

## **CHAPTER 3**

### **METHODOLOGY**

The objectives of this study were to describe the level of social support perceived by family members of the head injured patients and the level of stress appraised by them, and to ascertain the relationship between social support and stress among family members of the head injured patient. In this chapter, the design of the study, population, sampling, sample size, instrumentation, data collection procedure and data analysis method were described.

#### **Design of the study**

A descriptive correlational design was utilized in this study to describe the level of social support and stress among the family members of the head injured patient, and to ascertain the relationship between social support and stress among family members of head injured patient.

#### **Population and sample**

The target population of this study were the family members of the head injured patient admitted to three teaching hospitals of Sun Yat-Sen University of Medical Science. Purposive sampling was used. Criteria for eligibility included:

Criteria for the head injured patients:

1. Being admitted in the hospital at least three days.
2. GCS score ranged from 3 to 12.

Criteria for the family members of the head injured patients:

1. Age of 18 years old and older.
2. Being able to communicate in Chinese language.
3. Willing to participate in this study.

### **Sample**

Sample size was 58 subjects who met eligible criteria during November 1999 to January, 2000. Purposive sampling method was used to select the subject.

### **Instrumentations**

In this study, the instrument was a questionnaire composed of three parts:

#### **I. Demographic data record form**

Demographic data record form included two parts. Part 1 has been developed by the researcher for collecting the subjects' general information including gender, age, educational background, marital status, the relationship to the head injured patient, family patterns, occupation, family income, past experience of taking care of serious illness or injury of the family member, and the most supporter. Part 2 was used to collect the head injured patient's general information including gender, age,

educational background, marital status, occupation, ways of hospital payment, cause of injury, severity of head injury, operation, and duration of injury.

## II. Modified Personal Resource Questionnaire (MPRQ-85)

The original PRQ-85 part 2 is a 7-point Likert scale self-administered questionnaire developed by Brandt and Weinert (1981). The instrument consisted of 25 items. The authors reported a strong internal consistency reliability coefficient ranging from .87 to .93 in five groups of subjects (149 adults, white middle-class spouses with multiple sclerosis; 77 low-income mothers; 120 elderly university alumni; 94 couples expecting their baby; and 100 adult university alumni) (Weinert & Brandt, 1987). It was also found that the construct validity was significantly related to the mental health measures and to personality indicators in a sample of 100 adults obtained from a university alumni list. Low-to-moderate inverse relationship were found between perceived support and the mental health measures of anxiety ( $r = -.42, p < .001$ ). A low inverse relationship ( $r = -.28, p < .001$ ) was found between the personality measures of neuroticism and perceived support. The Criterion Validity Index ( $r = .93$ ) of PRQ - 85 part 2 was obtained by correlating between Cost and Reciprocity Index (CRI) among the sample of 100 adults obtained from a university alumni list (Weinert & Tilden, 1990).

Yan (1997) modified PRQ-85 part 2 from 7-point to 5-point Likert scale ranging from strongly disagree (1) to

strongly agree (5). Reliability of this instrument was tested among 15 Chinese COPD patients. The value of Cronbach alpha was .82. In this study, Modified PRQ-85 part 2 was used to measure the perceived social support of the subjects. When calculating the score, the items of negative statements including items No. 4, 7, 10, 16, 17, 23 were reversing recorded and calculated. The total scores range from 25 to 125. The total score was categorized into three levels that are low (25-58), moderate (59-90), and high level (91-125) of social support. The high score indicated high social support perceived by the family members of the head injured patients.

### **III. Stress Appraisal Questionnaire (SAQ)**

SAQ was developed by the investigator based on Lazarus and Folkman's stress and coping model. It was a 5-point, 16-item Likert scale. The SAQ was used to measure the level of stress appraised by the subjects. Each item was rated from 1 = strongly disagree to 5 = strongly agree. The total score was obtained by the sum of the score of each item. It ranged from 16 to 80. The total score of the instrument was categorized into three levels: low (16-37), moderate (38-59), and high (59-80).

### **Validity and reliability**

The PRQ-85 part 2 had established high construct validity and Criterion Validity. Yan (1997) only modified the scoring method of PRQ-85 part 2. Therefore, the test for the content validity was not needed. The MPRQ-85 part 2 had

been translated into Chinese, and also had been back translated by bilingual specialist and checked by another bilingual specialist. The content validity of the English form of the SAQ was validated by a panel of five experts of Chiang Mai University, two in the field of neurosurgical nursing and three specialized in concept of stress. The Content Validity Index (CVI) score of this study was 0.89 and was at acceptable level. After that, the questionnaire was translated into Chinese language by the investigator. Three Chinese nurses who were experts both in nursing and the English language were asked to examine the face validity of the Chinese version of the SAQ using the back translation method. Their suggestions were accepted in revising the Chinese version of SAQ.

Reliability of the MPRQ-85 part 2 and SAQ of Chinese version were tested among 10 family members of the head injured patients having similar characteristics as the study subjects before data collection. Cronbach's alpha was calculated for internal consistency. The value of Cronbach alpha of MPRQ-85 part 2 was .92, and the value of Cronbach alpha of SAQ was .84.

#### **Data collection procedure**

1. The investigator requested the permission from the nursing administration department of the three teaching hospitals of Sun Yat-Sen University of Medical Science to conduct the study.

2. Subjects who met criteria in the surgical ward and intensive care unit of the three teaching hospitals of Sun Yet-Sen University of Medical science on the third day were contacted to give the consent to include in the study when the head injured patient admitted in surgical ward and intensive care unit.

3. Subjects were explained the purpose of the study, the confidentiality assurance, voluntary participation, and their right to withdrawal at any time from the study.

4. The investigator obtained verbal consent from every subjects and then asked the subject to fill out the questionnaires. The investigator sits nearby the subject in order to clarify the items when needed.

5. The investigator carefully checked for missing items, and asking family members of the head injured patients to complete all of the questions.

6. The family members of the head injured patients were thanked for their participation.

#### **Protecting of human rights for the family members of the head injured patients**

1. The investigator used a coding system to identify each subject.

2. Subjects were informed about confidentiality and harmlessness in any circumstance.

In order to minimize the bias, only the investigator conducted the data collection. It took about 30-50 minutes for each subject to complete the questionnaire.

**Analysis of data**

All data were analyzed using the Statistical Package for Social Science (SPSS) for Windows. The analysis was divided into the following parts

1. Descriptive data including frequency, range, percentage, mean and standard deviation were used to describe the demographic characteristics of subjects and the head injured patients.

2. Frequency, range, percentage, mean, and standard deviation were used to analyze the scores of social support and stress.

3. Pearson product-moment correlation was used to test the relationship between social support and stress. The magnitude of relationship was determined by the following criteria (Burns, Susan, & Grove, 1995) :  $r \leq .30$  = Slight,  $r = .31 - .50$  = moderate, and  $r > .50$  = strong.