

CHAPTER 3

Methodology

This chapter describes the methodology used this study. It includes description of research design, population and sample, setting, instruments, protection of human subjects, data collection procedure and data analysis.

Research Design

The study of dietary behavior, perceived benefits and barriers among persons undergone urinary tract stone removal in Malaysia was designed as descriptive correlational study.

Population and Sample

Population

The target population of this study was persons undergone any treatment of urinary tract stone removal and undergoing followed up at the urology clinic in a government hospital.

Sample

Samples for this study were persons undergone any treatment of urinary tract stone removal that had been followed up at the urology clinic of Kuala Lumpur Hospital (HKL), Tengku Ampuan Afzan Hospital (HTAA) and Selayang Hospital (HS) during data collection from July until September 2015.

Sample Size

Sample size was calculated by using power analysis. Since there is no previous similar studies were found, the researcher set the significant level at .05, a power of .80 and chose to use a medium effect size of .30 based on effect size convention as

recommended for nursing studies (Polit & Hungler, 2004), where 88 subjects were required for this study. Proportional method was used to determine total of samples that need to be recruited from each hospital. The sample selection excluded 15 subjects who had participated in reliability test in order to avoid repeated measure bias. No attribution rate was added as the researcher collected the data by own self. According to proportion of sample size, the number of nurses in each medical college hospitals was calculated as follows:

Table 3-1

Number of Population and Sample

Hospital	Population (approximately within 3 months)	Sample
HKL	60	38
HTAA	40	25
HS	40	25
Total	140	88

Sampling Method

Participants in this study were recruited by using purposive sampling method. Patients' medical record from outpatient clinic in selected hospital was reviewed to identify the potential subjects based on the inclusion criteria as follows:

Inclusion criteria:

1. Persons who after any treatment of urinary tract stone removal
2. Persons who aged more than 18 years old until 64 years old
3. Persons who attending follows up in urology clinic
4. Persons who are able to read, write and communicate in Malay language
5. Persons who agree to participate in this study voluntarily

Research Setting

This study was conducted at urology department in three hospitals under ministry of health Malaysia (MOH); Kuala Lumpur Hospital (HKL), Tengku Ampuan Afzan Hospital (HTAA) and Selayang Hospital (HS). These selected hospitals are among the main urology center located in Peninsular Malaysia. Samples were recruited from urology clinic in HKL. The data was collected in July till September 2015.

Research Instruments

The questionnaire was self-administered type and divided into four parts as follows; a Personal profile data, a Dietary Behavior Questionnaire, a Perceived Benefit Questionnaire and a Perceived Barrier Questionnaire (Appendix C).

Part I: Personal Profile Data

This part consisted of 13 questions on samples' personal information; age, gender, race, BMI (height and weight), marital status, occupation, educational level, monthly income, family history of stones, history of passing stones, history of illness, information on type of stone, source of information regarding stone prevention.

Part II: Dietary Behavior Questionnaire

The researcher developed a dietary behavior questionnaire based on existed instruments; FBC and the REAP and literature review (Gans et al., 2006; Murphy et al., 2001). This scale contains 18 items aimed at investigating frequency of food and fluids intake behavior recommended to prevent recurrence of urinary tract stone. Food behavior items addressed intake of calcium, oxalate, salty food, fruits and vegetables, protein intake (animal and protein). Meanwhile, fluids intake behavior composed types of typical fluid consumed by the persons who undergone urinary tract stone removal.

The response of the questionnaire was designed in 5 point Likert scale. Eight of the items had the following response categories:

- 5 = Daily
- 4 = 4 - 5 days per week
- 3 = 2 - 3 days per week,
- 2 = Monthly
- 1 = Never

The other 10 items had the following response categories structured in different ways;

- 5 = Never
- 4 = Monthly
- 3 = 2 - 3 days per week
- 2 = 4 - 5 days per week
- 1 = Daily

Score interpretations of this scale were as follows;

The total possible score of dietary behavior range from 18-90. The score were calculated and categorized into three levels; low, moderate and high based on possible score by using class interval method (Kirk, 2007).

- Low = 18 - 41.99
- Moderate = 42 - 65.99
- High = 66 - 90

Part III: Perceived Benefits Questionnaire

The perceived Benefits Questionnaire used in this study was developed by the researcher based on existed instruments; HEBBS, DBQ and literature review (Pawlak & Colby, 2009; Walker et al., 2006). This scale consists of 10 items. The items of the questionnaire were designed in positive statement to emphasize the benefit of the dietary behavior. All responses of the items were structured in 4 rating scale as follows;

- 1 = Strongly disagree,
- 2 = Disagree,
- 3 = Agree
- 4 = Strongly agree

Score interpretations of this scale were as follows;

The possible score range from 10-40. The possible score were calculated and categorized into three levels; low, moderate by using class interval method (Kirk, 2007).

Low = 10 - 20.99

Moderate = 21 - 30.99

High = 31 - 40

Part IV: Perceived Barriers Questionnaire

The perceived Barriers Questionnaire used in this study was developed by the researcher based on existed instruments; HEBBS, DBQ, Perceived barriers to Healthy Eating Questionnaire and literature review (Ismawati et al., 2014; Pawlak & Colby, 2009; Walker et al., 2006). This scale consists of 14 items. All responses of the questionnaire were structured in 4 rating scale;

1 = Strongly disagree,

2 = Disagree,

3 = Agree

4 = Strongly agree.

Score interpretations of this scale were as follows;

The possible score range from 14-56. The possible score were calculated and categorized into three levels; low, moderate by using class interval method (Kirk, 2007).

Low = 14 -28.99

Moderate = 29 - 42.99

High = 43 - 56

Back Translation of the Questionnaire

The Dietary Behavior Questionnaire, Perceived Benefits Questionnaire and Perceived Barriers Questionnaire were developed by the researcher in English version. The English versions were translated into Malay language and English by using back

translation method as recommended by Brislin, Lonner, and Thorndike (1973). The translation of the questionnaire was done as follows;

1. The original questionnaire was developed by researcher and advisory team in English language.
2. After complete content validity process, the researcher translated the questionnaire into Malay language.
3. The Malay version was translated back into English version by a person who expert in bilingual (Malay and English).
4. The comparison between a translated version and the original version were done. Final modification was done according to the suggestion from the translator.
5. The translated and the original version were compared by another person who expert in both language.
6. Finally, the set of Malay version questionnaire was applied for final data collection after discussion with advisory team.

Validity of the Instrument

A set of questionnaire consisted of a Dietary Behavior Questionnaire, a Perceived Benefit Questionnaire and a Perceived Barrier Questionnaire was tested for content validity. The questionnaire was submitted and reviewed by six experts in the area of study and questionnaire design (Lynn, 1986). The candidate of the validators in this study involved three persons from Malaysia (urology physician, urology nurse and nurse educator) and three persons from Faculty of Nursing, Chiang Mai University in Thailand (one person who expert in Health Belief Model and two nurse educators who expert in urology area). Individual items of content validity were judged and accepted as content if five or six of the reviewers agreed on those items. Each reviewer was rated each relevance items independently by using 4-point Likert scale; 1 = not relevant, 2 = somewhat relevant, 3 = quite relevant and 4 = very relevant. Items that received low rate were eliminated or modify based on reviewers' suggestion. I-CVIs minimum of 0.78 and CVI score 0.9 are considered acceptable (Polit & Beck, 2006).

Dietary Behavior Questionnaire.

Initially, this questionnaire contained of 20 items and was reduced to 18 items after reviewed by a panel of six experts. Two items were eliminated after received a low score below minimum score of 0.78. The new scale contains of I-CVI range from 0.83 to 1.00 and the total scale (S-CVI) was 0.94. Table 3.2 (table F1) showed the calculated I-CVI and S-CVI for the Dietary Behavior Questionnaire

Perceived Benefits Questionnaire.

Initially, this questionnaire contained of 12 items and it was reduced to 10 items after reviewed by a panel of six persons. Two items were eliminated after received a low score below minimum score of 0.78. The new scale contains of I-CVI range from 0.83 to 1.00 and the total scale (S-CVI) was 0.90. Table 3.3 (table F2) showed the calculated I-CVI and S-CVI for the Perceived Benefits Questionnaire.

Perceived Barriers Questionnaire.

Table 3.3 (table F3) showed the calculated I-CVI and S-CVI for the Perceived Barriers Questionnaire. Initially, this questionnaire contained of 19 items. However, five items were eliminated after received a low score below minimum score of 0.78 and as recommended by the experts. Thus, a new scale of 14 items contains of I-CVI range from 0.83 to 1.00 and the total scale (S-CVI) was 0.93.

Reliability of the Instrument

The final version of Malay questionnaires (Dietary Behavior Questionnaire, Perceived Benefit Questionnaire, and Perceived Barrier Questionnaire) were tested on 15 patients with the same characteristic of the study samples. Reliability test was computed and Cronbach's alpha for Dietary Behavior Questionnaire (.71), Perceived Benefit Questionnaire (.91), and Perceived Barrier Questionnaire (.73) were confirmed. The Cronbach's alpha 0.7 is acceptable for new instrument (DeVellis, 2003). The test-retest reliability for the Dietary Behavior Questionnaire, $r = .72$ ($p < 0.05$) was confirmed which showed a good temporal stability of the questionnaire.

Protection of Human Subjects

Ethical approval was obtained from the Research Ethics Committee, Faculty of Nursing in Chiang Mai University and Medical Research and Ethics Committee (MREC) Malaysia to conduct this study in selected hospitals. Permission to collect the data also was obtained from Head of Urology Department in these selected hospitals. After the potential participants were recruited based on inclusion criteria, they were given clear explanation regarding the nature, purpose, benefit and risk of this study. The participants were informed that their participation is completely voluntarily and they have right to withdraw from this study at any time without any effect to their treatment. The participants who are agreed to participate completed the consent form. The anonymity and confidentiality of participants' information would be protected all the time during this study.

Data Collection Procedures

Data collection for this study was conducted as follows;

1. The researcher submitted the research proposal and the set of questionnaire to the ethic committee of the Faculty of Nursing, Chiang Mai University (CMU) for ethical approval.
2. The Ethic Research Committee of the Faculty of Nursing, Chiang Mai University (CMU) issued an official letter of approval for the researcher to conduct the data collection once the proposal meet all the required conditions set by the committee.
3. The researcher requested permission to conduct this study in Malaysia from MREC through a National Medical Research Register (NMRR) by submitting the research proposal, set of questionnaire and supporting documents from CMU.
4. Letter of ethical approval from the MREC was submitted to the director HKL, HTAA and HS for permission to collect data.
5. Meeting with the head department of urology, head of nurse supervisor of surgical department (matron) and head of nurse (sister) from HKL, HTAA and HS were arranged to brief on the overview of the research, to ask the permission and cooperation to conduct data collection, also to review patients' medical records within their respective unit or department.

6. Once the permission to start the data collection was obtained from the head of department of selected hospital, review of the medical records was carried out to identify potential subjects and to obtain information regarding their health profile.

7. The potential patients were identified from the medical records reviews conducted earlier and the patient selection based on inclusion criteria as mentioned in sampling method.

8. The selected patients were approached directly and clear explanation regarding the purpose and nature of the study was given. Details explanation was given regarding confidential of their information, their rights to refuse or participate in this study and any of their decision will not affected their current treatment or cause any conflict of interest.

9. Patients completed the consent form after agreed to participate in the study.

10. They were given a set of questionnaire consists of four (4) parts; Demographic data, Stone Dietary Behavior Questionnaire, Perceived Benefits Questionnaire and Perceived Barriers Questionnaire to be completed within time given.

11. Patients were arranged to answer the questionnaire in a private room or set up area in the clinic one by one at the time of the study.

12. The researcher attended any patient who required assistance in answering the questionnaire. The researcher assisted at least 20 participants to answer the questionnaire by reading the items of questionnaire without further explanation during data collection.

13. Time given to answer all the questionnaires is 45 minutes to one (1) hour depending on the patients themselves. Patient was not allowed to take home the questionnaire and explanation regarding the reason was given before the session.

14. The researcher checked every returned questionnaire to make sure all questionnaires were completed before proceed with data analysis.

Data Analysis

Data was analyzed by statistical software package. In this study, both descriptive correlational statistics were used to analyze the data. The significance alpha was at level of .05. All questionnaires were analyzed using the following statistic;

1. Personal profile data were analyzed in frequency, mean, standard deviation (SD) and percentage.
2. Dietary behavior data were analyzed in frequency, mean, standard deviation (SD) and percentage.
3. Perceived benefits data were analyzed in frequency, mean, standard deviation (SD) and percentage.
4. Perceived barriers data were analyzed in frequency, mean, standard deviation (SD) and percentage.
5. The relationship between dietary behavior, perceived benefits and perceived barriers among persons undergone urinary tract stone removal were analyzed using correlational statistic. First, data distribution was analyzed by using Kolmogorov-Smirnov test to determine whether parametric or non-parametric test. Pearson correlation analysis was used for the parametric data. In this study, Pearson correlation analysis was used to analyze correlation between total dietary behavior and total perceived barriers. Meanwhile, Spearman' ranked analysis was used for non-parametric data involved total dietary behavior and total perceived benefits. At level significance .05, direction and magnitude between these three variables was interpreted as a weak relationship ($r = 0$ to < 0.3), moderate relationship ($r = 0.3$ to 0.5) and strong relationship ($r = > 0.50$) (Grove, Burns, & Gray, 2012).
6. Pearson correlation was also used to assess test-retest reliability for the Dietary Behavior Questionnaire score on 15 patients who completed the questionnaire after 7 days (1 week). Total correlation coefficient was computed between the two administrations total score for the Dietary Behavior Questionnaire.