

CHAPTER 3

Methodology

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

Research Design

A descriptive correlational design was used to examine the transformational leadership of head nurses, team potency, and the relationship between these two variables as perceived by nursing teams. This study was conducted in four general hospitals affiliated with Shanghai University of Traditional Chinese Medicine, Shanghai, the People's Republic of China.

Population and Sample

Population

The target population of this study was 125 nursing teams of 2,133 nurses who were working in four Level-A tertiary general hospitals affiliated with Shanghai University of Traditional Chinese Medicine, Shanghai, the People's Republic of China. The names of the four hospitals, the number of nursing units/wards, and the number of nurses in each hospital are shown in Table 3-1.

Sample

The exploration of this study focused on the team level. Nurses working under the supervision of the same head nurse in one unit/ward were considered as a team. In this study, multiple kinds of hospital units such as medical units, surgical units, pediatric units, special units, intensive care units, emergency rooms and out-patient departments were selected in order to ensure a statistically powerful sample. For each team,

according to Shea and Guzzo's study (1987), a sample of three team members meeting the criteria were randomly selected, because a team was a system of at least three members who counted themselves as a group. If any team members were not willing to participate in the study, the other nurse in the same unit was added as a participant. The number of teams and samples for each hospital are shown in Table 1. Thus, the sample size was 113 teams representing the sample of 339 team members.

Table 3-1
Distribution of Population and Sample Size in Each Hospital

Group	Name of hospital	Total number of units with nursing teams in each hospital	The number of sample nurses in each hospital
Level-A tertiary general hospital	Longhua Hospital	29	87
	Shuguang Hospital	38	114
	Shanghai Hospital of Traditional Chinese Medicine	22	66
	Yueyang Hospital	24	72
Total		113	339

Inclusion criteria. All level of staff nurses who had worked at the same hospitals for at least two years and were willing to participate in the study.

Exclusion criteria. Nursing directors, nurse supervisors, head nurses, nursing administration staff, and nurses who were working in operating rooms or central supply rooms were not included in this study.

Sampling method. Three nurses in each unit/ward were obtained by using a simple random sampling method. A table of random numbers and a list of the names of nurses who were willing to participate in nursing departments of each hospital were used to randomly sample. This process was continued until the required numbers of nurses were chosen.

Research Settings

In this study, the research setting was four Level-A tertiary general hospitals which were all affiliated with Shanghai University of Traditional Chinese Medicine, Shanghai, the People's Republic of China.

Research Instruments

The instruments used in this study were a set of questionnaires consisting of three parts:

Part I: Demographic Data Form

The demographic data form was designed especially for this study. It was an open-ended and closed-ended questionnaire consisting of questions regarding age, gender, marital status, educational level, professional title, working unit, and number of years working in the present unit.

Part II: The Leadership Practices Inventory (LPI) (LPI-observer)

The Leadership Practices Inventory (LPI) was developed by Kouzes and Posner (1995, 2002). The Chinese version of LPI-observer form translated by Chen and Baron (2007) was used. The LPI contained five dimensions: "Model the way", "Inspire a shared vision", "Challenge the process", "Enable others to act", and "Encourage the heart". There was in total a 30-item instrument with 6 items reflecting each of the five leadership practices. Each item was rated on a 5-point Likert scale ranging from 1 = *rarely or very seldom* to 5 = *very frequently or almost always*. The score was derived by summing the items and dividing by the number of items that made up the scale. Individual scores were averaged across team members to get a team score for each team. The range of team score and the meaning were classified into three levels, approved by Chen and Baron (2007), as follows:

Mean score 1.00-2.33 = low level

Mean score 2.34-3.66 = moderate level

Mean score 3.67-5.00 = high level

Part III: Guzzo et al.'s (1993) Potency Scale

The Potency Scale developed by Guzzo et al. (1993) was used and was translated into Chinese version by the researcher. Guzzo's Potency Scale contained eight items: My group 1) has confidence in itself, 2) expects to be known as a high-performing team, 3) feels it can solve any problem it encounters, 4) believes it can be very productive, 5) believes it can get a lot done when it works hard, 6) believes no task is too tough for this team, 7) expects to have a lot of influence around here, and 8) believes it can become unusually good at producing high quality work. The statements were scored on a 5-point Likert scale to assess the level of team potency, the range from 1 = *To no extent* to 5 = *To a great extent*. Each individual's score was calculated by averaging across the eight items. Then individual scores were averaged across team members to get a team potency score for each team. A higher score indicated that the team had a stronger sense of potency and greater belief. The range of team score and the meaning were classified into three levels which were approved by Guzzo et al. (1993) as follows:

Mean score 1.00-2.33 = low level

Mean score 2.34-3.66 = moderate level

Mean score 3.67-5.00 = high level

Validity of the Instruments

The construct validity of the Chinese version of LPI-observer and Guzzo et al.'s Potency Scale had been proven valid and acceptable from the authors as well as in previous studies. The content validity index (CVI) of Chinese LPI-observer was .96 and had an internal consistency reliability of .95 (Chen & Baron, 2007). The internal consistency reliability of Guzzo's Potency Scale was .95 (Gil et al., 2005). The researcher did not test the validity for this study. The Chinese version of LPI-observer was used without any translation or modification as the original study offered a Chinese version already. Guzzo's Potency Scale was translated into Chinese by the researcher and back-translated into English by one bilingual Chinese expert. The modified scale was then compared with the original scale and the back-translated version scale for content congruence and cultural relevancy by a native English speaking person and no discrepancy was identified.

Reliability of the Instruments

The internal reliability of two instruments was tested with fifteen nurses who had similar characteristics to the subjects working in Longhua Hospital. These fifteen nurses were excluded from the samples. The Cronbach's alpha coefficient of overall transformational leadership was .96. The Cronbach's alpha coefficient of subscales of "Model the way", "Inspire a shared vision", "Challenge the process", "Enable others to act", and "Encourage the heart" were .83, .90, .91, .84, and .83 respectively. The Cronbach's alpha coefficient of team potency was .92.

Protection of Human Subjects

The research proposal was submitted to the Research Ethics Committee, the Faculty of Nursing, Chiang Mai University for the approval of this study. Then the approvals were accepted by the directors of the nursing departments of four university hospitals affiliated with Shanghai University of Traditional Chinese Medicine, Shanghai, the People's Republic of China. All subjects were informed about the study objectives and methods. They were notified that they had rights to refuse, stop, or withdraw at any time from this study. Before data collection, to assure the protection of human rights of the subjects, a research consent form was handed to each subject. Confidentiality and anonymity of individual responses were guaranteed by a statement included in a cover letter. Code numbers were used instead of names. Information offered by the participants was only applied for the study and remained confidential.

Data Collection Procedure

Data collection was conducted in the following steps:

1. The researcher submitted the research proposal to the Research Ethics Committee, the Faculty of Nursing, Chiang Mai University to review.
2. After receiving the approval letter from the Research Ethics Committee of the Faculty of Nursing, Chiang Mai University, the researcher submitted the research proposal, application letter for permission to collect data, and a copy of instruments to the directors of the nursing departments of the four selected hospitals for approval and permission.

3. The researcher met with nurse directors of each hospital to inform them of the purpose, objectives, and benefits of the study, and asked them to assign one research coordinator from each hospital.

4. The researcher got the name lists of nurses in each unit from the nursing departments of each hospital and selected three subjects from each unit by using a table of random numbers to get a sample size.

5. The researcher prepared and informed each coordinator about the distribution and collection of the questionnaires in half an hour. After the discussion section, the researcher evaluated the coordinators' understanding by asking.

6. The research coordinator of each hospital (the total of four coordinators) distributed the questionnaires. All participants were requested for cooperation to complete the forms in their available time.

7. The participants were asked to return the questionnaires in sealed envelopes within two weeks to the box which was placed in each nursing department.

8. The research coordinators collected questionnaires from the boxes and returned them to the researcher.

9. The researcher checked and screened the completed questionnaires before data analysis. Eleven incomplete questionnaires were excluded. The researcher redistributed questionnaires to other nurses in the same unit of nurses who returned incomplete questionnaires until getting a total of 339 completed questionnaires.

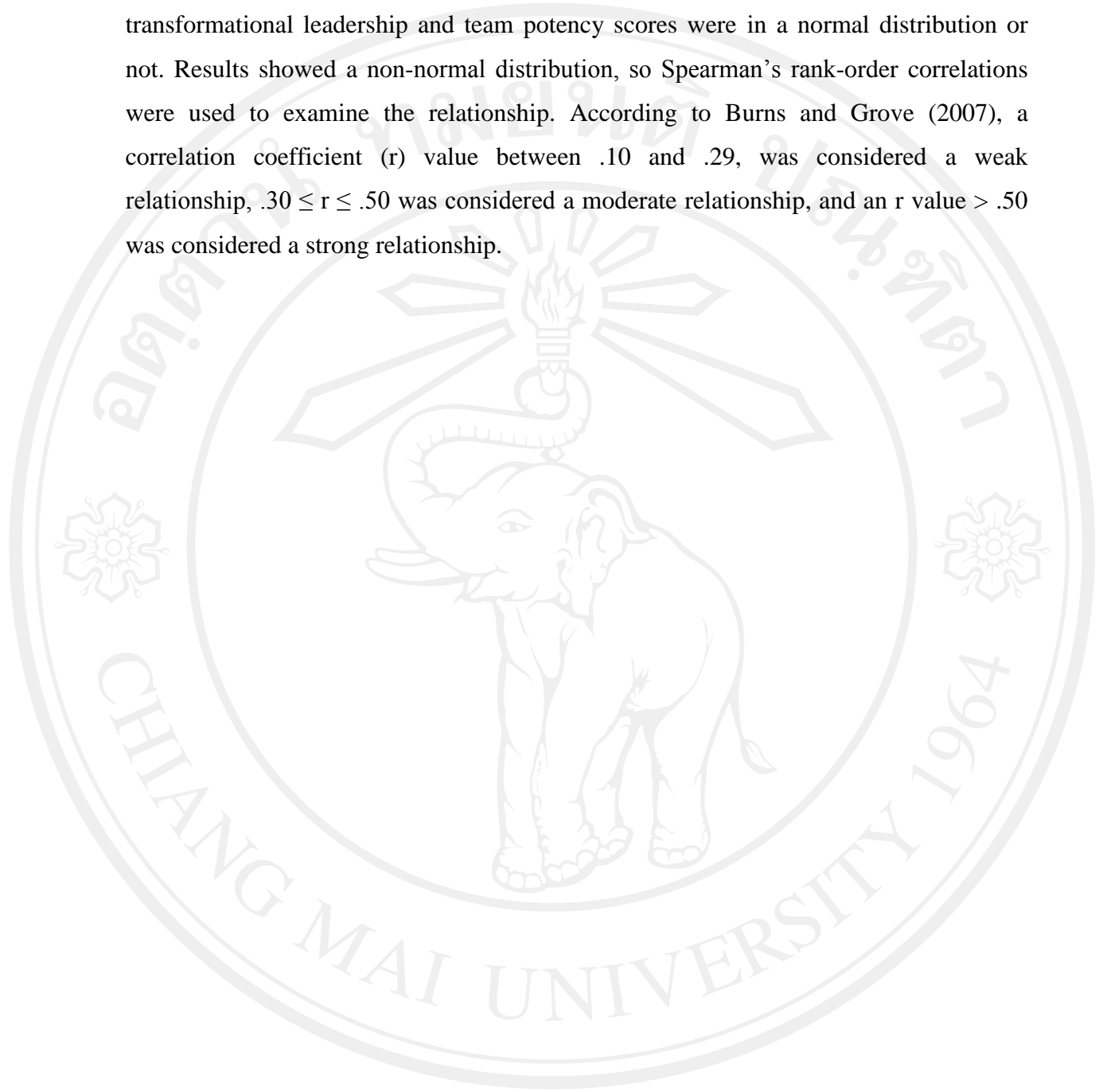
Data Analysis Procedure

Before data being analyzed, the data for each individual unit were scrutinized by the researcher. The Statistical Package for the Social Science (SPSS) version 13.0 was used for data analysis. The significant level was set at .05. The data analysis procedure was divided into three parts as follows:

1. Descriptive statistics including frequency, percentage, mean, range, and standard deviation were used in analyzing the demographic data of nurses.

2. Individual scores of transformational leadership and team potency were averaged across team members to get team scores for each team, and then descriptive analysis including mean, frequency, and percentage were used to examine the scores of transformational leadership and team potency among nursing teams.

3. Kolmogorov-Smirnov's (KS) test was used to test whether the team scores of transformational leadership and team potency scores were in a normal distribution or not. Results showed a non-normal distribution, so Spearman's rank-order correlations were used to examine the relationship. According to Burns and Grove (2007), a correlation coefficient (r) value between .10 and .29, was considered a weak relationship, $.30 \leq r \leq .50$ was considered a moderate relationship, and an r value $> .50$ was considered a strong relationship.



ลิขสิทธิ์มหาวิทยาลัยเชียงใหม่
Copyright© by Chiang Mai University
All rights reserved