

## **CHAPTER 3**

### **METHODOLOGY**

This chapter presents the methodology for this study. It is divided into six sections:

1. Research design
2. Population, sample, and setting
3. Instruments, validity and reliability of instruments
4. Ethical consideration
5. Data collection procedures
6. Data analysis

#### **Research design**

The researcher used descriptive design to explore levels of self-care, to identify levels of health state, types of health care system, levels of adequacy and type of received information resources, and to determine the relationships between health state, types of health care system, levels of adequacy of received information resources, and self-care among women who had undergone mastectomy.

#### **Population, sample, and setting**

The target population in this study was women who had undergone mastectomy, and who attended the medical services at outpatient departments of three hospitals in Beijing, People's Republic of China. These three hospitals were Oncology Hospital of Chinese Academy of Medical Science located in southeast of

urban area in Beijing; Beijing Tongren Hospital, which is affiliated to Capital Medical College and situated in the center of Beijing; and Beijing Oncology Clinical School, Beijing University, which is located in western suburb of Beijing. The three hospitals are situated in three different areas in Beijing and affiliated to three different medical educational institutions. These three institutions are mainly general medical educational institutions in Beijing. Among the three hospitals, two are the biggest oncology hospitals in Beijing.

In this study, sample size was determined by using power analysis. In a quantitative study to examine the correlation between two variables, power analysis was appropriate to determine the significance of the study findings by level of significance (0.05), expected power of 0.80 (Polit & Sherman, 1990). Earlier study had shown that a medium effect size should be estimated when the effect was substantial (Cohen, 1977 cited in Polit & Sherman, 1990). In a correlation study between two variables, the value of medium effect size was .30 (Cohen, 1977 cited in Polit & Sherman, 1990). In Zeng's study of "Family support and self-concept of chronic obstructive pulmonary disease patients" (2000), the same value of medium effect size had been also tested. Therefore, according to the objective of this study, medium effect size of .30 should be chosen. Through checking from the table of power analysis about population correlation coefficient (Polit & Hungler, 1999), the sample size in this study was 95.

The 95 subjects were recruited with the following criteria:

1. Chinese woman aged 18 and older with diagnosis of breast cancer in stage I, II or III
2. Had undergone modified radical mastectomy and were already discharged

from hospital

3. Were fully conscious and communicative
4. Were able to speak and understand Chinese
5. Were willing to participate in this study

However, women who had breast reconstruction after modified radical mastectomy was excluded because the reconstruction will affect the activity of modifying self-concept (& self-image) in accepting themselves after mastectomy.

### **Instruments**

The instruments that were utilized by researcher in this study and as a guide during interviewing patients includes:

Part A: Demographic Data Assessment Form (DDAF)

Part B: Self-Care Questionnaire (SCQ)

Part C: Information Resources Questionnaire (IRQ)

#### **Part A: Demographic Data Assessment Form (DDAF)**

The Demographic Data Assessment Form (DDAF) developed from the Basic Conditioning Factors in Orem's general theory of nursing (2001) subsumed four sectors: personal data, health and illness history, health state, and health care system.

1. The personal data consisted of 11 items. These included patient age, race, religion, marital status, educational background, occupation, monthly average income, medical payment, home location, numbers of family member who stayed with the patient, and type of family.

2. Health and illness history was composed of 5 items. These included medical diagnosis, stage of breast cancer, time period after surgery / mastectomy,

medications taken after mastectomy and current use.

3. The health states incorporated health states perceived by patients and health states assessed by professionals. These were measured by two questionnaires, but different in terms of scales. A numerical value was designed to measure levels of health states perceived by patients, in which each response might be described from 0, poor health, to 10, excellent health; while another questionnaire modified from functional health patterns (Wilson & Giddens, 2001) included 24 items covering physical symptoms, psychological problems and social activities, and was composed of two responses of "Yes" and "No" in each item. The "Yes" was coded by zero, which meant that patients assessed by professionals had problem with item mentioned in the questionnaire; the "No" was coded by one, which meant that the patients had no problem with the item mentioned in the questionnaire. The possible score of the questionnaire was from 0 to 24.

4. The types of health care systems included health care systems that women had accessed in general and after mastectomy. Questions regarding access to health care system after mastectomy were interpreted by using categorized scores 1 and 2 (1=biomedical health care system only; 2= combined biomedical and alternative health care systems). However, the categorized scores were re-coded as 0 meant biomedical health care system, and 1 meant a combination of biomedical and alternative health care systems when analyzing the data.

#### **Part B: Self-Care Questionnaire (SCQ)**

The self-care questionnaire was modified from the Self-Care Behavior Questionnaire (SCBQ) developed by Hanucharunkul (1988). The original SCBQ had 47 items. The first 35 items for cancer patients receiving radiotherapy, the rest for

cervical or head/neck cancer patients respectively. In this study, the Self-Care Questionnaire (SCQ) was set up to be suitable for breast cancer patients. The SCQ kept 17 items related to health-deviation self-care requisites, then added 8 items for women who underwent mastectomy. Therefore, the final number of items of SCQ was 25. It was divided into 5 dimensions based on Orem's general theory of nursing (2001):

Dimension 1, item 1-4, represented the items of seeking appropriate medical assistance;

Dimension 2, item 5-10, represented the items of being aware of and attending to the effects and results of mastectomy;

Dimension 3, item 11-14, represented the items of choosing medically prescribed therapies and management for side effects;

Dimension 4, item 15-20, represented the items of modifying self-concept (and self-image) in accepting after mastectomy;

Dimension 5, item 21-25, represented the items of learning to live with effects of breast cancer and mastectomy and the related medical measures.

The score of SCQ was divided into four levels: 0 = activity never performed; 1 = activity sometimes performed; 2 = activity often performed; 3 = activity performed regularly or always.

The possible range of score was 0-75. It was categorized into three groups by norm method (Polit, Beck, & Hungler, 2001):

If the score was less than  $\bar{X} - SD$ , it meant low level of self-care;

If the score was between  $\bar{X} \pm SD$ , it meant moderate level of self-care;

If the score was greater than  $\bar{X} + SD$ , it meant high level of self-care.

### **Part C: Information Resource Questionnaire (IRQ)**

The IRQ was modified from Casselith, Zupkis, Sutton-Smith, & March (1980). It involved two sectors: adequacy levels of subjects' received information, and ranking significance of received information sources.

Types of received information consisted of 10 items. These were extent of the disease, chances of cure and the prognosis, progress and duration of cure, type and all possible side-effects of conventional treatment, type and effect of alternative therapy, psychological effect of treatment, ways to prevent the recurrence of cancer, ways to maintain adequate nutrition, examples of cases with or without effective treatment, and effect of treatment on family/friend. The adequacy of received information of each item above was divided into three levels: 0 = never received; 1 = received but inadequacy; 2 = received and adequacy. The possible range of score was 0-20.

Sources of received information consisted of 10 channels: physicians, nurses, friends or relatives, brochures, medical journals or textbooks, popular science readings, television or radio programs, women's journals, newspapers, and Internet. Significance of these sources in self-care of postmastectomy women was ranked in order from 1 to 10.

### **Validity and reliability of instruments**

#### **1. Validity**

Three experts, who were in medicine, self-care, and surgical nursing, were requested to analyze a content validity of each questionnaire in the instruments. The content validity was assessed on the English version of the instruments.

To be used in the process of data collection, the instruments after analysis of the content validity were translated into Chinese version. The method of translation was conducted by using back-translation techniques and decentering. Brislin (1980 cited in Petpichetchian, 2001) said that back translation techniques and decentering were a translation process which ensured accuracy and culturally equivalent version of an instrument translated to another language. The back translation techniques in this study were acted as the following procedures:

1. The researcher translated the English version of the instruments that had been validated for content into a Chinese version.

2. One bilingual English-Chinese translator checked and corrected the first draft of Chinese version.

3. Another bilingual English-Chinese translator conduct back translation of the first draft of Chinese version into English version.

4. A linguist identified discrepancies in all items between original English version and English version back translated from the Chinese version. If there were discrepancies between the two English versions, the procedures of translation and back translation of the instruments among English-Chinese-English versions were repeated till there were consistency between the two English versions. However, if there were any differences in words, but they had the same meaning, for example, “influence” and “affect”; “restriction” and “limitation”, they were out of the scope of correction.

## **2. Reliability**

The reliabilities of SCQ and IRQ in this study were analyzed for internal consistency by using Cronbach’s alpha coefficients. The reliabilities of SCQ and IRQ

were tested by using Statistical Analysis System (SAS) version 8.0 for windows. The coefficient alpha (Cronbach's alpha) of reliabilities of SCQ and IRQ were .76 and .75 respectively. The coefficient alpha (Cronbach's alpha) of reliabilities of each dimension in SCQ are presented in Appendix C. According to Polit & Hungler (1999), the Cronbach's alpha of each questionnaire of at least .70 was expected to be considered as satisfactory and could be used in this study.

### **Ethical considerations**

(1) Permission from Ethics Committee of the Faculty of Nursing, Prince of Songkla University was obtained.

(2) Permission for data collection in this study was obtained from the Directors of the three hospitals, and each department in three hospitals that were mentioned in the data collection section about, such as nursing department, surgical department, out-patient department, and medical record department.

(3) Subject's willingness to be interviewed was considered as her consent. A verbal consent was given.

(4) Subjects were assured of their confidentiality and anonymity. Neither their name nor any identifying information would be revealed in the reports of the study, their names were coded by number, and they had freedom of withdrawal from the study at any time.

### **Data collection procedures**

Ninety-five subjects were interviewed for data collection by the researcher and two research assistants in each outpatient department of three hospitals in Beijing



from November to December 2003 by using the following processes.

(1) Permission for data collection was required from the thesis proposal committee, Faculty of Nursing, Prince of Songkla University (PSU). A letter from the Dean of the Faculty of Nursing was sent to the three hospitals where data collection was to take place. With permission from the director of each hospital, the researcher visited the head of the nursing department, then introduced the project to the heads of the surgical department, outpatient department, and medical record department, and asked for permission and cooperation.

(2) Identifying women who were eligible for this study following the criteria and reviewing patient chart.

(3) Every patient who met the criteria was approached at outpatient and inpatient of each hospital. Verbal explanation was given, such as purpose and significance of the study, recruitment of potential subjects, and verbal consent.

(4) The researcher interviewed by explanation of the questionnaire to the patient in order to assure their understanding of all questions and allowed time for them to answer the questionnaire correctly.

(5) The researcher trained a research assistant in Oncology Hospital of Chinese Academy of Medical Science, and Beijing Tongren Hospital respectively by explanation, reviewing, showing example, and practice using the instruments.

(6) The interview for each subject lasted for 20-40 minutes.

(7) The researcher and the two assistants checked and completed all questionnaires before leaving the subjects. If they explored an uncompleted questionnaire, they would ask it again till a completed response was acquired.

**Data analysis**

The Statistical Analysis System (SAS) version 8.0 for Windows was used for data management. According to the objectives of the study and the level of measurement of the variables, the procedures of data analysis were as follows:

(1) Descriptive statistics were used for demographic and other characteristics, including personal data, health and illness history, health state, health care system, information resources, and self-care. They were described in frequency, percentage, range, mean, and standard deviation.

(2) The relationships between health state, types of health care system, and adequacy of received information resources and self-care were analyzed by using the Pearson's product moment correlation coefficient.