CHAPTER 3

Methodology

In this chapter, the methodology of the study is described on the research design, population and sample, research setting, research instruments, protection of human rights, data collection, and data analysis.

Research Design

The present study used a predictive correlational design to examine the relationship between selected factors and psychological well-being and identify the predicting factors of psychological well-being among parents of a critically ill child in PICU. The selected factors consisted of the child's behavioral and emotional responses, sense of coherence, coping, religious belief, and social support.

Population and Sample

Population

The accessible population for the present study consisted of mothers and fathers who were the primary caregivers for a critically ill child aged 1 month-15 years in PICU of five tertiary hospitals, including Ramathibodi Hospital, Queen Sirikit National Institute of Child Health, Bhumibol Adulyadej Hospital, Maharaj Nakorn Chiang Mai Hospital, and Suppasitiprasong Hospital.

Sample

The sample of parents were purposively selected based on the following inclusion criteria: (1) having the age of 18 years or older; (2) being the primary caregivers in caring critically ill child aged 1 month to15 years; (3) having a child hospitalized in

PICU for more than 24 hours; (4) having normal mental functioning tested by The Mental Status Questionnaire (MSQ) score of ≥ 8 (Khan, Goldfarb, Pollack, & Peck, 1960) (Appendix A); (5) being Buddhist; (6) being able to read and write in the Thai language. Exclusion criteria included severe anxiety and depression during PICU admission. In the event that some participants had to be excluded, the researcher would refer them to a psychologist if they agreed with this suggestion. However, in the present study, none of the participants were excluded.

Sample Size

The sample size for multiple regression was computed using G*Power Program (Faul, Buchner & Lang, 2009). Since no previous study was available, the researcher determined the desired acceptable level of effect size at a moderate level (f^2) as .15, power for statistical analysis (1-β) as .80, and .05 for a level of significance (α). From the calculation, the estimated sample size was 92. Additionally, the researcher added 10% of participants to compensate for the possible missing data (Hair et al., 2010). Finally, the sample size of the present study was 100.

Research Setting

The present study was conducted at PICU of five tertiary hospitals in Thailand, including Maharaj Nakorn Chiang Mai Hospital in the north; Ramathibodi Hospital, Queen Sirikit National Institute of Child Health, and Bhumibol Adulyadej Hospital in the central part; Sapphasitthiprasong Hospital in the northeast.

These hospitals were the tertiary care settings with specific sub-specialties (e.g., pediatrics, obstetrics, internal medicine, gynecology, psychiatry, and surgery). Patients were usually referred from the primary or secondary hospitals nearby for consultations, advanced treatments, and sophisticated intensive care. All hospitals were similar in terms of services available for pediatric care such as PICU, NICU, and pediatric general ward. All levels of intensive care were available in PICUs. The criteria for admission were similarly identified, including having critical conditions and needing special high-level care such as advance respiratory supports, continuous and close monitoring using

high technology equipment. The health care providers in PICU were specially trained to be skillful and experienced in advanced pediatric intensive care. Moreover, family-centered care approach had been implemented in pediatric care unit of all tertiary hospitals. Adequate information was provided since PICU admission. Parents' involvement in care was encountered.

Research Instruments

Seven research instruments used to collect data in the present study consisted of the Demographic Data Recording Form, the Child's Behavioral and Emotional Responses Scale, the Sense of Coherence Scale-Short Form (SOC-13), Thai Version, the Jalowiec Coping Scale (JCS), the Buddhist Belief Questionnaire, the Modified Version of Social Support Questionnaire, Thai Version, and the Psychological General Well-Being Index (PGWBI).

The Demographic Data Recording Form

The Demographic Data Recording Form was developed by the researcher for gathering the child's demographic data, including age, gender, education, diagnosis, medications, and the number of PICU admissions, as well as the parents' demographic data, including relationships with a child, age, marital status, occupation, education background, family income, prior experience in caring for a hospitalized child, and number of children (Appendix A).

The Child's Behavioral and Emotional Responses Scale

The Child's Behavioral and Emotional Responses Scale was a part of the whole PSS: PICU scale developed by Carter and Miles (1989). The whole scale contained 37 items with seven subscales measuring parents' perception of seven stressors associated with having the child admitted in PICU, including child's appearance, sights and sounds, procedures, behaviors of profession staff, parental role, communication of professional staff, and child's behavioral and emotional responses.

The Child's Behavioral and Emotional Responses Scale included 10 Likert-type questions with 6-point responses ranging from 0 (not stressful) to 5 (extremely

stressful). This scale was translated into Thai by the researcher to measure the child's physical and emotional responses as perceived by parents while the child was hospitalized in PICU. The accuracy of translation was assured by back-translation technique. After receiving permission from the authors, the original version of the Child's Behavioral and Emotional Responses Scale was translated into Thai by the researcher and the thesis advisory committee. Then, the Thai version was translated back into English by two bilingual experts from the Faculty of Nursing, Chiang Mai University. In this step, the experts who had never seen the original English version of these instruments worked independently without any reference to the original English version. Subsequently, the back translated version was compared with the original version to examine the discrepancy between the original and two new English versions. In this step, no discrepancy between the three versions was found, meaning that the translation was correct. The possible scores of the Child's Behavioral and Emotional Responses Scale ranged from 0 to 50. Since the previous researchers did not categorize the child's behavioral and emotional responses level, the researcher used a statistical method to categorize the behavior into three levels: low (0-16), moderate (17-33), and high (34-50).

Regarding the psychometric properties, Yam, Lopez, and Thompson (2004) reported that the convergent validity of the CPSS: PICU was tested with the Chinese version of Spielberger State Anxiety Inventory (C-SAI) among a sample of 81 parents with critically ill children in the PICU. The positive correlations with anxiety were found in the sights and sounds ($r = .35$, $p < .01$) and child's behaviors and emotions subscales ($r = .23$, $p < .05$). The internal consistency showed Cronbach's alpha coefficient of .94 for total score, .82 for child's appearance subscale, .85 for sights and sounds subscale, .82 for procedures subscale, .72 for staff behavior subscale, .79 for parental role alteration subscale, 0.83 for staff communication subscale, and .95 for child's behaviors and emotions subscale. In the present study, the internal consistency reliability was tested with 12 parents of a hospitalized child in PICU and the Cronbach's alpha coefficient obtained was .89. The reliability testing with 100 participants in the present study showed the Cronbach's alpha of .80.

The Sense of Coherence Scale-Short Form (SOC-13), Thai Version

The Sense of Coherence Scale-Short Form (SOC-13), Thai Version, was translated from the original version of SOC-13 into Thai by Hanucharurnkul and colleagues (1989). The scale was used to measure the level of the parents' sense of coherence (Appendix A). It consisted of 13 items, including comprehensibility (5 items), manageability (4 items) and meaningfulness (4 items). Prior to calculating the total score, the scores of five negative items were reverse. This instrument was a seven-point rating scale, with possible responses to each item ranging from 1 (not at all) to 7 (a great deal). The possible scores ranged from 13 to 91. A high score presented a high level of a sense of coherence. The researcher used a statistical method to categorize the sense of coherence into three levels: low (13-39), moderate (40-65), and high (66-91). In the present study, the internal consistency reliability was tested with 12 parents of a hospitalized child in PICU from which the Cronbach's alpha coefficient obtained was .81. Additionally, the Cronbach's alpha coefficient in the study sample was .75.

The Jalowiec Coping Scale

The Jalowiec Coping Scale (JCS) was developed and revised by Jalowiec (1988) and translated into Thai by Mingkwan and colleagues (1999). The JCS was used to measure coping strategies of parents (Appendix A). It consisted of 36 items and comprises three subscales, including confrontive coping (13 items), emotive coping (9 items), and palliative coping (14 items). Confrontive coping subscale measured individual's constructive problem-solving, and confronting the stressful situation or problem. The thirteen items of this subscale were 2, 5, 11, 15, 16, 17, 22, 27, 28, 29, 31, 32, and 34. Emotive coping subscale measured individual's releasing and expressing emotions. The nine items of this subscale were 1, 6, 9, 12, 13, 19, 21, 23, and 24. In addition, palliative coping measured individual's method in alleviating stress or tension, making themselves feel better, and keeping under control without directly taking care of the problems. The fourteen items of this subscale were 3, 4, 7, 8, 10, 14, 18, 20, 25, 26, 30, 33, 35, and 36. The JCS was a 5-point Likert scale ranging from 1 (never use) to 5 (almost always). The possible scores ranged from 36 to 180, with higher scores indicating more frequent use of coping. The researcher used a statistical method to

categorize the coping into three levels: low (36-84), moderate (85-132), and high (133-180). In the present study, the internal consistency reliability testing was undertaken with a sample of 12 parents of a hospitalized child in PICU and the Cronbach's alpha coefficient obtained was .91. Additionally, the Cronbach's alpha coefficient in the study sample was .86.

The Buddhist Belief Questionnaire

The Buddhist Belief Questionnaire was developed by the researcher based on literature review to measure the parents' religious belief (Appendix A). This questionnaire consisted of 18 items that was rated on 5-point scale ranging from 1 (slightly agree) to 5 (strongly agree). The questionnaire had two components: the belief in four components of saddhā (14 items) and the belief in the three characteristics of existence (4 items). Seventeen items were positive and one item was negative. The possible score ranged from 18 to 90. Higher scores indicated higher levels of religiousness. The researcher used a statistical method to categorize the religious belief into three levels: low (18-42), moderate (43-66), and high (67-90).

The content validity of the questionnaire was evaluated by six experts specializing in Buddhism, including two nursing instructors, one Buddhist instructor, and three Buddhist monks. The experts were asked to assess each individual item for its relevance to religious belief and rated it as the 4-point rating scale, including 1 (not relevance), 2 (somewhat relevance), 3 (quite relevance), and 4 (highly relevance). The rating scores of 3 or 4 reflected the content validity (Polit & Beck, 2006). The content validity index (CVI) was calculated for both item and scale levels. As a result, the I-CVI ranged from .83 to 1.00, and the S-CVI was .99 (Appendix D). In the present study, the internal consistency of reliability was tested in a sample of 12 parents of a hospitalized child in PICU from which the Cronbach's alpha coefficient obtained was .91. For the whole study sample, the Cronbach's alpha coefficient testing was .95.

The Modified Version of Social Support Questionnaire, Thai Version

The Modified Version of Social Support Questionnaire, Thai Version, was used to measure social support of the parents (Appendix A). This instrument was modified by Hanucharurnkul (1988) from the SSQ part II developed by Schaefer, Coyne, and Lazarus (1981, as cited in Hanucharurnkul, 1988) and from the Norbeck Social Support Questionnaire [NSSQ] (Norbeck, Lindsy, & Carrieri, 1981, as cited in Hanucharurnkul, 1988). The original questionnaire was used to assess perceived social support from three social networks: family members, friends and relatives, and health care providers. The questionnaire consisted of 21 items: informational support (3 items), emotional support (12 items) and tangible support (6 items). The participants were asked to rate the level of support received from each social network. The items had a 5-point scale ranging from 0 (never received support) to 4 (almost always received support). A possible score ranged from 0 to 84. High scores reflected a high level of perceived social support. Moreover, the perceived social support was divided into three levels, including low (0-28), moderate (29-56), and high (57-84). In the present study, internal consistency reliability of this instrument was tested on 12 parents of a hospitalized child in PICU and the Cronbach's alpha coefficient was .89. The Cronbach's alpha coefficient testing in the study sample was .92.

The Psychological General Well-Being Index

The Psychological General Well-Being Index (PGWBI) developed by Dupuy (1984) was used to assess the parents' psychological well-being (Appendix A). It consisted of 22 items and covered 6 dimensions of well-being, including anxiety (5 items), depression (3 items), positive well-being (4 items), self-control (3 items), vitality (4 items), and general health (3 items). Participants were asked about their feelings in general during the past month. It was a 6-point scale ranging from 0-5 scores that represented frequency of feelings. A possible score ranged from 0 to 110 and was divided into three categories, including severe distress (0-60), moderate distress (61-72), and psychological well-being (73-110). In the present study, internal consistency reliability of the instrument was tested on 12 parents of a hospitalized child in PICU and the Cronbach's alpha coefficient obtained was .93. The Cronbach's alpha coefficient testing with the study sample was .92.

Preparation of Research Assistants

In the present study, four research assistants helped with data collection. The research assistants were RNs who had experiences in conducting research but were not working in PICU. The researcher gave information about the objectives of this study, the inclusion criteria of the participants, protection of the rights of participants, consent forms, data collection procedure activities, and the important roles of the research assistants. The researcher trained all research assistants about recruiting the participants, giving information to participants, and using the questionnaires. During the training session, concerns and questions from the research assistants were clarified. To assure the equivalence of collection procedure, the researcher and the research assistants separately collected data from the same participants using the same scales. The interrater reliability was examined with three parents. The average interrater reliability of data from the researcher with all research assistants was 1.00.

Protection of Human Rights

Before collecting data, approval for the research proposal and the research instruments was obtained from the Research Ethical Committee of the Faculty of Nursing, Chiang Mai University, Maharaj Nakorn Chiang Mai Hospital, Ramathibodi Hospital, Queen Sirikit National Institute of Child Health, Bhumibol Adulyadej Hospital, and Sapphasitthiprasong Hospital. Permission letters from hospital directors of the five tertiary hospitals were granted prior to collecting data. Prior to the study initiation, the eligible participants, parents of critically ill children in PICU, were informed of the objectives of this study, methods of data collection, time required to complete the questionnaire, research benefits, and protection of confidentiality of the participants. They were informed of their rights to stop participating at any time without any effect on their children's treatment or hospital services. After the participants had full understanding of this study and agreed to participate, they were asked to sign a

consent form. To assure anonymity and confidentiality of the participants' information, a code number was used in place of each participant's name and information given by the participants was used for the objectives of this study and presented as a whole result. All data were preserved with a password-protected computer. The documents were stored in a locked cabinet in a locked office and destroyed after the publication of this dissertation.

Data Collection

After getting approval from the Research Ethical Committee of the Faculty of Nursing, Chiang Mai University, Maharaj Nakorn Chiang Mai Hospital, Ramathibodi Hospital, Queen Sirikit National Institute of Child Health, Bhumibol Adulyadej Hospital, and Suppasitiprasong Hospital, the data collection was conducted in following steps:

1. The researcher sent a letter asking for permission to collect the data from the Faculty of Nursing, Chiang Mai University, to the directors of the five hospitals, including Maharaj Nakorn Chiang Mai Hospital, Ramathibodi Hospital, Queen Sirikit National Institute of Child Health, Bhumibol Adulyadej Hospital, and Suppasitiprasong Hospital. After getting permission from those directors, the researcher contacted the head nurses and teams of nursing administrators of all sites to inform them of the research objectives, inclusion criteria of the participants, and the data collection procedures.

2. The researcher or the research assistants screened for the eligible participants from the medical records. Then, the researcher or the researcher assistants introduced themselves and informed the prospective participants of the objectives of this study, time required for participation as well as the protection of human rights. The prospective participants were assured of confidentiality and their freedom to withdraw from the study. All of them agreed to participate in this study, and signed a consent form. The cognitive functioning of participants was screened using the Mental Status Questionnaire (Khan et al., 1960). In the present study, all participants had good cognitive functioning.

3. After the consent was obtained, the researcher or the research assistants distributed and explained the participants how to answer the questionnaires in a private zone of the PICU. The questionnaires were distributed in order starting from the Demographic Data Recording Form, the Child's Behavioral and Emotional Responses Scale, the Sense of Coherence Scale-Short Form (SOC-13), Thai Version, the Jalowiec Coping Scale (JCS), the Buddhist Belief Questionnaire, the Modified Version of Social Support Questionnaire, Thai Version, and the Psychological General Well-Being Index (PGWBI). The total time required for administration of the instruments was approximately 30-40 minutes. Concerning the exhaustion, each participant was also informed that he/ or she could take a break or stop when feeling uncomfortable. At the same time, the researcher or the research assistants collected the diagnosis and medical data from the patient's medical records and filled in the related parts of the Demographic Data Recording Form.

4. Upon completion, all participants returned the questionnaires directly to the researcher or the research assistants. The researcher or the research assistants rechecked for the completion of all the questionnaires and thanked the participants for their participation.

Data Analysis

An analysis of descriptive, statistics, and hierarchical multiple regression was conducted.

1. The demographic data of the participants were analyzed using descriptive statistics, including frequency, percentage, mean, and standard deviation.

2. The level of the child's behavioral and emotional responses, sense of coherence, coping, religious belief, social support, and psychological well-being among parents of a critically ill child in PICU were described using descriptive statistics, including frequency, percentage, mean, and standard deviation.

3. Before regression analysis was performed, each study variables was tested for the assumptions of multivariate analyzes. The tests included normality, linearity, homoscedasticity, and multicollinearity.

3.1 Testing of normality. Testing the normal distribution of all variable scores was done using Kolmogorov-Smirnov test and histogram (Hair et al., 2010; Tabachnick & Fidell, 2007). The results reported that the Kolmogorov-Smirnov test and histogram of five variables confirmed the normality of the child's behavioral and emotional responses, sense of coherence, social support, and psychological well-being, while that of coping and religious belief data was not demonstrated. Therefore, coping and religious belief were transformed by rank-based inverse normal transformation (INT) with Blom's formula for the normal distribution (See Appendix H: Table H-1, Figure H-1).

3.2 Testing of linearity and homoscedasticity. Two assumptions were tested through the scatter plots of the standardized residuals by the regression standardized predicted value (Hair et al., 2010; Tabachnick & Fidell, 2007). The result showed that the standardized predicted values were equally scattered around the zero axis of the residual. Therefore, the assumption of the linearity and homoscedasticity were met (See Appendix H: Figure H-2).

3.3 Testing of multicollinearity. Multicollinearity was analyzed between the predictor variables. There were three statistics used, including a correlation matrix of the independent variables, a Tolerance and the Variance-inflation factors (VIF) test (Tabachnick & Fidell, 2007). The results showed that the Pearson correlation coefficients (r) ranged from -.20-.42, which was less than .90 (See Appendix H: Table H-2). The tolerance coefficients ranged from .87-.97, which was above .10 and the VIF ranged from 1.04-1.15, which was less than 10 (See Appendix H: Table H-3). All values revealed no multicollinearity among predictor variables. Thus, the assumption of the multicollinearity was met.

4. Pearson's product moment correlation coefficient was used to analyze the bivariate relationship between the child's behavioral and emotional responses, sense of coherence, social support, and psychological well-being, while Spearman's rank

correlation coefficient was used to determine the relationship between coping, religious belief, and psychological well-being. The classification of correlation coefficient base (r) was defined as follows: low (0- .29), moderate (.30-.49), and high (.50–1.0) (Burns & Grove, 2009).

5. After testing for the assumptions of multivariate analyzes, predictability of the child's behavioral and emotional responses, sense of coherence, coping, religious belief, and social support on psychological well-being among parents of a critically ill child in PICU was analyzed using hierarchical multiple regression analysis.