

## **CHAPTER 3**

### **Methodology**

The research methodology of this study includes research design, population and sample, research instruments, protection of human rights, data collection procedure and data analysis procedure.

#### **Research Design**

The descriptive correlational research design was used to explore the level of work engagement and proactive work behavior, and to examine relationship between work engagement and proactive work behavior among head nurses in university affiliated hospitals, Yunnan province, the People's Republic of China.

#### **Population and Sample**

##### **Population**

The target population for this study was head nurses who have been appointed for first-line nurse managers in 7 university affiliated hospitals, Yunnan province, the People's Republic of China. The total number of the target population was 484 head nurses (Nurse directors, personal communication, October 1-10, 2016).

##### **Sample**

Sample was head nurses who have been appointed for first-line nurse managers in university affiliated hospitals, Yunnan province, the People's Republic of China. Taro Yamane's (1973) formula was used to calculate the sample size  $[n=N/1+N(e)^2]$ , with the level of 0.05. The sample size was 219, considering possible loss of participants, 20 % of the sample size was added (Best & Kahn, 2005), and total number of the sample size was 262.

The inclusion criteria were as follows: 1) head nurses who worked in inpatient and outpatient departments, 2) head nurses who were appointed as head nurses more than or equal to 1 year. The exclusion criterion was 1) head nurses who left for education, vacation, and maternity leave were not in the hospital during collecting data.

Multistage sampling method was conducted to recruit participants as follows:

The first stage was to select hospitals. There are 7 hospitals which were affiliated with three universities in Yunnan Province, including 2 hospitals affiliated with Dali University, 4 hospitals affiliated with Kunming Medical University and one hospital affiliated with Kunming University of Science and Technology. Afterwards, the researcher selected hospitals in the study by using the ratio of 2:1 hospitals from each university. These accounted 4 hospitals were used in the study. One hospital of Affiliated Hospital of Dali University attached to Dali University, while one hospital of the First People's Hospital of Yunnan Province attached to Kunming University of Science and Technology, and two hospitals of the First Affiliated Hospital of Kunming Medical University and the Second People's Hospital of Yunnan Province attached to Kunming Medical University.

The second stage was to use proportional random sampling method, the sample was determined as in Table 3-1.

The third stage was to select participants. The researcher obtained the name list of head nurses from nursing department of each hospital and then used simple randomly sampling to recruit participants into the study. This process was conducted until the required number of sample was obtained.

Table 3-1

*The Number of Population and Sample in Four University Affiliated Hospitals*

University affiliated hospital	Population	Sample
The Affiliated Hospital of Dali University	50	40
The First Affiliated Hospital of Kunming Medical University	111	88
The First People's Hospital of Yunnan Province	101	80
The Second People's Hospital of Yunnan Province	68	54
Total	330	262

### Research Instruments

In this study, instruments were questionnaires consisted of three parts: demographic data form, Chinese version Utrecht work engagement scale, and proactive work behavior scale.

#### Part I: Demographic Data Form

Demographic data form was developed by the researcher. It was designed with closed and opened-ended questions to collect information of the participants including gender, age, marital status, number of children, educational level, number of year as nurse, number of year as head nurse, number of year working in the unit, salary, department, training about individual innovation, taking charge, voice and problem prevention and member of committee.

#### Part II: Chinese Version Utrecht Work Engagement Scale (Schaufeli & Bakker, 2003)

The Chinese version Utrecht work engagement scale (Schaufeli & Bakker, 2003) was used to measure work engagement of head nurses. It includes three sub-dimensions, namely, vigor, dedication and absorption. This scale contained 17 items: vigor (6 items), dedication (5 items) and absorption (6 items). The scale was scored on seven points from 0 (never) to 6 (always). The construct validity was tested by using structural equation modeling (SEM).

The scale was divided into five categories by Schaufeli and Bakker (2003) which can be interpreted as follows:

Category	Very low	Low	Average	High	Very high
Overall	≤ 1.93	1.94-3.06	3.07-4.66	4.67-5.53	≥ 5.54
Vigor	≤ 2.17	2.18-3.20	3.21-4.80	4.81-5.60	≥ 5.61
Dedication	≤ 1.60	1.61-3.00	3.01-4.90	4.91-5.79	≥ 5.80
Absorption	≤ 1.60	1.61-2.75	2.76-4.40	4.41-5.35	≥ 5.36

### Part III: Proactive Work Behavior Scale by Parker and Collins (2010)

The scale of proactive work behavior (Parker & Collins, 2010) was used to measure proactive work behavior of head nurses. It includes four sub-dimensions, namely, taking charge (3-item), individual innovation (3-item), problem prevention (3-item) and voice (4-item). The scale was scored on five points from 1 (very infrequently) to 5 (very frequently). The construct validity was tested by using structural equation modeling (SEM).

A three-level scoring method (Kirk, 2007) was used to interpret the scale that was approved by Parker (Personal communication, October 31, 2016) and can be interpreted as follows:

Category	Low	Moderate	High
Overall	13.00-30.33	30.34-47.66	47.67-65.00
Problem prevention	3.00-7.00	7.01-11.00	11.01-15.00
Individual innovation	3.00-7.00	7.01-11.00	11.01-15.00
voice	4.00-9.33	9.34-14.66	14.67-20.00
Taking charge	3.00-7.00	7.01-11.00	11.01-15.00

The English version proactive work behavior scale was translated into Chinese version by using back-translation method (Sperber, 2004). Firstly, the English version scale was translated into Chinese version by the researcher. Then, Chinese version scale was translated back into English by bilanguage translator who was blinded to the original

English version scale. Finally, the researcher and her advisor compared the back-translation version and original version scales to determine discrepancies.

### **Quality of Instrument**

The researcher had obtained permission to translate the English version proactive work behavior scale (Parker & Collins, 2010) into Chinese and use three-level scoring method (Kirk, 2007) to interpret the scale. Also, the permission has been obtained to use 17-item Chinese version UWES (Schaufeli & Bakker, 2003).

The validity of the Chinese version 17 items Utrecht work engagement scale (Schaufeli & Bakker, 2003) and the proactive work behavior scale (Parker & Collins, 2010) were confirmed by the authors. Therefore, this study did not test the validity of the Utrecht work engagement scale and proactive work behavior scale. To test reliability of work engagement scale and proactive work behavior scale, pilot study was conducted with 15 head nurses who worked in the First Affiliated Hospital of Kunming Medical University before distributing questionnaires to the participants, and the Cronbach's alpha coefficient was used to confirm their reliability. In this study, the Cronbach's alpha coefficient of work engagement scale and three sub-dimensions, namely, vigor, absorption and dedication were 0.87, 0.57, 0.83, 0.71, respectively, while that of proactive work behavior scale and four sub-dimensions, namely, problem prevention, individual innovation, voice and taking charge were 0.92, 0.68, 0.89, 0.86, 0.87, respectively.

### **Protection of Human Rights**

The proposal of research approval from the Research Ethics Review Committee, Faculty of Nursing, Chiang Mai University (No. 020/2017) and permission to collect data from each hospital director, Yunnan province, the People's Republic of China were obtained. Information sheet for study participants and volunteer research agreement form were translated to Chinese version by using back-translation method (Sperber, 2004). Prior to collecting data, the researcher assured protection of human rights of the participants by informing the participants that they can withdraw from the study at any time without any impact on their performance appraisal. Confidentiality and anonymity of each participant were guaranteed by not identifying the name and separating placement

questionnaire and volunteer research agreement form. Information provided by the participants was used only for the purpose of this study. The results of the study were reported in general. Volunteer research agreement form was given to the participants.

### **Data Collection Procedures**

Data was collected by using questionnaires with the following steps:

1. After receiving approval from the Research Ethics Review Committee of the Faculty of Nursing, Chiang Mai University, the researcher applied for the official letters for data collection from the dean of faculty of nursing.
2. The researcher submitted the official letters and the research packages including research proposal and questionnaires to directors of university affiliated hospitals, Yunnan province, the People's Republic of China in order to ask for permission to collect data.
3. After permission was obtained from director of each hospital. The researcher made appointment with director of nursing department of each hospital to explain the objectives of the study and to ask for appointing the research coordinator.
4. The researcher obtained the name list of head nurses and randomly selected participants from name list of head nurses in each hospital.
5. The researcher contacted with the research coordinator of each hospital to explain about the objectives of the study and method of distributing and collecting questionnaires. Then, the researcher gave the research coordinator the package of questionnaires including an information sheet for study participants, a volunteer research agreement form, the questionnaires and two envelopes.
6. The coordinator of each hospital distributed the package of questionnaires to all participants who were requested for cooperation to complete the questionnaires in their private time within two weeks and returned them to the box with a lock which was placed in the nursing department. After all participants of each hospital completed the questionnaires, the research coordinator contacted with the researcher and mailed the package of questionnaires to the researcher.

7. The researcher distributed 262 questionnaires. The returned questionnaires were 234. The response rate was 89.31% of distributed questionnaires. Finally, 225 (85.88%) of distributed questionnaires were used to analyze after the research assessed completeness of questionnaires.

### **Data Analysis Procedures**

In this study, descriptive and inference statistics were conducted to analyze data by using statistical software package. The statistical significance level of alpha was set at 0.05.

1. Descriptive statistics including frequency, percentage, mean and standard deviation was used to analyze demographic data.
2. Mean and standard deviation were used to analyze the score of work engagement and proactive work behavior.
3. The relationship between work engagement and proactive work behavior among head nurses were analyzed. Kolmogrov-Smirnov testing was used to test the normality of data of work engagement and proactive work behavior. The data distribution was normal. Therefore, Pearson product-moment correlation test was used.
4. The level of relationship was based on Burns and Grove (2010), and correlation coefficient ( $r$ ) value represents the relationship between two variables:  $r$  with a value smaller than 0.30 was considered as a weak relationship, while  $r$  with a value from 0.30 (inclusive) to 0.50 (inclusive) was considered as a moderate relationship; and  $r$  with a value greater than 0.50 was considered as a strong relationship.