted and incorporated.

The reliability of the translated instrument was analyzed for internal consistency using the 'coefficient alpha (Cronbach's alpha)' method. This method is the most widely used for testing the internal consistency or homogeneity of this type of instrument (Polit & Hungler, 1999). Data was collected from 20 subjects during a pilot study. The coefficient reliability of the JCS total scale was 0.87; 0.83 for affective focus coping

sub-scale and 0.84 for the problem solving focus coping sub-scale. A coefficient alpha of 0.90 was obtained for the total scale of the WHO-Bref Qol instrument, with coefficient alpha of 0.76, 0.75, 0.46, and 0.81 for physical health domain, psychological health domain, social relationships domain, and environmental domain respectively. The lower value for social relationships domain might have been due to the smaller number of constituent items. The coefficient alphas of the JCS and the WHO QoL-Bref indicated that the instruments demonstrated good internal consistency.

## **2. Translation of the Instrument**

To be used in the data collection process, the English version of the instrument was translated into the Indonesian language using the “translation-back-translation” technique (Sartorius & Kuyken, 1994), as follows:

- 1) One bilingual translator with the ability to use both English and Indonesian languages translated the instrument into the Indonesian language.
- 2) The translated instrument was then back-translated into the original language by another bilingual translator.
- 3) Five subjects representative of the study population and unfamiliar with the instrument tested the document by reading through it, looking for aspects of the translation, which were not clearly comprehensible or were ambiguous in the Indonesian language. They were asked to comment on whether the style of questioning and format of the questionnaire were acceptable.
- 4) A bilingual panel (the first and the second translators) then considered the comments of the subjects and incorporated them into the translated document, ensuring that the document was grammatically correct in the target language.



## **Data Collection Procedures**

Data were collected after the research proposal was approved by a thesis committee of the Faculty of Nursing, Prince of Songkla University, and when the Directors of the three hospitals where the study would take place, agreed to the data collection. The researcher met with the head nurses of the three-hemodialysis units to explain the purpose of the study. After the patients agreed, review of the patients' medical records was carried out to obtain the required information regarding the patients' health profile and hemodialysis records. Subjects who met the criteria were approached about participating in the study. The researcher explained the purpose of the study to patients and spouses. Patients and spouses who agreed to participate were then required to give verbal consent and the researcher then explained how to complete the questionnaires. To ensure that there was no misunderstanding of questions by patients, each patient was counterchecked verbally by the investigator on their interpretation and the rating for three questions from the completed questionnaire. If the subject so requested, personal explanation of the questionnaire to the individual subject was an alternative. The researcher asked the subjects to complete the questionnaire. In case the subjects were unable to complete the questionnaire while they underwent hemodialysis, they could complete it in their home and return it back to the researcher on the following hemodialysis visit. Ninety-one patients and spouses were recruited from the three hemodialysis units from November 1<sup>st</sup>, 2003 until January 31<sup>st</sup>, 2004.

## **Ethical Considerations**

The identities of the subjects were hidden, and codes substituted. Approval was obtained from the Research Ethics Committee of the Faculty of Nursing, Prince of

Songkla University and the Directors of the three hospitals where this study took place. All the subjects were given both written and oral information about the study. Informed consent was verbally obtained from the subjects participating voluntarily.

### **Data Analysis**

Data was analyzed using SPSS (Statistical Package for the Social Sciences) for Windows version 10. The analysis included descriptive statistics and inferential statistics. Descriptive statistics were used for presenting demographic characteristics, coping strategies, and quality of life of subjects, described in terms of frequency, percentage, range, means, and standard deviation for demographics characteristics, health characteristics, coping strategies, and quality of life.

Preliminary testing was done to meet the assumptions of parametric testing prior to running the parametric tests. Pearson's product-moment correlation statistic ( $r$ ) was calculated between the sub scores of affective focus coping, problem solving focus coping, the total score of Jaloweic Coping Scale (JCS) and the total score of WHO-Bref quality of life, to examine the relationships between coping strategies and quality of life.