CHAPTER 3

RESEARCH DESIGN AND METHODOLOGY

Design of the Study

This is an analytical descriptive study. The aims of the study were to explore sleep quality of elderly during hospitalization and to describe factors perceived by hospitalized elderly as sleep interference.

Population and Setting

The target populations in this study were the hospitalized elderly medical patients. The H. Adam Malik Hospital and the Dr. Pirngadi Hospital in Medan, Sumatera Utara Province of Indonesia were chosen to be the settings for this study. The two hospitals were purposely selected based on the conditions that they have medical units with an adequate number of elders to be studied. Also, these were teaching hospitals as well as referral centres for patients that provide services as well as facilities for elderly patients with medical illnesses.

Sample

1. Sample Size

The required sample size was calculated based on the data obtained from the H. Adam Malik Hospital and the Dr. Pirngadi Hospital annual reports of 2001. In order to estimate represented study population, a sample of 10% of the total population

was considered as minimum for a descriptive study (Dempsey & Dempsey, 1992; Nieswiadomy, 1987).

Based on the hospitals annual report in 2001, the total elderly medical population for both hospitals in the previous year was 1,876. So, 10% of the total population would become 187 hospitalized elderly patients. As this study used subjective data, the subjects must be conscious, well oriented and willing to participate. To make sure that there would be enough patients meeting these criteria, the researcher decided to reduce the number to 100 cases.

2. Recruitment of Subjects

A 100 hospitalized elderly were purposely selected from those admitted to the general medical ward of the two hospitals. The inclusion criteria included:

1) Being 60-years old or above

2) Fully conscious, well oriented and able to communicate verbally using Indonesian language

3) Willing to participate in the study

4) Has been hospitalized for at least 48 hours

5) Not undergone any surgical procedure

Instruments

1. The Questionnaires

The research instruments of the study were questionnaires, which were used as a guide during patient interviews. They were designed to ascertain personal data, health

information including health status and sleep history, sleep quality, and the factors interfering with sleep.

1.1 The Personal Data Questionnaire (PDQ)

The Personal Data Questionnaire (PDQ) sought information on age, gender, race, education, religion, marital status, occupation, income, terms medical payment, home location, residence, number of people living with the same household, and number of the patients in one room.

1.2 Health Information Questionnaire (HIQ)

The health information questionnaire ascertained medical diagnosis, number of admissions, having chronic illnesses, use of stimulating substances at home and in the hospital, medications being used at home and in the hospital, and sleep history.

1.3 The Sleep Quality Questionnaire (SQQ)

The researcher designed the sleep quality questionnaire (SQQ) based on the Pittsburgh Sleep Quality Index (PSQI) proposed by Buysse et al. (1988) and the St. Mary's Hospital (SMH) sleep questionnaire (Ellis et al., 1981). These questionnaires were suitable for the study because they were designed to measure sleep quality in clinical populations and it is possible to assess perceived sleep quality for elderly medical patients (Buysse et al., 1988; Ellis et al., 1981).

The PSQI consisted of 19 items; the items were combined to form seven sleep parameters which have a range of 0 – 3 points. Three of those sleep parameters; sleep latency, total sleep time and daytime dysfunction were selected to be a part of the sleep quality questionnaire. The St. Mary's Hospital (SMH) sleep questionnaire consisted of 14 items; it examines four sleep parameters which have a range of 2 – 8 points, and some of them are open ended questions. From this questionnaire number of awakenings, feeling

refreshed at morning awakening, depth of sleep, and satisfy with sleep were selected to be items of the sleep quality questionnaire.

To be appropriate for the elderly population in medical units, the items in sleep quality questionnaires were constructed close-ended with four choices for response yielding a score of 0 – 3. The sleep quality questionnaire (SQQ) consisted of 7 items seeking data on total sleep time, sleep latency, number of awakenings, feeling refreshed after awakening, depth of sleep, satisfaction with sleep, and daytime dysfunction. The possible score obtained from 0 – 21. The higher the total scores the better the sleep quality.

In addition, daytime naps, subjective sleep quality and home environment interfering with sleep were assessed to identify overall sleep quality as perceived by the subjects. The subjects were asked if they took a nap more than 60 minutes, considered themselves as poor sleepers and whether they had experienced to the home environment sleep interference.

1.4 Factors Interfering with Sleep Questionnaire (FISQ)

The researcher developed the FISQ questionnaires from Laempet's (2001) and Yilan's (2000). The FISQ consists of 33 items including physiological factors (14 items), routine nursing interventions factors (6 items), and environmental factors (13 items). Each item ascertains the subjects experience to the factors and perception of these factors interfering with their sleep.

There were two steps in administering the FISQ. First, the subjects were asked whether he or she had experienced or been exposed to the given condition of that item. If yes, the subject would be required to rate the extent to which the certain condition or event he or she might experiencing interfered his or her sleep. The response to the second

question yields a score ranging from 0 to 3. A score 0 meant no interference, 1 meant little interference, 2 meant moderate interference, and 3 meant very much interference. The total possible score of perceived sleep interference ranged from 0 to 99. A higher total score indicated a higher degree of sleep interference.

In terms of psychological factors, the researcher adopted the anxiety and depression scale from the Hospital Anxiety and Depression Scale (HADS) (Zigmond & Snaith, 1983). This questionnaire had been developed as a Thai version of the Hospital Anxiety and Depression Scale (HADS) and published as an abstract in an English version (Nilchaikovit, Lotrakul, & Phisansuthideth, 1996). This HADS consisted of 14 items, with 0 – 3 scales respectively. It was used to measure anxiety (7 items) and depression (7 items). The internal consistency of Cronbach's alpha coefficient was 0.86 for anxiety and 0.83 for depression sub scale.

There were two steps to complete this questionnaire. First, the subject responded to each item yielding a score of 0 – 3 depending on the subject is choice of possible response. The possible sums of the score for either anxiety or depression subscale ranged from 0 – 21. A score of more than 11 for each subscale indicated the presence of anxiety or depression.

2. Validity and Reliability

2.1 Validity of the instrument

The sleep quality questionnaire (SQQ) and the factors interfering with sleep questionnaire (FISQ) were analyzed for content validity by three experts. Two experts were from the Faculty of Nursing and one expert from the Faculty of Medicine, Prince of Songkla University. The researcher modified the contents based on the experts'

recommendations. Furthermore, an Indonesian translator translated the English version of the SQQ and the FISQ to Indonesian language. Back translation technique was conducted by two bi-lingual Indonesian experts, who were not involved in the first translation to assure the accuracy of the translation. Discrepancies between the two versions were identified and the procedure was repeated until problems were resolved.

2.2 Reliability of the instrument

The reliability of the instruments was tested on twenty hospitalized elderly. Test–retest procedure was used for testing reliability of each sleep parameter using Pearson correlation coefficients. The researcher interviewed the subjects twice on the same day at intervals of 9 to 12 hours.

The test–retest correlation coefficient for sleep parameters (total sleep time, sleep latency, number of awakenings, feeling refreshed at the morning awakening, depth of sleep, satisfaction with sleep, and daytime dysfunction-sleepiness) were .96, .89, .94, .85, .98, .92, .83, respectively. In addition, Cronbach's alpha coefficient of SQQ was computed to determine internal consistency. The coefficient alpha of .89 was obtained.

The researcher asked two trained raters to independently rate the response of the patient to each item of FISQ. Interrater-reliability test was used for testing FISQ items; the subjects were exploring or exposed particularly the factors using Pearson correlation coefficients. The reliability coefficients exposures of physiological, routine nursing interventions and environmental factors varied from .89 to 1, .88 to 1, .76 to 1, respectively. A reliability coefficient of 1 for perception of physiological, routine nursing interventions and environmental factors were obtained.

To assess internal consistency of hospital anxiety and depression scale (HADS), in this study used Cronbach's coefficient alpha. The results of coefficient alpha were

found to be .81 for the 7 items relevant to anxiety and .76 for the 7 items relevant to depression.

3. Protection of Human Rights

Prior to data collection, the prospective subjects were informed about the purposes of the study. The researcher informed them that their participation in this study was voluntary and should bring no harm towards the subjects physically and psychologically. The subjects had freedom to control their own activities and the right to decide whether they would participate in or withdraw from the study. The prospective subjects were notified that their responses would be kept confidential and their identity would be concealed.

They were told that they would be interviewed twice. It took about 20 to 30 minutes for each interview. During the interview the subjects had a right to postpone the interview as well as withdraw from the study. Prospective subjects who agreed to participate in this study had to give a verbal consent.

Data Collection Procedures

The researcher collected the data at the H. Adam Malik Hospital and the Dr. Pirngadi Hospital in Medan Sumatra Utara Province of Indonesia during January to March, 2003. The procedures were as follows:

Preparation phase

Permission to conduct this study was obtained from the researcher's thesis proposal committee Faculty of Nursing of the Prince of Songkla University. A letter from the Dean of the Faculty of Nursing of the Prince of Songkla University was sent to the

Directors of the H. Adam Malik Hospital and the Dr. Pirngadi Hospital to obtain provisional permission for data collection.

Because of a large number of sample sizes (100 patients) and data collection conducted in two hospitals, the researcher selected two research assistants to assist in data collection. They were staff nurses employed at the two hospitals. Training was conducted before data collection to ensure the reliability of the sleep quality questionnaire (SQQ) and the factors interfering with sleep questionnaire (FISQ). The researcher explained the purpose of the study and step in data collection. Under the research supervision, the two assistants performed data collection using the questionnaires for at least 2 cases. Any mistakes was connected and explained.

Data collection phase

Potential subjects were identified at the general medical units and assessed as to whether or not they met the inclusion criteria. Those who met the inclusion criteria were given an explanation of the purposes and methods of the study, asked to participate in the study, and were given the right to refuse to participate in the study.

The researcher or research assistants started collecting data after obtaining verbal commitment or a consent of the subjects. At the first meeting, the subjects were interviewed at any available time to obtain the subject's personal data, health information, and sleep history. The researcher or research assistants made an appointment with the subjects to see them early next morning in order to assess the subject's sleep on the previous night and factors interfering with sleep.

Data Analysis

1. Frequency and percentage were used to describe personal data, health information including health status, sleep history and sleep quality.

2. Frequency, mean, standard deviation, and range, were used to present distribution of sleep quality score and score of factors interfering with sleep.

3. Frequency and percentage were used to describe the factors interfering with sleep; physiological, routine and nursing interventions, and environmental factors.

4. Additional analysis, paired t-test were used to test the difference between the subject's sleep quality at home and during hospitalization.