Predicting Factors of Research Utilization in Nursing Practice among Professional Nurses

Mrs. Cattaliya Siripattarakul Sanluang

จุฬาลงกรณ์มหาวิทยาลัย
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ปัจจัยทำนายการใช้ผลการวิจัยในการปฏิบัติการพยาบาลของพยาบาลวิชาชีพ

นางคัทลียา ศิริภัทรากูร แสนหลวง

จุฬาลงกรณ์มหาวิทยาลัย
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วิทยานิพนธ์นี้เป็นส่วนหนึ่งของการศึกษาตามหลักสูตรปริญญาพยาบาลศาสตรดุษฎีบัณฑิต
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คัทลียา ศิริภัทรากูร แสนหลวง : ปัจจัยทำนายการใช้ผลการวิจัยในการปฏิบัติการพยาบาลของพยาบาลวิชาชีพ (Predicting Factors of Research Utilization in Nursing Practice among Professional Nurses) อ.ที่ปรึกษาวิทยานิพนธ์หลัก: รศ. รตอ.หญิง ดร. ยุพิน อังสุโรจน์, 145 หน้า.

การศึกษาความสัมพันธ์เชิงทำนาย มีวัตถุประสงค์เพื่อศึกษาการใช้ผลการวิจัยในการปฏิบัติการพยาบาลและอำนาจทำนายของปัจจัยทำนายได้แก่ การมีประสบการณ์วิจัย ระดับการศึกษา บรรยากาศการวิจัย ทรัพยากรสนับสนุนและการจัดอัตรากำลัง กลุ่มตัวอย่างคือ พยาบาลวิชาชีพที่ทำงานในโรงพยาบาลศูนย์ ภูมิภาค สังกัดกระทรวงสาธารณสุขจากทั่วทุกภาคในประเทศไทย คัดเลือกโดยการสุ่มแบบหลายขั้นตอนจำนวน 447 คน เครื่องมือที่ใช้ได้แก่ แบบสอบถามส่วนบุคคล แบบสอบถามการใช้ผลการวิจัยในการปฏิบัติการพยาบาล แบบสอบถามบรรยากาศการวิจัย แบบสอบถามทรัพยากรสนับสนุน และแบบสอบถามการจัดอัตรากำลังซึ่งแบบสอบถามทุกชุดผ่านการตรวจสอบความตรงตามเนื้อหาโดยผู้ทรงคุณวุฒิ5ท่าน ความตรงเชิงโครงสร้าง และคำนวณค่าสหสัมพันธ์อัลฟาคอนบราคได้เท่ากับ .95, .88, .94, และ.93 ตามลำดับ และวิเคราะห์ข้อมูลด้วยสัมประสิทธิ์สหสัมพันธ์ของเพียร์สันและการถดถอยพหุคูณแบบStepwise ผลการวิจัยสรุปได้ดังนี้

1. พยาบาลมีการใช้ผลการวิจัยในการปฏิบัติการพยาบาลอยู่ในระดับปานกลาง

2. การมีประสบการณ์การวิจัย, บรรยากาศการวิจัย, ทรัพยากรสนับสนุน, และการจัดอัตรากำลังมีความสัมพันธ์เชิงบวกกับการใช้ผลการวิจัยในการปฏิบัติการพยาบาล ($r = .316, .440, .430, .370$ ตามลำดับ ที่นัยสำคัญทางสถิติระดับ $p<.05$) การศึกษาระดับปริญญาตรีมีความสัมพันธ์เชิงลบกับการใช้ผลการวิจัยในการปฏิบัติการพยาบาล ($r= -.158, p<.05$).

3.บรรยากาศการวิจัย การมีประสบกาณ์ในการวิจัย และทรัพยากรสนับสนุน สามารถร่วมกันทำนายความแปรปรวนของการใช้ผลการวิจัยในการปฏิบัติการพยาบาล ได้ร้อยละ 30.40 ($R^2= .304, p<.05$)

สาขาวิชา พยาบาลศาสตร์ ลายมือชื่อนิสิต .....

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The purposes of this predictive correlational research were to study the research utilization in nursing practice and to examine the predictability of predicting factors; research experience, educational level, research climate, support resources, and staffing. 447 nurses were selected by multi-stage sampling, who working in regional hospitals under the Jurisdiction of Ministry of Public Health in Thailand. The instruments were personal dada form, research utilization in nursing practice scale, research climate scale, support resources scale and staffing scale. All scales were tested content validated by 5 experts and construct validity. The Cronbach's alpha coefficient of all scales were .95, .88, 94, and .93 respectively. Stepwise multiple linear regression was used in statistical analysis. The major findings were as follow.

1. The research utilization in nursing practice among professional nurses was a moderate level.

2. Research experience, research climate, support resources, staffing were positively related to research utilization in nursing practice (r= .316, .440, .430, and .370 respectively, $p<.05$). Bachelor degree was negative related to research utilization in nursing practice (r= -.158, $p<.05$).

3. The research climate, research experience, and support resources accounted for 30.40%of total variance in research utilization in nursing practice (R^2= .304, $p<.01$).

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CHAPTER I

INTRODUCTION

Background and Significance of the Study

Research utilization has been emphasized and increased attention in nursing as an important issue since the early 1970s (Olade, 2004) because it's involved with the quality of healthcare service. The application of knowledge obtaining from research to clinical nursing practice are developing clinical pathways and investigating methods that will improve patient outcomes and the quality of nursing practice (Leske, Whiteman, Freichels, & Pearcy, 1994; Lindquist, Brauer, Lekander, & Foster, 1990). The research utilization in nursing practice is crucial for professional nurses that involving in the process of making sound decisions in pursuit the optimal care based on research evidence. To insist the importance of research-based practice, emphasizing on professional reliability, professional nurses must provide supporting evidence, particularly in reliable of research evidence as the basis for their clinical practice (Craik & Rappolt, 2003). The devotion to practices that based on research evidence such as evidence-based guidelines is likely to result in improving client outcomes. Therefore, in depth understanding of the research utilization in nursing practice could benefit for nurses administrators in enhancing an effective nursing interventions, efficient care, and improved outcomes for patients.

Research utilization in nursing practice (RUNP) consists of a series of activities, and was viewed as an essential strategy to promote the optimum clinical care (Newhouse, Dearholt, Poe, Pugh, & White, 2007). Research utilization has been defined as the use of research findings in a realm of clinical practice to promote and

improve the quality of care in nursing practice as a guide to improve patients' outcomes (Abdellah, 1970; Fawcett, 1984; Lindeman, 1975; Lundin, Sargent, & Burke, 1998). In addition, research utilization could denote to the innovation diffusion process which account to new idea, knowledge, or practice is transmitted to clinical practice (Rogers, 1983). The use of research findings or evidence-based guidelines should lead to better patient care outcomes because patient-care decisions are conscientiously based on the best scientific evidence (Crow, 2006; Institute of Medicine, 2008). These implicate a series of judgmental activities of nurse in appraising the applicability of specific research for their practice (Marram & Stetler, 1985).

Although research utilization is crucial for improving quality of patient care, the gap between research and practice has been existed. The study among nurses from various practice areas of a southwestern state in the United States reveals that only 20.80% of them were currently involved in research utilization (Olade, 2004). Several researcher continuously express concern about factors facilitate and barriers to research utilization. The common facilitating factor were found as availability of research reports, library and consultant services, administrator's support, and ongoing research in the agency (Champion & Leach, 1989; Thurstone & Tenove, 1990). On the other hand, the failure to find studies relating to clinical problems, limited accessibility of research findings, the inability to understand research reports, the lack of work time to read research reports, lack of nursing research consultants, and a lack of authority to change patient care procedures (Funk, Champagne, Wiese, & Tornquist, 1991; Miller & Messenger, 1978; Olade, 2004). Moreover, lack of time was the most barrier of research utilization (Pettengill, Gillies, & Clark, 1994).

In Thailand, according to quality assurance in health care service, knowledge management that could uplift an organization to achieve the goal associated with knowledge-based and learning society (Pipattanawong, Yodmongkon, & Chakpitak, 2011). Routine to research (R2R) is used as a tool which involved in the activities of translates the research based into their clinical practice. R2R is evidence based for making decision in nursing intervention, so research methodology is a systematic ways for searching the reliable answers for nursing intervention that could be blend in the routine work finally (Srikanok & Untaja, 2014).

Previous study showed that of 357 nurses in one governmental hospital in Bangkok Metropolitan, 62.20% had been applied research findings in their practices (Yimboonna et al., 2007). Furthermore, the literature also indicated the top ten barriers to research utilization in practice are most of research are written in English, books or the relevant literature are not compiled in one place, statistical analyses are not understandable, the nurse has lack of chance to discuss with knowledgeable colleagues in research, research reports/articles are not widely publicized and updated, the nurse does not feel she/he has enough authority to change patient care procedures, the facilities are inadequate for implementation, the nurse has no time to read research, and there is insufficient time on the job to implement new ideas and the research is not reported clearly and readably (Yimboonna et al., 2007).

Nurses are generally positive about research utilization; however we know little about what determinants affect their use of research findings (research utilization). We do know that various individual and international organizational factors have been proven to be related to RUNP (Estabrooks, Midodzi, Cummings, & Wallin, 2007; Squires, Estabrooks, Gustavsson, & Wallin, 2011). Individual factors, such as different

educational level and nursing experience have been viewed as controversial (Squires, Estabrooks, Gustavsson, & Wallin, 2011). Previous research studies in the Thai context reveal that important factors in RUNP include educational level, duration of nursing experience, and such internal organizational factors as policy, management, and administrative support and research use (Just, 2008; Suwanraj, 2010; Tiloksakulchai, Apanakapant, & Karnjanakunakorn, 2000). Regarding these empirical data, individual and organization factors present highly related to RUNP.

The Johns Hopkins Nursing Evidence Based Practice (JHNEBP) model (Newhouse, Dearholt, Stephanie, Poe, Pugh, & White, 2007) which focused on both individual and organizational factors was used to guide this study. Individual factors mention on research experience (Varcoe & Hilton, 1995), educational level (Lecey, 1994; Logdon, Davis, Hawkins, Parker, & Peden, 1998; Brown, 1997; Rodgers, 2000), and organizational factors including research climate (Peppler, Edgar, Frisch, Rennick, Swidzinski, White, Brown, & Gross, 2005; McClosky, 2008; Stiefel, 1996), support resource (Shaffer, 1998; McCloskty, 2005; Squires, 2011), and staffing (Shaffer, 1998; McCloskty, 2005; Squires, 2011; McCleary & Brown, 2002; Kajermo, Undén, Gardulf, Eriksson, Orton, Arnetz, & Nordström, 2008; Yava, Tosun, Cicek, Yavan, Terakye, & Hatipoglue, 2009) were found associated with RUNP.

According to the RUNP is a means towards the improvement of nursing practice outcomes. Therefore, this study aimed to explore, and identify predicting factors of RUNP among professional nurses. The benefit of the study could make nurses administrator and policy maker depth understanding on factor predicting RUNP in order to develop more effective support to improve the RUNP among professional nurse.

Research Questions

1. How is the research utilization in nursing practice among professional nurses?

2. What are the predicting factors of research utilization in nursing practice among professional nurses?

Objectives of the Study

1. To explore research utilization in nursing practice among professional nurses.

2. To identify the predicting factors of research utilization in nursing practice among professional nurses.

Hypothesis and Rationales

Hypothesis:

Research experience, educational level, research climate, support resources, and staffing could predict RUNP among professional nurses.

Rationales:

RUNP is the use of research findings as available scientific evidence based for decision making on changing of work instruction or intervention in nursing practice. This study was guided by modified the Johns Hopkins Nursing Evidence Based Practice model (JHNEBP) and literature review. The conceptual framework of this study was selected based on the individual and organizational factors influence on RUNP among professional nurses including research experience, educational level, research climate, support resources, and staffing. These factors could predict RUNP, the rationales are as follows:

Research experience

Research experience means nurses' perception as their experience of ever or never involved with activities of systematically study as research. There are many activities which are included in research methodology such as proposal preparation, instrument development, collecting data. Research experience is individual factor related to the research utilization behavior (Varcoe & Hilton, 1995). Previous studied demonstrated that the research experience is one variable that affected acute-care nurses' use of research findings (Varcoe & Hilton, 1995). Likewise, Tsai (2000) revealed that the research experience of participation in research such as data collection is related to RUNP.

Regarding to previous studied reveal the significance of research experience related to the RUNP. Therefore, research experience could predict RUNP among professional nurses.

Educational level

Educational level means the latest study degree status of nurses who graduated or post graduated study as bachelor in nursing science, master in nursing science, and master in other science or else as doctoral degree. Educational level is individual factor related to the RUNP (Lecey, 1994; Logdon, Davis, Hawkins, Parker, & Peden, 1998; Brown, 1997; Rodgers, 2000; McCloskey, 2005; 2008).

Regarding to previous studied reveal the significance of educational level related to the RUNP. Therefore, educational level could predict RUNP among professional nurses.

Research climate

Research climate is organizational factor influencing on RUNP (Peppler, Edgar, Frisch, Rennick, Swidzinski, White, Brown, & Gross, 2005; McClosky, 2008). Research climate focused on policy and management that refer to the organizational research culture and environment (Stiefel, 1996; McClosky, 2005). Culture and environment are recognized as a representative of research climate. The evidence based practice within an organization requires a culture that will lead to optimal patient outcomes (Newhouse, Dearholt, Stephanie, Poe, Pugh, & White, 2007). Varcoe and Hilton (1995) reported a statistically significant relationship between research culture and research utilization. Several investigators indicated that both of their meaning of environment and culture cannot be separated for the sense of organizational promoting research climate formally. (Stiefel, 1996; McCloskey, 2005).

The importance of research climate which include policy and management and research culture were related to the RUNP (Stiefel, 1996; McCloskey, 2005; Meijers et al., 2006; Scott & Pollock, 2008). In conclusion, research climate could predict RUNP among professional nurses.

Support resource

Support resource is adapted name of essential resources for RUNP. It has been used in different terms from previous studies such as organizational support, administrative support, or organizational resources (Stiefel, 1996; Shaffer, 1998; McCloskty, 2005; Squires, 2011). Support resource is organization factor influencing on RUNP.

There are many types of facilities grouped as organizational support resources. The organizational support resources are defined as all supports from workplace or

organization that nurses are working in. The supports include money, supplies, equipment, library time, use of computers, meeting space, salary, and paid work time given for activities. In the same sense, organizational support resource is used to facilitate RUNP activities (Shaffer, 1994; McCloskey, 2005; McCloskey, 2008).

Furthermore, existing support resources for various activities of RUNP as availability and accessibility of research journals. The instance of the asset or the accessible research journals, technology and computers were asked as "availability to find research journal, and/or related journal", "able to find required information from computer" or "easily search for papers/books that is relevant to your research" in various studies (Retsas, 2000; Baernholdt, 2005; McCloskey, 2008).

The importance of equipment/supplies in the JHNEBP model as support resource which includes time, fund/reward, and asset, were related to the RUNP. In conclusion, support resource could predict RUNP among professional nurses.

Staffing

According to the JHNEBP model, staffing in sense of RUNP refers to assigned team of personnel who has responsible for clinical care. Staffing was proposed as organizational factor related to RUNP. Facilitative staffing which is focused on nurses who would like to do the RUNP can consult in advance. They can suggest or be a consultant of research project or changed practice. (McCleary & Brown, 2002; Kajermo, Undén, Gardulf, Eriksson, Orton, Arnetz, & Nordström, 2008; Yava, Tosun, Cicek, Yavan, Terakye, & Hatipoglue, 2009). Some studies name these staffs as research active nurses (Munten, Bogaard, Garretsen, & Bongers, 2010). Moreover, staffing is viewed as adequate or quantitative staffing that point to the average number

of patients assigned staff nurses in each hospital who last worked a day shift (Aiken, Clarke, & Sloane, 2002; Brewer, 2005). More specifically focused, staffing has an effect on research utilization by the inherent element of time and busyness. (Tsai, 2000). Appropriate staffing will allocate the workforce to do the direct nursing care and other work as the RUNP for the benefit of patients. Therefore, some studies use the elements to ask about the adequate staff nurses (Chau, Lopez, & Thompson, 2008; Yava, Tosun, Cicek, Yavan, Terakye, & Hatipoglue, 2009). Lastly, staffing can be viewed as quality of staff to achieve the task. According to previous studies, one of the factors related to research utilization among nurses was availability of the experienced nurses who do the research utilization task (Chau, Lopez & Thompson, 2008; Bonner & Sando, 2008).

As previous studies demonstrated the importance of staffing that was focused on facilitative staff, quantitative staff, and quality of staff were related to the RUNP. In conclusion, staffing could predict RUNP among professional nurses.

Scope of this study

This study investigated factors predicting RUNP among professional nurses who work at inpatient and outpatient units of regional hospitals under the Jurisdiction of Ministry of Public Health of Thailand in all five areas: North, North-East, Central, East, and South). The independent variables were educational level, research experience, research climate, supported resources, and staffing, while RUNP was indicated as a dependent variable of the study.

Operational Definitions

Research Utilization in Nursing Practice (RUNP) is defined as the degree to which nurses' perceived a series of judgmental activities of nurses in appraising the

applicability of specific stages of research conducting for their practice. These stages consisted of practice question, identify evidence and evaluation, and implementation and outcome evaluation.

Educational level is defined as the latest study degree status of nurses who graduated or post graduated study as bachelor in nursing science, or master in nursing science, master in other science or else as doctoral degree.

Research experience is defined as the involvement in research method after graduated. Research experience involves being principal investigator (PI), being co-investigator, and conducting academic research under supervisor in graduated level. It is measured by one item of research experience questionnaire which was developed by researcher.

Research Climate is defined as the degree to which nurses' perceived policy and management, and research culture to facilitate research utilization in nursing practice. It is measured by the Research Climate Scale which was developed by researcher.

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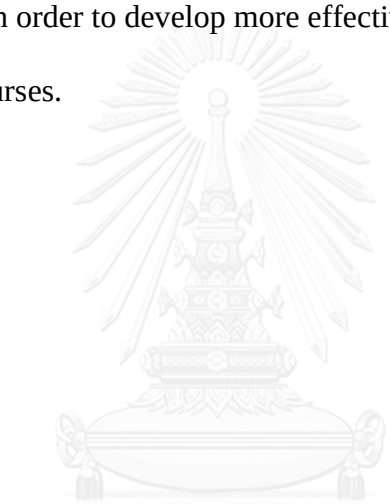
Support Resources is defined as the degree to which nurses' perceived equipment and supplies in organization according to time, fund or reward, and documental support. It is measured by the Support Resources Scale which was developed by researcher.

Staffing is defined as the degree to which nurses' perceived the adequacy of nursing personnel to facilitate research utilization in nursing practice. It is measured by the Staffing Scale which was developed by researcher.

Expected benefits of the study

1. The research result contributes to the body of knowledge in nursing science. It will provide a basic knowledge for nurse administrators to understand the factors influencing RUNP among professional nurses based on the individual factor as educational level and research experience and the existing internal organizational factors as research climate, supported resources, and staffing.

2. The results will help nurses and nurse administrators consider the predicting factors of the RUNP in order to develop more effective support to improve the RUNP among professional nurses.



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CHAPTER II

LITERATURE REVIEW

This chapter presents a comprehensive review of the literature and focuses on major concepts important for this study, including

1. Professional nurses in regional hospitals, Thailand
2. Research utilization in nursing practice among professional nurses (RUNP)
3. The Johns Hopkins Nursing Evidence-Based Practice Model (JHNEBP)
4. Factors related to research utilization in nursing practice

Professional nurses in regional hospitals, Thailand

1. Professional nurses in Thailand

The overview of professional nurses in Thailand as nurse workforce, nursing education, work settings, and responsibilities were introduced as follow.

1.1 Nurse workforce

Thailand Nursing and Midwifery Council (2015) reveal that totally amount of 138,710 nurses are registered as professional nurses. There were registered nurses working in hospitals under Jurisdiction of Ministry of Public Health 104,488 (74.99%). According to hospital classification by level of services, registered nurses working in hospital under jurisdiction of MOPH setting in regional part of Thailand were reported. (Bureau of Policy and strategy, 2000). There was 17,351 nurses

(12.45%) work for the regional hospitals, 22,975 nurses (16.49%) work for general hospitals, 46,181 nurses (33.14%) work for community hospitals and 10,280 nurses (7.38%) work for primary care unit (Nongluck , 2008) .

Thai nurses constitute 70 % of health care personnel in Thai health care system. Among these nurses, more than 70 % carry a baccalaureate degree from either one of nursing schools (university faculties) or one of nursing colleges countrywide (Assalee, Thosigha, & Honghern, 2004). By 2015, Thailand have about 120,197-173,321 BSN nurses.

1.2 Nursing education

There is no separate entry to study nursing and midwifery. The pre-registration program is included both nursing and midwifery. However, the licensing examination has separate part of test to receive nursing and/or midwifery license (TNC, 2015). In order to be a professional nurse, a high school graduate needs to pass an entrance exam to study a four-year Bachelor of Science in nursing program (BSN) at one of nursing colleges of the Ministry of Public Health, the faculties of nursing, or private nursing colleges and universities. After graduation, four-year nursing graduate will work as a professional nurse or registered nurse (RN). The professional nurses have to graduate at least of bachelor of nursing science from certified nursing school which is accredited by the Thailand Nursing and Midwifery Council (TNC, 2014). In order to have a master degree in nursing, a BSN nurse needs to study in a two-year master's degree program. For obtaining a doctoral degree, a master's degree nurse may spend 2 to 4 years in the program.

The research in nursing science has been integrated in nursing curriculum since bachelor level, and more advance in research methodology at graduate level. Furthermore, the proposed "Academic and Research Competencies" in aspect five of registered nurses are aware of the significance of research and knowledge development. They possess basic knowledge in research methods, knowledge management, application of empirical information to practices, and dissemination of knowledge to the healthcare team and to the public as follow (TNC, 2015).

1. Realize gaps in one's understanding and ask meaningful questions which will lead to the development of knowledge in nursing practice.
2. Use appropriate means in searching for knowledge. Summarize main ideas from a textbook, professional articles, or simple research and apply them to nursing practices.
3. Synthesize knowledge from personal experience and be able to disseminate this knowledge to others.
4. Share knowledge and information with colleagues and concerned staff in order to improve work and resolve work-related problems.
5. Cooperate in research which is beneficial to patients, the organization, and society with respect to the rights of research subjects and the code of ethics of researchers.
6. Utilize research methods in the pursuit of knowledge to Improve work.

This proposed education and research competencies of registered nurses by Thailand Nursing and Midwifery Council is focused and relevant with the research utilization in nursing practice in terms of how to use research based practice.

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1.3 Work settings

In aspect of work setting, according to the Ministry of Public Health management, there are three types of hospitals that are: (1) community hospitals (1-150 beds), (2) general hospitals (200-500 beds), and (3) regional hospitals (500-1500 beds providing both service and education). The community hospitals and other public agencies with less than 100 beds provide health services at the secondary care level that focus on health promotion, disease prevention, and simple curative care. The tertiary care level focuses more on treatment of the disease, rehabilitation, and the complications of curative care (Just, 2008, Suwanraj, 2010). As described by Sirilak (2010), the Thai health system has provided comprehensive care to the population ranging from community health care to specialty care as follow.

Community health care services: The services provided at the family level as well as at communities or villages where the people live. These services include: health promotion and prevention for healthy people to protect and prevent them from sickness, long-term care for elderly and chronic patients living in communities or villages. These types of care are delivered at homes and communities by the non-formal health workforce: trained village health volunteers, elderly groups, trained care givers, as well as the mainstream health workforce: primary care workers, public health generalists, nurses, etc.

Primary health care services: Health centers located close to the communities function as the bridge between community health care services and main stream health services. The services provided include curative, health promotion, disease prevention, and rehabilitation services. The services are provided at health centers as well as at communities. The key health workforce working at health centers

are nurses, public health officers, and dental nurses (posted in some health centers). Doctors are made available at urban health centers and they also provide mobile clinics and technical support to rural health centers once or twice a month. Private clinics have provided mainly curative services to population in urban areas.

Secondary care services: Community hospitals function as secondary health services in rural areas and general hospitals and private hospitals provide such services in urban areas. The type of services mainly target curative and rehabilitative care at individual level. Doctors and health teams are responsible for providing care at this level. The facilities also serve as referral hospitals for primary care facilities.

Tertiary care services: These types of facilities are located in cities, and function as referral hospitals. These facilities include general hospitals, regional hospitals, medical school hospitals, specialty hospitals, and large private hospitals. The services provided at these facilities are mainly in curative care, particularly in medical specialty services. A range of health workforce, particularly doctors with specialty and sub-specialty trained are made available.

After graduation, nurses work in different settings dependently on their signed contracts. In general, nurses graduating from university-affiliated nursing schools work at the university hospitals under the Ministry of Education or private hospitals nationwide. Nurses graduating from nursing colleges work at hospitals at a regional or provincial level, community hospitals at a district level, health care centers at sub-district level, or at specialized hospitals under the jurisdiction of Ministry of Public Health. Graduate nurses from nursing colleges under the Ministry of Defense work at veterans hospitals under the same ministry. Other nurses who graduate from

private nursing colleges/schools work at private hospitals. **1.4**

Responsibilities

In aspect of responsibilities, Thai BSN nurses are legally and practically classified as both professional and midwifery nurses. According to Thailand Nurse Council (2003), nurses' responsibilities as professional nurses are included nursing care and primary care in both sick and well, including in labor and delivery. However, nurses' specialty workload is depend on their work setting such as medical, surgical or intensive care unit. All nursing care are concerned with the quality of care.

In Thailand, the search for quality of care is important and dominant in the last decade because the health care system was reformed due to an increase in health care cost and a Bill of Rights for Patients enacted in 2001 as a new constitution in 2001 to ensure that patients receive efficient, fair, and effective care (Kunaviktikul et al., 2001; 2005). Parts of the reforms focus on primary care, disease prevention, and health promotion at community levels. The reforms and intended policy evolution from the Ministry of Public Health call for more nurses to staff health care centers at the sub-district level and for all nurses to become educated at the BSN level.

Accordingly, numbers of both advanced nurse practitioners and BSN nurses as well as of health care workers responsible for treatments and interventions to normal health problems and primary care at sub-district health care centers, particular those in rural areas where physicians are not available, have increased (Anders & Kunaviktikul, 1999; Hanucharurnkul, 2001). The reforms have also employed accreditations such as hospital accreditations (Hair) and international standards organization (ISO) conducted by quality assessment agencies to accredit patient care and services provided by health care organizations (Office of the National

Economic and Social Development Board, 2004). The reforms and accreditations impact nurses' responsibilities for nursing care, primary care, and quality of care they provide. Nurses are now encouraged to use advanced knowledge of nursing and medicine such as sound research findings and reliable evidence in their nursing care (Assalee et al., 2004). As a result, achieving the quality and standards of care improvements by health care providers and nurses requires the support from health care leaders and organizations in providing research, information, infrastructures, and technological supports for nurses' clinical decision making for patient care.

From part of experienced nurses' interviews (December, 2014) about research utilization in nursing practice. In the past, there are various research-practice gap as existing research studies were not implemented base for nursing practice improvement. Then, the research utilization in nursing practice is described as many transforming research utilization in nursing practice activities which are implemented and integrated in routine work such as research based practice, journal club, reading articles and share the knowledge and brown bag or content conferences in the past. Each nurse or research active nurse can show and share the knowledge from the articles or research findings that they have already accessed and read. These content of interview are congruence with the previous studies about research utilization among nurses (Tiloksakulchai, Apanakapant,& Karnjanakunakorn, 2000; Sindhu & Pookboonmee, 2001; Imrod, 2003; Archsalee, Tosingh & Honghern, 2004, Sangmanee, Watanasit, Kraiwong, & Boonyasopun, 2006, Sae-Sia, Songwattana, Kahawong, & Suwan, 2008).

Recently, more reliable evidence as research findings to base for nursing practice is needed, the evidence base practice is integrated. The research

utilization in nursing practice in this period aim to decrease variation of clinical nursing practice but increase or get more the best practice instead. The activities of the research utilization in nursing practice according to the evidence base practice ideal is more systematic procedures which are involved with three keys process of practice question, evidence evaluation, and translating knowledge into practice. First of all, practice question process, after nursing care team set the practice question to solve, the evidence evaluation or appraise the evidence has to be done after the searching and retrieving the relevant evidence both research evidence and non-research evidence. Specifically, for the research utilization in nursing practice, the research findings were searched, retrieved and appraised for the strength and quality of the research evidence base on chosen standard criteria. Each nurse participate in healthcare team as leader or member to do this and discuss. Then they implement the result and suggestion from the summarized evidence as pilot study. The result should be presented as the next step as the translating knowledge into practice. This situation of research utilization in nursing practice as evidence base practice is occurred in various units of care.

Lastly, the strategy to enhance quality of care is the "Routine to Research" (R to R). The R to R is a new challenge change in clinical nursing practice. Nurses who do the activities should have competency in research utilization in nursing practice in both of research process (methodology) view and research outcome view. The R to R starts from setting the practice problem or practice question in the routine work. Then ,it use research methodology to solve the problem. However, someone call it as mini research. This situation of research utilization in view of "R to R" is on process and existing much more number at university hospitals.

Professional nurses in Thailand are should do the research utilization in nursing practice in order to quality of care enhancement in each period of time change. It gradually changed and probably hard to determine the cut point of the research utilization in nursing practice activities. However, the interviewees can describe in term of experiences and step or processes that they have been involved in each period time of changes.

2. Role and responsibilities of research utilization in nursing practice among professional nurses in regional hospitals.

As describe before, the regional hospitals were set to delivery service as tertiary care level focuses more on treatment of the disease, rehabilitation, and the complications of curative care. Tertiary care facilities include general hospitals, regional hospitals, and university hospitals. The patients has complex disease and need high technology. This work setting frame nurses' role and responsibilities to have high competency in education and research. Inevitable, nurses who are working in the regional should do the research utilization in nursing practice.

To explore research utilization in nursing practice, there are reasons related to the selected group of nurse workforce for present study. The selected group were nurses who working in the regional hospitals which was classified by the bed number ($\geq$ 500 beds) which provide service as tertiary care level in each region of Thailand for following reasons.

First of all, in public sector of Thai healthcare delivery system, the major portion of health service is controlled by the Ministry of Public Health. Second, the research utilization in nursing practice is critical need for registered nurses working in hospital with tertiary care service especially remote area. It may occur the consequence of non

research utilization in nursing practice such as high cost of care, increasing patients' health risk, and more duration of hospital stay. Type of hospitals is involved with their registered nurses' role and responsibility (Just, 2008).

Research Utilization in Nursing Practice

Research utilization in nursing practice has been studied for decades. It has been defined in various terms and used worldwide according to various theories and models guide. The description of definition, and existing measurements of Research Utilization in Nursing Practice are described. Furthermore, specifically details of research utilization in nursing practice in Thai context is also provide inside the definition of research utilization in nursing practice part as follow.

1. Definition of Research Utilization in Nursing Practice

Previously, the definition of Research Utilization was little consensus (Squire, 2011) define research utilization in terms of the use of specific research-based findings or practices (Brett, 1987), while others describe it as a general (Champion and Leach, 1989). Two dominant approaches to conceptualizing research utilization are also evident: (1) a variance approach which means viewing research utilization as a variable or discrete event (Stetler, 1985; Parahoo, 1998; Estabrooks, 1999) and (2) a process approach viewing research utilization as consisting of a number of consecutive steps or stages (Brett, 1987; Belkhodja, Amara, Landry, Ouimet, 2007).

In variance approach also propose several different kinds of research utilization (i.e., a typology of research utilization) (e.g., Estabrooks, 1996; Stetler, 2001). Those adhering to this latter 'typology' conceptualization frequently describe either two (instrumental and conceptual) or three (instrumental, conceptual, and symbolic/ persuasive) kinds of research utilization. *Instrumental* utilization refers to the concrete

application of specific knowledge to practice; *conceptual* utilization refers to knowledge that influences an individual's thinking about an issue without putting information to any specific, documental use (i.e., a change in thinking, but not necessarily behavior, in response to research findings); and *symbolic* utilization refers to the use of knowledge as a political tool in order to influence or legitimate policies and decisions (i.e., use of research to persuade others regarding a predetermined position) (Larzen, 1980; Beyer &Trice, 1982 ; Estabrook et al, 2003).

In other approach, research utilization is series activities of nurses in corporate research findings into nursing practice (Champion & Leach, 1989) or processes of transferring knowledge from research findings into clinical practice (Brett, 1987;1989). Recently, the RUNP is viewed as subset of EBP (Newhouse et al, 2007).

The term of Evidence Based Practice (EBP) has become widely adopted in recent years by the nursing profession. It is sometimes used interchangeably with research utilization (RU) (Titler, Mentes, Rakel, Abbott, & Baumler, 1999; Mast, 2000; Scott & McSherry, 2009). Although the terms EBP and RU are related, many researchers have argued that they are not the same (Titler et al., 1999; Stetler, 2001). RU is the application of findings from studies that use qualitative or quantitative methods, and also randomized trials (Titler et al., 2001). It is determined as key activities of nurse to incorporate the research findings into practice (Champion & Leach, 1989) or process of transforming research knowledge into practice (Stetler, 2001).

EBP is a broader concept that includes RU, along with evidence from case reports and expert opinions, in making decision about health care practices. If one considers the definition of EBP as the conscientious and judicious use of the best

evidence to guide practice, RU is a subset of EBP, and is both a process and product within EBP. Specifically, the JHNBP model indicate that RU and EBP act same key activities of practice question, evidence evaluate, and translation knowledge to practice. However, the evidence for RU is focused on only research findings or research evidence. In evaluation for quality and strength level of evidence, there will be use different appraisal form for research evidence and other kinds of evidence separately (Newhouse et al, 2007).

At present, nurses who do the research utilization in nursing practice, or use the research findings based for practice have to set practice question, search relevant research findings, evaluate the quality and strength level of them, synthesized and then translating knowledge from the evaluated research findings into clinical practice in order to support the decision making for best practice. These reflect the accountability of professional nurses.

Therefore, the RUNP in this era should be defined as the activities among nurses in using of research findings based for nursing practice according to key processes of the practice question, evidence evaluation, and translating knowledge into practice (PET process) (Newhouse et al, 2007) which can be measured by the Research Utilization in Nursing Practice Scale (RUNPS).

2. Measurements of Research Utilization in Nursing Practice

2.1 Existing Measurements of Research Utilization in Nursing Practice in western and other countries

Previous studies reveal that there are many methods for assessing research utilization in nursing practice such as observation, document analysis and self-

report questionnaire (Estabrooks et al, 2011). Self-report questionnaire is the most often used tools for many studies. The systematic review of research utilization instruments was conducted in 2003 by Estabrooks and colleagues. The review showed that two commonly used multi-item instruments were identified: (1) the Nurses Practice Questionnaire : NPQ (Brett, 1987, 1989; Coyle, 1990; Barta, 1995; Michel, 1995; Bergen, 1996; Rutledge, 1996; Thompson, 1997; Rodgers, 2000; Squire, 2007) and (2) the Research Utilization Questionnaire : RUQ (Prin, 1997; Champion, 1989; Hansin, 1999; Trammer,2002; McCloskey, 2005; Nash, 2005; Ohm, 2005; Bostrom, 2007; Bostrom, 2008; McCloskey, 2008). An additional published papers were identified that used single-item questions to measure research utilization are provided.

2.1.1 Research Utilization Questionnaire (RUQ)

The RUQ was developed by Champion and Leach (1989), is a general measure of research use among register nurses. It was developed based on literature reviewed, not a specific theoretical framework guide. It consists of 42 self-descriptive statements comprising four subscales of attitude, use, support and availability. Content validated be experts panel, reliability test (internal consistency) revealed Chronback alpha= .92 and subscales are .91, .93, .93 & .80 respectively.

The use subscale contains ten items, each scored on a 5-point Likert scale, assessing the degree to which nurses' perceive they incorporate research findings into their daily practice. This reliability ranked highest of the instruments. The use subscale is implemented as research utilization scale for many studies including internal consistency of the RUQ in each studies are Interpret the score Prin, 1997= .94; Hansin, 1999= .79; Trammer, 2002= .93; McCloskey, 2005 = .93; Nash, 2005= .92; Ohm, 2005= .86; Bostrom, 2007= .88; and Bostrom, 2008= .84.

Furthermore, it can be used to assess the research utilization in general. However, the use subscale was develop by the Roger's theory of innovation diffusion guidance and in western country context. It is not appropriate to apply this instrument for this study.

2.1.2 Nursing Practice Questionnaire (NPQ)

The NPQ was developed by Brett (1987; 1989), is a specific measure of research use among register nurses. It consists of brief descriptions of 14 specific nursing practice innovations. Seven questions measuring the nurse's stage of innovation adoption are posed for each of the nursing practice innovations. The first six questions measure the nurse's adoption of the practice according to Roger's Innovation-Decision Process Theory while the seventh question measures their perception of policy existence with respect to the practice.

According to NPQ articles, on average, reported some use of the practices and were classified as being in the 'persuasion' stage of adoption overall. Nurses are then classified as being unaware of, aware of, persuaded of, use sometimes, or use always for each of the practices and for all practices overall. While the adoption scores varied slightly by the specific practices assessed in the included studies, overall adoption scores were similar across studies. Items are scored dichotomously yes/no for all questions except for question of 'use', which is scored as never, sometimes, or always.

Construct validity tested was done, and reliability tested reveal internal consistency= .95 and stability test was .83. The NPQ scale is implemented as research utilization scale for many studies including internal consistency of the NPQ in each studies are Barta, 1995= .74; Bergen, 1996= .68 ; Coyle, 1990 = .91; Michel,

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1995= .85; Rodgers, 2000= .63; Rutledge, 1996= .75; Squire, 2007= .82 and Thompson, 1997= .89.

This instrument is high construct validity but too specific nursing practice innovation. As this study in Thai context in which there are not the same nursing practice innovation. It is too hard to generalize in different context whereas not apply the set of 14 specific nursing practices. Therefore, this measurement is not suitable for this study.

2.1.3 Estabrooks' Kinds of Research Utilization survey

The Estabrooks' Kinds of Research Utilization was developed for nurses. Measures research use with single items that tap four kinds of research use: instrumental (or direct), conceptual (or indirect), persuasive, and overall. Each item is preceded by a definition of the kind of research use and examples of that kind of research use. For each kind of research use, respondents are asked to indicate, over the past year, how often they have used research in this way. The items are treated individually (i.e., they are not combined to form an index) Items are scored on a 7-point (from never to nearly every shift with 5=on about half of the shifts) or 4-point (from never to nearly every work day with 3 = on about half of my work days) scale depending on the study.

The Estabrooks' Kinds of Research Utilization survey is implemented as research utilization assessment for many studies in which construct validity test by structure equation model was done (Estabrooks, 1999a; Estabrooks, 1999b; Profetto-McGrath, 2003; Kenny, 2005; Milner, 2005; Connor, 2006; Estabrooks, 2007; Estabrooks, 2008; Profetto-McGrath, 2008).

This instrument is high construct validity but too hard to keep precision from only one item response, as growth study design. Furthermore, it is too hard to generalize in different context whereas have no example of specific procedures or activities represent of each type of research utilization.

2.2 Existing Measurements of Research Utilization in Nursing Practice in Thai context

In previous studies, there are two groups of research utilization questionnaires. First of all, single item response of the research utilization experience(yes-no question) and multi-items responses (rating scales of previous experiences in research utilization according to nursing processes). Single item response of the research utilization experience (yes-no question). Most previous studies, the single item response Thai instruments were used for research utilization survey (Tiloksakulchai, Apanakapant,& Karnjanakunakorn, 2000; Sindhu & Pookboonmee, 2001; Assalee, Thosigha, & Honghern, 2004; Sangmanee, Watanasit, Kraiwong, & Boonyasopun, 2006; Yimboonna et al, 2007; Sae-Sia , Songwattana, Kahawong & Suwan, 2008). It was developed for nurses both administrative nurses and registered nurse who do the direct nursing care.

The question is “Do you have ever do research utilization in nursing practice?” The item is treated individually as the respondent has experience on research utilization if the answer is “yes”. There are series activities of research utilization such as reading research articles/academic articles/journals, discussion about the interesting research results with physician and colleagues, were set as previous questions which were used before this definite question. Items are scored yes = 1, and no= 0. Most of these studies focused on explore more about barriers to research utilization.

This instrument is not validity checked and too hard to keep precision from only one item response. Furthermore, the time changed as a paradigm shift of the former series activities of the research utilization in nursing practice to be the new paradigm which focus on the research utilization as a part of the evidence base practice. It is too hard to generalize in different context. Therefore, this instrument is not appropriate for this study.

Multi-items responses (rating scales of previous experiences in nursing research utilization according to nursing processes). Thai instruments which were developed base on the three types of research utilization (Instrumental use, conceptual use and persuasive use) according to the nursing processes by former researchers (Waluwanaluk, Kunaviktikul, & Pudthapuan, 1996; Upkhum, 2006; Mueangsuriya, 2006).

The Nursing Research Utilization was developed by Waluwanaluk in 1996, for nurses to measure research use with multi-items that tap three kinds of research use: instrumental (or direct), conceptual (or indirect), and persuasive along the nursing processes, then total scores from the three types of use were calculate and focused as overall research utilization. Each item is set by a definition of the kind of research use and examples of that kind of research use. For each kind of research use, respondents are asked to indicate, over the past year, how often they have used research in this nursing process. Items are scored on a 4-point rating scale (from never =1 to 4-point = always) depending on the study.

The Nursing Research Utilization Scale was implemented as research utilization assessment for many studies in which the content validity test by 7 experts was done and the content validity index(CVI) represents ≥80%. The reliability were

tested as internal consistency result is 0.97 (Waluwanaluk , Kunaviktikul & Pudthapuan, 1998). Furthermore, this instrument was used to measure the research utilization in nursing practice among nurses in other studies including internal consistency of the Nursing Research Utilization Scale in each studies are ; Upkhum, 2006= 0 .93; Mueangsuriya, 2006 = 0.90.

Although the Nursing Research Utilization Scale was developed in Thai context and had good psychometric properties of content validity and reliability, the concept of the research utilization in nursing practice has been changed. This means that the instrument is out of date to measure the present research utilization in nursing practice.

In summary, previous studies and existing instruments are benefit for researchers who interested in the phenomena of research utilization in nursing practice among professional nurses in the past. Researcher can learned and thoroughly understand how to interpret the meaning of the research utilization in nursing practice among nurses in various theory guide. However, this study is conducted in Thai context which has different educational system, research culture and professional career ladder from the previous studies. Furthermore, presently, the RUNP is accepted as one part of the EBP and used the same principle of EBP processes in application of research findings into nursing practice for the quality of care enhancement.

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2.3 Research utilization in nursing practice in Thai context

In Thailand, research utilization in nursing practice is involve with the promoted key activities of “R2R” or “ R to R”, which was named as the “Routine to Research”. The relevance of the R to R and the research utilization in nursing practice is a series activities of the “R to R” need the activities of the “research to routine”. The research to routine referred to the using of the research findings based for practice or research utilization in nursing practice. Recently**,** the symposium “R to R transformation” was set as big campaign and promoted nurses to perform, share and learn how to utilize the research findings base for practice (Ministry of Public Health, and Faculty of Medicine, Siriraj hospitals, 2015).

Although, there are many studies about research utilization among nurses and barriers to research utilization among nurses in Thai context, it was viewed not as same as present. In the past, the research utilization is viewed as the activities of use research in which reading, conference or support idea for practice not continuing processes. It had been viewed as use or not used for practice. However, recently the evidence base practice which related to research utilization has been accepted as high valuable for nursing practice. It has been viewed more details as the research based practice is follow the continuum process of practice question, research evidence evaluation and translation the knowledge into practice (Suwanraj, 2010). The evidence based for making decision in nursing intervention within various situations nowadays is necessary for quality control of nursing intervention during rapid social change, so research methodology is a systematic ways for searching the reliable answers for nursing intervention that could be blend in the routine work (Wanarat & Patcharaporn, 2014).

There are no study about the internal organizational factors as predictive factors of research utilization in nursing practice in view of nursing evidence base practice in this era. Therefore, critically selection of theory to guide this study is needed.

The Johns Hopkins Nursing Evidence-Based Practice Model (JHNEBP)

There are many models pointed to various related factors affecting on RUNP. The Johns Hopkins Nursing Evidence-Based Practice Model is appropriate to be used as a theoretical framework of this study for many reasons. First of all, it is guided to consider some significant internal organizational factors that reported their influence on RUNP. Furthermore, it is strongly support that research is a core and the best scientific- proof evidence which should be based for nursing practice (New house et al, 2007). The JHNEBP model emphasizes Practice question, Evidence, and Translation (PET). Practice question is the development for an answerable EBP question. The question is identified and refined, the scope of the question is determined, and an interdisciplinary team is formed. The steps of practice question are included in the Project Management Tool composed of five steps (Newhouse, Dearhol, Poe, Pugh, & White, 2007):

Step 1: Identify an EBP question

The clinical, educational, or administrative EBP question is identified. Keeping the question narrow and specific will make the search for evidence more manageable and will also help guide the search. Which narrows the question is identifying the patient, population, or problem intervention comparison with other treatments, and outcomes. The PET process uses the PICO approach (Sackett, Straus, Richardson, Rosenberg, & Haynes, 2000). The Question Development Tool guides the team in defining the issue, how and why it was identified, the scope of the issue, and

the PICO format. The tool also assists with looking for evidence and choosing a search strategy.

Step 2: Define the scope of the practice question

The question may relate to the care of an individual patient, a specific population of patients, or the general patient population in the organization. Defining the scope of the question assists the team in identifying the appropriate individuals and stakeholders who should be involved in, and kept informed of, the EBP process.

Step 3: Assign responsibility for leadership

For the EBP process to be successful, a leader responsible for facilitating the process and for keeping it moving forward must be identified. If possible, the leader should be experienced in evidence-based practice and have the necessary communication skills to work with an interdisciplinary team. It is also helpful for this individual to be knowledgeable of the organizational structure and strategies for implementing change within the organization.

Step 4: Recruit an interdisciplinary team

When recruiting an interdisciplinary team, it is important to include team members for whom the question holds relevance. When team members are interested and invested in addressing a specific practice question, the work of the team is generally more effective. It is recommended that individuals such as bedside clinicians, who are close to the problem and issues, be included. Additionally, consider including relevant stakeholders, such as clinical specialists, committee members (e.g., Research, Standards of Care and Practice, or Quality Improvement committees), physicians, dietitians, pharmacists, and occupational and physical therapists. To make

the group more manageable, attempts should be made to keep the group small, i.e., 6-8 individuals.

Step 5: Schedule a team conference

Setting up the first EBP team conference can be a challenge and includes activities (1) reserving a room conducive to group discussion with adequate space; (2) asking team members to bring their calendars so that subsequent meetings can be scheduled; (3) ensuring that a team member is assigned to record discussion points and group decisions, and to keep track of important items (e.g., copies of the EBP tools, extra paper, dry erase board, and so on); (4) providing for a place to keep project files; and (5) establishing a time line for the process.

Evidence The second phase of the PET process deals with the search for, and appraisal of, the best available evidence. Based on the results of this appraisal, recommendations are made by the team regarding needed practice changes. The steps of evidence are included in five steps (Newhouse, Dearhol, Poe, Pugh, & White, 2007):

Step 6: Conduct an internal and external search for evidence

Team members determine the type of evidence to search for and who will be responsible for conducting the search and bringing the items back to the committee for review. Enlisting the help of a health information specialist (library support) is critical. This will save time and help to ensure a comprehensive search.

Step 7: Appraise all types of evidence

Research and non-research evidence are appraised for their strength and quality. The Research Evidence Appraisal (Appendix F) and the Non-Research Evidence Appraisal (Appendix G) assist the team in this activity. The front of each tool

includes a set of key questions to determine the type of evidence, its strength, and its quality. The back of each tool includes reference definitions for each evidence type and a scale to rate the evidence quality. The PET process uses a I–V scale to determine the strength of the evidence, with I the strongest and V the weakest. A second scale for quality includes criteria that allows the team to rate the quality of each piece of evidence as high, good, or low/major flaw. The team reviews each item of evidence, and consensus determines both the strength and quality. The Individual Evidence Summary tracks the team's decisions about each piece of evidence.

Step 8: Summarize the evidence

The team totals the amount of evidence for each level using the Overall Evidence Summary. Then the findings for each level (I–V) are summarized in narrative form, and the overall quality for each level is determined by team consensus.

Step 9: Rate the strength of the evidence

The team makes a determination as to the overall strength and quality of the body of evidence that they have appraised.

Step 10: Develop recommendations for change in systems or processes of care based on the strength of the evidence

Based on the overall appraisal of the evidence strength and quality, the team develops recommendations related to the practice question. However, if the overall evidence is primarily non-research, i.e., expert opinion, clinical guidelines, and quality improvement data, changes should be made cautiously. Risks and benefits of making the change should be carefully considered. Initiating a change as a pilot study (with a limited set of patients) to determine if the change is effective and whether there are any unanticipated adverse effects is strongly recommended.

Translation In the third phase of the process, the EBP team determines if the changes to practice are feasible given the target setting. If so, an action plan is created. The change is then implemented and evaluated and the results are communicated to appropriate individuals both internal and external to the organization.

Step 11: Determine the appropriateness and feasibility of translating recommendations into the specific practice setting

The team communicates and obtains feedback from appropriate organizational leadership, bedside clinicians, and all other stakeholders affected by the practice Johns Hopkins Nursing Evidence-Based Practice change to determine if the change is appropriate and feasible for the specific practice setting. It is also essential to obtain organizational support, which helps ensure that necessary resources are allocated to make the change.

Step 12: Create an action plan

The team develops a plan to implement the recommended practice change, which may include (1) the development of (or change to) a protocol, guideline, critical pathway, or system/process related to the EBP question, (2) the development of a detailed time line assigning team members to the tasks needed to implement the change (including the evaluation process and reporting of results), and (3) the solicitation of feedback from organizational leadership, bedside clinicians, and other stakeholders on the action plan.

Step 13: Implement the change

Implementation begins. When implementing a change, it is important to ensure that all stakeholders are educated on the practice change, the implementation plan, and the process for evaluating the practice change. This may include verbal and

written communication. EBP team members should be available to answer any questions and to troubleshoot problems that may arise during the implementation.

Step 14: Evaluate outcomes

The team evaluates the degree to which the identified outcomes were met. Although positive outcomes are desired, unexpected outcomes often provide opportunities for learning. When unexpected outcomes occur, the team should examine why these outcomes occurred. This examination may indicate the need to make alterations to the practice change or in the implementation process, followed by reevaluation. Additionally, the evaluation of change should be incorporated into the organization's quality improvement (QI) process so that there is a time line for measurement, evaluation, and reporting of follow-up action.

Step 15: Report the results of the preliminary evaluation to decision makers

When the evaluation is complete, the team again reports the results to appropriate organizational leadership, bedside clinicians, and all other stakeholders. Even if The Johns Hopkins Nursing Evidence-Based Practice Model and Process Overview the results are unfavorable, it is important to share the findings. Sharing the results, whether negative or positive, helps to disseminate new knowledge and the generation of additional practice or research questions.

Step 16: Secure support from decision makers to implement the recommended change internally

If the evaluation of the results of the pilot is favorable, the team then obtains organizational support (human, material, and financial) to implement the change fully throughout the organization.

Step 17: Identify the next steps

EBP team members review the process and findings and consider if there are any lessons that should be shared or additional steps to be taken. These may include a new question that has emerged from the process, the need to do more research on the topic, additional training that may be required, suggestions for new tools, writing an article on the process or outcome, or preparing for an oral or poster presentation at a professional conference. There may be other problems identified that have no evidence base, requiring the development of a research protocol.

Step 18: Communicate the findings

This final step of the process is often overlooked and requires strong organizational support. As mentioned above, the results of the EBP project, at a minimum, need to be communicated to the organization. However, depending on the scope of the EBP question and the outcome, serious consideration should be given to the communication of findings external to the organization in appropriate professional journals or through presentations at national organizations.

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According to the JHNEBP model, the *Internal factors* may include organizational culture (values and beliefs), environment (leadership support, resource allocations, patient services, organizational mission, organizational priorities, availability of technology, library support, finance, and so on), equipment and supplies, staffing, and standards (the organization's own policies, procedures, and protocols). Enacting EBP within an organization requires; (1) a culture that believes EBP will lead to optimal patient outcomes, (2) strong leadership support at all levels with the necessary resource allocation (human, technological, and financial) to sustain the process, and (3) establishing clear expectations by incorporating research evidence into

standards and job descriptions (Newhouse, Dearholt, Stephanie, Poe, Pugh, & White, 2007).

The conceptual framework is a useful taxonomy of the variables that commonly have been used to measure RUNP, and provided theoretical background for each of the components of the integrated model and examples of the instruments for measure them. In other words, it will provide a map for exploring the relationships among some components affected on RUNP. Then, the selected part of the JHNEBP is recommended, most appropriate and more parsimonious for understanding such nurse performance in case of RUNP base on EBP implementation model.

Furthermore, this study is emphasis on predicting factors of Research Utilization in Nursing Practice with selected inside internal factors part based on literature review. Therefore, the knowledge of predicting factors of RUNP as organization's internal factors which are essential for consideration. It is shown for the full model of the Johns Hopkins Nursing Evidence Based Practice as figure 1.

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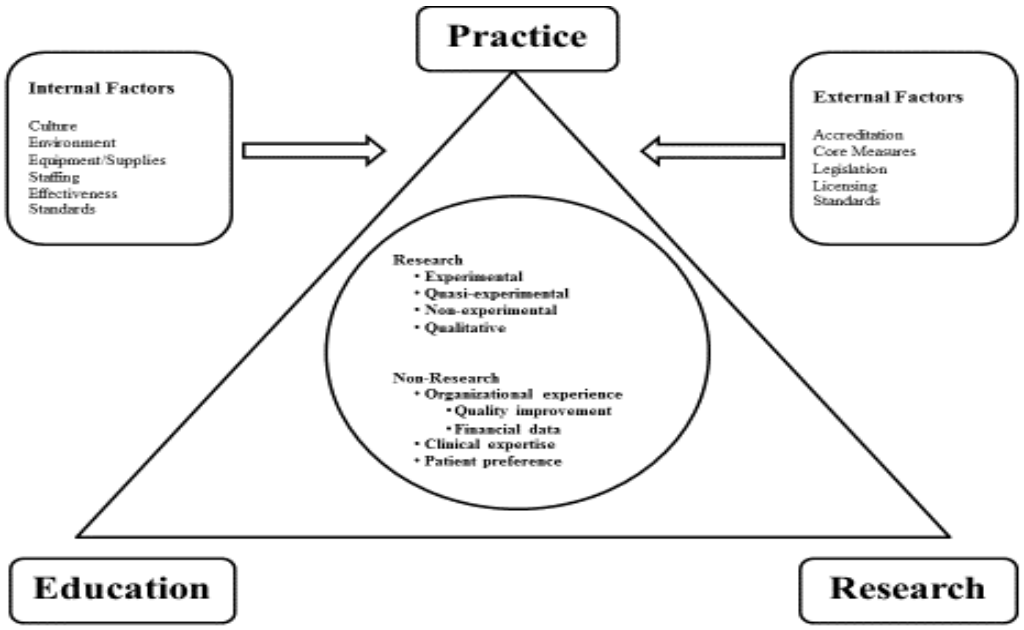

Figure 1 *The Johns Hopkins Nursing Evidence-Based Practice Model*

It is important for nursing administrator to effective consider in prioritized and effective management these internal organizational factors for the research utilization in nursing practice enhancement. Then, the selected part of the model is focused on *Internal-organization factors* as shown in figure 2.

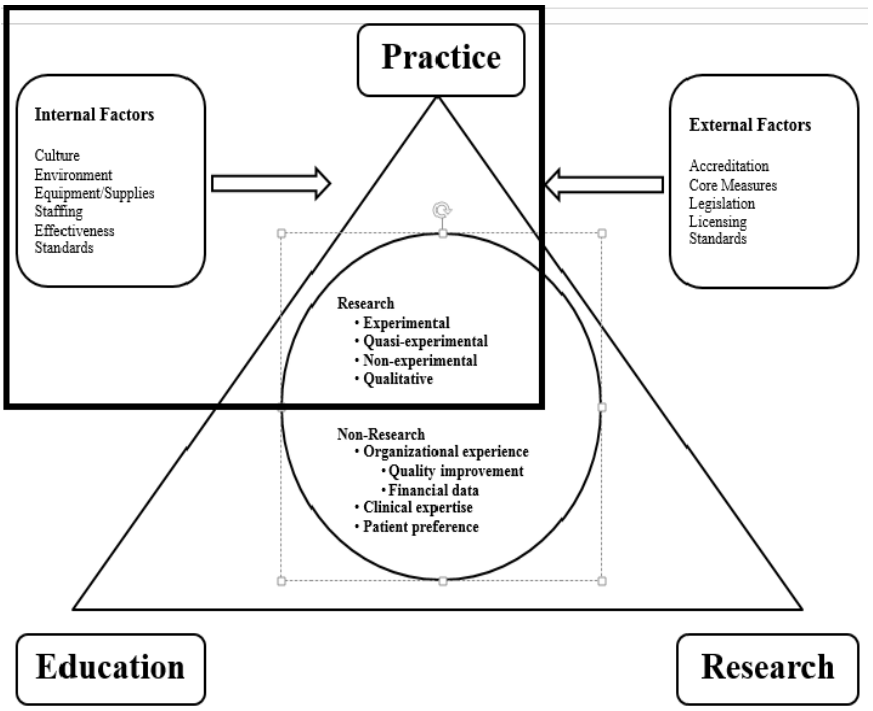

Figure 2 The selected part of the Johns Hopkins Nursing Evidence-Based Practice Model

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In summary,

The construct of internal- organization factors as independent variables of this study will be focused on five concepts of environment, culture, equipment & supply support, staffing and standard. While concept of nursing evidence base practice will be focused as research utilization in nursing practice. Many studies revealed the relationship between these independent variables and RUNP in variety meanings and results.

Factors related to research utilization in nursing practice among nurses

Various studies provide information support that there are both organizational factors ad individual factors can enhance the research utilization in nursing practice as follow.

1. Organizational factors

The selected part of the JHNEBP model, internal organizational factors as Environment, Culture, Equipment / Supply, Staffing and Standard are related to research utilization in nursing practice (research evidence use), literature review and the content analysis from experienced nurses' interview are integrated to support this study. To specify and clarify variables in each component for this study, researcher describes the three terms of research climate, supported resources, and staffing as follow.

1.1 Research Climate

Some literature proposed that research climate was representative of policy management and belief. This finding reflected that research base practice can emerge when the research climate in formal form as well as enforce policy management. Previous studies, nurses perceived environment and organizational culture as formal organizational climate have been shown to add in understanding research climate as well as factors related to research utilization among nurses. (Stiefel, 1998; McCloskey, 2005).

For professional nurses, the significance of the work environment was emphasis in the magnet hospital study (McClure et al, 1983). The Magnet hospitals were defined as hospitals where they can recruit and retain nurses. The work environment of those hospitals were characterized as having adequate staffing levels; flexible

scheduling, strong, supportive, and visible nurse leadership; recognition for excellence in practice; participative management with open communication; good relationships with physician; salaried rather than hourly compensation for nurses; professional development, and career advancement opportunities (Sovie, 1984).

Aiken, Clarke, and Sloane (2002) used Magnet hospitals as the sample of hospitals with essential traits for excellent patient outcomes and the retention of a qualified nurse workforce. The sociology of organizations and professions were used as a starter of the conceptual framework of their study. They showed that organizational attributes in health care settings that support clinical practice such as decentralization of authority, managerial support, interdisciplinary collaboration, continuity of care, effective communication channels, and adequate resources are essential to ability of clinician, such as a nurses, to identify and respond to fluctuating patient conditions. Thus, by supporting clinical surveillance and response, these organizational attributes contribute to high-quality patient care.

In 2002, Lake defined the nursing practice environment as the organizational .characteristics of a working setting that facilitate or constrain professional nursing practice. The definition was conceptualized from the sociology of organizations, occupations, and work and professional models. Lake (2002) derived an empirical set of subscales through factor analysis of a sample from the original magnet hospital and a sample of Pennsylvania hospitals. These organizational characteristics are hospital supporting nurse participation in hospital affairs, nursing foundations for quality of care, nurse manager ability, leadership and support of nurses, staffing and resource adequacy, and collegial nurse-physician relations.

These terms are assumed as organizational aspects fostering environment that support the working of nurses to meet desire outcomes such as job satisfaction, quality of care (Nantasupawat, 2011), but not specific for research utilization in nursing practice.

Hospital is a setting and can be categorized as an organization with effective management as environment of clinical nurses who are working inside. Target organizational condition as formal research climate is needed for facilitate hospital nurses to act more research utilization in nursing practice (Shaffer,1996, McCloskey, 2005). Especially, the term formalization refers to establishment of rules and regulations as policies and procedures and/or aspects of the job description in place, to control and legitimize activities within an organization (Shaffer, 1996). Furthermore, visible, enduring organizational structures such as standing committees, research groups, policies and procedures provide guidance and legitimacy for research activities (Edwards-Beckett, 1990). Therefore, research responsibilities should be built into job descriptions so that participation in research is an expectation rather than exception (Cronenwett, 1987; Simms, Price & Pfontz, 1987). In conclusion, the environment fostering research utilization and/or research activities as a formal process can be defined as the research climate.

Therefore, the research climate is raised as close meaning of an environment and research culture for this study. The JHNEBP model raised an organizational culture as a significant internal organizational factor related to research utilization in nursing practice. Enacting the research evidence use within an organization requires the culture that values and believes the RUNP will lead to optimal patient outcomes. (Newhouse, Dearholt, Poe, Pugh and White, 2007).

Organizational culture is not consistently described in the literature. Various definitions of organizational culture exist with many of them centering on enduring attributes of culture such as values, assumptions and beliefs. Organizational culture gives a sense of what is valued and how things should be done within the organization. It can be thought of as the 'normative glue' in organizations that preserves and strengthens the group through maintaining equilibrium (Sleutel 2000). Also it is a sense-making and control mechanism that guides and shapes the behavior and attitudes of an organization's members (Weick 1995, Robbins, 1996).

Many scholars began linking culture with organizational performance and outcomes (Peters and Waterman, 1982, Ouchi, 1981, Trice and Beyer, 1993). In nursing, the term organizational culture first appeared in 1986 (Del Bueno & Vincent, 1986). Furthermore, consistent with a modern perspective on organizational culture is the belief that culture is comparable to culture as variable approach (Smircich, 1983). On the other hand, culture is a variable and consequently it can be measured (Hatch, 1997).

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According to critical review of the organizational culture research in nursing by Scott-Findlay & Estabrooks, 2006, the two challenges facing researchers in this area are conceptual ambiguity and unit of analysis as describe:

1) Conceptual ambiguity: There are many terms used in this field such as practice environment, work environment, work culture and organizational culture (Sleutel, 2000). Furthermore, existing studies continued inconsistent and imprecise use terms such as organizational "climate" and "culture" interchangeably. The term "culture" is frequently used, and in many cases overused, to make reference to the 'softer' or less tangible features of an organization (i.e. identity, values) as compared

to the ‘harder’ aspects of the organization (i.e. structure). While terminology precision would facilitate the comparison of studies and potentially the sequential development of ideas within this field this demand is impractical, particularly with the increasing use of interpretive approaches.

2) Unit of analysis: In the case of organizational culture research, the dilemma is that the variable of interest, culture, is often measured at the individual level. In other words, individuals are asked for their perceptions about the culture of their workplace. This results in differing levels of data measurement and analysis that is, data is collected at the individual level, but the analysis takes place at the group level as culture is a collective phenomenon (an acceptable approach if defensible aggregation processes are used).

All of previous research utilization in nursing practice studies implements various culture tools. According to the critical reviewed by Scot, T-Findlay (2006), many cultural tools have been used in nursing studies. To select the tool is depend on researcher view and purpose of the study. The challenge points which foster researcher to clarify at the beginning of study are the conceptual ambiguity and the unit of analysis.

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1.1.1 Definition

Most researchers who conducted the studies about research utilization among nurses named the research climate in various terms such as “ The organizational research climate”, “The formal research” “The formalization of research scale”, “ the research climate” , and “research context”. The research climate is the defined as organizational conditions that foster the process on research participation and research utilization. It can be defined as the establishment of roles and regulation to control and

legitimate activities within an organization. (Shaffer, 1994) . It is the one of organizational factors which is formal informed and communicated among nurses affecting the conduct and utilization of nursing research. It is also refer to establishment of policy and procedures, goals and job description in relation to nursing research in organization (Shaffer, 1994; McCloskey, 2005).

Therefore, the research climate in this study refers to organizational conditions that foster the research utilization in nursing practice which can be perceived by vision, mission, goals, shared value about research in organization.

1.1.2 Dimensions

Previous researchers summarized that the research climate should have two dimensions of organizational policy/ management and research culture/ shared value(Shaffer , 1994; McCloskey, 2005) as follow.

Base on the Shaffer's study of " staff nurses perceptions of barriers toresearch utilization and administration support for research in hospital" in 1994, she run the principle factor analysis of formal scale. She found that the formal research climate has two components of organizational management and share value of research. The formal research climate can be existing in job description, mission statement, and value. These lead organizational conditions that foster the process of research participation and research utilization. Ten years later, McCloskey strongly support that formal research climate is important for promoting the conduct and utilization of nursing research. It should be set as a formal research climate by policy and management, and enhance the research culture for individual nurses.

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1.1.3 Measurement

From critically review, the instrument with the definition most related to research climate is the formal scale (Shaffer, 1994; McCloskey, 2005)

The Formal Scale: the formal scale is a self-report of participant on the perception of the degree to which the hospital structures, policies and culture (existing in job description, mission statement, and value) guide research activities. There are 8 items of self-report with Likert scale. The Formal Scale was placed on a 5-point Likert-scale in order to reflect the logical and semantic content of the concept of research climate. Therefore, participants rate each item on a 5 points-Likert scale (strongly disagree = 1, disagree = 2, neither agree nor disagree=3, agree =4, strongly agree = 5). The total scale could range from 8 to 40 by total sum score. And computing the mathematical mean across all items yielding a possible mean score range from 1 to 5 with higher mean scores indicating high research climate.

The Formal Scale asks respondents to rate their agreement to statements based upon a 5-point Likert scale. This scale contains eight items and measures the degree to which hospital structures and policies guide research activities such as job descriptions or hospital mission statements. The mean score for each subscale represents the perceived climate for each respondent. A high score reflects a positive climate regarding either hospital policies or network activities that communicate research.

Therefore, this study will analyze and consider some part of the Climate Scale with literature review which existing in Thai context and culture. This tool will be developed by researcher which composed of policy and management and research culture component.

1.1.4 The relationship between research climate and research utilization in nursing practice

Research climate has strong evidence that contribute to research utilization in nursing practice (Shaffer, 1994; McCloskey, 2005).

Shaffer (1994) had been explored the staff nurses' perception of barriers to research utilization and administrative support for research in hospital among 336 nurse in USA. The multiple regression and path analysis were analyzed. The research climate is the one predictor which is significantly effect on participation on research and barriers to research utilization.

McCloskey (2005) has been investigated the relationship between organizational factors and nurses factor affecting the conduct and utilization of nursing research among the staff nurses. The study results that research climate is the one of significant predictor of research utilization (B = .239, R^2= .199).

Research climate has a significant effect on research utilization in nursing practice among nurses. Previously, organizational climate refers to environment as a result of an administrative support. More specific to the formal research climate, it is referred to the condition of organization which was fostering to enhance research utilization in nursing practice. Various studies revealed formalization or formal research climate is related to research utilization in nursing practice.

Shaffer (1994) study the staff nurse perceptions of barriers to research utilization and administrative support for research in hospitals. Researcher conducts the cross sectional correlational study design to examine the relationship between staff nurse perceptions of barriers to research utilization and administrative support (formal research climate, decentralization, and authority/control) for research in hospitals

Research climate is one of the administrative supports, has a significant on participation in research and perception of barriers to research utilization.

McCloskey (2008) study the relationship between organizational factors affecting the conducting and utilization of nursing research among hospital nurses in large urban area. Researcher conducts the cross sectional correlational study design to examine the relationship between organizational factors (climate, support and control) and nurse factors (attitude, perceived availability of research resources, perceived use of research, perceived support and educational level). The result revealed that formal research climate is a significant predictor of research participation and attitude toward research. Have a formal research climate affect daily predicted the use of research.

Currently, the evidence-based health care demand increased research use by healthcare professionals. Organizational culture is frequently proposed as important factors in shaping health care professionals' research use behaviors.

Stiefel (1996) conduct research of career commitment, nursing unit culture and nursing research utilization. The cross sectional descriptive correlational study design was guided by the Everett Rogers' theory of diffusion of innovations. Samples are 100 clinical nurses of 20 nursing units (adult medical, surgical, oncology and intensive care) in two larges university- affiliated teaching hospitals. Culture as measured by the Organizational Culture Inventory (OCI) was not identified as a predictor of nursing research utilization. However, other cultural factors such as setting and area of practice emerged as import factor in nursing research utilization.

Connor (2007) used a cross sectional descriptive correlational survey design to describe the organizational culture and research utilization practices among nursing home departmental staff for her thesis under title of "The relationship between

organizational culture and research utilization practices among nursing home departmental staff". The Organizational Cultural Assessment Instrument and the adapted Research Utilization Survey were used. Results revealed that Hierrachial culture support a controlled, structured environment. The conclusion is nursing staffs of nursing home department are willing to use research in practice but the work place environment is not supportive. Effort to modify the Hierrachy culture and its contextual barriers are needed to achieve research utilization.

Estabrooks et al (2008) study Patterns of research utilization on patient care units. They conduct the comparative ethnographic case study design to examine seven patient care units (two adult and five pediatric units) in four hospitals in two Canadian provinces (Ontario and Alberta). Data were collected over a six-month period by means of quantitative and qualitative approaches using an array of instruments and extensive fieldwork. The patient care unit was the unit of analysis. Drawing on the quantitative data and using correspondence analysis, relationships between various factors were mapped using the coefficient of variation. Results revealed that Units with the highest mean research utilization scores clustered together on factors such as nurse critical thinking dispositions, unit culture (as measured by work creativity, work efficiency, questioning behavior, co-worker support, and the importance nurses place on access to continuing education), environmental complexity (as measured by changing patient acuity and re-sequencing of work), and nurses' attitudes towards research. The conclusion is Modifiable characteristics of organizational context at the patient care unit level influences research utilization by nurses.

1.2 Support Resources

Previous studies proposed that support resources can be viewed as observable things which are available or existing in organization and facilitate nurses to do the research utilization easily. This finding reflected that research base practice can enhance when the support resource are enough (Just, 2008).

Perceived equipment/supplies support refers to the perception among nurses regarding the availability for research utilization of facilities such as equipment, technology and supplies in the organization or unit. There are many types of facilities that are grouped as organizational resource supports. The organizational resource supports are defined as all supports from workplace or organization that nurses are working in. The supports includes money, supplies, equipment, library time, use of computers, meeting space, salary and paid work time given for activities. In the same sense, organizational resource support is used to facilitate RUNP activities. (Shaffer, 1994; McCloskey, 2005; McCloskey, 2008). Therefore, equipment/supplies support has a positive relationship to research utilization in nursing. According to the JHNEBP model, Equipment and supply is significant internal organizational factors which for research utilization in nursing practice enhancement. Recently, various terms about equipment/ supply supports are provided (Shaffer, 1994; McCloskey, 2005).

1.2.1 Definition

The equipment/ supply support refers to organizational characteristic have been described as important factors affecting the utilization of research. These support systems include time, funding, peer, and administrative support, and mentors available for consultation (Funk et al, 1991a; Funk, Champagne,

Weise & Tornquist, 1991b). There are many subscales which can be focused base on research objectives.

1.2.2 Dimensions

Previous studies show various dimensions such as human, time, asset or facilities of the support resources are described as follow:

Human resources are important especially for those who lack experience in complementing change or are new to the research process.Colleague and administrators was a key variable in many studies. Other have found that a lack of support from nursing leaders was the second greatest factor for nursing educators. For staff nurses, support from peer was the most important factor (Pentingell, Gillies & Clark, 1994).

Time is frequently cited as the number one factors in the Research Utilization literatures (Rizzuto, 2000; Bostrom, 2008; Suter& Chenitz, 1994) . Many studies surveyed from nurses and found that the first rank factor was not enough time on job to implement new ideas (Karjermo et al, 2000), nurse not having enough time to read journals (Carroll et al, 1997).

The items in this support scale look like will be used for this study. The support scale using a five point Likert scale, respondent were asked to answer 23 items available to them in their hospitals. It measured resource needed such as money, supplies, equipment, and library time, use of computers, meeting space, salary and paid work time given for activities. This instrument comprised of four subscales as; the PEER subscale, the SALARY subscale, the ASSET subscale, the TIME subscale, and the FACILITIES subscale as follows:

PEER subscale contains eight items and measures the degree to which support is granted in form of direct consultation with mentors, statisticians.

SALARY subscale contains eight items and measures the degree to which support is budgeted money, grants and support for writing reports.

TIME subscale contains eight items and measures the degree to which the nurse has paid work time to engage in research utilization activities such as attending classes, read journals, conduct library searches for journals, and to present research results to others.

ASSET subscale contains four items and measures the degree to which the respondent is able to use hospital resources such as supplies, service, equipment and computers.

FACILITIES subscale contains three items and measure the degree to which the respondent has available from the hospital journals, library computer searches and meeting space.

The mean score for each subscale represents the respondent's score. A high score reflects a strong perceived support within the workplace or organization.

In summary, based on this model and literature review, there are advantages for researcher to see some relation among RUNP and independent variables. Even though this depicted model proposed the broad idea of internal organizational factors related to the research utilization in nursing practice.

1.2.3 Measurement

From critically review, the instrument with the definition most related to support resources in this study is the Support scale which was developed by Shaffer, (Shaffer, 1994; McCloskey, 2005)

1.3 Support Resources Scale

The support scales have many interesting points in that such as time, fund and asset. These resources should be available and existing for promote the research utilization among nurses as described as follow.

Time is frequently cited as the number one factors which are related to the Research Utilization (Suter & Chenitz, 1994; Rizzuto,2000; Bostrom, 2008). Many studies surveyed from nurses and found that the first rank factor of the barriers to RU was “there are not enough time on job to implement new ideas” (Karjermo et al, 2000), “nurse is not having enough time to read journals” (Carroll et al, 1997; McCloskey, 2005).

Fund or reward which support the RU activities are focused on the budgeted money, grants and support for RU project and writing reports (Bostrom, 2008).

Asset that facilitates nurses to do the RU is hospital resources such as supplies, service, equipment and computers. In addition, some studies broaden the meaning of the asset as the available from the hospital journals, library computer searches and meeting space (Champion & Leach, 1986; Bostrom, 2008).

Supported Resources Scale was placed on a 5-point Likert-scale in order to reflect the logical and semantic content of the concept of support resources. Therefore, participants rate each item on a 5 points-Likert scale (strongly disagree = 1,

disagree = 2, neither agree nor disagree=3, agree =4, strongly agree = 5). The total scale could range from18 to 90 by total sum score and computing the mathematical mean across all items yielding a possible mean score range from 1 to 5 with higher mean scores indicating high support resource. Thus, researcher will generate the new items according to Thai context and consider the some existing items of support resources measurement.

1.2.4 The relationship between support resources and research utilization in nursing practice

Previous studies revealed the statistically significance of the availability of each support resources for the research utilization.

Ganz, Fink, Raanan, Asher, Bruttin, Ben Nun, & Benbinishty, (2009) has been studied to explore the ICU nurses' oral-care practices and the current best evidence in government hospitals. It results that asset as computer, and accessibility to the internet for updated knowledge based practice is significant to the research utilization (Ganz et al, 2009). This study is focused on the asset which is related to the research utilization in nursing practice.

McCloskey (2008) study the relationship between organizational factors affecting the conducting and utilization of nursing research among hospital nurses in large urban area. Researcher conducts the cross sectional correlational study design to examine the relationship between organizational factors (climate, support and control) and nurse factors (attitude, perceived availability of research resources, perceived use of research, perceived support and educational level). The result revealed that formal research climate is a significant predictor of research participation and attitude toward research. Have a formal research climate affect daily predicted the use of research.

Currently, the evidence-based health care demand increased research use by healthcare professionals. Then the support resources availability is needed.

1.3 Staffing

According to the JHNEBP model, staffing is the one of internal organizational factors which fosters research evidence use or research utilization in nursing practice. Recently, various terms of Nurse staffing was defined by several scholar as the process of determining and allocating the appropriate number and mix of nursing personnel to fulfill positions in nursing organizations and units (Cherry, 2002; Douglas, 1988; Jelinek & Kavois, 1992; Rowland& Rowland, 1997; Sullivan&Decker, 1997, 2005). The ultimate goal of nurse staffing is to provide high quality nursing services and to achieve desired patient and organizational outcomes or, in other words, to provide effective and efficient nursing care (Giovannetti, 1984; Sullivan & Decker, 1997, 2005).

1.3.1 Nursing personnel and Nurse staffing in Thai hospitals

In Thailand, nursing personnel consists. For each position level, nursing personnel complete different types of training and educational preparation as well as have a different working scope and professional responsibilities. The educational qualifications of each level of nursing personnel are as follows:

1. Professional nurses are nurses who graduated with at least bachelors' degree or diploma of no less than 3 years of study or an equivalent certificate in nursing and received first class nursing licenses, licenses for professional nurses, from the Thailand Nursing Council.

2. Technical nurses are nursing personnel who receive a two –year

diploma from nursing school after finishing high school education and received the second level nursing licenses, from the Thailand Nursing Council.

3. Practical nurses (PNs) are unlicensed nursing personnel, completing one year of training in basic care after they have complete at least assist the nine grade and having received a certificate from nursing school.

4. Nursing assistants or helpers are assistive personnel who attend a short training course in nursing assistants from hospitals after completing at least nine grades.

Managerial position in Thai nursing institutions generally includes three levels, which require specific educational preparation. Who those have received at least a bachelor's degree. The three managerial levels are as follows;

1. High –level management includes the director of the nursing division and her/his associates.

2. Middle-level managements include the head of department or nursing supervisors.

3. First-line managers are head nurses.

Nevertheless, the numbers and positions of assistant directors and middle-level administrators in each hospital are depended on the hospital policy as well as the size of the hospitals. For example, community hospitals and small private hospitals may not have middle-level administrators. Additionally, in order to decrease the chain of command, there is a trend to either decrease the number of middle-level administrators or eliminate them completely.

Government hospitals have a system that will help promote the clinical careers of the bedside nursing staff. This system requires professional nurses, who want to receive a promotion to a higher level, to create and develop a scholarly work related

to the nursing practice in the area, which they are working and submit it to the hospital committee to be evaluated. If their works meet the criteria, the nurses will be promoted to the position classification level (PC) that is higher than typical limited PC for staff nurses. The new position the staff nurse will be promoted to be called the expert position. The benefits derived from receiving this promotion are an increase in monthly salary and the expert position compensation.

The basic knowledge used to determine the number and qualification standards of nursing personnel in hospitals and nursing units is similar to that knowledge in other countries. The patient classification system, as well as formulas used to compute nursing workloads, was included in a subject on nursing administration in bachelor's degree curriculum. Furthermore, for a long time the Division of Nursing (presently the Bureau of Nursing), and the Ministry of Public Health have promoted using the patient classification system to determine the number of nursing personnel allocated to each nursing unit and published a guideline for nurse staffing in the year 2002. Thus nearly 80 percent of Thai public hospitals used the patient classification system to compute in formula that calculates for nurse staffing (Division of Nursing, MOPH, 2002). Furthermore, the TNC (2005) recommended nurse staffing in tertiary care hospitals as many types. For examples, the minimum Nursing Care Hour Per Patient Day (NHPPD) were 4-6, 6, 12 and 16 in patient departments, psychiatric and special-departments, adult intensive care unit, and child intensive care units, respectively. Furthermore, minimum patient to nurse ratios to be implemented were 4:1 to 6:1, 4:1.to 2:1, and 5:1 in in-patient departments, psychiatric and special-departments, adult, intensive care units, and child intensive care units, respectively. The percentage of skill mixed of RN: Non RN ratio could be 100:0, 80:20, 70:30, 65:35, or

60:40 depending on severity of patient in each unit. Nurse staffing reports from previous studies in Thailand were presented based on the patient classification systems and the time spent among nursing personnel in different unit and settings (Chitpakdee, 2006; Nantsupawat, 2010).

There is no mandatory policy for nurse staffing in Thai health care organizations. The Thai Nursing and Midwifery Council recommends that the proportion of professional nurses to other nursing personnel should be 2:1. Furthermore, the Thai Nursing Division recommends that nursing care hour's care in a tertiary care hospital should be 4.5 hours per patient day (Kunaviktikul et al, 2002a). However, several studies found that nurse-staffing levels in tertiary care hospitals did not meet this recommendation. The Nursing Division, Ministry of Public Health (2002) identified the present workload of nursing personnel working in regional hospitals and general hospitals were between 2.9 and 4.1 nursing care hours per patient day. Additionally, there were two studies identifying the level of nurse staffing in tertiary care hospitals. Panya (2003) found that nursing working hours per patient day in six surgical nursing units of a general hospital were between 2.31 and 4.38 hours with a mean of 2.81. The study also revealed that those nursing units had a ratio of professional nurses to other nursing personnel of between 1: 09 and 1:.05. another study, conducted by Leotrakul (2003) , found that nursing working hours per patient day of six medical nursing units of a university hospital were between 3.8 and 4.2 hours and the ratio of professional nurses to other nursing personnel was 1:1.

1.3.2 Definition

Previous studies about factors related to research utilization among nurses point the inadequate staffing in the high ranks. However, Forsman et al (2012)

investigated Nurses' research utilization two years after graduation (in 2007, n=845) as part of the LANE study (Longitudinal Analysis of Nursing Education), a Swedish national survey of nursing students (in 2002), and registered nurses (in 2004), Guided by an analytic schedule, bivariate analyses, followed by logistic regression modeling were applied. Findings indicated that of the variables associated with RU in bivariate analyses, six were found to be significantly related to low RU in the final logistic regression model; work in the psychiatric setting, role ambiguity, sufficient staffing, low work challenge, being male and low student activity.

Pertaining to management element, the result of adequate staffing was associated with low RU was far different from previous studies (Forsman et al, 2012). Researcher discussed as this result may reflect that optimal staffing for high-quality care is more complex than just counting the number of staff and assessing the skill mix. According to Dubois and Singh (2009), the focus should lie on staff skills and effective use of those skills as skill management. Skill management is about optimizing the use of staff education, training, skills, knowledge, experience and competence (Dubois and Singh (2009), Hence, this could imply that although the number of staff was perceived adequate to meet patients' needs, staff skills and competence regarding RU was not fully used, may be even hindered by factors related to management.

Therefore, staffing for this study refers to the perception of facilitative staffing adequacy or quantitative staffing and qualitative of staffing. This staffing is considered more than only numbers.

1.3.3 Dimension

In this study, staffing is composed three dimensions of facilitate staffing, quantitative staffing and qualitative staffing.

Facilitate staffing means RU experts or consultant available. Many nurses recommended that the availability of experts or consultants or assistants to help nurse while implementing the RUNP in each unit are necessary. Some nurses expect for research explanations from experts, while some nurses need consultant regarding statistics focus. In addition, some nurses indicated that the RUNP should be done as a team and need high cooperation from team members. Therefore, they also proposed the term of staffing as the availability of research assistant.

The quantitative staffing is referred to the adequate staffs to give quality of care and adequate staffs to complete the research utilization in nursing task. Some nurses described that major responsibility of professional nurses are direct nursing care. They have to prioritize the tasks. If there are adequate staffs, the RUNP can be integrated in their work.

The qualitative staffing means the existing of trained staffs about research utilization in nursing practice and responsible staffs to lead the specific task of research utilization in nursing practice.

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1.3.4 Measurement

The measurement of staffing are various types such as the perception of adequacy of staffing scale (PAS scale), the nurses to patient ratio, or hours of care per patient day (HPPD). The PAS scale seems to be used for this study (Schmalenberg & Kramer, 2009). The instrument, PAS subscale of adequacy of staffing is subscale of the Essential of Magnetism (EOM) instruments. Examples items are;

The nurses on my unit feel that, most of the time, we are adequately staffed to give quality of care. Our current level of staffing decreases nurses' job satisfaction. However, to promote the research utilization in nursing practice among

professional nurses, its need staffing in many aspects. There is no staffing scale which directly ask question about staff for the research utilization task.

Staffing Scale

The results of nursing staff required to provide care to patients (Aydelotte, 1973 cited in Abdoo, 1994). Thus, in nursing research, nurse staffing is often referred to as the number and types of personnel employed by a health care organization to be made available for nursing services (Halloran, 1998). Therefore, the result of nurse-staffing process is categorized in two types as staffing levels and staffing patterns .

Nurse staffing levels are the number or amount of nursing personnel designated for either a given nursing unit or shift, while staffing patterns or skill mix are combination or ratio of professional to nonprofessional nursing personnel for a specific nursing unit (Young, Givannetti, Lewison,& Thoms, 1981 cited in , Givannetti, 1984).

Firstly, nurse staffing levels were measured as either nurse-to-patient ratio; patient-to nurse ratio, or nursing hours per patient day available for providing nursing care in each nursing unit or in the hospitals. Because there are different types of nursing personnel, some specificity is needed regarding what types of workers are being examined (RNs, Practical Nurse, Unlicensed staff, or all of theses). Furthermore, patient to nurse ratio is defined as number of patients cared for by one nurse, typically specified by job category; this number varies by shift and nursing unit. Such measure is commonly reported as full-time equivalent (FTE) positions worked in relation to average patient day census (ADC) over a particular time period, and hours of care per patient day (HPPD). (Kane et al., 2007; Seago, 2001). Another commonly used

measure is the number of patients for whom one nurse has direct responsibility at any one time (Lankshear, Sheldon, & Maynard, 2005)

Second type, Nurse staffing patterns, nursing skill mix was measured as the proportion of registered nurses to all nursing personnel or the proportion of licensed nurses (RNs and LVNs) to all nursing personnel. Qualification of nursing staff assigned to care for patients can be considered in terms of license levels or education as a proportion of licensed versus unlicensed workers, registered versus unlicensed workers, or registered versus practical or vocational nurses. These type measures are often referred to as skill mix indices (Clarke, 2007).

Even though two types of nurse staffing are usually used to estimate nursing staffing levels and they are related to patient and nurse outcomes, this study aims to measure staff nurses who provide nursing care for patients.

A number factors, including the number of patients, the acuity of patients, time standards for some repetitive tasks, types of nursing care, and the need to provide allowances for other professional aspects of nursing care have to encompassed in the consideration of nursing staff. Furthermore, non- routine events, variations of patients' needs which can interfere with everyday work, and the accompaniment of the various skill levels and competencies of nursing personnel have to be taken into account in determining nursing staff for each unit (Rowland & Rowland, 1997). Consequently, nurse managers have to include these factors in carefully determining and allocating the nursing personnel available to provide the highest quality of nursing care for their patients.

1.3.4 Relationship between Staffing and Research Utilization

Nurse staffing level is used as structural component that relates to quality outcomes. However, various studies about relationship among staffing and research utilization in nursing practice are proposed in different term and measurements. Several studies have suggested that nurses in hospitals supporting adequate nurse staffing had higher research utilization in nursing practice. Some studies provided logical reasoning about relationship among staffing and research utilization in nursing practice. Forsman et al. (2012) identify factors that predict the probability for low RU among registered nurses two years after graduation. Data were collected as part of the LANE study (Longitudinal Analysis of Nursing Education), a Swedish national survey of nursing students and registered nurses. Data on nurses' instrumental, conceptual, and persuasive RU were collected two years after graduation (2007, n = 845), together with data on work contextual factors. Data on individual and educational factors were collected in the first year (2002) and last term of education (2004). Guided by an analytic schedule, bivariate analyses, followed by logistic regression modeling, were applied. Results show that sufficient staffing is one of the variables associated with Research Utilization in the bivariate analyses. The other five were found to be significantly related to low RU in the final logistic regression model as work in the psychiatric setting, role ambiguity, low work challenge, being male, and low student activity.

2. Individual factors or Nurses factors

From Literature review and interview of experienced nurses who familiar with the RUNP in view of evidence base practice are definitely focus on Research experience can be described as follow:

2.1 Research experience

Research experience is grouped as individual nurses' characteristics which related to the research utilization behavior (Varcoe & Hilton, 1995), The Research experience means nurses' perception as their experience of ever or never involved with activities of systematically study as research. There are many activities which are included in research methodology such as proposal preparation, instrument development, collecting data. They can be both principle of investigator and co-researcher. All of research experiences can increase related nurses' skill related to research utilization in nursing practice activities.

Varcoe & Hilton (1995) revealed that the research experience is one variable that affect the research utilization in nursing practice among acute-care nurses' use of research findings.. Furthermore, Tsai (2000) revealed that the research experience of participation in research such as data collection is related to research utilization in nursing practice.

Stiefel (1996) also proposed in the study of career, commitment, nursing unit culture, and nursing research utilization that there are statistically significance relationship among research experience and research utilization in nursing practice (r = +.37).

Furthermore, Squires et al (2007) reveals that nurses who has research experience or have ever involved with research conduction , have more research utilization.

2.2 Educational level

Educational level is one of various individual nurses' characteristics which related to the research utilization behavior. Some scholars call it as nurses' factor

(Stiefel, 1996; McCloskey, 2005). Educational level means the latest study degree status of nurses who graduated or post graduated study as bachelor in nursing science, master in nursing science, master in other science or else as doctoral degree.

There were previous studies reveal the different educational level, the different research utilization in nursing practice (Lacey, 1994; Brown, 1997; Logdon, Davis, Hawkins, Parker, & Peden, 1998; Rodgers, 2000). Michel & Sneed (1995) proposed the dissemination and use of research findings in nursing practice are statistically different among nurses with different educational level (Michel & Sneed, 1995). Wallin, Estabrooks, Midodzi, & Cummings (2006) studied the development and validation of a derived measure of research utilization by nurses and found that the higher educational level has different higher research utilization level. Furthermore, McCloskey (2005, 2008) revealed nurse factors i.e., educational level affect the conduct and utilization of nursing research.

In summary, as previous studies reveal the significance of higher educational level which was related to the higher RUNP level.

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Base on the JHNEBP model guide and the literature review support., the conceptual framework is shown as Figure 3

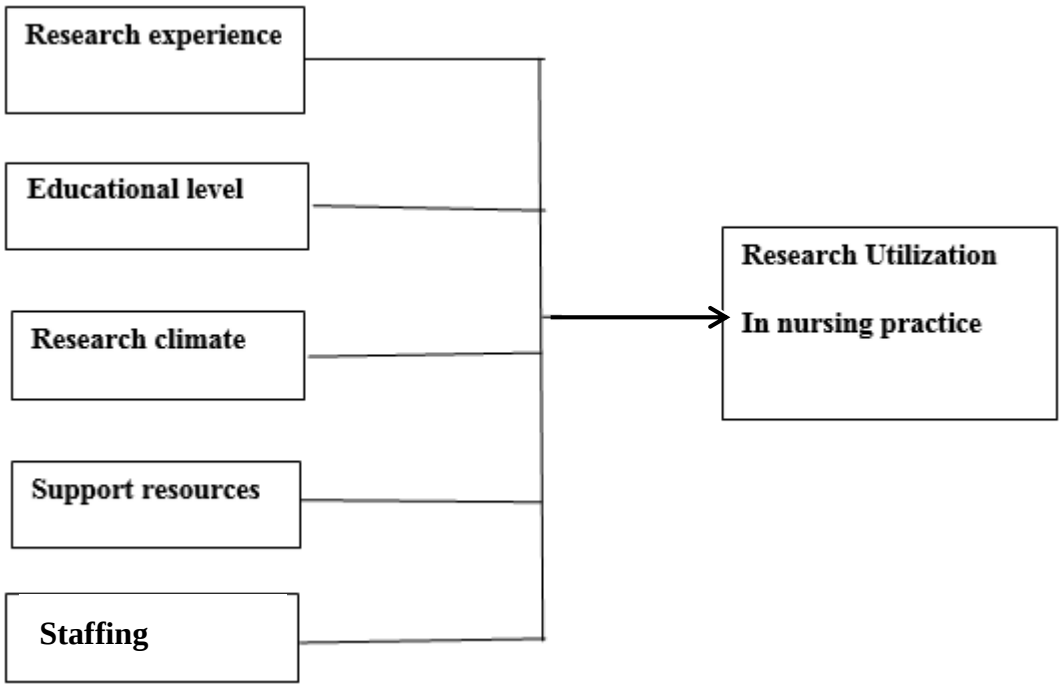

Figure 3 *Conceptual framework of this study*

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CHAPTER III

METHODOLOGY

This chapter describes the methodology used. The research design, population and sample, instrumentation, protection of the rights of human subjects, pilot study, and data analysis are detailed.

Research design

A predictive correlational research design was used for this study in order to describe characteristics of the research utilization in nursing practice (RUNP) and identify the predicting factors of RUNP among professional nurses in regional hospitals under the jurisdiction of Ministry of Public Health.

Population and sample

The population in this study was Thai professional nurses who worked in regional hospitals under the jurisdiction of the Ministry of Public Health in five geographical regions of Thailand. The population was 17,351 nurses (Human Resource for Health Research and Development Office, 2010).

The sample was professional nurses who be a registered nurses position, has professional nursing licensed which certified by Thailand Nursing and Midwifery Council, and work as a full time employment in regional hospitals under jurisdiction of Ministry of Public Health.

Sample size determination

The sample size was calculated by Yamane's formula (1967), in which the sample size was estimated based on the population.

$$n = \frac{N}{1+Ne^2}$$

Where, n = Sample size

N= Population

e = allowable error (0.05)

Therefore, $$n = \frac{17,351}{1+17,351\ (0.05)^2}$$

$$= \frac{17,351}{44.38}$$

$$= 391$$

Consequently, 10% of the total sample size was added to account for contingencies such as non-response or recording error. Therefore, the current study should have at least 430 professional nurses. After collecting the data, the sample was 447 professional nurses. According to the data missing, seven samples were deleted. Therefore, 440 samples were analyzed.

Setting

The setting of this study was regional hospitals under jurisdiction of Ministry of Public Health from five regions of Thailand: north, northeast, central, east, and south (Bureau of Policy and Strategy, 2009).

Sampling Method

A multi-stage random sampling procedure was used to recruit the sample. The following steps of sampling are described:

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1. There are twenty-seven regional hospitals under Jurisdiction of Ministry of Public Health, Thailand: 5 regional hospitals in the North, 7 regional hospitals in the Northeast, 5 regional hospitals in the Central, 4 regional hospitals in the East, and 6 regional hospitals in the South (Bureau of Policy and Strategy, 2009; National Statistics Organization, 2011).

2. The researcher selected one regional hospital in each region of Thailand by using simple random sampling without replacement procedure by drawing lots.

3. Five regional hospitals were obtained. From the North: Sawan Pracharak Hospital, from the Northeast: Srisaket Hospital, from the Central: Ratchaburi Hospital, from the East: Rayong hospital, and from the South: Vachira Phuket Hospital.

4. Researcher asked the present number of professional nurses of each randomized hospital in north, northeast, central, east, south from the hospital statistician or secretary of nursing director. The numbers of the registered nurses are 568, 510, 613, 485 and 450 respectively.

5. Researcher calculated the number of sample in each regional hospital by required proportion in order to meet adequate estimate sample size for this study. There were 98, 87, 103, 86, and 73 subjects in north, northeast, central, east, and south. Therefore, the total sample of this study was 447.

Inclusion criteria

The inclusion criteria for this study were: 1) being a registered nurse, 2) having professional nursing licensed which certified by Thailand Nursing and Midwifery Council, and 3) being a full time employed in regional hospitals under jurisdiction of Ministry of Public Health.

Exclusion criteria

The exclusion criteria for this study were: 1) being a maternity leave sick leave, and study leave, and 2) having nursing experiences less than 6 moths.

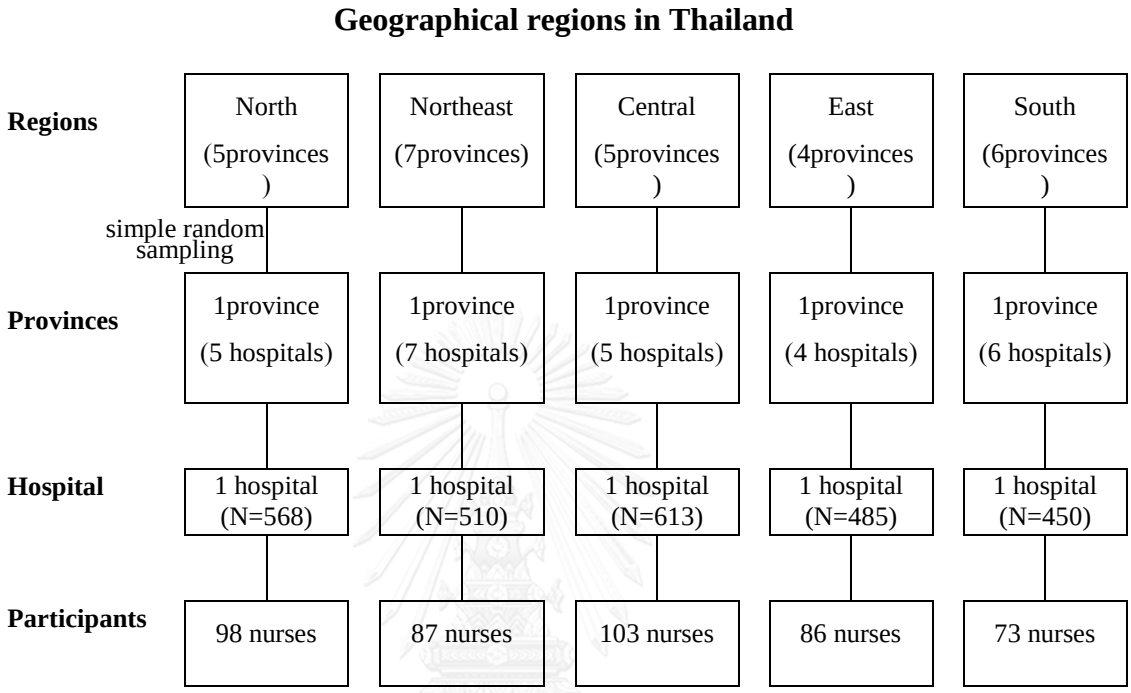

Figure 4 *Multi-stages sampling of this study*

Descriptive analysis of the study sample

The age of sample ranged from 23 to 59 years with a mean age of 39.41 years (SD = 8.64). About 56.14% of the participants were married and 40.45% had an income ranged from 20,001-30000 Baht. The majority of the sample was female (96.82%), graduated bachelor degree (86.14%), had nursing care experience more than 5 years (85.23%), were staff nurses who provided direct care (92.27%), and worked at general wards (64.55%). The sample had continuous nursing education in a nursing specialty program (25.91%) and had research experience (37.73%), Some were principle investigators (45.18%) with an average of 1.32 time/person (SD = 0.69), and some were assistant investigators (54.82%) with an average of 1.33 time/person(SD =

0.65). Approximately 49.55% of the participants were trained about research conducting, some were trained about statistical use (34.55%), research design (30.45%), instrumental development (24.32%), and literature review (26.82%). More than an half of the participants received research information from journal (63.64%), and academic forum (60%). The details of sample characteristics are shown in Table 1.

Table 1 Demographic characteristics of the study samples (n = 440)

Demographic characteristics	**Number**	**Percentage**
Gender		
Female	426	96.82
Male	14	3.18
Age (years)		
Mean±SD	39.41±8.64	
Range		
21-30	86	19.55
31-40	162	36.82
41-50	144	32.73
51-60	48	10.91
Marital status		
Single	172	39.09
Married	247	56.14
Widowed	8	1.82
Divorced	13	2.95
Educational level		
Bachelor degree	379	86.14
Post-graduation	61	13.96

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Demographic characteristics	Number	Percentage
Continuous nursing education in a nursing specialty program		
Yes	114	25.91
No	326	74.09
Workplace		
General wards	284	64.55
Critical care unit	74	16.82
OPD	82	18.63
Work status		
Administrative nurse	34	7.73
Staff nurse	406	92.27
Income (Baht/Month)		
10,001-20,000	60	13.64
20,001-30,000	178	40.45
30,001-40,000	135	30.68
40,001-50,000	61	13.86
>50,000	6	1.36
Nursing experience (years)		
Mean±SD	16.13±8.44	
Range		
< 1 year	7	1.59
1 - 2 years	15	3.41
2 - 3 years	11	2.50
3 - 5 years	32	7.27
> 5 years	375	85.23
Research experience		
No	274	62.27
Yes	166	37.73
Principle investigator (PI)	75	45.18

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Demographic characteristics	Number	Percentage
Experience of PI		
Mean±SD	1.32±0.69	
Research assistant (RA)	91	54.82
Experience of RA		
Mean±SD	1.33±0.65	
Research training experience		
No	222	50.45
Yes	218	49.55
Topic of research training		
statistical use	152	69.72
research design	134	61.47
instrumental development	107	49.08
literature review	118	54.13
Sources of research information obtaining		
Board	136	30.91
News letter	98	22.27
Academic forum	264	60.00
Journal	280	63.64
Research club	29	6.59
Intranet	49	11.14
Website	193	43.86

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Research Instruments

The instruments used in this study include a demographic questionnaire, Research Utilization in Nursing Practice Scale (RUNPS), Research Climate Scale (RCS), Supported Resources Scale (SRS), and Staffing Scale (SS). The details of the instruments are as follows:

1. Demographic Questionnaire was used to assess gender, age, marital status, workplace, continuous nursing education in a nursing specialty program, work status, income, nursing experience, research experience, research training experience, and sources of research information obtaining.

2. Research Utilization in Nursing Practice Scale (RUNPS)

RUNPS was developed based on the Johns Hopkins Nursing Evidence Based Practice model (JHNEBP) and literature review about research utilization in nursing practice. The process of constructing the RUNPS started with a broad review of literature on research utilization in nursing practice, the development of operational definitions, and review of existing instruments. The RUNP is defined as the degree to which nurses' perceived a series of judgmental activities of nurses in appraising the applicability of specific stages of research conducting for their practice. These stages consisted of practice question, identify evidence and evaluation, and implementation and outcome evaluation. After that, the researcher built the items of the scale.

The research utilization in nursing practice scale is a 17 items of self-report with a 4-point rating scale, in which 1 'indicates not at all', 2 indicates 'very little', 3 indicates 'moderate', 4 indicates 'great'. This 4-point rating scale is interval scale in order to avoid having a neutral and ambivalent midpoint (Davis, 1992; Polit and Beck, 2006). The RUNP scale contains three dimensions: practice question (item 1-2),

evidence evaluation (item 3-8), and translation of knowledge into practice (item 9-17). Mean score of RUNPS was used, there were classified into three levels: low (RUNPS = < 2), moderate (RUNPS = 2-3), and high (RUNPS = >3)

2.1 Item selection

To determine the appropriateness and clarity of the wording of each item, the item selection processes and the precision of the items was examined using corrected item-total correlation. According to Nunnally and Bernstein (1994), corrected item-total correlation should be>.30–.70. The RUNPS had corrected item-total correlations .48-.83 (Table 3).

2.2 Content validity

The content validity was established by five panel experts. Two nurse instructors with PhD who had high experience in research area of nursing administration. Two nurse administrators who graduated PhD in nursing, worked as Thailand Nursing and Midwifery Council's committee, and had high experience in research area of nursing administration. One nurse instructor who graduated PhD in nursing and worked as Thailand Nursing and Midwifery Council's committee. One nurse administrator in government hospital who graduated PhD in nursing and had high experience in research area of nursing administration.

These five experts evaluated the content validity of the instruments by place one of four-point scales that reflected relevance to the objectives of the measure (1= not relevant, 2= somewhat relevant, 3= quite relevant, 4= very relevant) in each item (Polit, Beck, & Owen, 2007). The ICVI of the RUNPS was ranged 0.80- 1.0. The S-CVI was 0.98 (Table 2). Additionally, the experts were asked to clarify their reasons if they did not agree with any of the items.

Table 2 *Number of items, scoring range, S-CVI, and I-CVI of RUNPS*

Instrument	Number of items	Scoring range	S-CVI	I-CVI
RUNPS	17	1-4	0.98	0.80-1.00

2.3 Construct validity

The subjects used for this procedure were convenience sample of 150 professional nurses in regional hospitals under jurisdiction of Ministry of Public Health. They were aged between 23 and 57 years. Most of them were married (90%), graduated bachelor degree (88.67), and had nursing care experience range from 10 months to 37 years.

The exploratory factor analysis (EFA) using the principal component method was conducted so as to determine construct validity. The assumptions of the EFA were tested: Bartlett's test of sphericity was significant and the Kaiser-Meyer-Olkin (KMO) value was .923 and accounted for 72.39% of the variance, which is adequate for the relationships between the items, and also indicates the appropriateness of a factor analysis (Hair, 2010). After application of the EFA, factor loadings greater than 0.30 was chosen (DeVellis, 2003). All seventeen items of RUNPS had a factor loading ranging from .58 to .86. The results of EFA with varimax rotation for the scale had Eigen values 1.17, which is acceptable (Hair, 2010). In brief, the RUNP contains seventy items with three components (Table 3).

Table 3 *Factor loading and construct validity of RUNPS (n=150)*

RUNPS	Mean	Std. Deviation	Corrected Item-Total Correlation	Factor loading
Item 1	2.85	.78	.48	.84
Item 2	2.57	.71	.54	.83
Item 3	2.57	.73	.67	.58
Item 4	2.45	.70	.67	.78
Item 5	2.39	.76	.76	.79
Item 6	2.60	.73	.74	.74
Item 7	2.25	.76	.73	.74
Item 8	2.09	.70	.75	.62
Item 9	2.55	.79	.77	.63
Item 10	2.55	.78	.78	.65
Item 11	2.12	.78	.83	.66
Item 12	2.23	.76	.73	.60
Item 13	2.27	.78	.81	.72
Item 14	2.35	.84	.74	.75
Item 15	2.55	.81	.74	.66
Item 16	2.34	.77	.74	.86
Item 17	2.42	.80	.74	.84

KMO = .923, Chi-Square = 2118.40, df = 136, Sig .000 α = .95

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2.4 Reliability

The internal consistency reliability of the instruments used was tested using the Cronbach's alpha coefficient (Polit & Beck, 2005). The internal consistency reliability for the RUNPS was 0.95.

3. Research Climate Scale (RCS)

RCS was developed based on the Johns Hopkins Nursing Evidence Based Practice model (JHNEBP) and literature review about research climate. The process of constructing the RCS started with a broad review of literature, the development of operational definitions, and review of existing instruments. Research climate is defined as the degree to which nurses' perceived policy and management, and research culture to facilitate research utilization in nursing practice. After that, the researcher built the items of the scale.

RCS consists of 8 items of self-report with Likert scale. The RCS was placed on a 5-point Likert-scale in order to reflect the logical and semantic content of the concept of research climate. Therefore, participants rate each item on a 5 points-Likert scale (strongly disagree = 1, disagree = 2, neither agree nor disagree=3, agree =4, strongly agree = 5). Mean score of RCS was used, there were classified into three levels: low (RCS = < 2), moderate (RCS = 2-3), and high (RCS = >3)

3.1 Items selection

The items selection was conducted with the same processes of the RUNPS. The results showed that all items of the RCS had item-total correlations .53 to .74 (Table 5).

3.2 Content validity

The RCS was tested the content validity on the same processes of RUNPS. The S-CVI of the scale was .95 and .80-1.00 for I-CVI (Table 4).

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Table 4 Number of items, scoring range, S-CVI, I-CVI, and reliability of RCS

Instrument	Number of items	Scoring range	S-CVI	I-CVI
RCS	8	1-5	0.95	0.80-1.00

3.3 Construct validity

The construct validity of the RCS was tested on the same processes of the RUNPS. The assumptions of the EFA were tested: Bartlett's test of sphericity was significant and the Kaiser-Meyer-Olkin (KMO) value was .874 and accounted for 69.36% of the variance. All eight items of the scale had a factor loading ranging from .67 to .86. The results of EFA with varimax rotation for the scale had Eigen values 1.09, which is acceptable. In brief, the RCS contains eight items with two components (Table 5).

Table 5 *Factor loading and construct validity of RUNPS (n=150)*

RUNPS	Mean	Std. Deviation	Corrected Item-Total Correlation	Factor loading
Item 1	3.4467	.85	.53	.86
Item 2	3.5133	.77	.69	.82
Item 3	3.4267	.69	.69	.78
Item 4	3.4733	.82	.68	.67
Item 5	3.5200	.72	.74	.80
Item 6	3.5867	.79	.63	.86
Item 7	3.6867	.78	.70	.76
Item 8	3.6733	.82	.54	.67
KMO = .874, Chi-Square = 599.68, df = 28, Sig .000, α = .88				

2.4 Reliability

The internal consistency reliability of the instruments used was tested using the Cronbach's alpha coefficient (Polit & Beck, 2005). The internal consistency reliability for the RCS was 0.88.

4. Support Resources Scale (SRS)

SRS was developed based on the Johns Hopkins Nursing Evidence Based Practice model (JHNEBP) and literature review about support resources. The process of constructing the SRS started with a broad review of literature, the development of operational definitions, and review of existing instruments. Support resources defined as the degree to which nurses' perceived equipment and supplies in organization according to time, fund or reward, and documental support. After that, the researcher built the items of the scale.

The SRS consists of 18 items of self-report with three dimensions: 1) time; paid work time to engage in research utilization activities such as attending classes, read journals, conduct library searches for journals, and to present research results to others (item 1-6), 2) fund or reward; budgeted money, grants and support for writing reports (item 7-12), and 3) documental support; hospital resources such as supplies, service, equipment and computers (item 13-18). It is a 5-point Likert-scale (strongly disagree = 1, disagree = 2, neither agree nor disagree=3, agree =4, strongly agree = 5). Mean score of SRS was used, there were classified into three levels: low (SRS = < 2), moderate (SRS = 2-3), and high (SRS = >3).

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4.1 Items selection

The items selection was conducted with the same processes of the RUNPS. The results showed that all items of the SRS had item-total correlations .54 to.78 (Table 7).

4.2 Content validity

The SRS was tested the content validity on the same processes of RUNPS. The ICVI of the SRS was ranged 0.80-1.0. The S-CVI was 0.93. The details are shown in Table 6.

Table 6 *Number of items, scoring range, S-CVI, I-CVI, and reliability of RCS*

Instrument	Number of items	Scoring range	S-CVI	I-CVI
SRS	18	1-5	0.93	0.80-1.00

3.3 Construct validity

The construct validity of the SRS was tested on the same processes of the RUNPS. The assumptions of the EFA were tested: Bartlett's test of sphericity was significant and the Kaiser-Meyer-Olkin (KMO) value was .903 and accounted for 71.41% of the variance. All eightteen items of the scale had a factor loading ranging from .40 to .88. The results of EFA with varimax rotation for the scale had Eigen values 1.54, which is acceptable. In brief, the SRS contains eighteen items with three components (Table 7).

Table 7 *Factor loading and construct validity of RUNPS (n=150)*

RUNPS	Mean	Std. Deviation	Corrected Item-Total Correlation	Factor loading
Item 1	3.17	.94	.69	.66
Item 2	3.60	.79	.62	.78
Item 3	3.67	.76	.61	.78
Item 4	3.49	.84	.64	.79
Item 5	3.06	.99	.69	.66
Item 6	3.01	.96	.74	.65
Item 7	3.09	.83	.73	.83
Item 8	2.93	.84	.77	.83
Item 9	2.92	.87	.78	.84
Item 10	3.09	.88	.70	.76
Item 11	3.07	.86	.77	.88
Item 12	2.99	.82	.73	.83
Item 13	3.33	.79	.77	.46
Item 14	3.67	.72	.59	.40
Item 15	3.49	.77	.58	.82
Item 16	3.41	.79	.56	.83
Item 17	3.54	.86	.54	.83
Item 18	3.39	.79	.68	.78

KMO = .903, Chi-Square = 2252.08, df = 153, Sig .000, α = .94

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2.4 Reliability

The internal consistency reliability of the instruments used was tested using the Cronbach's alpha coefficient (Polit & Beck, 2005). The internal consistency reliability for the RCS was 0.94.

5. Staffing Scale (SS)

SS was developed based on the Johns Hopkins Nursing Evidence Based Practice model (JHNEBP) and literature review about staffing. The process of constructing the SRS started with a broad review of literature, the development of operational definitions, and review of existing instruments. Staffing is defined as the degree to which nurses' perceived the adequacy of nursing personnel to facilitate research utilization in nursing practice. It is measured by the Staffing scale which was developed by researcher.

The SS consisted of 10 items, a 5-point Likert-scale. The participants rate each item on a 5 points-Likert scale (strongly disagree = 1, disagree = 2, neither agree nor disagree=3, agree =4, strongly agree = 5). Mean score of SS was used, there were classified into three levels: low (SS = < 2), moderate (SS = 2-3), and high (SS = >3).

5.1 Items selection

The items selection was conducted with the same processes of the RUNPS. The results showed that all items of the SS had item-total correlations .65 to .81 (Table 9).

5.2 Content validity

The SS was tested the content validity on the same processes of RUNPS. The S-CVI for 10 items was 0.92, and I-CVI was 0.80- 1.00 as presented in Table 8.

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Table 8 *Number of items, scoring range, S-CVI, I-CVI, and reliability of RCS*

Instrument	Number of items	Scoring range	S-CVI	I-CVI
SS	10	10-50	0.92	0.80-1.00

5.3 Construct validity

The construct validity of the SRS was tested on the same processes of the RUNPS. The assumptions of the EFA were tested: Bartlett's test of sphericity was significant and the Kaiser-Meyer-Olkin (KMO) value was .89 and accounted for 74.48% of the variance. All ten items of the scale had a factor loading ranging from .54 to .87. The results of EFA with varimax rotation for the scale had Eigen values 1.29, which is acceptable. In brief, the SRS contains eighteen items with three components (Table 9).

Table 9 Factor loading and construct validity of SS (n=150)

RUNPS	Mean	Std. Deviation	Corrected Item-Total Correlation	Factor loading
Item 1	3.27	.82	.69	.78
Item 2	3.28	.84	.80	.76
Item 3	3.34	.81	.81	.81
Item 4	3.29	.78	.70	.87
Item 5	3.29	.78	.70	.83
Item 6	3.23	.73	.70	.54
Item 7	3.06	.94	.65	.81
Item 8	3.15	.81	.75	.82

RUNPS	Mean	Std. Deviation	Corrected Item-Total Correlation	Factor loading
Item 9	3.17	.82	.69	.87
Item 10	3.16	.85	.78	.81
KMO = .893, Chi-Square = 182.02, df = 45, Sig .000, α = .93				

5.4 Reliability

The internal consistency reliability of the instruments used was tested using the Cronbach's alpha coefficient (Polit & Beck, 2005). The internal consistency reliability for the SS was 0.93.

Protection of the rights of human subjects

This study was approved undergo a procedural to gain approval from the Ethics Review Committee for Research Involving Human Research Subjects, Health Science Group and the Institutional Review Board (IRB) of each hospitals during February, 2015 – May, 2015. Permission for collecting the data was gathered by formal approval from the selected hospitals to conduct the study. The five target hospitals were Sawan Pracharak Hospital, Srisaket Hospital, Ratchaburi Hospital and Rayong Hospital,and Vachira Phuket Hospital.

Participation in the study is voluntary and based on the professional nurses ability to give informed consent, and then the professional nurses who met the inclusion criteria were invited to participate. The participants will be informed the purpose of the study and decided to participate in the study.

The potential risks to participants are minimal, such as emotional discomforts when answering some questions and it would take approximate 20-25 minutes to

complete a packet of the questionnaires. Participants were encouraged that if any time they felt discomfort, they will able to discuss the importance of the question with the researcher and they can refuse to answer any question.

Any personal information was not appearing in the report. Their names were not addressed in the data; a code number was used to ensure confidentiality. After completing the questionnaire, participants put it in an envelope and seal it. Data were computerized and accessible only by researcher. Results of the study would report as a whole picture. All master lists containing names were locked up for storage and destroyed upon the completion of the study.

Data collection procedure

Data collection was conducted after approval from the ethics committee and the IRB of each hospital. It was carried out from February to May 2015. The steps involved in data collection were as follow:

1. After approval from the ethics committee, a letter asking for permission to collect data from the Faculty of Nursing, Chulalongkorn University was sent to each hospital for formal approval before starting data collection.

2. After obtaining formal approval of permission to collect the data from the hospital directors and nursing departments, the researcher had met nurse coordinators or head nurses of each hospital for describing the inclusion criteria of recruiting the sample.

3. Nurse coordinators or head nurses of each hospital distributed a survey packages to the sample whose gathering by using simple random sampling approach. Samples were recruited from nurses who on duty in each unit on the collecting data

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date. A survey packages, including participant information sheet, informed consent, and packet of the questionnaires.

4. For sample those who met the inclusion criteria, each sample received written information; this information describes the purpose, content, benefit and risk of the study.

5. Participation in the study is voluntary and those who agree to give informed consent were eligible participating in this study.

6. After completed the questionnaire anonymously, nurses sealed their questionnaire and return to nurse coordinators or head nurses, and lastly return them to researcher. A souvenir (pen and note book) was given to participant for their time contribution after completed the questionnaire.

7. Finally, each questionnaire was assigned a numerical code to maintain confidentiality.

Data analysis

In preparation data analysis, outlier detection and missing data filling processes are essential step. The researcher checked and cleaned the data by screening and 10 % of the data were double checked randomly by the outside person to confirm the accuracy and verify the correctly typing or coding in the data file. To monitor the outliers, the modified z-score method was applied to detect outliers. The raw data was identified by the absolute of Z score that greater than 3.5 (Iglewicz & Hoaglin, 1993). Regarding this criteria, the result showed no any subject was excluded. After that, data were analyzed by descriptive and inferential statistics as follows:

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1. Descriptive statistics including frequencies, percentages, mean, standard deviation and range were used to describe the basic features of the demographic of sample.

2. Pearson's Product Moment Correlation was used to explore the relationship among the predicting factors.

3. Multiple linear regressions were used to examine the predictability among the predicting factors and outcome variable. Forward stepwise was used for this study (Tabachnick, 2001). Since this was an exploratory study, this method allowed the investigator to determine which variables best predicted research utilization in nursing practice among professional nurses. The assumptions including normality of distribution, linearity and homoscedasticity were checked before performing the multiple regressions analysis. To ensure that there was no violation of the underlying assumption. Then the results of the assumption test were described as follow.

1) Normality of distribution

Multiple Linear Regression analysis assumptions were assessed by developing a histogram to evaluate normality of distribution (skewness and kurtosis), and a normal P-P plot for linearity. The skewness of the influencing variables ranged from -.719 to -.171, and the kurtosis of variables ranged from -.399 to 1.638. The standard error of skeweness and kurtosis not exceeding ± 1.96 which corresponds to a .05 level or ± 2.58 at the .01 probability level reflects a normal distribution (Hair, 2010). As for the variables, the standard error of skewness and kurtosis was .115, and 0.23. Additionally, standardized scores were plotted in a matrix histogram and resulted in normal curve and distribution (Appendix F).

2) Linearity

Multiple linear regressions analysis requires linear correlations between variables. The way to assess linearity is to examine scatterplots of the variables and to identify any nonlinear patterns in the data (Hair, 2010). In the current study, the scatter plot between the independent and dependent variables showed that the points fail along a straight line, means the assumption of linearity was met (Appendix F).

3) Homoscedasticity

Homoscedasticity refers to the assumption that dependent variable(s) exhibit equal levels of variance across the range of predictor variable(s) (Hair, 2010). This assumption was tested by a regression plot of standardized predicted dependent variable against the regression standardized residual. In this study, the scatter - plot of regression standardized predicted value showed that the plots were distributed approximately in a rectangular form and fail along a straight line in the center, the spread was equivalent across the zero axis within ±2 standard deviations, indicating that variances of residuals were the same or homoscedasticity is presented. This assumption was accepted (Appendix F).

4) Multicollinearity

Multicollinearity is the extent to which a variable can be explained by the other variables in the analysis. This assumption was examined by using two common criteria: 1) correlation coefficients and 2) tolerance values and variance inflation factor (VIF). The correlation of two variables that does not exceed ± 0.9 indicates that there is no multicollinearity (Hair, 2010). In the current study, the correlation coefficients among variables ranged from .374 to .438 (Table 16). Thus, the variables were not multicollinear. In addition, the tolerance values ranged from 0.47 to

1.00 (not approaching 0) and VIF ranged from 1.00 to 1.72 less than 10 which mean no violation of assumption or no multicollinearity problem for multiple regression analysis (Appendix F).

In conclusion, all the assumptions for multiple regressions were met. All data and the multiple linear regressions with using the stepwise method were analyzed by IBM SPSS version 22 for windows (licensed to Chulalongkorn University). In the stepwise approach, the predictor that account for most of the variance in the criterion was entered in the model first. Next, the predictor that account for the second most variance in the predictor, controlling for the first predictors, was entered. In the present study, the research climate was entered first, the support resources was entered second, and staffing was entered last. Stepwise regression model result the B, Beta- β coefficient for each independent variable and magnitude (R^2) of the relationship of the dependent variable and independent variables.

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CHAPTER IV

RESULTS

The purpose of this study was to explore research utilization in nursing practice, and identify the predicting factors of research utilization in nursing practice among professional nurses under the Jurisdiction of Ministry of Public Health. The results of data analyses are presented in this chapter. Descriptive statistics were computed for demographic and other predictor variables. Forward stepwise logistic regression was used to test the relationship between research experience, education level, research climate, support resources, staffing, and research utilization in nursing practice.

1. Descriptive analysis of the research utilization in nursing practice

As shown in Table 10, the range of RUNP score was 1.00-4.00, with the mean score 2.48 (SD = 0.62), this mean score indicates a moderate level of RUNP. Considering by each of the items, identify a practice question had the highest mean score (M=2.91, SD = .72), while summarize the research findings (M=2.66, SD = .77) and define the scope of the practice question (M=2.63, SD = .73) came up the second and the third highest, respectively.

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Table 10 *Mean scores of research utilization in nursing practice (n=440)*

Research Utilization in Nursing Practice	Mean	SD	level
1. Identify a practice question	2.91	.72	moderate
2. Define the scope of the practice question	2.63	.73	moderate
3. Summarize the research findings	2.66	.77	moderate
4. Conduct an internal search for research findings	2.61	.78	moderate
5. Conduct an external search for research findings	2.47	.72	moderate
6. Appraise research findings	2.44	.80	moderate
7. Rate the strength of the research findings	2.30	.81	moderate
8. Develop recommendations for change processes of care based on the strength of the research findings	2.17	.76	moderate
9. Determine feasibility of translating recommendations into setting	2.60	.81	moderate
10. Determine appropriateness of translating recommendations into setting	2.57	.80	moderate
11. Secure support from decision makers to implement the change internally	2.56	.86	moderate
12. Communicate the findings	2.42	.82	moderate
13. Report results of the preliminary evaluation to decision makers	2.40	.87	moderate
14. Evaluate outcomes	2.36	.82	moderate
15. Identify the next step	2.35	.79	moderate
16. Implement the change	2.35	.80	moderate
17. Create an action plan	2.24	.81	moderate
Total	**2.48**	**.62**	**moderate**

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As shown in the Table 11, it was found that there were significantly difference of RUNP in the educational level, work place, work status, and research experience, whereas, there were no statistically-significant differences of RUNP in the age, continuous education, and nursing experience.

Table 11 Descriptive analysis of the research utilization in nursing practice (n=440)

Demographic characteristics of the sample	Mean±SD of RUNP	Level of RUNP	t-test / F- test	P-value
Age (years)			0.053[f]	.984
21-30	2.49±0.54	Moderate		
31-40	2.46±0.63	Moderate		
41-50	2.48±0.66	Moderate		
51-60	2.48±0.60	Moderate		
Educational level			3.803[f]	.010
Bachelor degree	2.44±0.60	Moderate		
Master degree (in nursing)	2.72±0.75	Moderate		
Master degree (in other science)	2.73±0.65	Moderate		
Doctoral degree	2.41±0.00	Moderate		
Continuous nursing education in a nursing specialty program			1.85[t]	0.065
Yes	2.57±0.67	Moderate		
No	2.44±0.59	Moderate		
Workplace			3.230[f]	.041
General wards	2.42±.61	Moderate		
Critical care unit	2.57±.60	Moderate		
OPD	2.59±.64	Moderate		
Work status			2.153[t]	.032
Administrative nurse	2.69±0.56	Moderate		
Staff nurse	2.45±0.62	Moderate		

Demographic characteristics of the sample	Mean±SD of RUNP	Level of RUNP	t-test / F- test	P-value
Nursing experience (years)			.076[f]	.989
< 1 year	2.45±0.59	Moderate		
1 - 2 years	2.45±0.42	Moderate		
2 - 3 years	2.46±0.73	Moderate		
3 - 5 years	2.53±0.44	Moderate		
> 5 years	2.47±0.64	Moderate		
Research experience			6.970[t]	.000
No	2.32±0.59	Moderate		
Yes	2.73±0.59	Moderate		
Principle investigator (PI)	2.79±0.58	Moderate		
Research assistant (RA)	2.72±0.57	Moderate		
Research training experience			5.139[t]	.000
No	2.33±0.58	Moderate		
Yes	2.62±0.62	Moderate		

[t] = t-test, [f] = F-test

2. Descriptive analysis of the research utilization in nursing practice, research experience, educational level, research climate, support resources, and staffing

As shown in Table 12, the range of research climate score was 1.00-5.00, with a mean score of 3.52 (SD = 0.63). This mean score indicates a high level of research climate. For support resources, the range of support resources score was 1.06-5.00, with the mean score 3.23 (SD = 0.63), indicating high score level of support resources. For staffing, the range of staffing score was 1.00-5.00, with the mean score 3.16 (SD = 0.69) indicating high score level of staffing.

Table 12 *Mean and standard deviation of research climate, support resources, and staffing (n=440)*

Variables	Range	Mean±SD	Level
Research climate	1.00-5.00	3.52±0.63	High
Support resources	1.06-5.00	3.23±0.63	High
Staffing	1.00-5.00	3.16±0.69	High

3. Statistical analysis to test factors predicting of research utilization in nursing practice among professional nurses

Research question

The research question was what the predicting factors of research utilization in nursing practice are, research experience, educational level, research climate, support resources, or staffing?

3.1 Correlation between the selecting factors and research utilization in nursing practice

Analyses of correlation coefficients was conducted to test the relationship between research climate, support resources, staffing, and research utilization in nursing practice among professional nurses. The magnitude of the relationships was determined by the following criteria of the correlation coefficient (r); r<.30 = weak or low relationship, .30 ≤ r ≤.50 = moderate relationship, and r > .50 = strong or high relationship (Burn & Grove, 2009). The results of the correlation coefficients of the variables are presented in Table 13.

It showed in Table 13 that there were significant negative relationship between bachelor degree and RUNP (r = -.158, p<.05). Research climate, support resource,

staffing, research experience, master degree (in nursing), and master degree (in other science) had positive relationship with RUNP (r = .440, *p* <.05; r = .430, *p* <.05; r = .370, *p* <.05; r = .316, *p* <.05; r= .115, *p* <.05; r = .102, *p* <.05, respectively).

As shown in Table 13, there were moderate relationship between research climate, support resources, staffing, having research experience, and RUNP (r = .440, *p* <.05; r = .430, *p* <.05; r = .370, *p* <.05; r = .316, *p* <.05, respectively). Bachelor degree had low relationship with RUNP (r = -.158, *p* <.05).

Table 13 *Correlation coefficients between master's degree, having research experience, research climate, support resources, staffing, and research utilization in nursing practice (n = 440)*

Variables	correlation coefficients (r)	*p*-value
Bachelor degree	-.158*	.000
Research experience	.316*	.000
Research Climate	.440*	.000
Support Resources	.430*	.000
Staffing	.376*	.000

* *p* <.05

3.2 Model summerly and predicting equations

As shown in table 14, the first independent variable that was selected to enter into the regression was research climate. Research climate could explained for 19.3% of variance in RUNP among professional nurses (R^2 = .193 and F = 105.008, *p* <.05) indicating research climate could predict RUNP statistically significant.

The second independent variable that was selected to enter into the regression was research experience. Research experience could explained for 26.2% of variance

in RUNP among professional nurses (R^2 = .266 and F = 42.952, p<.05) indicating research experience could predict RUNP statistically significant.

The final model to predict the RUNP was the combination between research climate, research experience, and support resources. They accounted the RUNP for 30.4% of variance in RUNP among professional nurses (R^2 = .304 and F = 23.965, p <.05) indicating three factors including research Climate, research experience, support resources could predict RUNP statistically significant.

Table 14 *R, R square, Adjusted R square, and Standard error of the estimate*

Model	R	R^2	Adjusted R^2	Std. Error of the Estimate	Change Statistics				
					R^2 Change	F Change	df1	df2	Sig. F Change
1	.440[a]	.193	.192	.55527	.193	105.008	1	438	.000
2	.515[b]	.266	.262	.53045	.072	42.952	1	437	.000
3	.551[c]	.304	.299	.51703	.038	23.965	1	436	.000

a. Predictors: (Constant), Research Climate

b. Predictors: (Constant), Research Climate, research experience

c. Predictors: (Constant), Research Climate, Research experience, Support Resources

d. Dependent Variable: RUNP

Table 15 *Standard multiple regression of independent variables on RUNP (n = 440)*

Predictors	b	Std. Error	Beta	t	p-value
Constant	.692				
Research climate	.240	.052	.244	4.646	.000
Research experience	.348	.051	.273	6.796	.000
Support Resources	.250	.052	.256	4.895	.000
R = .551	R^2 = .304	SE=.517	F= 3.965	p-value = .000	

Regarding to the table 15, the standardize score formulation was:

RUNP = .244 research climate + .273 research experience + .256 support resources

The predicting equation was:

RUNP = .692 +.240 research climate + .348 research experience + .250 support resources

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CHAPTER V

DISCUSSION

In this chapter, the results are summarized and discussed. Then, the implications for nursing practice and future research are proposed. Finally, the recommendations of the study are addressed.

Conclusion

This study was a predictive correlational research design, aimed at exploring the research utilization in nursing practice and identifying the predicting factors of research utilization in nursing practice among professional nurses in regional hospitals under the Jurisdiction of Ministry of Public Health. The multi-stages sampling was used to identify the sample. The participants were 447 registered nurses. The data collection was performed from February to May 2015 after obtained the approval letter from the relevant Institutional Review Board (IRB) and the permission letters from director of selected hospitals. After cleansing the data, only complete 440 questionnaires from participants were analyzed and described.

The professional nurses age ranged from 23 to 59 years old with a mean age of 39.41 years (SD= 8.64). The majority was female (96.82%), graduated bachelor degree (86.14%), had nursing care experience more than 5 years (85.23%), and 37.73% of participants had research experience, such as principle investigators (45.18%) with an average of 1.32 time/person (SD=0.69), assistant investigators (54.82%) with an average of 1.33 time/person (SD=0.65). Approximately 49.55% of the participants were

trained about research conducting, some were trained about statistical use (34.55%), research design (30.45%), instrumental development (24.32%), and literature review (26.82%). More than an half of the participants received research information from journal (63.64%), and academic forum (60%).

The research instruments used in this study were; 1) a demographic questionnaire, 2) Research Utilization in Nursing Practice Scale (RUNPS), 3) Research Climate Scale (RCS), 4) Support Resources scale (SRS), 5) Staffing scale (SS). All of the instruments were satisfactory validity and reliability. Descriptive statistics, bivariate correlation, and multiple regression analyses were used to analyze the data.

The range of RUNP score was 1.00-4.00, with the mean score 2.48 (SD = 0.62), that this sample had a moderate level of the RUNP. For research climate, the range of score was 1.00-5.00, with a mean score of 3.52 (SD = 0.63). This mean score indicates a high level of research climate. For support resources, the range of support resources score was 1.06-5.00, with the mean score 3.23 (SD = 0.63), indicating high score level of support resources. For staffing, the range of staffing score was 1.00-5.00, with the mean score 3.16 (SD = 0.69) indicating high score level of staffing. Three classification levels according to means and standard deviation, only RUNP were classified as moderate level. The others as research climate, support resources, and staffing were high level.

The results, there were statistically significantly difference of participants' RUNP in different educational level (t-test = 3.346, $p<05$), work place (F-test = 3.230, $p<05$), work status (t-test = 2.153, $p<05$), and research experience (t-test = 6.970, $p<05$), whereas, there were no statistically-significant differences of participants' RUNP in

different age (F-test= 0.053, p>.05), continuous education (t-test = 1.85, p>.05), and nursing experience (F-test = 0.076, p>.05).

The findings showed that all predictors, master's degree, having research experience, research climate, support resources and staffing held significantly positive relationships with RUNP, whereas only bachelor degree has significantly negative relationship with RUNP (p< .05). In predicting factors results, research climate, having research experience, and support resources could predict the research utilization in nursing practice for professional nurses in regional hospitals under Jurisdiction of Ministry of Public Health, Thailand, accounting for 30.40 % of the variance of research utilization in nursing practice.

Discussion

First of all, this study aimed to explore the research utilization in nursing practice. Three major findings to describe in this part are 1) The level of the research utilization in nursing practice among these participants are moderate level., 2) There were no statistically-significant differences of participants' research utilization in nursing practice in different age, continuous nursing education in a nursing specialty program, and years of nursing experience., and 3) There were statistically-significant differences of participants' research utilization in nursing practice in different educational level, work place , work status, and research experience . The discussion part of this study was based on the objectives of the study.

Objective 1. To explore the research utilization in nursing practice

This study aimed to explore the research utilization in nursing practice. Three major findings to describe in this part are: 1) The level of the research utilization in

nursing practice among these participants are moderate level, 2) There were no statistically-significant differences of participants' research utilization in nursing practice in different age, continuous nursing education in a nursing specialty program, and years of nursing experience, and 3) There were statistically-significant differences of participants' research utilization in nursing practice in different educational level, work place, work status, and research experience.

1.1 The level of the research utilization in nursing practice among these participants is moderate level because of the definition and the criteria to categorize the level of research utilization in nursing practice. In this study, research utilization was defined as the degree to which nurses' perceived a series of judgmental activities of nurses in appraising the applicability of specific stages of research conducting for their practice. These stages consisted of practice question, evidence evaluation, and translating knowledge into practice (Newhouse et al., 2007). It classified into three levels; low, moderate, and high research utilization in nursing practice by mean score and standard deviation. The three levels are low (RUNPS = < 2), moderate (RUNPS = 2-3), and high (RUNPS = >3). As the result of descriptive analysis, it shown that participants of this study had score range = 1-4, Mean = 2.48± 0.62, therefore, it can be summarized that the participants have the research utilization in nursing practice in moderate level. There were statistically significantly difference of participants' RUNP in different educational level, work place, work status, and research experience.

The current situation among nurses in regional hospitals under the Jurisdiction of MOPH revealed that nurses perceived RUNP in moderate level. This may come from the most of nurses (62.27%) had no experience in research method. Furthermore, 50.45% of nurses indicated had no research training experience.

Likewise, the previous study shows that 26.1% of nurses at one governmental hospital in Bangkok Metropolitan have research experiences, and 62.2 % has applied research findings in their practices (Yimboonna et al, 2007).

In addition, the study indicated the top ten barriers to research utilization in practice are: most of research are written in English, books or the relevant literature are not compiled in one place, statistical analyses are not understandable, the nurse has lack of chance to discuss with knowledgeable colleagues in research, research reports/articles are not widely publicized and updated, the nurse does not feel she/he has enough authority to change patient care procedures, the facilities are inadequate for implementation, the nurse has no time to read research, there is insufficient time on the job to implement new ideas and the research is not reported clearly and readably.

1.2 There were no statistically-significant differences of participants' research utilization in nursing practice in different age, continuous nursing education in a nursing specialty program, and years of nursing experience.

The current study shown that the difference ages are not difference in RUNP. As previous evidence support that there were no statistically significant of participants' research utilization in nursing practice in different age (Rodgers, 2000; McCleary, 2002; Wallin, 2006).

The current study shown that the difference continuous nursing education in a nursing specialty program are not difference in RUNP. There are 74.09% of nurses had no continuous nursing education in a nursing specialty program. Therefore, the perceptions of nurses toward the RUNP were not different. These findings were presented as previous studies. Squires et al. (2011) do the systematic review of

individual determinants of research utilization by nurses and summarized from various studies that there are no statistically significant different among age, training courses or continuous nursing education in nursing specialty program (Bret, 1987; Coyle, 1990; Berggren, 1996; Tsai, 2003; Squires, 2007).

In addition, the current study shown that the difference years of nursing experience are not difference in RUNP. The mean years of nursing experience in current study was 16.13 years. Nurses who had low nursing experience and those who had high nursing experience demonstrated no different perception on RUNP. This was support from several studies that shown nursing experiences or years employed as an registered nurse were not different on research utilization (Rodgers, 2000; McCleary, 2002; Tranmer, 2002; Wallin, 2006; McCloskey, 2008). However, some studies revealed that there was statistically significant different research utilization in nursing practice among different years employed as register nurses. For instance, Stiefel (1996) present that the years employed as registered nurses are slightly positive relationship with the consistent research user (r =+.22).

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1.3 There were statistically significant differences of participants' research utilization in nursing practice in different educational level, work place, work status, and research experience.

The current study show that nurses who graduated in bachelor degree perceived on RUNP lower than those who graduated in master degree. Various studies supported that there were statistically-significant differences of participants' research utilization in nursing practice in different educational level. Higher educational levels have been found to significantly affect perceptions of research in practice (Karkos & Peters, 2006; McCleary & Brown, 2003a). Ehrenfeld and Eckerling, (1991) compared

academic degreed nurses (master's) to those not possessing a master's degree. Nurses who held a master's degree indicated a more positive attitude toward nursing research. Moreover, those who had high educational level demonstrated higher willingness to use research to change practice base on research (Lacey, 1994; Logsdon, 1998; Rodgers, 2000). This could summarize that nurses who had self-development and persistence professional status in nursing should include an increased awareness of the need for a research-based practice and scientific knowledge generated from it to guide and improve clinical practice. Moreover, nurses with a master degree are able to critique and evaluate research and therefore able to work toward translating evidence into practice better than nurse who held bachelor degree.

In addition, the current study shows that work place had different in RUNP. The finding indicated that nurse working in general unit perceived RUNP lower than those working in critical care unit. This was supported by several previous studies that revealed statistically-significant differences of participants' research utilization in nursing practice in different work place or unit. Stiefel (1996) found that critical care higher research utilization in nursing practice than medicine, surgery, oncology (+Wilk's lambda = 0.76, F= 2.23). Likewise, the study of Forbes (1997) revealed that critical care nurses had higher RU when compared to medical/surgical or obstetrical/ gynecological nurses. Similarly, Squires (2007) found that med-surg use RU less than critical care unit. Therefore, nurse administrators and nurse managers could encourage and support nurse who work in general unit to use research based in their practice.

Furthermore, in current study revealed that staff nurses shows low score of RUNP when compare to nurses in management positions. Nurses in management positions significantly differed in RU when compared to staff nurses (McCloskey,

2008). Likewise, Butler (1995) proposed that in leadership of advanced roles report more use the research findings than staff nurses (+ OR= 5.01). As the study of Hatcher (1997) reported those in leadership or advanced roles report more use than staff nurses.

Furthermore, McCloskey (2008) reported who have management position or advanced practice nurses and staff nurses (F=7.901). Bonner (2008) reported that nurse unit managers and consultant report more research use than staff. In fact, at the administrative level need to realize the different educational preparation of staff nurses and become proactive in modeling, mentoring, and providing the time and information necessary to become involved in research utilization. Therefore, administrative nurses were found higher score of RUNP than staff nurses.

Furthermore, in current study revealed that nurses who had no research experience shows lower score of RUNP when compare to those who had research experience. Various studies support that there were statisticallysignificant differences of participants' research utilization in nursing practice in different research experience in different involvement in research activities. Varcoe (1995) reported that there was statistically-significant relationship among research utilization in nursing practice and research experience. McCleary (2002) reported that there were statistically-significant relationship among research utilization and participation in research related activities +(r= .326). Nurse professionals are increasingly working within the evidence-based practice paradigm to support the provision of safe and quality care for their patients. To be able to successfully implement evidence-based practice, nurse professionals must first understand research methodology to enable informed critique of relevant evidence. Therefore, nurses who had research experience show higher score of RUNP than nurse who had no research experience.

In summary, there were various individual factors related to the utilization in nursing practice in both statistically significant and non-significant. These are important for administrators in order to consider appropriate strategy to facilitate staff the individual factors such as educational level, work place, work status, and research experience. Appropriate research utilization in nursing practice is very important to enhance the quality of nursing care and professional outcome (I.O.M., 2008; ICN, 2015). Through research utilization in nursing practice, nurses can protect their patients from several risk factors such as patients' health risk, high cost of care, and long length of stay (I.O.M., 2008). The nurses should perform the research utilization in nursing practice for their patients appropriately because inappropriate research utilization in nursing practice provide several negative impacts on patients' health risk such as infection, fall, pain or else (Suwanraj, 2010).

Objective 2 To identify the predicting factors of research utilization in nursing practice for professional nurses in regional hospitals under the Jurisdiction of Ministry of Public Health.

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Hypothesis:

Research experience, educational level, research climate, support resources, and staffing could predict RUNP among professional nurses.

Among these five independent variables, the result of stepwise regression analysis showed that only research climate, research experience, and support resources could predict the research utilization in nursing practice for professional nurses in regional hospitals under the Jurisdiction of Ministry of Public Health accounting for 30.40 % of the variance of the research utilization in nursing practice. This result was partially support the hypothesis.

As expected, the results of the current study indicated that research climate had a strong positive relationship on RUNP, and was the best predictor of RUNP. This illustrates that nurses worked with a good research climate were more likely to RUNP than those with less research climate. This finding of the current study was congruent with previous studies (Wallin et al., 2003; McCloskey, 2005), in which research climate had influenced on nurses to make decision for using research findings based for nursing practice.

A possible explanation for why research climate has a strong positive relationship on RUNP, and was the best predictor of RUNP might have to do with the change of policy to routine to research (R2R) use. In the present study, most of nurses were encouraged to conduct research based on nursing practice to solve problem or develop nursing care in their workplace. Within the JHNEBP model (Newhouse et al., 2007), research climate was viewed as organizational culture, and it is believed that this is the most influential source of RUNP. Enacting the research evidence use within organization requires would promote motivation to RUNP leading to optimal patient outcomes. Thus, it is possible that the motivation of nurses to RUNP could have grown through the policy of R2R.

Research experience had a positive relationship on RUNP, and was the second predictor of RUNP. This illustrates that nurses who had research experience were more likely to RUNP than those with less research experience. This finding was consistent with the previous study (Tsai, 2000; Squires et al., 2007), in which nurses who had research experience or had ever involved with research conduction, had more research utilization.

In this study, nurses who had research experience were likely more understanding about the importance of evidence-based nursing. They might act as mentors to colleagues who are unaware of its potential impact on practice or the range of information available. Once persuaded, nurses could collaborate to promote research utilization in the workplace.

Support resource was the third predictor of RUNP, and had a positive relationship on RUNP, indicating that high support resources increased RUNP. Based on the JHNEBP model (Newhouse et al., 2007), support resources were organization factor influencing on RUNP. The organizational support resources were defined as all supports from workplace or organization that nurses are working in. The supports includes money, supplies, equipment, library time, use of computers, meeting space, salary, and paid work time given for activities (Shaffer, 1994; McCloskey, 2005; McCloskey, 2008).

The results of the current study are in accordance with the findings of previous study. For example, Ganz and colleage (2009) has been studied to explore the ICU nurses' oral-care practices and the current best evidence in government hospitals. The results showed that asset as computer, and accessibility to the internet for updated knowledge based practice is significant to the research utilization. Similarly, McCloskey (2008) study the relationship between organizational factors affecting the conducting and utilization of nursing research among hospital nurses in large urban area. The results showed that support resources were important factors related with conducting and utilization of nursing research.

Likewise, a possible explanation for why support resources had a positive relationship on RUNP, and was the predictor of RUNP might have to do with promoting

accessibility. According to the demographic characteristic of the sample in this study, study, more than an half of nurses could obtain sources of research information from academic forum and journal. Some could access research information from website, board, intranet or group research journal. In addition, nearly an half of nurse in this study took course about research conducting. These support resources could enhance knowledge and skill to RUNP.

The remaining predictors in this study educational level and staffing variables could not predict RUNP. These variables had relation with RUNP but did not predict RUNP among professional nurses. Literature showed that staffing was a predictor of RUNP (Rowland & Rowland, 1997; Dubois & Singh, 2009; Forsman et al., 2012). However, staffing was not a predictor of RUNP in this study, it may be a difference of operational definition engaging a different result. All researches studied a particular staffing in term of sufficient staffing. Whereas, staffing in this study was not defined only by sufficient staffing but also included strategies for nurses' perceived the adequacy of nursing personnel to facilitate research utilization in nursing practice. Moreover, all literature varied in racial make-up and socioeconomic background, whereas, the sample for this study consisted of Thai nurses. Therefore, the contradictory finding may be attributed to the differences in the characteristics of the sample. These points are important issue for future research.

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Implications for nursing knowledge and nursing practices

The implications for nursing administration

This study could provide the valuable information to nurses and nurse managers in regional hospitals to move forward on promoting research utilization in nursing practice. From this study, research climate and supported resources should be the priority of any strategy. The results might also be useful for nurse managers to holistically understand the relationship among research climate, support resources, staffing and research utilization in nursing practice. Especially, the thoroughly understanding of the predicting factors of the research utilization in nursing practice could help them to develop proper strategies to enhance the research utilization in nursing practice.

Recommendations for future Research

This study aimed to measure research utilization in nursing practice only among professional nurses, in regional hospitals under the supervision of Ministry of Public Health (MOPH). A benefit of this research is that it provided insights into the research utilization in nursing practice of professional nurses. This study identified the need for future research in several areas, simply using a cross-sectional design and self-administered questionnaires. So recommendations for future researches as follows:

1. The future research is needed to be conducted to replicate this study in other types of hospitals.

2. The research utilization in nursing practice measurement needs to be tested compatibly with other measurements, and also needs to do further research with related factors.

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3. The consequences of research utilization in nursing practice should be carried out to be explored as final outcome to give deeper information for nursing administrators such as its impact on quality of care.

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จุฬาลงกรณ์มหาวิทยาลัย
Chulalongkorn University

APPENDICES

จุฬาลงกรณ์มหาวิทยาลัย
Chulalongkorn University

APPENDIX A

Approval of dissertation proposal

ประกาศ

คณะพยาบาลศาสตร์ จุฬาลงกรณ์มหาวิทยาลัย

เรื่อง การอนุมัติหัวข้อดุษฎีนิพนธ์นิพนธ์ ครั้งที่ 3/2554 ประจำปีการศึกษา 2554

นิสิตผู้ทำวิจัยและอาจารย์ที่ปรึกษาดุษฎีนิพนธ์

รหัสนิสิต	5277972336
ชื่อ-นามสกุล	นางคัทลิยา ศิริภัทรากูร แสนหลวง
สาขาวิชา	พยาบาลศาสตร์ (นานาชาติ)
อาจารย์ที่ปรึกษา	รองศาสตราจารย์ ร.ต.อ.หญิง ดร. ยุพิน อังสุโรจน์
อาจารย์ที่ปรึกษาร่วม	รองศาสตราจารย์ ดร. วราภรณ์ ชัยวัฒน์
ประธานกรรมการสอบฯ	รองศาสตราจารย์ ดร. จินตนา ยูนิพันธุ์
กรรมการสอบฯ	ผู้ช่วยศาสตราจารย์ ดร. สุนิดา ปรีชาวงษ์
กรรมการสอบฯ	รองศาสตราจารย์ ดร. ศิริเดช สุชีวะ
กรรมการสอบฯ	รองศาสตราจารย์ ดร. ฟองคำ ติลกสกุลชัย
ชื่อหัวข้อดุษฎีนิพนธ์	ปัจจัยทำนายการใช้ผลการวิจัยในการปฏิบัติการพยาบาลของพยาบาลวิชา
	PREDICTING FACTORS OF RESEARCH UTILIZATION IN NURSING P
	AMONG PROFESSIONAL NURSES
ครั้งที่อนุมัติ	3/2554
ระดับ	ปริญญาเอก

25 พ.ค.

APPENDIX B

Approval of the IRB from the pilot and target hospitals

1. Pitsanuloke hospital
2. Sawanpracharak hospital
3. Srisaket hospital
4. Rayong hospital
5. Rachaburi hospital
6. Wachira Phuket hospital

จุฬาลงกรณ์มหาวิทยาลัย
Chulalongkorn University

เอกสารรับรองโครงการวิจัยในมนุษย์
คณะกรรมการจริยธรรมเกี่ยวกับการวิจัยในมนุษย์
โรงพยาบาลพุทธชินราช พิษณุโลก

22/58

ชื่อโครงการ ปัจจัยทำนายการใช้ผลการวิจัยในการปฏิบัติการพยาบาลของพยาบาลวิชาชีพ

ชื่อหัวหน้าโครงการ นางคัทลียา ศิริภัทรากูร แสนหลวง

เลขที่โครงการ/รหัส -

สังกัดหน่วยงาน คณะพยาบาลศาสตร์ จุฬาลงกรณ์มหาวิทยาลัย

การรับรอง ขอรับรองโครงการวิจัยดังกล่าวข้างบนนี้ได้ผ่านการพิจารณาและรับรองการจาก คณะกรรมการจริยธรรมเกี่ยวกับการวิจัยในมนุษย์โรงพยาบาล พุทธชินราช พิษณุโลก เมื่อวันที่ 11 มี.ค. 2558

ลงนาม

(นางศิริลักษณ์ กล้าณรงค์)
ประธานคณะกรรมการจริยธรรมเกี่ยวกับการวิจัยในมนุษย์

งานแผนงาน วารสาร วิจัย และวิเคราะห์ต้นทุน โรงพยาบาลสวรรค์ประชารักษ์
๔๓ ถนนอรรถกวี ตำบลปากน้ำโพ อำเภอเมือง จังหวัดนครสวรรค์
โทรศัพท์ ๐๕๖-๒๑๔๔๔๔ ต่อ ๒๖๐๔ โทรสาร ๐๕๖-๒๑๔๔๔๙

แบบรายงานผลการพิจารณาจริยธรรมการวิจัยในคน
โรงพยาบาลสวรรค์ประชารักษ์

เลขที่ ๖ / ๒๕๕๘

ชื่อโครงการวิจัย : ปัจจัยทำนายการใช้ผลการวิจัยในการปฏิบัติการพยาบาลของพยาบาลวิชาชีพ

ภาษาอังกฤษ : Predicting factors of research utilization in nursing practice among professional

ชื่อหัวหน้าโครงการ : นางศัทลียา ศิริภัทรากูร แสนหลวง

หน่วยงานที่สังกัด : จุฬาลงกรณ์มหาวิทยาลัย

ผลการพิจารณาของคณะกรรมการจริยธรรมการวิจัยในคน โรงพยาบาลสวรรค์ประชารักษ์ คณะกรรมการฯ ได้พิจารณารายละเอียดโครงการวิจัยเรื่องดังกล่าวข้างต้นแล้วในประเด็นเกี่ยวกับ

๑) การเคารพในศักดิ์ศรี และสิทธิของมนุษย์ที่ใช้เป็นตัวอย่างการวิจัย

๒) วิธีการที่เหมาะสมในการได้รับความยินยอมจากกลุ่มตัวอย่างก่อนเข้าร่วมโครงการวิจัย รวมทั้งการปกป้องสิทธิประโยชน์และรักษาความลับของกลุ่มตัวอย่าง

๓) การดำเนินการวิจัยอย่างเหมาะสม เพื่อไม่ให้เกิดความเสียหายต่อสิ่งที่ศึกษาวิจัย

คณะกรรมการจริยธรรมการวิจัยในคนมีมติเห็นชอบ **รับรองโครงการวิจัย**

วันที่ ที่ให้การรับรอง **๘ เมษายน ๒๕๕๘**

ลงนาม.....
(แพทย์หญิงชนิญญา พัฒนศักดิ์ภิญโญ)
ประธานคณะกรรมการจริยธรรมการวิจัยในคน

ลงนาม.....
(นายแพทย์ศักดิ์ชัย นิลวัชรารัง)
ผู้อำนวยการโรงพยาบาลสวรรค์ประชารักษ์

RYH 40/2557

แบบรายงานผลการพิจารณาจริยธรรมการวิจัยในมนุษย์
โรงพยาบาลระยอง

โครงการวิจัย

ภาษาไทย ปัจจัยทำนายการใช้ผลการวิจัยในการปฏิบัติการพยาบาลของพยาบาลวิชาชีพ

ภาษาอังกฤษ The Predicting Factors of Research Utilization in Nursing Practice among Professional Nurses

ผู้วิจัยหลัก นางศัทลียา ศิริภัทราภูร แสนหลวง

ผู้วิจัยร่วม -

สถานที่ดำเนินการวิจัย กลุ่มการพยาบาล โรงพยาบาลระยอง

ระยะเวลาดำเนินการวิจัย เดือนมีนาคม ถึง เดือนมิถุนายน ๒๕๕๘

เอกสารที่แนบมาเพื่อพิจารณา

๑.โครงร่างงานวิจัย
๒.แบบฟอร์มให้คำยินยอมเข้าร่วมโครงการวิจัย
๓.ข้อพิจารณาทางด้านจริยธรรม
๔.แบบสอบถาม
๕.มีผู้รับผิดชอบที่อาสาสมัครผู้เข้าร่วมวิจัยสามารถติดต่อได้สะดวก กรณีมีเหตุจำเป็นฉุกเฉิน

คณะกรรมการพัฒนางานวิจัยโรงพยาบาลระยอง ได้พิจารณาโครงร่างงานวิจัยแล้วอนุญาตให้ดำเนินการศึกษาวิจัยเรื่องข้างต้น **ทั้งนี้ขอให้ท่านรายงานผลการศึกษาให้คณะกรรมการทราบเมื่อ สิ้นสุดการทำวิจัยและหรือเมื่อมีการเปลี่ยนแปลงวิธีการวิจัย รวมถึงเกิดเหตุการณ์ไม่พึงประสงค์หรือเกิดอันตรายต่อกลุ่มตัวอย่างหรือเมื่อมีการยุติการทำวิจัย**

(.....)
นายแพทย์สมนึก นลิขาว
ประธานคณะกรรมการพัฒนางานวิจัยโรงพยาบาลระยอง

คณะกรรมการจริยธรรมการวิจัยในมนุษย์ โรงพยาบาลราชบุรี

.....

หนังสือรับรองเลขที่ : COA -RBHEC 011/2015

รหัสโครงการ : RBHEC 011/58

ชื่อโครงการวิจัย(ภาษาไทย) : ปัจจัยทำนายการใช้ผลการวิจัยในการปฏิบัติการพยาบาลของพยาบาลวิชาชีพ

ชื่อโครงการวิจัย (ภาษาอังกฤษ) : Predicting Factors of Research Utilization in Nursing Practice among Professional Nurses

ชื่อผู้วิจัยหลัก : นางคัทลียา ศิริภัทรากูร แสนหลวง

หน่วยงานที่รับผิดชอบ : คณะพยาบาลศาสตร์ จุฬาลงกรณ์มหาวิทยาลัย

เอกสารที่รับรอง

1. แบบเสนอเพื่อขออนุมัติดำเนินการวิจัยต่อคณะกรรมการจริยธรรมการวิจัยในมนุษย์ โรงพยาบาลราชบุรี
2. ข้อมูลสำหรับกลุ่มประชากรหรือผู้มีส่วนร่วมในการวิจัย
3. หนังสือแสดงความยินยอมเข้าร่วมการวิจัย
4. แบบสอบถามเรื่องปัจจัยทำนายการใช้ผลการวิจัยในการปฏิบัติการพยาบาลของพยาบาลวิชาชีพ

คณะกรรมการจริยธรรมการวิจัยในมนุษย์ โรงพยาบาลราชบุรี ได้พิจารณาอนุมัติด้านจริยธรรมการทำวิจัยในมนุษย์ให้ดำเนินการวิจัยข้างต้นได้

วันที่รับรอง : 10 เมษายน 2558 วันที่หมดอายุ : 9 เมษายน 2559

กำหนดส่งรายงานความก้าวหน้า 8 มีนาคม 2559

ลงชื่อ..... ลงชื่อ.....

(แพทย์หญิงเสมอใจ เห็นประเสริฐแท้) (แพทย์หญิงประไพ ตันประเสริฐ)

ประธานคณะกรรมการจริยธรรมการวิจัยในมนุษย์ คณะกรรมการจริยธรรมการวิจัยในมนุษย์

ลงชื่อ..... ลงชื่อ.....

(แพทย์หญิงบุษยนาฏ เรืองรอง) (นางผ่องพักตร์ ชูศรี)

คณะกรรมการจริยธรรมการวิจัยในมนุษย์ คณะกรรมการจริยธรรมการวิจัยในมนุษย์

เอกสารรับรองโครงการวิจัย
โดยคณะกรรมการพิจารณาจริยธรรมการวิจัยในมนุษย์
โรงพยาบาลวชิระภูเก็ต

จากการประชุมคณะกรรมการจริยธรรมการวิจัยในมนุษย์ โรงพยาบาลวชิระภูเก็ต ที่ประชุมได้พิจารณาโครงการวิจัยเรื่อง

ชื่อโครงการ ปัจจัยทำนายการใช้ผลการวิจัยในการปฏิบัติการพยาบาลของพยาบาลวิชาชีพ

ผู้วิจัย นางคัทลียา ศิริภัทราภูร แสนหลวง

คณะกรรมการได้พิจารณาโครงการวิจัยดังกล่าว พร้อมด้วยเอกสารประกอบการพิจารณาที่ส่งมาแล้วนั้น ที่ประชุมมีมติว่า

- ☑ เห็นควรรับรองโครงการ
- ☐ เห็นควรให้แก้ไขปรับปรุงบางส่วนให้เหมาะสมในการรับรอง (ระบุ.....)
- ☐ เห็นควร ไม่รับรองโครงการ (เหตุผลประกอบ.....)

ขอให้ผู้วิจัย ดำเนินการวิจัยตามแนวทางการดำเนินงานของคณะกรรมการจริยธรรมการวิจัยในมนุษย์ โรงพยาบาลวชิระภูเก็ต ต่อไป

ลงนาม .....
(นายแพทย์วีระศักดิ์ หล่อทองคำ)
ประธานคณะกรรมการฯ

ลงนาม .....
(นายแพทย์เจษฎา จงไพบูลย์พัฒนะ)
ผู้อำนวยการโรงพยาบาลวชิระภูเก็ต

APPENDIX C

List of the content experts

1. Professor Dr. Wipada Kunawiktikul

   Faculty of Nursing Chiang Mai university

2. Associate Professor Dr. Raemual Nuntasuphawat

Nursing Service Center, Faculty of Nursing Chiang Mai university

3. Associate Professor Dr. Sujittra Luangamornlerd

Thai Nurses Council

4. Assistant Professor Dr. Renu Pookboonmee

Faculty of Nursing, Ramathibadee hospital, Mahidol university

5. Dr.Somsamai Sutheerasarn.

Consultant of nursing director, HRH princes Maha Chakri Sirindthorn Medical Center

จุฬาลงกรณ์มหาวิทยาลัย
Chulalongkorn University

APPENDIX D

Informed consent form and participants information sheet

ข้อมูลสำหรับกลุ่มประชากรหรือผู้มีส่วนร่วมในการวิจัย

ชื่อโครงการวิจัย “ปัจจัยทำนายการใช้ผลการวิจัยในการปฏิบัติการพยาบาลของพยาบาลวิชาชีพ”

ชื่อผู้วิจัย นางคัทลียา ศิริภัทรากูร แสนหลวง **ตำแหน่ง** นิสิตคณะพยาบาลศาสตร์ จุฬาลงกรณ์มหาวิทยาลัย

สถานที่ติดต่อผู้วิจัย คณะพยาบาลศาสตร์ จุฬาลงกรณ์มหาวิทยาลัย หรือ110 อาคาร1ชั้น6 ภาควิชาบริหารการพยาบาล คณะพยาบาลศาสตร์ มหาวิทยาลัยเชียงใหม่ ถ.อินทวโรรส ต.ศรีภูมิ อ.เมือง จ.เชียงใหม่ 50200 หรือ 128/86 หมู่9เฮือนคัทลียา หมู่บ้านพลภูมิ ต.ดอนแก้ว อ.แม่ริม จ.เชียงใหม่ 50180

โทรศัพท์มือถือ 089-4975950 **E-mail**: cattaliya.s@cmu.ac.th หรือ cattaliyas@yahoo.com

ข้าพเจ้า นางคัทลียา ศิริภัทรากูร แสนหลวง นิสิตปริญญาเอก คณะพยาบาลศาสตร์ จุฬาลงกรณ์มหาวิทยาลัย กำลังทำวิจัยเรื่องปัจจัยทำนายการใช้ผลการวิจัยในการปฏิบัติการพยาบาลของพยาบาลวิชาชีพ เนื่องจากการตัดสินใจในการปฏิบัติการพยาบาลบนพื้นฐานของผลการวิจัยซึ่งจัดเป็นข้อมูลที่มีความเป็นวิทยาศาสตร์น่าเชื่อถือนั้น เป็นที่ยอมรับทั้งในแวดวงวิชาการและผู้ปฏิบัติงานในทีมสุขภาพว่าเป็นสิ่งจำเป็นที่จะทำให้พยาบาลพัฒนาการปฏิบัติการพยาบาลและความวิชาชีพได้สำเร็จ และยังช่วยทำให้การดูแลผู้ป่วยมีคุณภาพอีกด้วย

ก่อนที่ผู้มีส่วนร่วมในการวิจัยจะตัดสินใจเข้าร่วมในการวิจัยนี้ มีความจำเป็นที่จะต้องทราบว่างานวิจัยนี้ทำเพราะเหตุใด และเกี่ยวข้องกับอะไร ดังนั้นผู้วิจัยจึงจัดทำเอกสารฉบับนี้ขึ้นเพื่อบอกเล่าข้อมูลของผู้วิจัยและการดำเนินการวิจัย ซึ่งผู้มีส่วนร่วมในการวิจัยสามารถนำข้อมูลในเอกสารฉบับนี้ไปใช้ประกอบการตัดสินใจว่าจะเข้าร่วมหรือไม่เข้าร่วมในการวิจัยครั้งนี้ กรุณาอ่านข้อมูลต่อไปนี้อย่างละเอียด และสอบถามข้อมูลเพิ่มเติมหรือข้อมูลที่ไม่ชัดเจนจากผู้วิจัยได้ตลอดเวลา

(1) การวิจัยนี้มีวัตถุประสงค์เพื่อศึกษาปัจจัยทำนายการใช้ผลการวิจัยในการปฏิบัติการพยาบาลของพยาบาลวิชาชีพ ในประเทศไทย

(2) ประโยชน์ของการวิจัยนี้ ช่วยให้พยาบาลมีความเข้าใจปัจจัยที่มีผลต่อการใช้ผลการวิจัยในการปฏิบัติการพยาบาล โดยสามารถนำผลการศึกษาไปเป็นแนวทางในการวางแผนการบริหารปัจจัยภายในองค์กร จัดกิจกรรมต่างๆเพื่อส่งเสริมพฤติกรรมการใช้ผลการวิจัยในการปฏิบัติการพยาบาล อันจะส่งผลให้เกิดการปฏิบัติการพยาบาลที่ดี ช่วยให้ผู้ป่วยมีสุขภาวะที่ดี ทั้งด้านร่างกาย จิตใจ และสังคม อีกทั้งยังเป็นการลดค่าใช้จ่ายทางด้านการรักษาของรัฐในอนาคตอีกด้วย

(3)ในการวิจัยครั้งนี้ใช้เกณฑ์คัดเข้าเป็น ผู้มีส่วนร่วมในการวิจัยคือ ผู้ที่เป็นพยาบาลวิชาชีพซึ่งกำลังปฏิบัติงานในโรงพยาบาลของรัฐบาล สังกัดกระทรวงสาธารณสุข มีใบอนุญาตประกอบวิชาชีพการพยาบาลและการผดุงครรภ์ชั้น 1 ให้การพยาบาลผู้ป่วยโดยตรงและยินดีเข้าร่วมการวิจัย และใช้เกณฑ์คัดออกคือผู้ที่ดำรงตำแหน่งทางการบริหารการพยาบาล เช่นหัวหน้าหอผู้ป่วย ผู้ตรวจการพยาบาลหรือ หัวหน้าฝ่ายการพยาบาลใดๆ หรือผู้มีส่วนร่วมในการวิจัยที่ขอถอนตัวระหว่างตอบแบบสอบถาม

การเก็บข้อมูล ใช้วิธีการสุ่มตัวอย่างแบบหลายขั้นตอน โดยทำการคำนวณหาขนาดกลุ่มตัวอย่าง แบ่งเป็นภาคต่างๆ 4 ภาค ได้ขนาดกลุ่มตัวอย่างทั้งสิ้น 460 คน

หลังจากได้รับอนุมัติให้เก็บรวบรวมข้อมูลจากโรงพยาบาลต่างๆแล้ว ผู้วิจัยจะดำเนินการฝึกอบรมผู้ช่วยวิจัยในโรงพยาบาลที่มีนโยบายให้บุคลากรมีส่วนร่วมในการวิจัยโดยอบรมในเรื่องจริยธรรมในการวิจัยและกระบวนการรวบรวมข้อมูล สำหรับโรงพยาบาลที่มีนโยบายให้ผู้วิจัยไปรวบรวมข้อมูลด้วยตนเองผู้วิจัยจะสอบถามรายชื่อพยาบาลวิชาชีพในแผนกการพยาบาลและหอผู้ป่วยต่างๆจากบันทึกของฝ่ายการพยาบาลโดยได้รับการอนุมัติจากผู้อำนวยการโรงพยาบาล หลังจากนั้นผู้วิจัยจะทำการนัดพยาบาลวิชาชีพผ่านหัวหน้าหอผู้ป่วย โดยนัดผู้ที่จะมีส่วนร่วมในการวิจัยเป็นรายบุคคล เพื่อสอบถามความสมัครใจและความยินยอมในการเข้าร่วมวิจัยด้วยวาจาก่อน หลังได้รับการยินยอมแล้ว ผู้วิจัยจึงจะให้ผู้มีส่วนร่วมในการวิจัยตอบแบบสอบถาม

(4) ผู้มีส่วนร่วมในการวิจัยจะได้รับการชี้แจงจากผู้วิจัยหรือผู้ช่วยวิจัยถึงวัตถุประสงค์ และกระบวนการเก็บรวบรวมข้อมูล เริ่มจากผู้มีส่วนร่วมในการวิจัยจะได้รับทราบว่า ข้อมูลที่จะตอบในแบบสอบถามจะเป็นความลับ จะไม่มีผู้ใดรู้ว่าแบบสอบถามนี้เป็นของใคร ผู้มีส่วนร่วมในการวิจัยไม่ต้องกรอกชื่อ-นามสกุล เมื่อทำเสร็จแล้วให้นำแบบสอบถามใส่ซองที่เตรียมไว้ให้ทันทีโดยไม่ให้ผู้ใดเห็นคำตอบในแบบสอบถาม และปิดผนึกให้เรียบร้อย นอกจากนี้ผู้มีส่วนร่วมในการวิจัยจะได้รับการแจ้งว่าการตอบคำถามแต่ละข้อ ไม่มีข้อใดถูกหรือผิด คำตอบจะเป็นเพียงความคิดเห็นและพฤติกรรมของผู้มีส่วนร่วมในการวิจัยเท่านั้น จะไม่มีผลต่อคะแนนใดๆทั้งสิ้น แบบสอบถามมีทั้งหมด 1 ชุดคำถาม ประกอบไปด้วย 4 ส่วนคือ 1.แบบสอบถามข้อมูลส่วนบุคคล จำนวน 11 ข้อ 2. แบบสอบถามบริบทและประสบการณ์ จำนวน 4 ข้อ 3.แบบสอบถามการใช้ผลการวิจัยในการปฏิบัติการพยาบาล จำนวน 17 ข้อ 4. แบบสอบถามปัจจัยภายในองค์กรจำนวน 36 ข้อ แบ่งเป็น 4.1 แบบสอบถามบรรยากาศการวิจัย จำนวน 8 ข้อ4.2 แบบสอบถามทรัพยากรสนับสนุน จำนวน 18 ข้อ และ 4.3 แบบสอบถามการจัดอัตรากำลัง จำนวน 10 ข้อ รวมทั้งสิ้น 68 ข้อ ซึ่งจะใช้เวลาในการตอบแบบสอบถามประมาณ 25-30 นาที ซึ่งกระบวนการเก็บข้อมูลทั้งหมดจะดำเนินการ โดยให้ผู้มี

ส่วนร่วมในการวิจัยได้ตอบแบบสอบถามอย่างอิสระด้วยการระบุให้ใส่แบบสอบถามหลังกรอกข้อมูลแล้วในซองปิดผนึกส่งถึงผู้วิจัย เป็นความคิดเห็นส่วนตัว เท่านั้น

(5) การเข้าร่วมในการวิจัยของผู้มีส่วนร่วมในการวิจัยเป็นโดย**สมัครใจ** และมีสิทธิในการ**ปฏิเสธ**หรือสามารถ**ถอนตัว**จากการศึกษาได้ตลอดเวลา ทั้งนี้การปฏิเสธหรือถอนตัวจะไม่มีผลกระทบต่อผู้มีส่วนร่วมในการวิจัย และจะไม่มีผลต่อการประเมินผลการปฏิบัติงานใดๆทั้งสิ้น

(6) หากผู้มีส่วนร่วมในการวิจัยมีข้อสงสัยให้สอบถามเพิ่มเติมได้จากผู้วิจัย โดยสามารถติดต่อผู้วิจัยได้ตลอดเวลาที่ **นางคัทลียา ศิริภัทรากูร แสนหลวง คณะพยาบาลศาสตร์ จุฬาลงกรณ์มหาวิทยาลัย** หรือทางโทรศัพท์ 089-497-5950และหากผู้วิจัยมีข้อมูลเพิ่มเติมที่เป็นประโยชน์หรือโทษ เกี่ยวกับการวิจัย ผู้วิจัยจะแจ้งให้ผู้มีส่วนร่วมในการวิจัยทราบอย่างรวดเร็ว เพื่อให้ผู้มีส่วนร่วมในการวิจัยทบทวนว่ายังสมัครใจที่จะเป็นผู้มีส่วนร่วมในการวิจัยต่อไปหรือไม่

(7) ข้อมูลที่ได้จากการตอบแบบสอบถามของผู้มีส่วนร่วมในการวิจัยจะถูกนำไปรวมกับข้อมูลของคนอื่นๆ โดยข้อมูลจะถูกเก็บเป็นความลับและผู้วิจัยจะใช้รหัสแทนชื่อ-นามสกุลในแบบบันทึกข้อมูล หากผู้วิจัยตีพิมพ์ผลการศึกษา ผู้วิจัยจะไม่มีการระบุชื่อของผู้มีส่วนร่วมในการวิจัยไม่ว่ากรณีใดๆ

(8) การวิจัยครั้งนี้มีการมอบปากกา 1 ด้าม และสมุดบันทึก 1 เล่มเป็นของที่ระลึกแก่ผู้มีส่วนร่วมในการวิจัยเมื่อสิ้นสุดการตอบแบบสอบถาม หรือเมื่อผู้มีส่วนร่วมในการวิจัยถอนตัว

(9) หากผู้มีส่วนร่วมในการวิจัยไม่ได้รับการปฏิบัติตามข้อมูลดังกล่าว สามารถร้องเรียนได้ที่ ศูนย์ร้องเรียนโรงพยาบาลราชบุรี เลขที่ 86 ถนนสมบูรณ์กุล ตำบล หน้าเมือง อำเภอเมือง จังหวัดราชบุรี 70000 โทรศัพท์ 0-3271-9600 ต่อ ศูนย์ร้องเรียนโรงพยาบาลราชบุรี

จุฬาลงกรณ์มหาวิทยาลัย
Chulalongkorn University

APPENDIX E

Research instruments

เลขที่ ❑❑❑❑

คณะพยาบาลศาสตร์ จุฬาลงกรณ์มหาวิทยาลัย

แบบสอบถามเรื่อง ปัจจัยทำนายการใช้ผลการวิจัยในการปฏิบัติการพยาบาล ของพยาบาลวิชาชีพ

เรียน ผู้ตอบแบบสอบถาม

ผู้วิจัยขอความร่วมมือจากท่านให้ตอบแบบสอบถามตามความเป็นจริงเกี่ยวกับท่านและกิจกรรมที่ท่านได้กระทำตามคำชี้แจงและกรุณาอย่าเขียนชื่อของท่านลงในแบบสอบถามชุดนี้ คำตอบของท่านจะถือเป็นความลับและนำไปแปลผลการวิจัยในภาพรวมของหอผู้ป่วย/หน่วยงานเท่านั้น ทั้งนี้ผู้วิจัยขอขอบคุณที่ท่านได้สละเวลาในการตอบแบบสอบถามชุดนี้

ขอขอบคุณในความร่วมมือตอบแบบสอบถาม

คัทลียา ศิริภัทรากูร แสนหลวง

นิสิตหลักสูตรพยาบาลดุษฎีบัณฑิต

คณะพยาบาลศาสตร์ จุฬาลงกรณ์มหาวิทยาลัย

คำชี้แจง

1.แบบสอบถามนี้ประกอบด้วย 4 ส่วน ดังนี้

ส่วนที่ 1 ข้อมูลส่วนบุคคล	11 ข้อ
ส่วนที่ 2 บริบทและประสบการณ์การสืบค้นข้อมูลวิจัยเพื่อใช้ในการปฏิบัติการพยาบาล	4 ข้อ
ส่วนที่ 3 การใช้ผลการวิจัยในการปฏิบัติการพยาบาล	17 ข้อ
ส่วนที่ 4 ปัจจัยภายในองค์กร มี 3 ตอนดังนี้	
ตอนที่ 4.1 บรรยากาศ	8 ข้อ
ตอนที่ 4.2 ทรัพยากร	18 ข้อ
ตอนที่ 4.3 การจัดอัตรากำลัง	10 ข้อ

2.โปรดอ่านคำชี้แจงอย่างละเอียดก่อนตอบแบบสอบถาม

3.โปรดตอบแบบสอบถามทุกข้อเพื่อให้คำตอบที่สมบูรณ์ สามารถใช้เป็นข้อมูลในการวิจัยครั้งนี้และเป็นประโยชน์ในการพัฒนาการปฏิบัติงานและวิชาชีพการพยาบาลต่อไป

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แบบสอบถาม เรื่อง ปัจจัยทำนายการใช้ผลการวิจัยในการปฏิบัติการพยาบาลของพยาบาลวิชาชีพ

ส่วนที่1 ข้อมูลส่วนบุคคล

คำชี้แจง โปรดทำเครื่องหมาย ✓ ลงในช่องคำตอบ ( ) เพียงคำตอบเดียวและ/หรือเติมข้อความลงในช่องว่าง…ตามความเป็นจริง

1. ปัจจุบันท่านอายุ .....ปี (นับถึงวันตอบแบบสอบถาม)
2. สถานภาพสมรส ( ) โสด ( ) คู่ ( ) หม้าย ( ) แยกกันอยู่ /หย่า ( ) อื่นๆ โปรดระบุ.....
3. จำนวนบุตร ( ) ไม่มี ( ) มี จำนวน.....คน
4. วุฒิการศึกษาสูงสุด ( ) ปริญญาตรีหรือเทียบเท่าปริญญาตรี ( ) ปริญญาโททางการพยาบาล ( ) ปริญญาโทสาขาอื่นโปรดระบุ…….....( ) อื่นๆโปรดระบุ…….....
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11. สถานภาพการทำงานและการศึกษาต่อในปัจจุบัน ( ) ทำงานประจำอย่างเดียว ( ) ทำงานประจำควบคู่การศึกษาต่อ ( ) ศึกษาต่ออย่างเดียว ( ) ทำงานประจำและทำงานบางเวลา ณ หอผู้ป่วย/โรงพยาบาลอื่น ( ) อื่นๆ คือ……

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ส่วนที่ 2 บริบทและประสบการณ์การสืบค้นข้อมูลวิจัยเพื่อการใช้ผลการวิจัยในการปฏิบัติการพยาบาล

คำชี้แจง โปรดทำเครื่องหมาย ✓ ลงในช่องคำตอบ ( ) เพียงคำตอบเดียว แต่เลือกได้มากกว่า 1 ตัวเลือกในช่องคำตอบย่อย ☐ และเติมข้อความลงในช่องว่างในแต่ละข้อตามความเป็นจริง

12. ประสบการณ์การทำวิจัย<u>ที่เคยทำ</u>ตั้งแต่เริ่มปฏิบัติงานถึงปัจจุบัน ( ) 1. ไม่เคยทำวิจัย ( ) 2. เคยทำวิจัย รวมถึงที่ท่านทำอยู่ในปัจจุบัน โดย *(ตอบได้มากกว่า 1 ตัวเลือก)* ☐ เป็นหัวหน้าโครงการวิจัย .....เรื่อง ☐ เป็นผู้ช่วยโครงการวิจัย .....เรื่อง ☐ ทำวิทยานิพนธ์ในความดูแลของอาจารย์ที่ปรึกษา ระดับ ( ) ปริญญาโท ( ) ปริญญาเอก
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15. แหล่งข้อมูลงานวิจัยที่ท่านนำมาใช้ในการปฏิบัติการพยาบาลในหอผู้ป่วย *(ตอบได้มากกว่า 1 ข้อ)* ☐ บอร์ด ป้ายประกาศ ☐ จดหมายข่าวภายในโรงพยาบาล ☐ การนำเสนอผลงานวิจัยโดยพยาบาล ☐ การประชุมงานวิจัย ☐ วารสารงานวิจัย ☐ ชมรมวิจัยหรือกลุ่มสนใจเฉพาะ ☐ ห้องสนทนา/เวปบอร์ดในเครือข่ายอินทราเน็ทของโรงพยาบาล ☐ เว็บไซต์ ☐ อื่นๆ (โปรดระบุ) .....

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ส่วนที่ 3 การใช้ผลการวิจัยในการปฏิบัติการพยาบาล

คำชี้แจง กรุณาทำเครื่องหมาย “○” ล้อมรอบตัวเลขในช่องท้ายข้อความที่ตรงกับความเป็นจริงมากที่สุด เกี่ยวกับระดับของการกระทำกิจกรรมต่างๆ ที่ท่านได้ปฏิบัติ ในรอบ 1 ปีที่ผ่านมา ตามเกณฑ์ดังนี้

4 = ปฏิบัติในระดับมาก หมายถึง ท่านได้กระทำกิจกรรมนั้นอย่างสม่ำเสมอ เป็นประจำ

3 = ปฏิบัติในระดับปานกลาง หมายถึง ท่านได้กระทำกิจกรรมนั้นบางครั้ง

2 = ปฏิบัติในระดับน้อย หมายถึง ท่านได้กระทำกิจกรรมนั้นนานๆครั้ง เป็นครั้งเป็นคราว

1 = ไม่เคยปฏิบัติ หมายถึง ท่านไม่ได้กระทำกิจกรรมนั้นเลย

การใช้ผลการวิจัยในการปฏิบัติการพยาบาล		ระดับการปฏิบัติ			
		มาก	ปานกลาง	น้อย	ไม่เคยปฏิบัติ
1.	ท่านได้ตั้งคำถามปัญหาการปฏิบัติงานพยาบาล	4	3	2	1
2.	ท่านได้กำหนดขอบเขตคำถามการปฏิบัติงานพยาบาล	4	3	2	1
3.	ท่านนำปัญหาของงานวิจัยที่มีอยู่จากหน่วยงานภายในมาใช้ในการพยาบาล	4	3	2	1
4.	ท่านนำผลการวิจัยที่มีอยู่จากหน่วยงานภายนอกมาระบุใช้ในการพยาบาล	4	3	2	1
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14.	ท่านรายงานผลการประเมินผลลัพธ์เบื้องต้น แก่ผู้มีอำนาจในการตัดสินใจ	4	3	2	1
15.	ท่านได้รับการสนับสนุนจากผู้บังคับบัญชาให้นำแผนปฏิบัติงานที่นำผลการวิจัยเป็นฐานไปใช้	4	3	2	1

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ส่วนที่ 4 ปัจจัยภายในองค์กร

คำชี้แจง โปรดทำเครื่องหมาย ○ รอบตัวเลขในช่องหลังข้อความที่ตรงกับระดับความคิดเห็นของท่านมากที่สุด ตามเกณฑ์ดังนี้

5 = เห็นด้วยอย่างยิ่ง หมายถึง ข้อความตรงกับความรู้สึกหรือเหตุการณ์ที่เกิดขึ้นสม่ำเสมอ 80-100%

4 = เห็นด้วย หมายถึง ข้อความตรงกับความรู้สึก และเหตุการณ์ที่เกิดขึ้นบ่อยครั้ง 60-79.99%

3 = ไม่แน่ใจ หมายถึง ข้อความตรงกับความรู้สึก และเหตุการณ์ที่เกิดขึ้นจริงครึ่งเดียว 40-59.99%

2 = ไม่เห็นด้วย หมายถึง ข้อความตรงกับความรู้สึก และเหตุการณ์ที่เกิดขึ้นจริงเล็กน้อย 20-39.99%

1 = ไม่เห็นด้วยอย่างยิ่ง หมายถึง ข้อความไม่/ แทบไม่ตรงกับความรู้สึกหรือความเป็นจริงเลย 0-19.99%

ตอนที่ 4.1 บรรยากาศ

	บรรยากาศการใช้ผลการวิจัย	**ระดับความคิดเห็น**				
		เห็นด้วยอย่างยิ่ง	เห็นด้วย	ไม่แน่ใจ	ไม่เห็นด้วย	ไม่เห็นด้วยอย่างยิ่ง
1.	พันธกิจของโรงพยาบาลระบุการวิจัยไว้ชัดเจนเป็นลายลักษณ์อักษร	5	4	3	2	1
2.	เป้าหมายของฝ่ายการพยาบาลมีการระบุถึงการวิจัยไว้ชัดเจน	5	4	3	2	1
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8.	งานวิจัยเป็นเงื่อนไขของความก้าวหน้าในหน้าที่การปฏิบัติงาน	5	4	3	2	1

ตอนที่ 4.2 ทรัพยากร

	การสนับสนุน/ทรัพยากรที่เอื้อต่อการใช้ผลการวิจัย	**ระดับความคิดเห็น**				
		เห็นด้วยอย่างยิ่ง	เห็นด้วย	ไม่แน่ใจ	ไม่เห็นด้วย	ไม่เห็นด้วยอย่างยิ่ง
	<u>ด้านเวลา</u>					
1.	หน่วยงานจัดสรรเวลาให้ท่านพัฒนาโครงการวิจัยในการปฏิบัติงาน	5	4	3	2	1
2.	หน่วยงานสนับสนุนให้ท่านเข้าร่วมประชุมหรือนำเสนอผลการวิจัย	5	4	3	2	1
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12.	มีทุนสนับสนุนการทำวิจัยในการปฏิบัติงานอย่างเพียงพอ	5	4	3	2	1

ตอนที่ 4. 3 การจัดอัตรากำลัง

	อัตรากำลังที่เอื้อต่อการใช้ผลการวิจัย	**ระดับความคิดเห็น**				
		เห็นด้วยอย่างยิ่ง	เห็นด้วย	ไม่แน่ใจ	ไม่เห็นด้วย	ไม่เห็นด้วยอย่างยิ่ง
1.	มีบุคลากรผู้เชี่ยวชาญทางสถิติที่ท่านขอความช่วยเหลือได้	5	4	3	2	1
2.	มีผู้เชี่ยวชาญการวิจัยในหน่วยงานที่ท่านขอคำปรึกษาการวิจัยในการปฏิบัติการพยาบาลได้	5	4	3	2	1
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	.....					
10.	มีบุคลากรที่รับผิดชอบในการนำผลการวิจัยมาใช้ประโยชน์ในการปฏิบัติการพยาบาล	5	4	3	2	1

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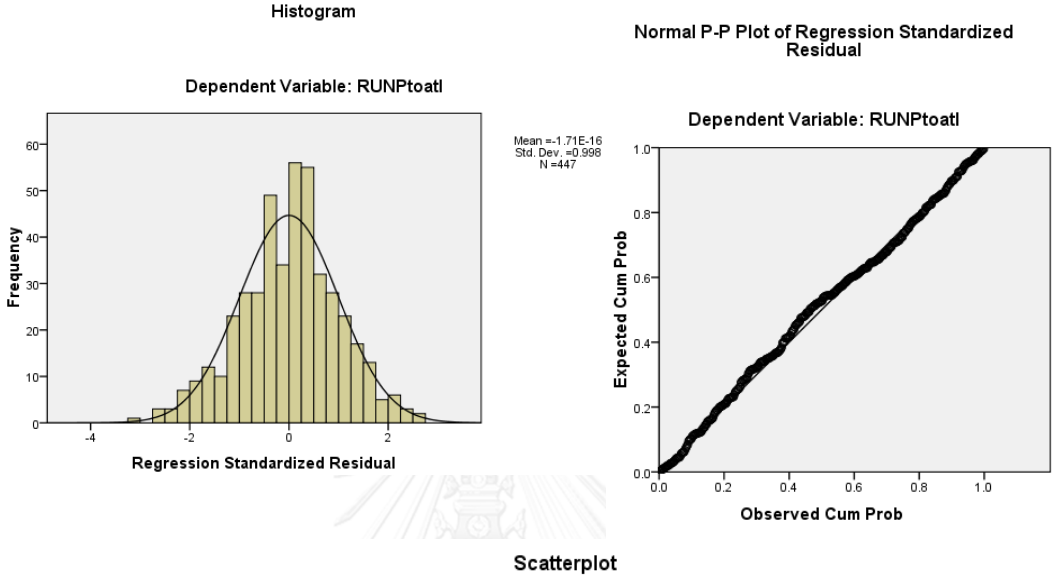
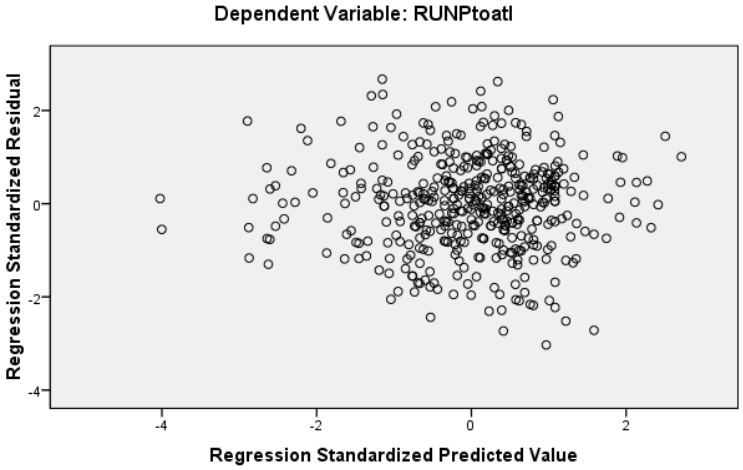
APPENDIX F

Assumption test of multiple linear regression analysis



Scatterplot



VITA

Cattaliya Siripattarakul Sanluang was born in 1970. She received a Bachelor of Nursing Science from Mahidol University (Siriraj) in 1992. She got a Master of Nursing Science (Nursing Administration), Chulalongkorn University in 1999. Cattaliya had ten years clinical experience in Medical-Surgical Unit in private sector of Nursing department, three years and a half in hospital steering team for hospital quality development at Siriraj hospital, Bangkok. Additionally, she also had ten years of working as an instructor in the field of Nursing Administration at Nursing Chiang Mai University. She attend study Philosophy Program in Nursing Science, Faculty of Nursing, Chulalongkorn University since academic year of 2009 until 2014.

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