

## **CHAPTER 3**

### **METHODOLOGY**

This chapter provides a description of research methodology used in this study including research design, population and sample, instrumentation, data collection, protection of human subjects, and data analysis.

#### **Research design**

A descriptive cross-sectional study was designed to examine the causal relationships among the maternal perception of infant behavior, social support, maternal perception of parenting, maternal competence, depression, and maternal role performance in the first time mothers at one month postpartum.

#### **Population and sample**

The population of this study was first time mothers who were one month postpartum and took their infants for first follow-up at well baby clinic. A purposive sampling was used to select the sample of this study. The sample included first time

mothers who were one month postpartum, took their infants for first follow-up at well baby clinic of Hat Yai hospital, Songkhla province, and who met the following inclusion criteria: 1) age at least 18 years old, 2) ability to communicate and write in Thai language, 3) willingness to participate in the study, 4) normal delivery, 5) no history of diagnosis of severe complications after delivery, 6) no history of diagnosis of prenatal depression, and 7) giving birth to a healthy normal full-term infant with weight over 2,500 grams.

The sample size was determined by the criteria of the dataset required for the causal model. Nunnally and Bernstein (1994, cited by Munro, 2001) recommend 30 subjects per independent variable in the causal model study. Since this study comprised five independent variables, the sample size required 150 subjects. It was estimated that the loss of sample would be approximately 30 percent, equal to 45 subjects, so the sample size in this study was set at 200 subjects.

## **Instrumentation**

### **1. Instruments**

The instruments in this study included: 1) Demographic Data Questionnaire (Appendix B), 2) Neonatal Perception Inventory (Appendix C), 3) Social Support Scale (Appendix E), 4) What Being the Parent of a New Baby Is Like Scale (Appendix F), 5) Parenting Sense of Competence Scale (Appendix H), 6) Center for Epidemiologic Studies Depression Scale (Appendix J), and 7) Maternal Role Performance Scale (Appendix K).

#### **1.1 Demographic Data Questionnaire**

The Demographic Data Questionnaire was developed by the researcher to collect data on the first time mothers' and infants' demographic characteristics. The first time mothers' demographic characteristics included age, religion, education, occupation, maternal income, husband's income, years of marriage, type of family, infant care experience, sources of infant care knowledge, attendance at the antenatal care clinic, and breast-feeding. Infants' demographic characteristics included sex, birth weight, and one month weight.

### **1.2 Neonatal Perception Inventory**

The Neonatal Perception Inventory was developed by Broussard (1979) for assessing mothers' perception toward their infants' behaviors. This instrument consisted of two parts that had similar items. The first six items were used to measure the mothers' perception of the behaviors of the average babies, and the second six items were used to measure the mothers' perception of the behaviors of their babies during the postpartum period. The answer to each item yielded a 5-point scale ranging from none (score = 1) to a great deal (score = 5). Score summation was measured by subtracting the mothers' perception of their babies from the mothers' perception of the average babies. The possible total scores could range between -24 to +24. The possible total scores were subsequently modified to a range between 1 to 49, thereby eradicating plus or minus sign. Therefore, the possible total scores used in this study for this instrument ranged from 1 to 49. The higher scores meant positive maternal perception of infant behavior and the lower scores meant negative maternal perception of infant behavior.

The predictive validity of the Neonatal Perception Inventory was examined with 318 first time mothers delivering normal infants (Broussard, 1979). These first time mothers included all racial and socioeconomic groups and were from five hospitals in Pittsburgh. Of these first time mothers, 46.5 percent rated their babies better than average babies on the Neonatal Perception Inventory on Day 2 postpartum. At one month postpartum, 61.2 percent of these same mothers rated their babies better than average babies. There was a significant correlation between the proportions of the mothers who rated their babies better than average babies at the two time points ( $p < .01$ ). The internal consistency reliability of this instrument was tested with these same mothers and the alpha reliability coefficient was 0.85 (Broussard, 1979).

A review of the literature indicated the Neonatal Perception Inventory was a simple instrument often used to assess maternal perception of infant behavior. Miles (1990) studied differences between maternal perception of preterm infants and term infants. The subjects in her study were the first time mothers who had preterm and term infants and were at one month postpartum. Maternal perception of infant behavior was measured with the Neonatal Perception Inventory (Broussard, 1979). Jenkinb (1999) studied the relationship between maternal prenatal and postnatal attachment and maternal perception of infant behavior. Maternal perception of infant behavior was measured with the Neonatal Perception Inventory (Broussard, 1979). Porter and Sobong (1990) studied differences in maternal perception of infant behavior among adolescent mothers. Maternal perception of infant behavior was measured with the Neonatal Perception Inventory (Broussard, 1979). The alpha reliability coefficient of the Neonatal Perception Inventory in their study was reported as 0.79. Therefore, the Neonatal Perception Inventory (Broussard, 1979) was selected

to measure maternal perception of infant behavior and was translated into Thai version for this study.

### **Reliability**

In this study, the Thai version of the Neonatal Perception Inventory (Appendix D) was evaluated for internal consistency reliability. The Cronbach's alpha coefficient of the Thai version of the Neonatal Perception Inventory was 0.83 when it was applied with 30 first time mothers prior to the study. When it was applied with 200 first time mothers in the study, the Cronbach's alpha coefficient was 0.82.

### **1.3 Social Support Scale**

The Social Support Scale was developed by Sumranjit (1997) for measuring social support including emotional, instrumental, informational, and appraisal support during the postpartum period. This instrument was based on House's (1981) concept of social support. This instrument consisted of 20 items and used a 5-point scale ranging from not true at all (score = 1) to extremely true (score = 5). The possible total scores could range from 20 to 100. The higher scores meant high social support and the lower scores meant low social support.

The content validity of the Social Support Scale was examined by five experts. Pilot testing was conducted with postpartum mothers to ensure readability, clarity, and understandability of this instrument. The internal consistency reliability of this instrument was examined with postpartum mothers and the Cronbach's alpha coefficient was 0.84 (Sumranjit, 1997).

### **Reliability**

In this study, the Social Support Scale was evaluated for internal consistency reliability. The Cronbach's alpha coefficient of the Social Support Scale

was 0.91 when it was applied with 30 first time mothers prior to the study. When it was applied with 200 first time mothers in the study, the Cronbach's alpha coefficient was 0.92.

#### **1.4 What Being the Parent of a New Baby Is Like Scale**

The What Being the Parent of a New Baby Is Like Scale was developed by Pridham and Chang (1989) for assessing mothers' appraisal of their experiences in parenting by moving from no experience of being a parent to being a parent of their infants. The appraisal of experiences in parenting included evaluation of being the parent of a new infant and in infant care tasks, infant being on the parent's mind or centrality, and life change. This instrument consisted of 25 items, 3-subscale and used a 9-point scale ranging from not at all (score = 1) to a great deal (score = 9). The 9-point scale of the What Being the Parent of a New Baby Is Like Scale was delicate. Since the other two Thai instruments selected to use in this study had a 5-point scale. Therefore, the scale of the What Being the Parent of a New Baby Is Like Scale was modified with permission to a 5-point scale ranging from not at all (score = 1) to a great deal (score = 5) in this study. The possible total scores could range from 25 to 125. The higher scores meant high maternal perception of parenting and the lower scores meant low maternal perception of parenting.

For construct validity of the What Being the Parent of a New Baby Is Like Scale, factor analysis using principal components and orthogonal rotation was used to examine the factor structure of this instrument (Pridham & Chang, 1989). The three-factor solution: Evaluation, Centrality, and Life Change, yielded interpretable factors and accounted for at least 50 percent of the variance. The predictive validity of this

instrument was tested through assessment of the relationship between the mothers' evaluation of being the parent of a new infant and the mothers' perception of competence for the infant care (Pridham & Chang, 1989). For the result of the study, the mothers' evaluation was positively related to the mothers' competence at both one and three months postpartum ( $p < .001$ ). The internal consistency reliability of this instrument was thus estimated. The alpha reliability coefficient of subscales: Evaluation, Centrality, and Life Change, were 0.90, 0.80, and 0.81 respectively (Pridham & Chang, 1989).

From a review of the literature, it was apparent that the What Being the Parent of a New Baby Is Like Scale was the most recently developed instrument for measuring maternal perception of parenting and widely used in studies related to first time mothers in the postpartum period. Grace (1993) studied maternal perception of parenting across the first six months postpartum in 76 postpartum mothers. Maternal perception of parenting was measured with the What Being the Parent of a New Baby Is Like Scale. The alpha reliability coefficient for the Evaluation, Centrality, and Life Change subscales of the What Being the Parent of a New Baby Is Like Scale in her study at one month postpartum was reported as 0.84, 0.83, and 0.85 respectively. Pridham and Chang (1992) studied maternal perception of parenting in 62 mothers with a new infant in the first three months postpartum. Maternal perception of parenting was measured with the What Being the Parent of a New Baby Is Like Scale. The alpha reliability coefficient of the What Being the Parent of a New Baby Is Like Scale in their study at one month postpartum was reported as 0.70. Therefore, the What Being the Parent of a New Baby Is Like Scale was selected to measure maternal perception of parenting and was translated into Thai version for this study.

### **Reliability**

In this study, the Thai version of the What Being the Parent of a New Baby Is Like Scale (Appendix G) was evaluated for internal consistency reliability. The Cronbach's alpha coefficient of the Thai version of the What Being the Parent of a New Baby Is Like Scale was 0.79 when it was applied with 30 first time mothers prior to the study. When it was applied with 200 first time mothers in the study, the Cronbach's alpha coefficient was 0.80.

### **1.5 Parenting Sense of Competence Scale**

The Parenting Sense of Competence Scale was developed by Gibaud-Wallston and Wandersman (1978) for assessing the new mother's appraisal of personal competence in the parenting role towards her own infant. The items comprising the total instrument were designed to assess two dimensions of maternal competence. First, the skill and knowledge dimension assessed new mothers' perception of the degree to which they had acquired the skills and understanding to be a good parent. Second, the valuing and comfort dimension assessed the degree to which the individual was concerned for the infant's needs and was comfortable in the parenting role. This instrument consisted of 17 items, and used a 6-point scale ranging from strongly disagree (score = 1) to strongly agree (score = 6). Since the other two Thai instruments selected to use in this study had a 5-point scale, the scale of the Parenting Sense of Competence Scale was modified with permission to a 5-point scale ranging from strongly disagree (score = 1) to strongly agree (score = 5) in this study. There were 9 negative items: Items 2, 3, 4, 5, 8, 9, 12, 14, and 16. Negative items' scores were reversed before analyzing the data. The possible total scores could range



from 17 to 85. The higher scores meant high maternal competence and the lower scores meant low maternal competence.

The convergent validity of the Parenting Sense of Competence Scale was examined by assessing the relationship of this instrument with the Coopersmith Self-esteem inventory (Crandall, 1973, cited by Gibaud-Wallston & Wandersman, 1978). The Parenting Sense of Competence Scale was positively related to the Coopersmith Self-esteem inventory. The internal consistency reliability of this instrument was estimated with the new mothers and the alpha reliability coefficient was 0.87 (Gibaud-Wallston & Wandersman, 1978).

From a review of the literature, it was evident that the Parenting Sense of Competence Scale was the only instrument that measured maternal competence and was widely used in studies related to postpartum mothers. Mercer and Ferketich (1995) studied maternal competence during infancy in 166 inexperienced mothers and 136 experienced mothers. Maternal competence was measured with the Parenting Sense of Competence Scale. The alpha reliability coefficient of the Parenting Sense of Competence Scale in their study was reported as 0.85. Mercer and Ferketich (1994) studied the relationship between maternal competence and mother-infant interaction during infancy in 166 inexperienced mothers and 136 experienced mothers. Maternal competence was measured with the Parenting Sense of Competence Scale. The alpha reliability coefficient of the Parenting Sense of Competence Scale in their study was reported as 0.82. Therefore, the Parenting Sense of Competence Scale was selected to measure maternal competence and was translated into Thai version for this study.

### **Reliability**

In this study, the Thai version of the Parenting Sense of Competence Scale (Appendix I) was evaluated for internal consistency reliability. The Cronbach's alpha coefficient of the Thai version of the Parenting Sense of Competence Scale was 0.73 when it was applied with 30 first time mothers prior to the study. When it was applied with 200 first time mothers in the study, the Cronbach's alpha coefficient was 0.74.

#### **1.6 Center for Epidemiologic Studies Depression Scale.**

The Center for Epidemiologic Studies Depression Scale (CES-D) was developed by Radloff and Locke (1986) for measuring the symptoms of depression in current and past week in general population, and in pregnant and postpartum women (Logsdon et al., 1994). The Center for Epidemiologic Studies Depression Scale was translated into the Thai version and tested by Tangkasombat (2002). This instrument consisted of 20 items and used a 4-point scale ranging from rarely (score = 0) to most of the time (score = 3). There were 4 positive items: Items 4, 8, 12, and 16. Positive items' scores were reversed before analyzing the data. The possible total scores could range from 0 to 60. The high scores meant severe depression and the lower scores meant less serious depression.

The content, concurrent, and discriminant validity of the Center for Epidemiologic Studies Depression Scale had been examined. The internal consistency reliability of this instrument was tested and shown to yield an alpha reliability coefficient of 0.88 (Radloff & Locke, 1986). Tangkasombat (2002) assessed the validity and reliability of the Thai version of the Center for Epidemiologic Studies

Depression Scale. For criterion related validity, the Thai version of this instrument could significantly differentiate the samples with normal depression and the sample with abnormal depression ( $p < .001$ ). The higher score of this instrument was significantly correlated with the severity of the depression. The total score as twenty-two was the best cut off point for diagnosis of abnormal depression. The sensitivity, specificity, and correct prediction of this instrument were 72, 85, and 82 percent, respectively. The internal consistency reliability of this instrument was estimated and the Cronbach's alpha coefficient was 0.86 (Tangkasombat, 2002).

Logsdon et al. (1994) studied social support in relation to postpartum depression in 105 first time mothers at one month postpartum. Postpartum depression was measured with the Center for Epidemiologic Studies Depression Scale. The alpha reliability coefficient of the Center for Epidemiologic Studies Depression Scale in their study was reported as 0.85. Beeghly et al.'s (2002) studied postpartum depression in 106 first time mothers at two, three, six, and twelve months postpartum. Postpartum depression was measured with the Center for Epidemiologic Studies Depression Scale.

### **Reliability**

In this study, the Thai version of the Center for Epidemiologic Studies Depression Scale was evaluated for internal consistency reliability. The Cronbach's alpha coefficient of the Thai version of the Center for Epidemiologic Studies Depression Scale was 0.86 when it was applied with 30 first time mothers prior to the study. When it was applied with 200 first time mothers in the study, the Cronbach's alpha coefficient was 0.82.

### **1.7 Maternal Role Performance Scale**

The Maternal Role Performance Scale was developed by Sookkavanawat (1998) for assessing maternal role performance during the postpartum period. This instrument was developed based on Mercer's components of performing the maternal role task (Mercer, 1985). This instrument consisted of 32 items which could be classified into three dimensions of maternal role performance including confidence in providing the infant care, attachment to the infant, and satisfaction in the maternal role. The answer to each item was measured using 5-point scale ranging from not true at all (score = 1) to extremely true (score = 5). There were 2 negative items: Items 12 and 29. Negative items' scores were reversed before analyzing the data. The possible total scores could range from 32 to 160. The higher scores meant good maternal role performance and the lower scores meant poor maternal role performance.

The content validity of the Maternal Role Performance Scale was examined by six experts. Pilot testing was conducted with postpartum mothers to ensure readability, clarity, and understandability of this instrument. The internal consistency reliability of this instrument was examined with postpartum mothers and the Cronbach's alpha coefficient was 0.90 (Sookkavanawat, 1998).

#### **Reliability**

In this study, the Maternal Role Performance Scale was evaluated for internal consistency reliability. The Cronbach's alpha coefficient of the Maternal Role Performance Scale was 0.95 when it was applied with 30 first time mothers prior to the study. When it was applied with 200 first time mothers in the study, the Cronbach's alpha coefficient was 0.94.

## **2. Translation process**

The three instruments including the Neonatal Perception Inventory, the What Being the Parent of a New Baby Is Like Scale, and the Parenting Sense of Competence Scale, were originally developed in the English language and were translated into Thai in this study. The back translation technique was used in the translation process (Jones, 1987). The translation process was organized as follows. First, the original instruments were translated into Thai by three bilingual translators who had the ability to use both the Thai and English languages. All bilingual translators had at least five years experience studying their doctoral program in countries using English as the major language. Two of them worked in the area of nursing and one of them worked in the area of English linguistics. After each individual's translation, the three Thai versions of the instruments were compared and examined for discrepancies. Items that had discrepancies were discussed and revised by all the bilingual translators. Therefore, the final Thai versions of the instruments were decided by total agreement of all the bilingual translators.

Second, the translated Thai version of the instruments were then back translated into English language by another bilingual translator who had the ability to use both the Thai and English languages and was blind to the original English version. This bilingual translator had at least five years experience studying their doctoral program in a country using English as the major language and worked in the area of nursing. Third, the meanings of the original instrument items were then compared to the back-translated version by an English native translator. When items with

discrepancies were found, the procedure was repeated until a consensus was obtained between the original and the back translated instruments.

Next, the Thai versions were judged by three Thai experts to ensure cultural applicability. These experts were asked to rate independently the degree of cultural relevance of each item of the instruments on a 4-point rating scale with not relevant (1) to very relevant (4). The results of the ratings were computed using the same process as computing the content validity index described by Waltz, Strickland, and Lenz (1991). An index value greater than 0.80 was considered adequate for cultural applicability. The cultural applicability values of the Neonatal Perception Inventory, the What Being the Parent of a New Baby Is Like Scale, and the Parenting Sense of Competence Scale were 0.99, 0.98, and 0.98 respectively.

Following the cultural applicability process, pilot testing was conducted with ten first time mothers to determine completion time and to ensure readability, clarity, and understandability of the Thai version instruments.

### **Data collection**

The researcher and a research assistant were in charge of data collection. The research assistant was a registered nurse. The research assistant was trained by the researcher prior to data collection. The training covered informing the purposes of the study, data collection procedure, and the role of the research assistant. The process for data collection was as follows.

1. Permission to perform the study from the Graduate School, the approval from the Institutional Review Board of the Faculty of Nursing, Prince of Songkla University, permission to collect the data from the director of the studied hospital, and

the approval from the Institutional Review Board of the studied hospital were arranged prior to data collection.

2. The researcher informed the head nurse of the outpatient department who had responsibility in the well baby clinic and nurses in the well baby clinic in the studied hospital about the purposes of the study, the process of the study, sampling, data collection procedure, time frame, and subject safeguards.

3. On the data collection day, the researcher and the research assistant identified the subjects from patient medical records and selected subjects who met the inclusion criteria.

4. The subjects who had been identified were approached and informed. Those agreeing to participate in the study were requested to sign the informed consent form for protection of human subjects (Appendix A). After the subjects finished follow-up at the well baby clinic, the subjects were invited to the postpartum outpatient department. The environment was arranged to facilitate the subjects in completing questionnaires. The subjects' infants were taken care of by their husbands or relatives. If the subjects came alone with their infants, the researcher and research assistant took responsibility for looking after their infants.

5. Data collection was arranged as follows. Each subject was requested to complete the Demographic Data Questionnaire. She was later requested to complete one set of six questionnaires, one questionnaire at a time respectively: 1) the Neonatal Perception Inventory, 2) the Social Support Scale, 3) the What Being the Parent of a New Baby Is Like Scale, 4) the Parenting Sense of Competence Scale, 5) the Center for Epidemiologic Studies Depression Scale, and 6) the Maternal Role Performance Scale. The entire process for each subject lasted approximately thirty to forty minutes.

6. After the subject finished the questionnaires, the researcher or research assistant examined missing data or errors on each completed questionnaire and obtained additional information from the subjects.

### **Protection of human subjects**

The study was conducted after permission to perform the study from the Faculty of Graduate Studies, Prince of Songkla University, the approval from the Institutional Review Board of Faculty of Nursing, Prince of Songkla University, permission to collect the data from the director of the studied hospital, and the approval from the Institutional Review Board of the studied hospital. All subjects in the study were informed about the purposes of the study, data collection procedure, and subjects' right to decline or to withdraw from the study at anytime. Subjects were informed that withdrawal would in no way affect the received care. The only known inconvenience was the time of approximately thirty to forty minutes required for completing the questionnaires. The informed consent was obtained from the subjects (Appendix A). The information that the subjects provided were kept confidential and used only for the purposes of statistical analysis. Subjects' names were not attached to the data. A code number was assigned to ensure confidentiality.

Minimal risks such as fatigue and emotional risk might have occurred in some subjects while they were completing the questionnaires. The researcher and research assistant expressed concern and prevented, or dealt with these problems. While the subjects were completing the questionnaires, the researcher and research assistant were available to answer any questions they might have and took care of



their infants. The subjects were informed that they could ask to complete the questionnaires at a later time.

## **Data analysis**

### 1. Data management

The researcher performed all data management procedures including coding, data entry, data screening, data cleaning, and data analysis. The researcher used a codebook to provide accuracy in coding, entered data and checked these data twice to validate the accuracy of entry. Frequency distribution of data of each variable was obtained to check for consistencies. The SPSS for Windows version 11 software was obtained to check for consistencies. The SPSS for Windows version 11 software was used for data processing, preliminary data analysis, testing assumptions, and regression analysis. The Mplus version 3 software was used for path analysis.

### 2. Preliminary data analysis

2.1 Descriptive statistics including frequencies, percentage, mean, standard deviation, and range were used to describe the demographic characteristics of the first time mothers and infants that were interval and ratio scales. Frequencies and percentage were used to describe the demographic characteristics of the first time mothers and infants that were nominal and ordinal scales.

2.2 Descriptive statistics including mean, standard deviation, and range were used to describe the study variables in this study: maternal perception of infant behavior, social support, maternal perception of parenting, maternal competence, depression, and maternal role performance.