

# สภาพแวดล้อมในการปฏิบัติวิชาชีพและการพยาบาลที่มีคุณภาพ ในโรงพยาบาลศูนย์กลาง ประเทศสาธารณรัฐประชาธิปไตยประชาชนลาว Professional Practice Environment and Quality Nursing Care in Central Hospitals, The Lao People's Democratic Republic

พรสวรรค์ ม่วยอดมเดช	M.N.S.*	Phonesavanh	Mouiodomdeth	M.N.S.*
ฐิติณัฐ อัครเดชอนันต์	Ph.D.**	Thitinit	Akkadechanunt	Ph.D.**
รัตนาวดี ขอนตะวัน	Ph.D.***	Ratanawadee	Chontawan	Ph.D.***

## บทคัดย่อ

สภาพแวดล้อมในการปฏิบัติวิชาชีพ เป็นปัจจัยสำคัญในการพัฒนาการพยาบาลที่มีคุณภาพ วัตถุประสงค์ของการศึกษานี้ เป็นการศึกษาาระดับของสภาพแวดล้อมในการปฏิบัติวิชาชีพและการพยาบาลที่มีคุณภาพ และศึกษาความสัมพันธ์ระหว่างสภาพแวดล้อมในการปฏิบัติวิชาชีพและการพยาบาลที่มีคุณภาพในโรงพยาบาลศูนย์กลาง สาธารณรัฐประชาธิปไตยประชาชนลาว กลุ่มตัวอย่างเป็นพยาบาลที่ปฏิบัติงานในแผนกผู้ป่วยในของโรงพยาบาลศูนย์กลางสามแห่ง มีจำนวน 274 คนเลือกโดยการสุ่มตัวอย่าง เครื่องมือที่ใช้ในการวิจัย ประกอบด้วยสามส่วน ได้แก่ ข้อมูลส่วนบุคคล แบบสอบถามสภาพแวดล้อมในการปฏิบัติวิชาชีพ พัฒนาโดย เอริกสัน และคณะ (2009) (Erickson, Ditomassi, Duffy, Jones, 2009) และการพยาบาลที่ดีที่พัฒนาโดย ไลโน-คิลปี (1996) (Leino-Kilpi, 1996) ที่แปลเป็นภาษาลาวโดยผู้วิจัย ค่าความเชื่อมั่นที่วัดโดยค่าสัมประสิทธิ์แอลฟาของครอนบาคของแบบสอบถามสภาพแวดล้อมในการปฏิบัติวิชาชีพ และการพยาบาลที่ดีที่ เท่ากับ 0.81 และ 0.93 ตามลำดับ การวิเคราะห์ข้อมูลด้วยสถิติเชิงพรรณนา และสถิติหาความสัมพันธ์ของเพียร์สัน

## ผลการวิจัย พบว่า

1. สภาพแวดล้อมในการปฏิบัติวิชาชีพตามการรับรู้ของพยาบาลโดยรวมอยู่ในระดับสูง
2. การพยาบาลที่มีคุณภาพตามการรับรู้ของพยาบาลโดยรวมอยู่ในระดับต่ำ
3. สภาพแวดล้อมในการปฏิบัติวิชาชีพมีความสัมพันธ์กับการพยาบาลที่มีคุณภาพในเชิงลบอย่างมีนัยสำคัญทางสถิติ

\* พยาบาลวิชาชีพชำนาญการ โรงพยาบาลมโหสถ  
 \* Professional Nurse, Mahosot hospital  
 \*\* ผู้ช่วยศาสตราจารย์ คณะพยาบาลศาสตร์ มหาวิทยาลัยเชียงใหม่  
 \*\* Assistant Professor, Faculty of Nursing, Chiang Mai University  
 \*\*\* รองศาสตราจารย์ คณะพยาบาลศาสตร์ มหาวิทยาลัยเชียงใหม่  
 \*\*\* Associate Professor, Faculty of Nursing, Chiang Mai University

ผลการวิจัยครั้งนี้สามารถใช้เป็นข้อมูลพื้นฐานสำหรับผู้บริหารโรงพยาบาลและผู้บริหารการพยาบาลในการ  
จํารังรักษาสภาพแวดล้อมในการปฏิบัติวิชาชีพและกำหนดกลยุทธ์ในการพัฒนาการพยาบาลที่มีคุณภาพในโร  
พยาบาลศูนย์กลาง ประเทศสาธารณรัฐประชาธิปไตยประชาชนลาว

**คำสำคัญ:** สภาพแวดล้อมในการปฏิบัติวิชาชีพ การพยาบาลที่มีคุณภาพ โรงพยาบาลศูนย์กลาง ประเทศ  
สาธารณรัฐประชาธิปไตยประชาชนลาว

## Abstract

A professional practice environment is an important factor for improving the quality of nursing care. The purposes of this study were to explore the level of the professional practice environment and quality nursing care, and to examine the relationship between a professional practice environment and quality nursing care in central hospitals, Lao PDR. The subjects included 274 nurses who were randomly selected from nurses in the inpatient units of the three central hospitals. Research instruments consist of three parts: a Demographic Data Form, the Revised Professional Practice Environment (RPPE) Scale developed by Erickson *et al.*, (2009), and the Good Nursing Care Scale, developed by Leino - Kilpi (1996) translated in to Lao by the researcher. The reliability coefficient of the RPPE scale and GNCS were 0.81 and 0.93 respectively. Descriptive statistics and Pearson's product moment correlation coefficient were employed for data analysis.

### The results of study

1. The level of the overall professional practice environment as perceived by nurses was at a high level.
2. The level of the overall quality nursing care as perceived by nurses was at a low level.
3. There was a significant negative relationship between the level of overall professional practice environment and the level of overall quality nursing care.

The results of this study can be used as baseline information for hospital administrators and nurse administrators to maintain the practice environment as well as to develop strategies for improving the quality nursing care in central hospitals, the Lao People's Democratic Republic

**Key words:** Professional Practice Environment, Quality Nursing Care, Central Hospitals, The Lao PDR

## **Background and significant**

Nowadays, health care systems are facing changes in market forces regarding patient demands, and quality has become a focal point for health care systems globally. Changes in the health care market include increasing patient demands, advanced technology, and environmental changes (Price, 1993). Patients in the United States increasingly voice their concerns regarding health care quality; they request a high standard of care, safety and additional needs such as comfort and respect of their patients' rights. Nurses are the major health care providers who are responsible for the provision of nursing care and accountable for the quality of nursing care and high standards of care during patients' hospitalization (Institute of Medicine, 2004). Additionally, quality nursing care is an important part of healthcare services in the hospital.

In Laos, People's Democratic Republic quality of health care was ranked as one of the seven healthcare goals during the 7th National Socio-Economic Development Plan for 2011 to 2015 (Ministry of Planning and Investment, 2011). The National Health Plan (2003-2005) has been completed, and the Laos Ministry of Health is currently implementing the second National Health Plan (2010-2020) which covers the 10 year period of Lao's Health Vision 2020. The goal of National Health Plan (2010-2020) includes enhancing the quality of health to uplift the health status of the entire nation and increase the quality of life of all the ethnic people in Laos (Ministry of Health [MOH], 2006).

In Central hospitals, each hospital has a different number of patient's beds Mahosot hospital has 450 patient beds, Mittaphap hospital has 150 patient beds, and Setthathirath

hospital has 220 patient beds. In 2010 there were 82,470 inpatients visited to Mahosot Hospital, 50,765 inpatients visited to Mittaphab Hospital, and 12,495 inpatients visited to Setthatilath Hospital. The average patient-nurse-ratio since the ratio is 8:1 at Mahosot hospital, is 12:1 for Mittaphap Hospital, and is 8:1 at Sathatilath Hospital. According to the World Health Organization's standards, hospital inpatient units should have patient-nurse ratios of 3:1 for IPD. Therefore, when compare with the (World Health Organization [WHO] (2005). it was found that nurses in Central Hospitals encounter a heavy workload due to insufficient manpower and lack of service support as nurses also perform many non nursing duties.

Due to insufficient staff, nurses in CHs provide nursing and non-nursing duties. Nurses are responsible for making patients' beds comfortable, providing sufficient light, and keeping the ward clean and peaceful with minimal noise during the night. However, the physical environment is not productive for health; CHs are full of patients and family members. All beds are always occupied with patients and family members can stay with patients during the night. Nurses cannot control the noise in some units. Moreover as nurses have to do many non-nursing duties, they do not have enough time to provide direct care to patients, which may cause poor quality of care.

Providing quality nursing care can be increase if professional practice environment in the hospital setting is good and have supported from the organization about income, adequate nursing staff and career advancement. There are several factors that affect quality nursing care includes adequate staffing environmental (staffing levels), organizational (type of hospital,

coordination and communication) and personal factors (personality and attitude, technical skills). One important factor that enhanced quality of nursing care was the professional practice environment. When studying quality nursing care (QNC), it is useful to consider the professional practice environment (PPE) in which the nursing care takes place (Friese, Lake, Aiken, Siber, & Sochalski, 2008). There are a small number of research studies indicating the relationship between QNC and professional practice environment. Among three studies, the results were inconsistent, two studies found a positive relationship (Leveck, & Jones, 1996) and one study did not found any relationship (Kim, Capezuti, Boltz & Fairchild, 2009).

### Research Objectives

1. What is the level of professional practice environment among nurses in central hospitals, Lao PDR?
2. What is the level of quality nursing care among nurses in central hospitals, Lao PDR?
3. Is there any relationship between professional practice environment and quality nursing care among nurses in central hospitals, Lao PDR?

### Conceptual Frame work

The conceptual framework for PPE was based on Erickson, Ditomassi, Duffy, & Jones (2009). Professional practice environment is the organizational characteristics of work setting that facilitate or constrain professional nursing practice based on eight components: 1) handling disagreement and conflict; 2) internal work motivation; 3) control over practice; 4) leadership and autonomy in clinical practice; 5) staff relationships with physicians; 6) teamwork;

7) cultural sensitivity; and 8) communication about patients. The QNC is the degree of excellence in nursing care provided for patients that meets the patient's spiritual, mental, social, physical environmental needs and consists of six categories; 1) staff characteristics, 2) care-related activities, 3) preconditions for care, 4) physical environment, 5) progress of nursing process and, 6) cooperation with relatives based on Leino-Kilpi (1996). The relationship between PPE & QNC was tested in this study.

### Methodology

The target population of this study was nurses who worked in four inpatient units of the three central hospitals, Lao PDR, for more than one year. The total population included 558 nurses; 294 nurses in Mahosot hospital, 128 nurses in Mittaphap hospital, and 136 nurses in Setthathirath hospital.

The sample size of this study was calculated following Yamane (1973). The sample size was 233. Considering the possible loss of subjects, 20% of the sample size (47) was added in to the sample size (Israel, 1992). Therefore, sample size for study was 280 nurses.

### Research Instruments

The instrument used in this study was a questionnaire, consisting of three parts:

1) Demographics Data Form: This form was developed by the researcher and consisted of subject information regarding age, gender, marital status, level of nursing education, hospital, work department, nursing experience, and personal income per month.

2) Revised Professional Practice Environment (RPPE) Scale developed by Erickson *et al.*, (2009) was used to measure nurses'

professional practice environment. This was used with the permission of the original author and consisted of 39 items with eight components. Each item was placed on a four-point Likert scale of SA (4=strongly agree), A (3=agree), D (2=disagree), and SD (1=strongly disagree). There were eight items that were reversed scores: # 15, 17, 18, 19, 20, 21, 22, and 27. The scores of RPPE ranged from 1 to 39, the total mean score was divided by three and classified into three levels as Low, Moderate and High. The RPPE Scale was translated into the Laotian language without any modification by the researcher and back-translated into English version by two Lao bilingual nursing experts. Moreover, the two English versions were verified for their equivalence by two Laos bilingual experts.

3) Good Nursing Care Scale (GNCS) of nurses Leino-kilpi (1996) was used to explore the level of quality nursing care consisted six categories. Respondents indicate the extent of agreement with 58 items on a 7-point Likert scale ranging from 'do not know' (rated 0) to 'never' (rated 6). Therefore, the possible total score is 0-348 the total mean score was divided by three and classified into three levels as Low, Moderate and High. The GNCS Scale was translated into the Laotian language by the researcher without any modification and back-translated into English version by two Laos bilingual nursing experts. Moreover, the two English versions were verified for their equivalence by two Laos bilingual experts.

### **Validity of instrument**

The content validity index (CVI) of the 58-item quality nursing care scale was 0.92 (Leino-Kilpi, 1996). The construct validity of professional practice environment scale had been tested by

using principal component analyses (Erickson et al., 2009). Hence, the researcher did not re-test the validity of both instruments in this study.

### **Reliability of the instruments**

The internal reliability of both instruments was tested with 20 nurses in Mahosot hospital who had similar characteristics to the subjects. The reliability of the instrument was tested using Cronbach's coefficient alpha. The Cronbach's alpha coefficient of the Lao version of RPPE was 0.81 and the reliability of the QNC was 0.93.

### **Protection of Human Subjects**

The research proposal was submitted to the Research Ethics Review Committee, the Faculty of Nursing, Chiang Mai University, Thailand. Approval was obtained from the university before data collection.

### **Data Collection Procedure**

This study was conducted from May to June, 2012 at central hospitals, Lao People's Democratic Republic. The following steps were performed:

1. After having received approvals from the Research Ethics Review Committee in faculty of nursing Chiang Mai University, research proposal and instruments were submitted to all three hospitals in Vientiane, Lao PDR for approval and permission to collect data.
2. Permission was obtained from the hospital directors and nurse directors of nursing departments of the Central Hospital in Vientiane, Lao PDR.
3. The purpose, objectives, and benefits of the study were explained to head nurse of each clinical department.
4. Subjects were selected by the researcher

using random sampling from the list of the nurse's code in nursing department. Nurses in Mahosot hospital who had already participated in the pilot were excluded from the sampling.

5. The researcher asked one nurse from each hospital for cooperation to work as the research coordinator whom distributed questionnaire to the samples of each hospital with request for cooperation to complete the forms on their private time and once completed to seal the envelopes.

6. The questionnaires were returned within one week to the box provided in each nursing department of three hospitals.

7. Research coordinator collected the questionnaire from the box and sent the questionnaires to researcher every week for four weeks.

8. Researcher checked for the completeness of questionnaire. The ones which were not fully completed were excluded. A total of 280 questionnaires were distributed to the subjects in three hospitals. There were 280 questionnaires returned and 6 questionnaires were incomplete due to missing data. Therefore, the final sample size of nurses was 274 (97.85%).

### Data Analysis Procedures

Data was entered into the computer, and the researcher analyzed the data using a statistical software package. Significance level Alpha was set at 0.05. The data were analyzed as follows:

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

2. Levels of PPE & QNC were analyzed by using mean scores.

3. Pearson's product-moment correlation

coefficient was used to test the relationship between PPE and QNC after testing the normal distribution of data.

### Findings

1. The subjects consisted of 274 nurses. Age of subjects ranged from 20 to 56, with average age of 31.37 years (S.D. = 9.43). The majority of subjects were female (89.78%), more than half of subjects were married (59.12%) and 94.53% of the subjects had earned a diploma degree. Almost 52% worked in Mahosot hospital, and 44.53% worked in Medical Department. The largest group of the subjects had 1-10 years (59.49%) work experience and the majority of the subjects (54.74%) earned income/salary between 500,000-700,000 kip per month.

2. The overall mean score of professional practice environment as perceived by nurses was at a high level, with mean of overall score 3.06 and a standard deviation of 0.26. A moderate level of PPE was found in handling disagreement/ conflict, team work, and communication about patients ( $\bar{X} = 2.88$ , S.D. = 0.33;  $\bar{X} = 2.85$ , S.D. = 0.59;  $\bar{X} = 2.95$ , S.D. = 0.44 respectively). Meanwhile, a high level of PPE was found in internal work motivation, control over practice, leadership and autonomy in clinical practice, staff relationships with physicians, and cultural sensitivity ( $\bar{X} = 3.30$ , S.D. = 0.40;  $\bar{X} = 3.04$ , S.D. = 0.53;  $\bar{X} = 3.12$ , S.D. = 0.42;  $\bar{X} = 3.35$ , S.D. = 0.49;  $\bar{X} = 3.13$ , S.D. = 0.50 respectively).

3. The overall score of QNC as perceived by subjects was at a low level, with mean score of 1.97 and standard deviation of 0.48. A moderate level of QNC was found in preconditions for care, progress of nursing process, and cooperation with relatives ( $\bar{X} = 2.11$ , S.D. = 0.70;  $\bar{X} = 2.14$ , S.D. = 0.66;  $\bar{X} = 2.01$ , S.D. = 0.75 respectively).

Meanwhile, a low level of QNC was found in staff characteristics, care-related activities, and physical environment ( $\bar{X} = 1.63$ , S.D. = 0.53;  $\bar{X} = 1.94$ , SD = 0.59;  $\bar{X} = 1.60$ , S.D. = 0.68 respectively).

4. There was a significant negative relationship between professional practice environment and quality nursing care as perceived by nurses ( $r = -0.308$ ,  $p < 0.001$ ).

## Discussion

The purposes of this study were to explore the level of the professional practice environment and quality nursing care, and to examine the relationship between a professional practice environment and quality nursing care in central hospitals, Lao PDR.

1. Professional practice environment as perceived by nurses in central hospitals, The Lao PDR

The result of this study show that the overall PPE as perceived by nurses in central hospitals, the Lao People Democratic Republic was 3.06 with SD of 0.26, which indicated that the nurses perceived a high level of PPE. The finding was consistent with a previous study in Finland which found that nurses perceived PPE were at a high level however the result of this study were somewhat different from other studies where nurses perceived PPE at a moderate level. One explanation could be differences in context. Lao people are considered modest and hold respect for their seniors and administrators. Nurses may not have confidence to propose ideas or place blame on their organization or their supervisors, they don't like to blame others or their environment. This may be changing as nowadays nurses in CHs have more opportunity to participate in decision

making in terms of providing nursing care needs, problem solving and so on.

2. Quality nursing care as perceived by nurses

The result of this study showed that the overall mean score of nurses perception of quality nursing care in central hospitals, The Lao People Democratic Republic was 1.97 with S.D. of 0.48, which indicated a low level of quality nursing care. This finding was similarity to the previous study of Government Agencies and the Protection of Government Employees (Government Agencies and the Protection of Government Employees, 2009) which found that quality of service care in central hospitals was at a low level. However, the result of this study was inconsistent with the previous studies of (Akkadechanunt Akkadechanunt, Chontawan, & Singhakhumfu, 2008; Myint, 2010) which found that nurses perceived quality nursing care at a high level. This could be explained by the fact that Lao nurses believed that they should do better than the current care provided to patients. Due to high workload, shortage of staff, and time spent with non-nursing work, hence, nurses think that they cannot provide care as well as expected.

3. Relationship between Professional Practice Environment and Quality Nursing Care as perceived by nurses.

The result found that a significant negative relationship between PPE and QNC with a moderate relationship ( $r = -0.308$ ,  $p < 0.001$ ). This finding indicated that the high level of PPE was negative related to low level of QNC as perceived by nurses. The findings of this study are partly in line with a previous US study by Kim, Capezuti, Boltz & Fairchild (2009). Their result showed the negative relationship as

perceived by nurses. Moreover, when classified by subdomains of the general Nursing Practice Environment (NPE), it was found that there were only one subdomain have positive relationship to quality of geriatric care, whereas two subdomains were not significant, and another two were negatively related to quality of geriatric care.

This finding suggest that providing quality nursing care may require more than an NPE or PPE that supports nurses' general skill building and professional advancement or career advancement. Furthermore, workload, low pay and career advancement need to be carefully aligned, as that may be factors influence nurses in providing quality nursing care. Low payment, heavy workload and career advancement were factors influencing providers in providing quality nursing care (GAPGE, 2009. The study of Government Agencies and the Protection of Government Employees (GAPGA), (2009) suggested the career of nurses in central hospitals needed to be improved in special education or specialized fields for example study in emergency causes or so onto improve quality of service care, moreover, adequate nursing staff were needed and income that was comparable to their income: nurses needed more compensation and they believe their income is low when compared to their workload and responsibilities. Organizational support should address explicit nurse competencies for caring for specific patients with complex care needs (thus enhancing nursing foundations) and resources they need to deliver quality nursing care.

An initial possible explanation for the unexpected findings may be related to the instrument measuring general PPE, this

instrument may not appropriate to the subjects and context of the study. Researcher used the eight-components PPE, which has 39 items (Erickson *et al.*, 2009). May be these eight components may not the factors influence to low quality nursing care. In addition, Choi and colleague's (2004) study found no significant difference in three subscale scores of the Practice Nursing Work Index between magnet and non-magnet hospitals. The three subscales are nursing management, staffing and resource adequacy, and doctor-nurse collaborations, which were also the three comparable subscales of Practice Environment Scale of Nursing Work Index that had no or unexpected negative relationships to quality nursing care in this study.

The second possible explanation may be due to incorrect techniques during the data collection procedure, such not using the blind techniques, head nurse having an impact or coercing the subjects to answer the questionnaire, nurses may not provide the true information. Moreover, there was limited time provided to complete the questionnaire, nurses may have felt rushed and did not have enough time to fill in complete answer; nurses may felt anxiety in the true answer.

This study suggests quality nursing care can be improved within an environment providing of CHs organizational support characterized by promotion of interdisciplinary collaboration and nurse involvement in hospital decision making beyond the nursing department, especially increased pay, support an increase in staffing to decrease workload and career advancement (such as further continued high education, clear job description for each level of nurses, adequate staff and fair compensation).

## **Conclusion**

The results of this study showed that nurses' perception of professional practice environment was at a high level, it indicated that nurses satisfy their PPE and the hospital administrators need to maintain their PPE. On the other hand, nurses' perception of quality nursing care was at a low level, it indicated that nurses dissatisfy quality nursing care that they provide. Nurses might perceived that nursing care that they provided were not good enough for their patients as they did not have enough nurses and resources. The result showed that there was a significant negative relationship between professional practice environment and quality nursing care as perceived by nurses. The relationship between two variables was inconsistent with the previous research as the contexts of healthcare as well as the country were different.

## **Implications**

The results of this study provided as basic database for the hospital administrators, nurse

administrators and nurse managers to maintain or sustain the areas of professional practice environment which were measured at a high level in the five components and the results can be used to develop strategies for improving nurses' degree of three components which were measured at a moderate level. In addition, strategies for improve quality nursing care, maintain the good quality and improve the low quality areas such as staff characteristics, care-related activities and physical environment have to be developed.

## **Recommendation**

Base on the finding of this study, future research is need to compare quality nursing care as perceived by nurses and patients, investigate factors influencing quality nursing care and professional practice environment in Laos PDR. The replication of the study on relationship between PPE and QNC in Lao by using the blind technique and using other instruments to measure both PPE and QNC within the Lao context is recommended.

## **Acknowledgment**

The author would like to express my greatest thanks and high regard to the China Medical Board for giving me all the financial support throughout the study and thanks Chiang Mai University for giving me the financial support for my thesis.

## References

- Akkadechanunt, T., Chontawan, R., & Singhakhumfu, L. (2008, November). *Nursing care quality as perceived by nurses and hospitalized patients at a university hospital in Thailand*. Paper presented at the 12<sup>th</sup> International Nursing Research Conference, 6<sup>th</sup> Biennial Joanna Briggs Colloquium, Cordoba.
- Erickson, J. I., Ditomassi, M., Duffy, M. E., & Jones, D. (2009). Psychometric evaluation of the revised professional practice environment (RPPE) scale. *The Journal of Nursing Administration, 39*(5), 236-243.
- Friese, C.R., Lake, E. T., Aiken, L. H., Silber, J. H., & Sochalski, J. (2008). Hospital nurse practice environments and outcomes for surgical oncology patients. *Health Services Research, 43*(4), 1145-1163.
- Government Agencies and the Protection of Government Employees. (2009). *Manual Analysis and Organization Development*. Lao, People Democratic Republic.
- Institute of Medicine. (2004). *America's health in transition: Protecting and improving the quality of health and health care*, 1-5.
- Israel, G. D. (1992). *Determining Sample Size*. University of Florida. Florida Cooperative Extension Service. Fact Sheet PEOD-6. Retrieved April 3, 2012.
- Kim, H., Capezuti, E., Boltz, M., & Fairchild. S. (2009). The nursing practice environment and nurse perceived quality of geriatric care in hospitals. *Western Journal of Nursing Research, 48*1-495.
- Leino-Kilpi, H. (1996). *Patients as an evaluator of nursing service*, Kavalla, Greece: Hellenic Graduate Nursing Association.
- Leveck, M. L., & Jones, C. B. (1996). The Nursing Practice Environment, Staff Retention, and Quality of Care. *Research in Nursing & Health, 19*, 331-343.
- Ministry of Health. (2006). *Law on health care of ministry of health*. Ministry of Health, Lao, People's Democratic Republic.
- Ministry of Planning and Investment. (2011). *The seventh five-year national socio economic development plan national statistics centre (2011-2015)*. Lao People's Democratic Republic.
- Price, P. J. (1993). Parents' perceptions of the meaning of quality nursing care. *Advances in Nursing Science, 16*, 33-41.
- World Health Organization [WHP] (2005). *Nurse: Patient ratio*. Retrieved January 15, 2011, from [http://www.icn.ch/matters\\_mnpratio.htm](http://www.icn.ch/matters_mnpratio.htm).
- Yamane, T. (1973). *Statistics: An introductory analysis*. (3<sup>rd</sup> ed.). New York. Harper and Row.