CHAPTER 3

Methodology

This part describes the methodology of the present study. It includes research design, population and sample, research instruments, protection of human rights procedures, data collection procedures, and data analysis.

Research Design

A descriptive correlational research was conducted to explore the emotional intelligence and work-related stress, and to investigate the relationship between emotional intelligence and work-related stress of nurses in the People's Hospitals of Dali, the People's Republic of China.

Population and Sample

Population

The target population of this study was 719 registered nurses (male or female) working in the People's Hospitals of Dali, the People's Republic of China. Of the population, 497 were from the First People's Hospital of Dali (1st PHDL) and 222 were from the Second People's Hospital of Dali (2nd PHDL).

Sample

The sample of this study was 308 nurses working in the two target hospitals. The sample size of this study was calculated by the formula of Yamane (1973).

$n = N/1+N\,(e)^{2}$

The level of significance was set at 0.05

N= total number of accessible population

n=sample size

e=the error in the sample

The sample size n=$N/1+N\ (e)^{2} = 719 \div (1+ 719 \times 0.0025) = 257$

The calculated sample size was 257. However, the returning of questionnaires in this study was voluntary, and done by the nurse subjects in prepared boxes. Considering the possible loss of 20% of subjects (Israel, 2003), the number of nurses for the sample was increased to 308. The number of population and sample are in appendix Q.

Inclusion criteria: 1) being a female or male registered nurse from the specify department of the hospitals; 2) providing direct nursing care to patients; 3) working in each department at least 1 year; and 4) willing to participate in this study.

Exclusion criteria: nurses who are in administrative positions.

The proportional stratified random sampling method was used to recruit nurses from each department and hospital. A random draw sampling technique determined nurses from the name lists of nursing department.

Research Instruments

The research instrument used in the study was a self-report questionnaire consisting of three parts: 1) the Demographic Data Form; 2) Wong and Law Emotional Intelligence Scale; and 3) HSE Management Standard Work-related Stress Indicator Tool. The details of each part are as follows:

Part I: Demographic Data Form

This form was developed by the researcher and used to gather demographic information of each participant. It was an short open and closed end questionnaire which consisted of the questions about gender, age, marital status, educational level, and number of working years, department working hospital and training of emotional intelligence.

Part II: Wong and Law Emotional Intelligence Scale

Wong and Law (2002) developed the Wong and Law Emotional Intelligence Scale in Chinese based on the Ability Model of Emotional Intelligence (Salovey & Mayer, 1990). The scale consists of 16 items with 4 items for each of the four dimensions of self-emotion appraisal (SEA), others' emotion appraisal (OEA), regulation of emotion (ROE), and use of emotion (UOE). Wong and Law estimated validity in using confirmatory factor analysis and the results revealed an acceptable fit to the data for the instrument (Wong & Law, 2002). The reliability estimate (coefficient alpha) for the four dimensions of self-emotion appraisal, others' emotion appraisal, regulation of emotion and use of emotion and were 0.89, 0.85, 0.76, and 0.88, respectively (Wong & Law, 2002). After obtaining permission from Mr. Chi Sum Wong, the Chinese version of the Wong and Law Emotional Intelligence Scale was used in this study. The response format was a 7-point Likert-type Scale (1= totally disagree to 7 = totally agree). The higher the score the higher the emotional intelligence. The average score of emotional intelligence was classified into three levels as follows (Wong & Law, 2002):

Mean score 1.00-3.00 = low level

Mean score 3.01-5.00 = moderate level

Mean score 5.01-7.00 = high level

Part III: HSE Management Standards Work-related Stress Indicator Tool

The HSE Management Standards Work-related Stress Indicator Tool (HSE, 2004) was developed by the UK Health and Safety Executive (2004) based on the Model of Work-related Stress Model (Palmer et al., 2004). This tool has 35 items which consist of seven dimensions of *demands (8 items)*; *control (6 items); managerial support(5 items)*, *peer support(4 items)*; *relationships(4 items)*; *role(5 items)*; and *change(3 items)*. The response format was a 5-point scale (1 = Never to 5 = Always; or 1 = Strongly Disagree to 5 = Strong Agree). The items number 3, 5, 6, 9, 12, 14, 16, 18, 20, 21, 22 and 34 were the negative questions. Thus, the 5-point scale was meant that 1 = Always to 5 = Never or 1 = Strongly agree to 5 = Strongly disagree. The Cronbach's alpha reported by Edwards et al. (2008) for the overall scale was 0.92. The confirmatory factors analysis (CFA) on the

original 35-item seven-factor measurement scale using data showed an acceptable fit to the data for the instrument (Edwards et al., 2008). A second-order CFA was also performed to test that this tool contains a higher order uni-dimensional measure of work-related stress (Edwards et al., 2008). The HSE Management Standards Indicator Tool was developed by an official organization – the UK Health and Safety Executive which was used in European organizations and has been translated into 18 different languages including Chinese for non-English-speaking workers. The Chinese version of the HSE Indicator Tool was used in this study after getting permission from Mr. Simon Webster. The average score of perceived level of work-related stress was classified into three levels as follows (Personal communication with the responsible officer of HSE-Simon Webster):

Mean score 1.00-2.33 = high level

Mean score 2.34-3.67 = moderate level

Mean score 3.68-5.00 = low level

Reliability and Validity of the Instrument

The validity of the Wong and Law Emotional Intelligence Scale was estimated by confirmatory factor analysis and the results revealed an acceptable fit to the data for the instrument (RMR = 0.08, CFI = 0.93, and TLI = 0.91) (Wong & Law, 2002). The validity of the HSE Indicator Tool was estimated by confirmatory factors analysis (CFA) and the results showed an acceptable fit to the data for the instrument (CFI = 0.91, GFI = 0.92, NFI = 0.91, and RMSEA = 0.05) (Edwards et al., 2008). Bachand and Beard (1995) showed that RMR and RMSEA range from 0 to 1, the smaller the RMR and RMSEA is, and the better validity is. Aroian and Norris (1998, as cited in Munro, 2001), stated that CFI, TLI, GFI, and NFI range between 0 and 1. Values greater than 0.90 indicate good validity of the instrument; these results confirmed that both instruments had acceptable construct validity.

The Chinese version of the HSE Management Standards Work-related stress Indicator Tool was translated into English by the researcher. Two steps followed this process between the original version and translated version.

1. Getting the permission from the original author and downloading the Chinese version of the HSE Indicator Tool from the website. Then the researcher translated the Chinese version into English.

2. The researcher invited an English expert to confirm the equivalence of this translation version with the Original English version.

The internal consistency reliability of the Wong and Law Emotional Intelligence Scale and the HSE Indicator Tool was tested respectively among 20 randomly selected staff nurses working in the First People's Hospital of Dali. The Cronbach's alpha coefficient of the Wong and Law Emotional Intelligence Scale was 0.91 and each subscale of SEA, OEA, ROE and UOE were 0.84, 0.88, 0.95, and 0.88 respectively. The Cronbach's alpha coefficient of the HSE Management Standards Work-related Stress Indicator Tool was 0.80 and each dimension of demands, control, managerial support, peer support, relationship, role and change were 0.79, 0.86, 0.86, 0.85, 0.65, 0.93, and 0.79 respectively. According to Burns and Grove (2007), a Cronbach's alpha coefficient value of 0.80 is considered acceptable about the reliability. Therefore, the researcher used the data of this study to calculate the internal consistency reliability of HSE Management Standards Work-related Stress Indicator Tool again. The result showed that Cronbach's alpha coefficient of the HSE Management Standards Work-related Stress Indicator Tool was 0.80 and each dimension of demands, control, managerial support, peer support, relationship, role and change were 0.90, 0.86, 0.85, 0.90, 0.89, 0.90, and 0.85 respectively.

Protection of Human Subject

Before implementing this study, the research proposal was approved from the Research Ethics Review Committee of the Faculty of Nursing, Chiang Mai University, Thailand, as well as the deans and directors of both hospitals and the nursing departments. All the participants were informed about the study purpose and methods. They were notified that they have the right to refuse, stop or discontinue the study at any time. The researchers are confident that their answers will be confidential and their identities will not be disclosed in research reports or published studies. Information provided by the

subjects would only be used for the study and keep confidential. The subjects who agreed to participate in the study were required to sign a consent form.

Data Collection Procedures

Data for this study was collected at the First People's Hospital of Dali and the Second People's Hospital of Dali, the People's Republic of China. The following steps guided collection of data in this research:

1. The research proposal was submitted to the Research Ethics Review Committee of the Faculty of Nursing, Chiang Mai University to review.

2. After receiving approval from the Research Ethics Review Committee of the Faculty of Nursing, Chiang Mai University, the package for research including approval letter, the research proposal and application letter for permission to collect data, and two copies of data collection questionnaires in Chinese were submitted to the Deans and Directors of Nursing Department of 1stPHDL and 2ndPHDL for approval to collect data.

3. After getting the permission from the deans and directors of the nursing department of two hospitals, the researcher made an appointment with the directors of nursing departments in the respective hospitals to explain the purpose and the benefits of the research. Then, the directors were requested to officially inform head nurses in the clinic units about the research.

4. The researcher found a research coordinator in each hospital who was requested to distribute and collect questionnaires. The selected coordinator was assigned by the director of Nursing Department. The coordinator was a staff nurse who working in nursing department, and not a subject of this study. The researcher trained them about research objectives, questionnaires, participants' rights, data collection method and process.

5. The subjects were selected by the researcher using a random sample sampling method from the clinical nurses list. However, nurses who participated in the reliability test were excluded from selection.

6. The researcher prepared 308 packages of questionnaires including research information form, informed consent form, questionnaire, and return envelope and gave them to research coordinators. The research coordinators were requested to distribute the questionnaire packages to the nurse subjects. The subjects were asked to answer the questionnaires and return the completed questionnaires within in two weeks in sealed envelopes to the research boxes which were sealed and placed under safe guard of shift in-charge nurses in the office of each unit. The research coordinators collected the questionnaires in sealed envelopes from the boxes and sent them to the researcher.

7. There were 274 (88.9%) questionnaires were returned. Only one was incomplete, therefore, 273 (88.6%) cases were used for data analysis.

Data Analysis Procedures

The Statistical Package for Statistic Software program was used to analyze the data. The significance level was set at 0.05. The data analysis procedure was divided into four parts as follows:

1. Demographic data was analyzed by using frequency, percentage, mean, and standard deviation.

2. The level of emotional intelligence and work-related stress was analyzed by the mean and standard deviation of each dimension and overall.

3. After testing normality distribution using Kolmogorov-Smirov (KS), it was found that scores of emotional intelligence and work-related stress were not normal distributions. Thus, the researcher used Spearman's Rank-order Correlation analysis to explore the relationship between emotional intelligence and work-related stress. Based on Burns and Grove (2007), the correlation coefficient, r, between 0.10 and 0.30 is considered as a weak relationship, an r value between 0.31 and 0.50 is considered as a moderate relationship, and an r value larger than 0.50 is considered as a strong relationship.